Video SWG Minutes during SA4#121e

## 9.1 Opening of the session

Mr. Gilles Teniou (Tencent, Chairman of Video SWG) opens the Video SWG on November 15, 2022 at 09:00 CET.

Thomas Stockhammer and Julien Lemontheux are assigned as scribes.

The minutes are shared [Video SWG Minutes during SA4#121](https://docs.google.com/document/d/1yjU5EQucxAy7XgqKd3NGf4TIa_IBhbHeLp0OlLhfo7Q/edit?usp=sharing).

Attendees are listed [here](#j3z2pzg4aief).

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

* https://list.etsi.org/scripts/wa.exe?A1=ind2211B&L=3GPP\_TSG\_SA\_WG4\_VIDEO
* https://list.etsi.org/scripts/wa.exe?A1=ind2211C&L=3GPP\_TSG\_SA\_WG4\_VIDEO

**SA4 Schedule:**

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The agenda and the registration of documents are approved.

## 9.2 Registration of documents

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| **TDoc** | **Title** | **Source** | **Contact** | **Agenda item** |
| [**S4-221230**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221230.zip) | LS on Pose Information for XR | RAN2 | Frederic Firmin | 5.2 |
| [**S4-221258**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221258.zip) | Real-time media type and metadata categories and characteristic | Qualcomm India Pvt Ltd | Yong He | 9.5 |
| [**S4-221272**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221272.zip) | MeCAR Permanent Document v3.1 | Xiaomi Communications | Emmanuel Thomas | 9.5 |
| [**S4-221280**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221280.zip) | Proposed MeCAR Work Plan updates | Xiaomi Communications | Emmanuel Thomas | 9.5 |
| [**S4-221281**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221281.zip) | HDR as a Media Capability for AR | InterDigital, Inc. | Serge Defrance | 9.5 |
| [**S4-221327**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221327.zip) | [MeCAR] Updated AR Framework | Qualcomm incorporated | Thomas Stockhammer | 9.5 |
| [**S4-221328**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221328.zip) | [MeCAR] Minimum Device Architecture | Qualcomm incorporated | Thomas Stockhammer | 9.5 |
| [**S4-221329**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221329.zip) | [MeCAR] Interoperability Points for Visual and Audio | Qualcomm incorporated | Thomas Stockhammer | 9.5 |
| [**S4-221330**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221330.zip) | [MeCAR] Minimum Device Capability Considerations | Qualcomm incorporated | Thomas Stockhammer | 9.5 |
| [**S4-221332**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221332.zip) | MeCAR device APIs | Ericsson Limited | Ali El Essaili | 9.5 |
| [**S4-221333**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221333.zip) | MeCAR Media capability for RTC | Ericsson Limited | Ali El Essaili | 9.5 |
| [**S4-221341**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221341.zip) | AR media type classification and transporting solution | HUAWEI TECH. GmbH | Huan-yu Su | 9.5 |
| [**S4-221345**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221345.zip) | [MeCAR] The AR UE provisioning of edge/cloud resources | Tencent Cloud | Iraj Sodagar | 9.5 |
| [**S4-221363**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221363.zip) | [MeCAR] Additional media types | Samsung Electronics Iberia SA | Sungryeul Rhyu | 9.5 |
| [**S4-221424**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221424.zip) | Visual capabilities for MeCAR | Xiaomi EV Technology | Emmanouil Potetsianakis | 9.5 |
| [**S4-221439**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221439.zip) | Baseline XR client architecture from MeCAR’s context | Xiaomi Communications | Emmanuel Thomas | 9.5 |
| [**S4-221459**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221459.zip) | Study of OpenXR conformance aspects related to media capabilities | Xiaomi Communications | Emmanuel Thomas | 9.5 |
| [**S4-221324**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221324.zip) | [FS\_XRTraffic] Editor's Updates to TR 26.926 | Qualcomm incorporated | Thomas Stockhammer | 9.6 |
| [S4-221325](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221325.zip) | [FS\_XRTraffic] Proposed Updates to TR 26.926 | Qualcomm incorporated | Thomas Stockhammer | 9.6 |
| [S4-221326](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221326.zip) | [FS\_XRTraffic] Proposed Updated Time Plan | Qualcomm incorporated | Thomas Stockhammer | 9.6 |
| [**S4-221298**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221298.zip) | On Network Based Video Super Resolution | HUAWEI TECH. GmbH | Huan-yu Su | 9.7 |
| [**S4-221376**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221376.zip) | [FS\_AI4Media] pCR on use cases | Samsung Electronics Co., Ltd | Eric Yip | 9.7 |
| [**S4-221377**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221377.zip) | [FS\_AI4Media] Deployment options for AIML media services | Samsung Electronics Co., Ltd | Eric Yip | 9.7 |
| [**S4-221378**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221378.zip) | [FS\_AI4Media] High level procedures | Samsung Electronics Co., Ltd | Eric Yip | 9.7 |
| [**S4-221379**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221379.zip) | [FS\_AI4Media] PD v0.4.1 | Samsung Electronics Co., Ltd | Eric Yip | 9.7 |
| [S4-221380](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221380.zip) | [FS\_AI4Media] Proposed Updated Time and Work Plan | Samsung Electronics Co., Ltd | Eric Yip | 9.7 |
| [**S4-221381**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221381.zip) | Description of Media-based AI/ML Key Operations | vivo | Xiaowen Sun | 9.7 |
| [**S4-221382**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221382.zip) | Use Case on Split Model Update | vivo | Xiaowen Sun | 9.7 |
| [**S4-221383**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221383.zip) | Update on AI/ML Model Distribution | vivo | Xiaowen Sun | 9.7 |
| [**S4-221384**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221384.zip) | Split Point Updtate | vivo | Xiaowen Sun | 9.7 |
| [**S4-221418**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221418.zip) | [FS\_AI4Media] Complete/Basic AI/ML model distribution service flow | InterDigital Finland Oy | Stephane Onno | 9.7 |
| [**S4-221420**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221420.zip) | [FS\_AI4Media] Split AI/ML model distribution service flow | InterDigital Finland Oy | Stephane Onno | 9.7 |
| [**S4-221421**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221421.zip) | [FS\_AI4Media] Intermediate data transfer optimization techniques | InterDigital Finland Oy | Stephane Onno | 9.7 |
| [**S4-221462**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221462.zip) | Intermediate Data for AIML | Qualcomm Korea | Imed Bouazizi | 9.7 |
| [**S4-221465**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221465.zip) | (FS\_AI4Media) Special\_k AI/ML format | Tencent | Gilles Teniou | 9.7 |
| [**S4-221466**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221466.zip) | (FS\_AI4Media) Introduction to Serialization and types of AI/ML | Tencent | Gilles Teniou | 9.7 |
| [**S4-221467**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221467.zip) | (FS\_AI4Media) Proposed procedures and call-flows for Basic AI/ML distribution | Tencent | Gilles Teniou | 9.7 |
| [**S4-221468**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221468.zip) | (FS\_AI4media) Proposed procedures and call-flows for split Network-to-UE inference | Tencent | Gilles Teniou | 9.7 |
| [**S4-221469**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221469.zip) | (FS\_AI4Media)Proposed procedures and call-flows for split UE-to-Network inference | Tencent | Gilles Teniou | 9.7 |
| [**S4-221394**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221394.zip) | Discussion on the information collection of AR/MR QoE | China Unicom | Shuai Gao | 9.8 |

## 9.3 Reports and liaisons from other groups

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| [**S4-221230**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221230.zip) | LS on Pose Information for XR | RAN2 | Frederic Firmin |

**Presenter:** Gilles Teniou

**Online Discussion:**

* Thomas: Believe we can reply in this meeting

**Decision:**

* We will reply, Thomas takes pen

[**S4-221230**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221230.zip) is **replied** in [**S4-221574**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221574.zip)**.**

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| [**S4-221230**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221230.zip) | Reply LS on Pose Information for XR | Video SWG | Thomas Stockhammer |

[**S4-221574**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221574.zip) is **sent to SA4 plenary.**

## 9.4 CRs to Features in Release 17 and earlier

No documents

## 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’*

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| [**S4-221258**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221258.zip) | Real-time media type and metadata categories and characteristic | Qualcomm India Pvt Ltd | Yong He |

**Presenter**: Imed Bouazizi

**Online Discussion**:

* November 15, 2022:
	+ Iraj: We have all the categories. But which ones are downlink and uplink. Also the sparseness is important.
		- Imed: yes this can be added.
	+ Thorsten: is there an idea to use the same or different QoS flow? Multiplexing?
		- Imed: open question, some may be addressed in iRTCw
		- Thorsten: adding to QoS flow should be done. Should also be mapped to media types.
		- Imed: this is more on transport, not QoS mapping
	+ Ali: What is metadata, what is media?
		- Imed: Metadata is data that will help with media data. It is not audible or visible
	+ Ali: Is everything going over RTP?
		- Imed: Study different options. Also how to define it how to support it. Should work for web and native
		- Ali: make this more open and let iRTCw decide how to send.
		- Yong: provide some candidate solutions
	+ Saba: We need to look closer in the use case, could be RTCP feedback. There is also some text on OpenXR that still needs to be checked.
		- Imed: We should define all types, it needs to be specific for the use case. Channel should be provided, format to the application.
	+ Emmanuel: Table updates are great. Tables says are examples. For the RTP part, we will not define the details.
	+ Gilles summarizes:
		- Definition of metadata needs to updated
		- Request on real-time data to make it more flexible
		- Add some additions on QoS
		- Remove open XR
* November 17, 2022: r01 is presented
	+ No comments

**Decision**:

* Nov 15, 2022: Needs to be revised
* Nov 17, 2022: r01 is agreed

[**S4-221258**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221258.zip) is **revised to** [**S4-221575**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221575.zip).

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| [**S4-221575**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221575.zip) | Real-time media type and metadata categories and characteristic | Qualcomm India Pvt Ltd | Yong He |

[**S4-221575**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221575.zip) is **agreed**.

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| [**S4-221272**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221272.zip) | MeCAR Permanent Document v3.1 | Xiaomi Communications | Emmanuel Thomas |

**Presenter**: Emmanuel Thomas

**Online Discussion**:

* No comments

**Decision**:

* Agreed as basis for future work

[**S4-221272**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221272.zip) is **agreed**.

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| [**S4-221280**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221280.zip) | Proposed MeCAR Work Plan updates | Xiaomi Communications | Emmanuel Thomas |

[**S4-221280**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221280.zip) is **presented to SA4 plenary**.

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| [**S4-221281**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221281.zip) | HDR as a Media Capability for AR | InterDigital, Inc. | Serge Defrance |

**Presenter**: Serge Defrance

**Online Discussion**:

* November 15, 2022
	+ Mauricio: How do you use HDR metadata in glasses?
		- Serge: Overlay picture
		- Alexis: If you glasses can only go up to 200 nits, you have to do an adaptation.
	+ Alexis: We agree to use HDR, but there many issues on details. Are wrong. Should be corrected
		- Serge: can you send comments to correct this.
	+ Thomas: generally ok to add 10 bit, and HDR is good. We are concerned of adding SEI messages for which it is unclear how to make use of this in our device capability. SEI messages are for display adaptation, but would not glasses. All built for
		- Serge: we believe HDR is important.
		- Emmanuel: we need high luminosity, but high-range may not be needed.
		- Thomas: re-iterate that SEI messages are issue. Unclear how to use - many more details needed
		- Alexis: agree with Thomas
* November 17, 2022: r01 is presented
	+ Emmanuel: implements some comments. Coupling of HDR formats with high brightness is not needed. We are not ok with the version. The assumed link is not acceptable.
		- Eric: Maybe we note for now
		- Emmanuel: would be better.

**Decision**:

* November 15, 2022: needs a revision.
* November 17, 2022: noted, but revision will be tracked as basis for further discussion.

[**S4-221281**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221281.zip) is **revised** to [**S4-221576**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221576.zip)**.**

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| [**S4-221576**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221576.zip) | HDR as a Media Capability for AR | InterDigital, Inc. | Serge Defrance |

 [**S4-221576**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221576.zip) is **noted.**

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| [**S4-221327**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221327.zip) | [MeCAR] Updated AR Framework | Qualcomm incorporated | Thomas Stockhammer |

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* November 17, 2022:
	+ some aspects are merged to [S4-221577](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221577.zip).
	+ Ali: some questions are raised in offline
		- Emmanuel: this is closer to what is in MeCAR and agreeable.

**Decision**:

* November 15, 2022: parked for now, part of the Architecture discussion.
* November 17, 2022: possibly agreeable with the caveat that the architecture may be refined as the XR baseline is extended, sent to plenary

[**S4-221327**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221327.zip) is **presented to SA4 plenary**.

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| [**S4-221328**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221328.zip) | [MeCAR] Minimum Device Architecture | Qualcomm incorporated | Thomas Stockhammer |

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* Emmanuel, Iraj, Ali, Mauricio and Dimitri join the discussion
* Is this a new framework or an architecture?
	+ The first 1 is an architecture that can be deployed nowadays. The second one is a more generic framework for which capabilities may be added, but those would have to negotiated by capabilities
* Some assumptions are quite OpenXR specific.
* Stefan: Sounds very good. But I need more time to understand it.
* Milan: This OpenSL accepts the HOA. Why does the HOA signal need to be pre rendered?
* Thomas: There is no pose correction happening. From an SA4 perspective we should have this possibility. I used an HOA signal as an example.
* Andre: The HOA is one possibility for pre-rendering. Leaving it open looks good.
* Lasse: I am confused about the terminology. The pose correction seems to be pre rendering for the audio.
* Thomas: The pre-rendering could be the result of a complex audio scene. The latency will probably need the predicted pose.
* Stéphane: This is only on HOA. How does it relate with IVAS? And why do we need a reference rendered?
* Thomas: Why are we ignoring the need for the pose?
* Gilles: HOA is used as an illustration of the diegetic signal.
* Imed: It would be good to have an API for IVAS renderer.
* Stefan Dohla: There is already one candidate from public collaboration.
* Thomas: We need something simpler than IVAS.
* Stefan: We currently have one WI which is IVAS. But Split rendering will need 2 components and will require an interface between those. This interface could be available for other standards.
* Stephane: We can take these inputs in the Audio SWG. This is not too late to do something in Rel-18.
* Gilles: I hope that audio experts understand now what is needed in MeCAR. If on the audio side, you could consider this format and what is needed, this could feed this part of media capabilities.
* Thomas: The text can be updated and see what we do with this document.
* Stephane: The idea of having requirements instead of a candidate solution is good.
* Gilles: The document is park and we will wait for a revision.
* November 17, 2022: r01
	+ Ali: figure needs to be consolidated. Explain 2.5D media
		- Thomas: can add an editor’s note. I can also explain 2.4D
		- Ali: rest is good
	+ Emmanuel: What about thin client
		- Thomas: ok

**Decision**:

* November 17, 2022: r01 is agreeable with using video part with comments above. Audio will be discussed in closing plenary.

[**S4-221328**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221328.zip) is **revised** to [**S4-221578**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221578.zip).

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| [**S4-221578**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221578.zip) | [MeCAR] Minimum Device Architecture | Qualcomm incorporated | Thomas Stockhammer |

[**S4-221578**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221578.zip) is **will go to SA4 plenary for audio discussion**.

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| [**S4-221329**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221329.zip) | [MeCAR] Interoperability Points for Visual and Audio | Qualcomm incorporated | Thomas Stockhammer |

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* Iraj: good to keep figure
	+ Thomas: ok
	+ Iraj: just refer to interop points. These need to be defined
* Gilles:
	+ Only keep figure 1 and 3 and short description

**Decision**:

* Revised to address the comments

[**S4-221329**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221329.zip) is **revised** to [**S4-221579**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221579.zip).

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| [**S4-221579**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221579.zip) | [MeCAR] Interoperability Points for Visual and Audio | Qualcomm incorporated | Thomas Stockhammer |

[**S4-221579**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221579.zip) is **agreed**.

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| [**S4-221330**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221330.zip) | [MeCAR] Minimum Device Capability Considerations | Qualcomm incorporated | Thomas Stockhammer |

**Presenter:** Imed Bouazizi (Qualcomm)

**Online Discussion:**

* NOvember 16, 2022:
	+ Mauricio: For clarification, you are referring to OpenXR. Shall we rephrase?
	+ Imed: We didn’t say we don’t endorse OpenXR but we don’t mandate OpenXR.
	+ Gilles: My understanding here is to focus on what functionalities need to be defined as minimum capabilities.
	+ Imed: The 1st step is considering very flat split rendering.
	+ Gilles: The most important message is the set of features we want to prioritize. We may revisit the phrasing regarding OpenXR.
	+ Emmanuel: I would like to clarify the reference to clause 4.2.2. I imagine this is wrong.
	+ Thomas: It refers to the other contribution. We can remove it if the first part is sufficient.
	+ Fabrice: We have an issue with the “shall” on OpenXR.
	+ Iraj: Don’t we need to have a very scene description here?
	+ Thomas: Yes. We need to have something with buffers but we don’t want to block the contribution.
	+ Iraj: It is part of the content description, we need to have a placeholder for this.
	+ Thomas: We don’t need to say we mandate OpenXR. But we need to have a scene description.
	+ Iraj: Maybe we should say “playback entering point (e.g., scene description)”
	+ Gilles: I heard concern on “shall”. Maybe we can say we can validate with that reference speaking about OpenXR.
	+ Gilles: I tried some online edits putting OpenXR as an example. I moved the version in the draft folder.
	+ Thomas: I would like to add several bullet points.
	+ SR: Why don’t we specify the device functions?
	+ Thomas: That is what I meant. The details in 4.2.2 (pose information, pose format to be sent to the network…) will be included here.
* November 17, 2022: [r01\_XM](http://10.10.10.10/ftp/SA/SA4/Inbox/Drafts/Video/S4-221330r01_XM.docx)
	+ Ali: What are we picking RTP and SRTP. is there a reason
		- Thomas: yes, but not worth to discuss it
		- Ali: so we remove

**Decision:**

* November 17, 2022: agree r01\_XM with comments above: needs revision

[**S4-221330**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221330.zip) is **revised** to [**S4-221580**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221580.zip)**.**

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| [**S4-221580**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221580.zip) | [MeCAR] Minimum Device Capability Considerations | Qualcomm incorporated | Thomas Stockhammer |

 [**S4-221580**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221580.zip) is **agreed.**

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| [**S4-221332**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221332.zip) | MeCAR device APIs | Ericsson Limited | Ali El Essaili |

**Presenter**: Ali El Essaili (Ericsson)

**Online Discussion:**

* November 16, 2022:
	+ Thomas: I like we think about this. But I am not sure to understand the details in the figures. This 5G system 3rd party cloud, I don’t think this has to be exposed to 5G entities.
	+ Ali: It is simply to say this is what is for us. But we have to indicate to the ecosystem how it is working.
	+ Thomas: It is independent of the 5G system. I believe this needs to be separate functions. Here, this is confusing.
	+ Iraj: Why we don’t describe these APIs?
	+ Ali: It should be for any applications, not only 5GMS.
	+ Iraj: The plan is to extend 5GMS to address RTC. It could be a good idea to add this with the same model.
	+ Ali: I am not sure this should be defined in 5GMS.
	+ Gilles: I understand we need to identify the different links.
	+ Emmanuel: I don’t see how this is helping in the context of MeCAR.
	+ Ali: There is a missing point in MeCAR about how we connect it to 5GMS. If we are just device centric, it is not enough.
	+ Emmanuel: I think the WI is well integrated with other WIs. We don’t need to have the same discussions in all WIs.
	+ Gilles: Can we park and check if it is more relevant for another WI?
	+ Ali: Yes.
	+ Thomas: The APIs are for the app developers. The question is what is the app?
* November 17, 2022:
	+ Ali may bring to other work item. Ok to note

**Decision**:

* November 17, 2022: Noted

[**S4-221332**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221332.zip) is **noted**.

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| [**S4-221333**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221333.zip) | MeCAR Media capability for RTC | Ericsson Limited | Ali El Essaili |

**Presenter:** Ali El Essaili

**Online Discussion:**

* November 16, 2022:
	+ Thomas: What I don’t understand: “APIs for rendering of 3D objects”. What does that mean? You don’t send objects to the runtime.
	+ Ali: You need to get the position. This is the type of API between runtime and scene manager.
	+ Thomas: And “create a game object”, what are you referring to? Maybe we have to harmonize the terminology.
	+ Imed: Yes, “game object” is used by Unity.
	+ Thomas: What does “publish stream” mean?
	+ Ali: Here this is an API between the transmitter and the receivers. We have this type of API in WebRTC.
	+ Imed: We should not define this here. This is defined in iRTCw. And exchanges will be in websockets.
	+ Ali: We need to understand what we want to do in MeCAR.
	+ Gilles: There is a dependency with those other WIs. Regarding the APIs, it is at the edge.
	+ Ali: It is fine. The group has to take a decision to keep this in MeCAR or not.
	+ Emmanuel: I do see some media capabilities in the table. Maybe we could extract the media capabilities for MeCAR.
	+ Gilles: In MeCAR, shall we describe these APIs from other WIs?
	+ Emmanuel: I think we should stick to the original extent of MeCAR.
	+ Gilles: I don’t see agreement to document it in MeCAR PD. Ali, do you want to republish in iRTCw?
	+ Imed: For split rendering, we are trying to define one format, not everything. We don’t propose to implement fully split rendering here. Maybe a subset of the table, focused on what MeCAR should do, can be agreed. Other parts (like the 3rd column) are for other WIs.
	+ Ali: I will attend to extract what is relevant for MeCAR.
* November 17, 2022: [Revision 1](http://10.10.10.10/ftp/SA/SA4/Inbox/Drafts/Video/S4-221333%20MeCAR%20Media%20capability%20for%20RTC%20r1.docx) is presented
	+ Emmanuel: Why is column 3 included? This is confusing and seems not to fit into MeCAR.
		- Ali: What is confusing.
		- Emmanuel: it says to be explored. This seems to not be in scope of MeCAR
		- Imed: Agree that APIs are not to be defined in here, would need to be done elsewhere.
	+ No agreement at video SWG. May be presented to closing plenary.

**Decision:**

* November 17, 2022: revised to be presented to closing plenary. Offline discussion needed.

[**S4-221333**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221333.zip) is **revised** to [**S4-221581**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221581.zip).

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| [**S4-221581**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221581.zip) | MeCAR Media capability for RTC | Ericsson Limited | Ali El Essaili |

 [**S4-221581**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221581.zip) is **presented to SA4 plenary.**

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| [**S4-221341**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221341.zip) | AR media type classification and transporting solution | HUAWEI TECH. GmbH | Huan-yu Su |

**Presenter:** Huan-yu Su

**Online Discussion:**

* Emmanuel: Has it been discussed somewhere else already (iRTCw, …)? We are not speaking on WebRTC in the PD for now.
* Huan-yu: I don’t know.
* Imed: Our preference is to have a single protocol for each metadata rather than having different streams. But this is something we need to study.
* Emmanouil: In section 2, I do not see the relation with the frequency of the data.
* Huan-yu: Those are for future studies.
* Gilles: My understanding is that this is a preliminary analysis. There are requests for further studies like the timing of the future of the data.
* Imed: Maybe we can put a note with an example.
* Gilles: Online edited version is available in the draft folder.

**Decision:**

* Online edited version is agreed and will be documented in the PD.

[**S4-221341**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221341.zip) is **agreed**.

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| [**S4-221345**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221345.zip) | [MeCAR] The AR UE provisioning of edge/cloud resources | Tencent Cloud | Iraj Sodagar |

**Presenter**: Iraj Sodagar

**Online Discussion**:

* Thomas: Why adding an application client for SRC to the device?
	+ Iraj: is a baseline for all applications
	+ Thomas: ok with general control client, but not specific
* Imed: Similarly worried about all the diagrams.

**Decision**:

[**S4-221345**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221345.zip) is **revised** to [**S4-221582**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221582.zip).

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| [**S4-221582**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221582.zip) | [MeCAR] The AR UE provisioning of edge/cloud resources | Tencent Cloud | Iraj Sodagar |

 [**S4-221582**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221582.zip) is **presented to SA4 plenary**.

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| [**S4-221363**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221363.zip) | [MeCAR] Additional media types | Samsung Electronics Iberia SA | Sungryeul Rhyu |

**Presenter:** Sungryeul Rhyu

**Online Discussion:**

* Imed: We are using OpenXR as a reference. We have their map and other stuff. Now this is replaced by OMAF stuff. Maybe this is good but we are not sure about the match.
* SR: It describes the media. We can have OpenXR.
* Emmanuel: We do have this table already in the PD. The projection format is already OMAF but not the signaling format. I think we should stick with the format, not the signaling.
* Thomas: The preference is to work not from formats defined but how they can be consumed.
* Gilles: There are 2 aspects: how you communicate the pose and how do I send it to the network.
* Emmanuel: It is good to add a few lines. This is a good improvement of the table. But in the last column, we should use OpenXR references instead of MPEG references.
* Emmanuel: In the last change, we agreed to do the other way around in another document. We will have to align.

**Decision:**

* Revised to 1569. Emmanuel will deal with the edits. 1569 will be agreed without presentation.

[**S4-221363**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221363.zip) is **revised to** [**S4-221569**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221569.zip).

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| [**S4-221569**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221569.zip) | [MeCAR] Additional media types | Samsung Electronics Iberia SA | Sungryeul Rhyu |

[**S4-221569**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221569.zip) is **agreed.**

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| [**S4-221424**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221424.zip) | Visual capabilities for MeCAR | Xiaomi EV Technology | Emmanouil Potetsianakis |

**Presenter:** Emmanuel Thomas

**Online Discussion:**

* Thomas: Why do we do HEVC only with 8 bits if we have a 10 bits profile.
* Emmanuel: There is a typo.
* Thomas: Our preference would be to put capabilities.
* Emmanuel: We didn't start from the budget but from how many instances can be instantiated.
* Emmanuel: About decoding in parallel, we try to mimic the specification. There will be further work to improve this section.
* Thomas: We should be more explicit.
* Iraj; Is 2 enough?
* Emmanuel: 2 is already an improvement.
* Iraj: Can we mix codecs?
* Emmanuel: We leave it open. This is the same for encoding and decoding.
* Thomas: This “2” here, we should do it differently. We should make that a capability.
* Emmanuel: You can always do more. But the app developers need a minimum.
* Iraj: Why not only HEVC?
* Emmanuel: AVC is everywhere. A simpler codec can also be useful and there can be very low resolution where HEVC is not relevant.
* Gilles: Do you expect to have an introduction in the PD?
* Emmanuel: Yes.
* Thomas: On “should” and “shall”, I don’t see why we don’t mandate HEVC.
* Emmanuel: We wanted to start with something with a broad consensus but we are ok to mandate HEVC.
* Gilles: Do you plan to reference Video decoding interfaces?
* Emmanuel: It was not the plan.
* Gilles: Video decoding interface could be replaced by Video decoding instances.

**Decision:**

* Agreed. We will see how it is implemented in the PD.

[**S4-221424**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221424.zip) is **agreed**.

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| [**S4-221439**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221439.zip) | Baseline XR client architecture from MeCAR’s context | Xiaomi Communications | Emmanuel Thomas |

**Presenter**: Emmanuel Thomas

**Online Discussion**:

* Not presented

**Decision**:

* Noted. Content will be added to 1577

[**S4-221439**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221439.zip) is **noted**.

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| [**S4-221459**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221459.zip) | Study of OpenXR conformance aspects related to media capabilities | Xiaomi Communications | Emmanuel Thomas |

**Presenter:** Emmanuel Thomas

**Online Discussion**:

* Gilles: That will be an analysis for OpenXR.

**Decision:**

* Agreed. It will be documented in the PD.

[**S4-221459**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221459.zip) is **agreed**.

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| [**S4-221577**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221577.zip) | Candidate XR Baseline client | Xiaomi Communications | Emmanuel Thomas |

[**S4-221577**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221577.zip) is **revised** to [**S4-221583**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221583.zip).

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| [**S4-221583**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221583.zip) | Candidate XR Baseline client | Xiaomi Communications | Emmanuel Thomas |

[**S4-221583**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221583.zip) is **presented to SA4 plenary**.

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| [**S4-221563**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221563.zip) | MeCAR and OpenXR | Tencent | Gilles Teniou |

[**S4-221563**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221563.zip) is **presented to SA4 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*

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| [**S4-221324**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221324.zip) | [FS\_XRTraffic] Editor's Updates to TR 26.926 | Qualcomm incorporated | Thomas Stockhammer |

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* Update History

**Decision**:

* Agree with comments

[**S4-221324**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221324.zip) is **agreed**.

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| [S4-221325](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221325.zip) | [FS\_XRTraffic] TR 26.926v1.3.0 | Qualcomm incorporated | Thomas Stockhammer |

 [**S4-221325**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221325.zip) is **presented to SA4 plenary**.

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| [S4-221326](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221326.zip) | [FS\_XRTraffic] Proposed Updated Time Plan | Qualcomm incorporated | Thomas Stockhammer |

 [**S4-221326**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221326.zip) is **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

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| [**S4-221298**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221298.zip) | On Network Based Video Super Resolution | HUAWEI TECH. GmbH | Huan-yu Su |

**Presenter**: Huan-yu Su

**Online Discussion**:

* November 15, 2022:
	+ Eric: 4.2 in the PD is related. It would be nice to combine the text. And some text is generic and should be added.
		- Huan-yu: Core of the study is to identify the solutions
	+ Alexis: Do not understand the details, what is upscaling for 540?
		- Huan-yu: It is linear
	+ Alexis: What are trying to specify, everyone has its own, like Samsung or us. What do you intend to specify?
		- Huan-yu: Specifying the handshaking and the metadata. Preferred solution inside.
	+ Thomas: in the network transcoding adds additional latency. This may impact the service and should be taken into account. This should be added as an issue
		- Huan-yu: we operate with zero-latency
		- Gilles: may still result in some complexity based transcoding, processing delay.
		- Alexis: you also need to consider that when we encode again, that we get additional artifacts
		- Thomas: agree, this should be added in more details.
	+ Gilles: We add to the PD, but we need to revise in order to address the comments. It needs to be part of a separate clause as this is not for streaming.
* November 17, 2022: [revision 02 Samsung](http://10.10.10.10/ftp/SA/SA4/Inbox/Drafts/Video/S4-221298%C2%A0On%20Network%20Based%20Video%20Super%20Resolution%20-%20Rev2_Samsung.docx) is presented
	+ Thomas: the comments in the e-mail have not been addressed. It should be made clear that we are conversational services

**Decision**:

* November 15, 2022: Revision needed based on the comments
* November 17, 2022: [r02\_Samsung](http://10.10.10.10/ftp/SA/SA4/Inbox/Drafts/Video/S4-221298%C2%A0On%20Network%20Based%20Video%20Super%20Resolution%20-%20Rev2_Samsung.docx) content is progressing, but still lacks the details on conversational services. We revise this doc and note the revision

[**S4-221298**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221298.zip) is **revised** to [**S4-221570**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221570.zip)**.**

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| [**S4-221570**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221570.zip) | On Network Based Video Super Resolution | HUAWEI TECH. GmbH | Huan-yu Su |

[**S4-221570**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221570.zip) is **noted.**

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| [**S4-221376**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221376.zip) | [FS\_AI4Media] pCR on use cases | Samsung Electronics Co., Ltd | Eric Yip |

**Presenter**: Eric Yip

**Online Discussion**:

* Gilles: multiple hanging paragraphs
* Thomas: figures have no captions
* Eric: some typos

**Decision**:

* Agreed with comments above.

[**S4-221376**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221376.zip) is **agreed**.

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| [**S4-221565**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221565.zip) | TR 26.927v0.2.0 | Tencent (Rapporteur) | Gilles Teniou |

**Presenter**: Gilles Teniou

**Online Discussion**:

* Some typos identified.

**Decision**:

* Corrections need to be done next time. Agreed

[**S4-221565**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221565.zip) is **agreed**.

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| [**S4-221377**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221377.zip) | [FS\_AI4Media] Deployment options for AIML media services | Samsung Electronics Co., Ltd | Eric Yip |

**Presenter**: Eric Yip

**Online Discussion**:

* Thomas: Categorization is not clear. What is the difference between 2 and 4 for example? Why is the model streamed in 4?
	+ Eric: based on use cases
	+ Thomas: a table mapping would be good
	+ Gilles: in 4, the AI/ML data may be downloaded/streamed
* Stephane: What is AI/ML media service?
	+ Eric: Any media service that includes A/ML inference
* Stephane: What about the control plane?
	+ Eric: this is the user plane only
* Stephane: What is intermediate data?
	+ Eric: something that is not video
	+ Gilles: not complete inference data, inference needs to be completed later

Decision:

* Agreed. Mapping of use cases to deployment scenarios need to be better presented, for example by a table.

[**S4-221377**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221377.zip) is **agreed**.

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| [**S4-221378**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221378.zip) | [FS\_AI4Media] High level procedures | Samsung Electronics Co., Ltd | Eric Yip |

**Presenter**: Eric Yip

**Online Discussion**:

* November 15, 2022:
	+ Thomas: Why do we need a service announcement? This information should go over M8. We should not define an AI hosting and distribution service!
		- Eric: may be a wording issue
		- Thomas: we should not define an AI4Media service
		- Eric: we need to fix it
	+ Stephane: Other contributions connected.
* November 17, 2022: Eric presents [r02](http://10.10.10.10/ftp/SA/SA4/Inbox/Drafts/Video/S4-221378r02.docx)
	+ Gilles: This is a first shot, as a basis for further work

**Decision**:

* November 15, 2022: Goes to offline on Nov 15, 2022
* November 17, 2022: agree [r02](http://10.10.10.10/ftp/SA/SA4/Inbox/Drafts/Video/S4-221378r02.docx). Will be revised

[**S4-221378**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221378.zip) is **revised** to [**S4-221573**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221573.zip).

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| [**S4-221573**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221573.zip) | [FS\_AI4Media] High level procedures | Samsung Electronics Co., Ltd | Eric Yip |

 [**S4-221573**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221573.zip) is **agreed**.

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| [**S4-221379**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221379.zip) | [FS\_AI4Media] PD v0.4.1 | Samsung Electronics Co., Ltd | Eric Yip |

**Presenter**: Eric Yip

**Online Discussion**: none

**Decision**:

* Agreed as basis for future work

[**S4-221379**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221379.zip) is **agreed**.

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| [S4-221380](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221380.zip) | [FS\_AI4Media] Proposed Updated Time and Work Plan | Samsung Electronics Co., Ltd | Eric Yip |

**Presenter**: Eric Yip

**Online Discussion**:

* none

**Decision**:

* agreed

[**S4-221380**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221380.zip) is **agreed and presented to SA4 plenary**.

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| [**S4-221381**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221381.zip) | Description of Media-based AI/ML Key Operations | vivo | Xiaowen Sun |

**Presenter**: Xiaowen Sun

**Online Discussion**:

* Eric: Add the fact that the operation is started by the network and the UE does the rest of the job.
	+ Xiaowen: ok

**Decision**:

* Agreed. Content will be added to PD with modification of the first set of use cases. Add the fact that the operation is started by the network and the UE does the rest of the job. Will also be added to the next version of the draft TR.

[**S4-221381**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221381.zip) is **agreed**.

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| [**S4-221382**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221382.zip) | Use Case on Split Model Update | vivo | Xiaowen Sun |

**Presenter**: Xiaowen Sun

**Online Discussion**:

* Gilles: Are the split point defined ahead of time?
	+ Xiaowen: Split points ahead of time.
	+ Gilles: split point selection and update is unclear
	+ Xiaowen: Network decides on new split point
	+ Gilles: Not aware of such configuration. We can study.
* Thomas: It is not clear why we need the adaptive split. Split points are very limited in typical models, so there are not a lot of operation points. We should focus on static split and make that work, then in the future we can consider dynamic split.
	+ Xiaowen: different split point in different AI models. Ok to go first static split model, but we may consider this in the study.
	+ Eric: along the same lines, an example may be good to understand why this is needed.
* Stephane: support this, dynamic split is interesting
* Gilles summarizes: Can we document this in the TR
* Chris: Can we take out AI/ML, it is just compute
	+ Xiaowen: On SA4 really AI/ML matters
	+ Chris: AI/ML is not the matter here. It is outside the scope of 3GPP. Do not expect that industry adoption. Cans of worms, typically the detailed of the APIs is proprietary API.
	+ Xiaowen: We can find some split points that may make sense.
	+ Chris: Needs to a directory, that we typically what we do.
	+ Gilles: this is backed by work in SA1, but agree that this is hypothetical
* Gilles searches options to move: add a note, just note
* Eric: Title is confusing, and does not match the text. It should be changing the split model during the service.
	+ Xiaowen: We need to consider plenty of factors. Complexity, etc.
* Gilles: Suggest a revision

**Decision**:

* November 15, 2022: Goes to offline on Nov 15, 2022
* November 16, 2022: Try a revision based on the discussion
* November 17, 2022: [r01](http://10.10.10.10/ftp/SA/SA4/Inbox/Drafts/Video/S4-221382r01.docx) is agreed.

[**S4-221382**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221382.zip) is **revised** to [**S4-221571**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221571.zip)

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| [**S4-221571**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221571.zip) | Use Case on Split Model Update | vivo | Xiaowen Sun |

[**S4-221571**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221571.zip) is **agreed.**

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| [**S4-221383**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221383.zip) | Update on AI/ML Model Distribution | vivo | Xiaowen Sun |

**Presenter**: Xiaowen Sun

**Online Discussion**:

* November 16, 2022:
	+ Eric: What are the updates, entire model or only biases and weights?
		- Xiaowen: do not know yet. Should be clarified.
	+ Thomas: why would the model repository contain information about UE and network?
		- Eric: same comment
		- Xiaowen: Only the AI model should contain this information. I can update.
		- Gilles. Selection of AI model could depend on UE and network characteristics?
		- Eric: suggest to update without saying where they are used.
	+ Gilles: Why is UE trigger an update, it would request it, correct?
		- Xiaowen: would be ok to change
	+ Chris: What does this make it different to a software update? What makes it different to AI/ML? Server or client
		- Gilles: correct, possibly it is a media type. So the representation of the model needs to be updated.
		- Chris: it is the same as node.js, you can distribute this across the network
		- Gilles: It is about the transfer models
		- Eric: A factor of the update is that it relates to the media, this may be factored in.
		- Chris: it is the same as node.js, it is to get some help for intense compute from upstream.
		- Eric: you may need some update
	+ Stephane: We need to describe the updates in more details. Updates may change the nature of the model in itself. We have to work on this
		- Gilles: We have to restrict the amount of work we do. It is about distribution of models, updates and training. These are concrete scenarios.We need to focus.
		- Stephane: You may update the weight of bias, for a sequence of video.
* November 17, 2022: [r01](http://10.10.10.10/ftp/SA/SA4/Inbox/Drafts/Video/S4-221383r01.docx) presented
	+ No more comments

**Decision**:

* November 16, 2022: we update the contribution. We expect a revision r01.
* November 17, 2022: [r01](http://10.10.10.10/ftp/SA/SA4/Inbox/Drafts/Video/S4-221383r01.docx) is agreeable, will be revised.

[**S4-221383**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221383.zip) is **revised** to [**S4-221572**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221572.zip).

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| [**S4-221572**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221572.zip) | Update on AI/ML Model Distribution | vivo | Xiaowen Sun |

[**S4-221572**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221572.zip) is **agreed.**

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| [**S4-221384**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221384.zip) | Split Point Updtate | vivo | Xiaowen Sun |

**Presenter**: Xiaowen Sun

**Online Discussion**:

* none

**Decision**:

* November 16, 2022: parked, wait for 1382 resolution
* November 17, 2022: noted, expect revision for Telcos

[**S4-221384**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221384.zip) is **noted**.

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| [**S4-221418**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221418.zip) | [FS\_AI4Media] Complete/Basic AI/ML model distribution service flow | InterDigital Finland Oy | Stephane Onno |

**Presenter**: Stephane Onno

**Online Discussion**:

* Thomas: Why are we defining a service for AI/ML model hosting? The model repository will typically be provided by the application provider. Both network and UE may download it from there. This whole idea of model hosting is not justified.
	+ Imed: The idea that the network hosts model is not in our mandate. The default assumption should come from the application provider
	+ Gilles: it is network entity
	+ Imed: are we defining the interface to the repository?
	+ Eric: we need to do mapping
* Xiaowen: Some offline

**Decision**:

* November 15, 2022: Goes to offline on Nov 15, 2022
* November 17, 2022: merged to 1573

[**S4-221418**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221418.zip) is **merged** to [**S4-221573**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221573.zip)**.**

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| [**S4-221420**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221420.zip) | [FS\_AI4Media] Split AI/ML model distribution service flow | InterDigital Finland Oy | Stephane Onno |

**Online Discussion**:

* Not presented

**Decision**:

* November 17, 2022: merged to 1573

[**S4-221420**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221420.zip) is **merged** to [**S4-221573**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221573.zip).

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| [**S4-221421**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221421.zip) | [FS\_AI4Media] Intermediate data transfer optimization techniques | InterDigital Finland Oy | Stephane Onno |

**Presenter**: Stephane Onno

**Online Discussion**:

* Eric: Key point is in first part. Not sure about the last sentence. Dynamic changing conditions does not make sense. If UE does not support functions, download would not apply.
	+ Stephane: High-level description. Both sides will know the information technologies
	+ Eric: fineline for the split, hard to see that this is a
* Thomas: Many compression techniques are sender-only, so this is not clear if there is benefits
* Gilles (Tencent): The intermediate data is useless if it is quantized. You break the inference.
	+ Stephane: In MPEG people are working on this.
	+ Gilles: If use cases are linked to this, then ok.
	+ Stephane: Media source from network and than reach UE is probably better.
* Eric: Suggestion would be to focus on use case. Maybe just have section title
	+ Gilles: Then just note, and we minute

**Decision**:

* We note, but we expect the compression aspects to be revisited once we have a better understanding of the associated use case.

[**S4-221421**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221421.zip) is **noted**.

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| [**S4-221462**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221462.zip) | Intermediate Data for AIML | Qualcomm Korea | Imed Bouazizi |

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* Eric: How were the split points defined?
	+ Thomas: need to check details
* Eric: As for the proposal, what does it mean. Does it mean to use the networks?
	+ Thomas: Only a reference
* Stephane: Unclear what the status is MPEG.
	+ Thomas: it is not about VCM, it about a reference to be used for our discussion.
	+ Gilles: these are just methodologies, it is kind of independent of VCM.
* Gilles: For sure it worth documenting them, we need more information whether applied to CNN, ACN, etc. But at least it now well-known.
	+ Eric: Would be good to get more details of VCM. But we would like to get more information on how it maps to our use cases. VCM is on compression, but we look more at the effects.
* Thomas: We should document something, for example as candidate reference. Also information on VCM is not secret, we can provide more information.
* Gilles: Split point dependencies are worrisome

**Decision**:

* Agreed to be added to the PD as examples for split point references.

[**S4-221462**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221462.zip) is **agreed**.

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| [**S4-221465**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221465.zip) | (FS\_AI4Media) Special\_k AI/ML format | Tencent | Gilles Teniou |

**Presenter**: Gilles Teniou

**Online Discussion**:

* Stephane: There is serialization itself and security. About security, it belongs to SA3.
* Gilles: Everything is not secured in 5G. This can be communicated to SA3. If it is not relevant, I will not push hard for it. My proposal is to document it in the PD.
* Eric: We should document it. SA3 has a SI on AI/ML.
* Gilles: Noted or in the PD?
* Stephane: Maybe we can exchange with SA3?
* Gilles: If it is in the PD, we will be able to do it.
* Thomas: We should only describe things that are standardized somewhere. This seems to be a proprietary format.
* Gilles: No consensus, document is noted.

**Decision**:

* Noted. Qualcomm would like to see a standardized format.

[**S4-221465**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221465.zip) is **noted**.

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| [**S4-221466**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221466.zip) | (FS\_AI4Media) Introduction to Serialization and types of AI/ML | Tencent | Gilles Teniou |

**Presenter**: Gilles Teniou

**Online Discussion**:

* Eric: Maybe “classes” is better than “types”.
* Gilles: The proposal is to add it to the PD and refine it to add it in the introduction of the report.
* Thomas: Title is about serialization but content is about classification of DL models. Serialization is addressed by ONNX and NNEF, which are interchange formats used for serialization and distribution.
* Gilles: I agree. The idea is just to document in the PD.

**Decision**:

* Agreed.

[**S4-221466**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221466.zip) is **agreed**.

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| [**S4-221467**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221467.zip) | (FS\_AI4Media) Proposed procedures and call-flows for Basic AI/ML distribution | Tencent | Gilles Teniou |

**Presenter**: Gilles Teniou

**Online Discussion**:

* Eric: we are ok, aligned with 1378

**Decision**:

* November 15, 2022: Goes to offline on Nov 15, 2022
* November 17, 2022: merged to 1573

[**S4-221467**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221467.zip) is **merged** to [**S4-221573**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221573.zip).

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| [**S4-221468**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221468.zip) | (FS\_AI4media) Proposed procedures and call-flows for split Network-to-UE inference | Tencent | Gilles Teniou |

**Presenter**: Gilles Teniou

**Online Discussion**:

* Thomas: Step 7 is confusing, why is the inference engine activating the transport. It should be an AS that runs both split inference and takes care of the delivery of the intermediate data.
	+ Gilles: yes if you map it to 5G. But we did not do it
* Stephane: If have a split model, in general I am ok. But if we get to the details, there are dependent flows. The issue is more complex. There is a contribution from Interdigital. Would suggest to discuss the download of model first. For split model we need to be sure that the UE-model mode and network model parts at the first step.
* Eric: the steps there are similar. Is it request from UE, or the network initiates some requests. May need to work it out.

**Decision**:

* November 15, 2022: Goes to offline on Nov 15, 2022
* November 17, 2022: merged to 1573

[**S4-221468**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221468.zip) is **merged** to [**S4-221573**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221573.zip).

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| [**S4-221469**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221469.zip) | (FS\_AI4Media)Proposed procedures and call-flows for split UE-to-Network inference | Tencent | Gilles Teniou |

**Presenter**: Gilles Teniou

**Online Discussion**:

**Decision**:

* November 15, 2022: Goes to offline on Nov 15, 2022
* November 17, 2022: merged to 1573

[**S4-221469**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221469.zip) is **merged** to [**S4-221573**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221573.zip).

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| [**S4-221**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221469.zip)**566** | [FS\_AI4Media] PD v0.5 | Samsung | Eric Yip |

[**S4-221566**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221566.zip) is **presented to SA4 plenary**.

## 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*

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| [**S4-221394**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221394.zip) | Discussion on the information collection of AR/MR QoE | China Unicom | Shuai Gao |

**Presenter**: Shuai Gao

**Online Discussion**:

* Thomas: suggest to add the information in clause 2 to the draft TR
	+ Gilles: would add this to the report. Provides record of what was done externally
* Thomas: also suggest to modify the last sentence to not use shall.

**Decision**:

* We agree to document clause 2 in an update TR.
* We also agree that we base the metrics derivation based on the information in TR 26.928 and TR26.998.

[**S4-221394**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221394.zip) is **agreed**.

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| [**S4-221564**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221564.zip) | TR26.812v0.2.0 | China Unicom | Shuai Gao |

**Presenter**: Shuai Gao

**Online Discussion**:

* none

**Decision**:

* Agreed as basis for future work.

[**S4-221564**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221564.zip) is **agreed and presented to SA4 plenary**.

9.9 New Work / New Work Items and Study Items

none

## 9.10 Liaisons and Liaison Responses

See 9.3.

## 9.11 Any Other Business

### 9.11.1 Report

The report will be made available in [**S4-221584**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221584.zip).

### 9.11.2 Summary from Offline Discussions

Nothing provided in written.

### 9.11.3 Output documents

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| [**S4-221574**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221574.zip) | Reply LS to RAN2 on XR pose information | **Gotoplen 5.2** |

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| [**S4-221280**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221280.zip) | Proposed MeCAR Work Plan updates | **Gotoplen 14.4** |
| [**S4-221327**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221327.zip) | [MeCAR] Updated AR Framework | **Gotoplen 14.4** |

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| [**S4-221567**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221567.zip) | Permanent document | **Gotoplen 14.4** |
| [**S4-221577**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221577.zip) | Candidate XR Baseline client | **Gotoplen 14.4** |
| [**S4-221578**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221578.zip) | [MeCAR] Minimum Device Architecture | **Gotoplen14.4** |
| [**S4-221581**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221581.zip) | MeCAR Media capability for RTC | **Gotoplen 14.4** |
| [**S4-221583**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221583.zip) | MeCAR and OpenXR | **Gotoplen 14.4** |

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| [**S4-221325**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221325.zip) | Draft TR 26.926 v1.3.0 | **Gotoplen 15.1** |
| [**S4-221326**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221326.zip) | [FS\_XRTraffic] Proposed Updated Time Plan | **GotoPlen 15.1** |

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| [**S4-221380**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221380.zip) | [FS\_AI4Media] Proposed Updated Time and Work Plan | **Agreed (Gotoplen 15.3)** |

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| [**S4-221565**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221565.zip) | Draft TR v0.2.0 | **Agreed (Gotoplen 15.3)** |
| [**S4-221566**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221566.zip) | FS\_AI4Media Permanent document v0.5 | **Gotoplen 15.3** |

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| [**S4-221564**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221564.zip) | Draft TR v0.2.0 | **Agreed (Gotoplen 15.7)** |
| [**S4-221568**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221568.zip) | FS\_ARMR\_QoE Time plan | **Gotoplen 15.7** |

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| [**S4-221584**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_121_Toulouse/Docs/S4-221584.zip) | VIDEO SWG report during SA4#121 | **gotoplen A.I. 12.4** |

### 9.11.4 AHG Telcos

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| **Post 121-e Telco 1 (06 Dec 2022, 15:00-17:00 CEST, host: Qualcomm)** |
| **Post 121-e Telco 2 (07 Feb 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 session was closed on November 17, 2022 at 13:00 (CET).

No more e-mail approval is pending.

## 9.13 Attendees

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **TITLE** | **Family Name** | **Given Name** | **Organization Represented** | **Room** | **Online** |
| Dr. | Ahsan | Saba | Nokia Belgium | x |  |
| Mr. | Ali | Ansab | Intel Belgium SA/NV |  |  |
| Mr. | Andrivon | Pierre | Beijing Xiaomi Software Tech | x |  |
| Mr. | Ani Simi | Gokul Sani | ETSI |  |  |
| Mr. | Aracena | Mauricio | Ericsson España S.A. | x |  |
| Mr. | AUMONT | FRANCK | InterDigital Belgium. LLC |  |  |
| Dr. | Awoniyi-Oteri | Olufunmilola | Qualcomm Austria RFFE GmbH |  |  |
| Mr. | BASAIER | JIALADE | VSENS |  |  |
| Dr. | Belling | Thomas | Nokia Japan |  |  |
| Dr. | Biatek | Thibaud | ATEME | x |  |
| Dr. | Bouazizi | Imed | Qualcomm Korea | x |  |
| Dr. | Bradbury | Richard | BBC |  |  |
| Mrs. | Brekalo | Andrijana | ETSI | x |  |
| Dr. | Bruhn | Stefan | Dolby Sweden AB | x |  |
| Dr. | Budagavi | Madhukar | Samsung Research America |  |  |
| Mr. | Burman | Bo | Ericsson Limited | x |  |
| Mr. | Casati | Alessio | Nokia Shanghai Bell |  |  |
| Dr. | Cetinkaya | Egemen | Verizon Denmark |  |  |
| Mr. | Champel | Mary-Luc | Beijing Xiaomi Electronics | x |  |
| Dr. | Chan | Yee Sin | Facebook India |  |  |
| Dr. | Chaoub | Abdelaali | OQTEC |  |  |
| Dr. | CHEN | LI | vivo Mobile Com. (Chongqing) |  |  |
| Dr. | Chen | Lulin | MediaTek Inc. |  yes |  |
| Mrs. | Chen | Xu | China Mobile (Hangzhou) Inf. |  |  |
| Dr. | Chiba | Tsunehiko | VIAVI Solutions |  |  |
| Mr. | Choi | Hyung-Nam | Lenovo Mobile Com. Technology |  |  |
| Mr. | Chou | Joey | Intel Korea, Ltd. |  |  |
| Mr. | COMBAREL | Laurent | Stellar |  |  |
| Dr. | Curcio | Igor | Nokia Italy |  |  |
| Mr. | Dawes | Peter | Vodafone GmbH |  |  |
| Mr. | Dawkins | Spencer | Tencent |  |  |
| Mr. | De Bont | Frans | Philips International B.V. | x |  |
| Mr. | Defrance | Serge | InterDigital, Inc. | yes |  |
| Mr. | Doehla | Stefan | Fraunhofer IIS | x |  |
| Dr. | DU | Haiqing | BUPT |  |  |
| Dr. | Ehara | Hiroyuki | Panasonic Holdings Corporation | x |  |
| Miss | Eitoku | Haruka | NTT |  |  |
| Dr. | El Essaili | Ali | Ericsson Limited | x |  |
| Dr. | Escott | Adrian | Qualcomm Israel Ltd. |  |  |
| Ing. | Fotopoulou | Eleni | Fraunhofer IIS |  |  |
| Mr. | Freisse | Jean-Luc | ETSI |  |  |
| Mr. | Gabin | Frederic | Dolby France SAS | x |  |
| Mr. | Gao | Jiajin | CMDI |  |  |
| Mr. | Gao | Shuai | China Unicom | x |  |
| Mr. | Gibellino | Diego | TELECOM ITALIA S.p.A. |  | x |
| Dr. | Gorley | Paul | BBC |  | x |
| Mr. | Gu | Xiaojun | Huawei Technologies R&D UK |  | x |
| Mr. | Gudumasu | Srinivas | InterDigital Communications |  | Yes |
| Mr. | Gunkel | Simon | KPN N.V. | x |  |
| Mr. | Gupta | Nishant | Qualcomm India Pvt Ltd |  |  |
| Dr. | Hamza | Ahmed | InterDigital Communications | Yes |  |
| Dr. | Han | Jaemin | Intel Romania |  |  |
| Dr. | He | Xuan (Shane) | Nokia Germany | x |  |
| Dr. | He | Yong | Qualcomm India Pvt Ltd |  | Yes |
| Mr. | Heikkilä | Gunnar | Ericsson Inc. | x |  |
| Ms. | Heo | Youn hyoung | Intel China Ltd. |  |  |
| Mr. | Hietalahti | Hannu | Nokia Hungary |  |  |
| Mr. | Holley | Kevin | BT plc |  |  |
| Dr. | Holub | Jan | Mesaqin.com s.r.o (Ltd.) |  |  |
| Mr. | Howells | Elfed | HiSilicon Technologies Co. Ltd |  | x |
| Mr. | Hu | Chenhao | Xiaomi Technology | x |  |
| Dr. | Hu | James | AT&T GNS Belgium SPRL | x |  |
| Miss | Hu | Xiaokun | HuaWei Technologies Co., Ltd |  |  |
| Miss | Hu | Yushuang | CMDI |  |  |
| Mr. | Huang | Cheng | ZTE Corporation |  |  |
| Mr. | Huang | Zhenning | China Mobile Group Device Co. |  |  |
| Mr. | Inoue | Yoshihiro | NTT Advanced Technology Corpor |  |  |
| Ms. | Jang | Hyosun | Samsung Electronics France SA |  |  |
| Mr. | Jansson Toftgård | Tomas | Ericsson LM | x |  |
| Dr. | Jelinek | Milan | VoiceAge Corporation | x |  |
| Dr. | Ji | Zhu | Facebook India |  |  |
| Dr. | Jiang | Tianji | China Mobile Com. Corporation |  |  |
| Mr. | Jin | James | GUANGDONG GENIUS TECHNOLOGY CO |  |  |
| Dr. | Joshi | Rajan | Samsung Research America |  |  |
| Dr. | Jung | Kyunghun | Meta Ireland |  |  |
| Ms. | Kang | Yanchao | vivo Communication Technology |  |  |
| Miss | ke | xiaowan | vivo Mobile Com. (Chongqing) |  |  |
| Miss | Kedalagudde | Meghashree D | Intel Corporation SAS |  |  |
| Dr. | Kim | Jiwoo | Meta USA |  |  |
| Dr. | Kimba | Boubacar | GUANGDONG GENIUS TECHNOLOGY CO |  |  |
| Mr. | Ko | Sunghwan | Samsung Electronics France SA |  |  |
| Dr. | Kolan | Prakash | Samsung R&D Institute UK |  |  |
| Mr. | Kolekar | Abhijeet | Intel |  |  |
| Mr. | Kuchibhotla | Ravi | Motorola Mobility Germany GmbH |  |  |
| Mr. | Kwon | WooSuk | LG Electronics Inc. | Yes |  |
| Mr. | La Torre | Simone | Stellar |  |  |
| Mr. | Laaksonen | Lasse | Nokia Corporation | x |  |
| Mr. | Lair | Yannick | Nokia France |  |  |
| Mr. | Lazara | Dominic | Motorola Solutions UK Ltd. |  |  |
| Dr. | Lee | Brian | Dolby Laboratories Inc. | Yes |  |
| Dr. | Lee | Hakju Ryan | Samsung R&D Institute India |  |  |
| Mr. | Lemotheux | Julien | Orange | Yes |  |
| Mr. | Leung | Nikolai | Qualcomm Technologies Int |  |  |
| Miss | LI | QIUTING | ZTE Corporation |  |  |
| Dr. | Liangping | Ma | QUALCOMM Europe Inc. - Italy |  |  |
| Mr. | Libunao | Gerardo | Verizon UK Ltd |  |  |
| Mr. | Liebhart | Rainer | Nokia Poland |  |  |
| Mr. | Lin | YuanChieh (Carlson) | MediaTek Inc. |  |  |
| Mr. | Lintervo | Arvi | Nokia Korea |  |  |
| Dr. | Litwic | Lukasz | Ericsson Hungary Ltd | Yes |  |
| Mr. | Liu | Yue | China Mobile International Ltd |  |  |
| Mr. | Lo | Charles | Qualcomm CDMA Technologies |  |  |
| Dr. | Lohmar | Thorsten | Ericsson India Private Limited | x |  |
| Mr. | Luetzenkirchen | Thomas | Intel Deutschland GmbH |  |  |
| Mr. | Lyu | Huazhang | iQoo |  |  |
| Miss | Martinez Tarradell | Marta | Intel Corporation Italia SpA |  |  |
| Mr. | Mayer | Georg | HUAWEI TECHNOLOGIES Co. Ltd. |  |  |
| Dr. | Mccarthy | Sean | Dolby Laboratories Inc. |  |  |
| Mr. | Merkel | Jürgen | Nokia |  |  |
| Dr. | Mika | Johann | ORS |  |  |
| Mr. | Minokuchi | Atsushi | NTT DOCOMO INC. |  |  |
| Mr. | Morita | Naotaka | NTT Advanced Technology Corpor | x |  |
| Dr. | Moriya | Takehiro | NTT |  |  |
| Mr. | Multrus | Markus | Fraunhofer IIS | x |  |
| Dr. | Mustapha | Mona | Apple France |  |  |
| Mr. | NAKAMURA | Kazuo | NICT |  |  |
| Mr. | Nakano | Yusuke | KDDI Corporation |  |  |
| Mr. | Nangia | Vijay | Motorola Mobility UK Ltd. |  |  |
| Mr. | Natarajan | Rajesh Babu | Nokia Denmark |  |  |
| Dr. | Ni | Hui | HuaWei Technologies Co., Ltd |  |  |
| Mr. | Niang | Mamadou M. | Verizon Spain |  |  |
| Mr. | Niemi | Marko | MediaTek Korea Inc. |  |  |
| Mr. | Onno | Stephane | InterDigital Finland Oy | x |  |
| Mr. | Palanigounder | Anand | Qualcomm Tech. Netherlands B.V |  |  |
| Dr. | Pan | Qi | Huawei Telecommunication India | Yes |  |
| Mr. | Pan | Xiang | Nanjing Weibo |  |  |
| Mr. | Pazos | Marcelo | Qualcomm Europe Inc. Sweden |  |  |
| Mr. | Pica | Francesco | Qualcomm CDMA Technologies |  |  |
| Mr. | Plante | Fabrice | Apple Italia S.R.L. | yes |  |
| Mr. | Podborski | Dimitri | Apple AB | x |  |
| Mr. | Potetsianakis | Emmanouil | Xiaomi EV Technology | yes |  |
| Mr. | Pousi | Timo | Ericsson Telecomunicazioni SpA |  |  |
| Mr. | Pudney | Chris | Vodafone España SA |  |  |
| Mr. | Qi | Minpeng | China Mobile Com. Corporation |  |  |
| Mr. | Ragot | Stephane | Orange Romania | x |  |
| Miss | Ramazanirend | Elmira | VODAFONE Group Plc | x |  |
| Mr. | Rämö | Anssi | Nokia UK |  |  |
| Mr. | Reimes | Jan | HEAD acoustics GmbH |  |  |
| Mr. | Rhyu | Sungryeul | Samsung Electronics Iberia SA | Yes |  |
| Dr. | Ridge | Justin | Nokia Corporation |  |  |
| Ms. | Romaguera | Cristina | Vodafone Italia SpA |  |  |
| Mr. | Sällberg | Krister | Ericsson-LG Co., LTD |  |  |
| Mr. | Schevciw | Andre | QUALCOMM Europe Inc. - Spain | x |  |
| Dr. | Shailendra | Samar | Intel Technology India Pvt Ltd |  |  |
| Mr. | Shan | Changhong | Intel China Ltd. |  |  |
| Mr. | Sharp | Iain | ATIS |  |  |
| Ms. | Shi | Xiaonan | China Mobile E-Commerce Co. |  |  |
| Mr. | Shi | Xiaoyan | Intel Ireland |  |  |
| Mr. | shimada | kazuki | NTT |  |  |
| Dr. | Sodagar | Iraj | Tencent Cloud | Y |  |
| Mr. | Soloway | Alan | Qualcomm Incorporated |  |  |
| Mrs. | song | hua | China Mobile (Suzhou) Software |  |  |
| Dr. | Song | Jaeyeon | BEIJING SAMSUNG TELECOM R&D | Y |  |
| Mr. | Song | Yue | China Mobile (Hangzhou) Inf. |  |  |
| Dr. | Speicher | Sebastian | Qualcomm Europe Inc. Sweden |  |  |
| Mr. | Srinivasan | Suresh | Intel K.K. |  |  |
| Mr. | Starsinic | Michael | InterDigital France R&D, SAS |  |  |
| Mr. | Steck | Chris | DTS Licensing Limited | x |  |
| Mr. | Stefano | Faccin | QUALCOMM Europe Inc. - Italy |  |  |
| Mr. | Stegenborg-Andersen | Tore | FORCE Technology |  |  |
| Dr. | Stockhammer | Thomas | Qualcomm Technologies Ireland | yes |  |
| Mr. | Stoica | Razvan-Andrei | Lenovo Future Communications | yes |  |
| Mr. | Stojanovski | Saso | Intel Finland Oy |  |  |
| Dr. | Su | Huan-yu | HUAWEI TECH. GmbH | yes |  |
| Mr. | Sumita | Masa | Huawei Technologies Japan K.K. |  |  |
| Dr. | Sun | Tao | China Mobile M2M Company Ltd. |  |  |
| Ms. | Sun | Xiaowen | vivo Mobile Communication (H) | yes |  |
| Mr. | sun | zhao | HUAWEI TECHNOLOGIES Co. Ltd. |  |  |
| Mr. | Suzuki | Rihito | NTT |  |  |
| Mr. | Suzuki | Yuji | NTT DOCOMO INC. |  |  |
| Dr. | Szczerba | Marek | Philips International B.V. |  |  |
| Mr. | Szucs | Paul | Sony Group Corporation | Yes |  |
| Dr. | TAN | PENG | TELUS |  |  |
| Dr. | Tech | Gerhard | Fraunhofer HHI | x |  |
| Mr. | Teniou | Gilles | Tencent | x |  |
| Mr. | Thomas | Emmanuel | Xiaomi Communications | yes |  |
| Dr. | Tonesi | Dario Serafino | Qualcomm Finland RFFE Oy |  |  |
| Dr. | Tossavainen | Antero | Huawei Device Co., Ltd |  |  |
| Dr. | Toufik | Issam | ETSI |  |  |
| Dr. | Tourapis | Alexandros | Apple GmbH | x |  |
| Mr. | Tsujikawa | Toru | NTT corporation |  |  |
| Mr. | Varga | Imre | QUALCOMM JAPAN LLC. | x |  |
| Mr. | Volnay | Christophe | ETSI |  |  |
| Mr. | Wang | Bin | Xiaomi Technology |  |  |
| Mr. | Wang | Dong | Guangdong OPPO Mobile Telecom. |  | Yes |
| Ms. | Wang | Hui | GUANGDONG GENIUS TECHNOLOGY CO |  |  |
| Dr. | Wang | Xin | MediaTek Inc. |  | Yes |
| Dr. | Wey | Jun Shan | Verizon Switzerland AG |  |  |
| Mr. | Wiehe | Ulrich | Nokia Solutions & Networks (I) |  |  |
| Dr. | Won | Sung Hwan | Nokia Italy |  |  |
| Ms. | WU | Jinhua | Beijing Xiaomi Mobile Software |  |  |
| Mr. | wu | ninghang | Beijing Xiaomi Mobile Software |  |  |
| Mr. | Wu | Xiaobo | vivo Mobile Communication Co., |  |  |
| Dr. | XIAO | Xiao | iQoo |  |  |
| Mr. | Xie | Minjie | OPPO |  |  |
| Mr. | Xie | Zhenhua | vivo Mobile Communication (S) |  |  |
| Miss | Xu | Jiayi | China Mobile Com. Corporation |  | Yes |
| Ms. | Xue | Kaixin | CBN |  |  |
| Mr. | Yamauchi | Kenta | DOCOMO Beijing Labs |  |  |
| Dr. | Yang | Hyun-Koo | Samsung Electronics Polska |  |  |
| Mr. | Yao | Yizhi | Intel Technology Poland SP Zoo |  |  |
| Ms. | Yi | Haofan | BJTU |  |  |
| Mrs. | Yin | Yujian | China Mobile Com. Corporation |  | x |
| Mr. | Yip | Eric | Samsung Electronics Co., Ltd | Yes |  |
| Dr. | Yoon | Joonhee | LG Electronics UK |  | Yes |
| Mr. | Yu | Hang | Nanjing Weibo |  |  |
| Dr. | Zhang | Amy | VIVO TECH GmbH |  |  |
| Dr. | Zhang | Dawei | Apple France |  |  |
| Mr. | zhang | dejun | Bytedance Technology |  |  |
| Mr. | Zhang | Robin | TCL Communication Ltd. |  |  |
| Mr. | Zhang | Yizhong | vivo Japan KK |  |  |
| Dr. | Zhang | Zhuoyun | Tencent Cloud |  |  |
| Dr. | Zhao | Shuai | Intel Sweden AB | Y |  |
| Mr. | Zhou | Xutao | vivo Japan KK |  |  |
| Mr. | Zisimopoulos | Haris | Qualcomm France |  |  |