**Source: SA4 SQ SWG Chair[[1]](#footnote-1)**

**Title: 3GPP SA4 SQ SWG report from teleconference on HaNTE (15 March 2021)**

**Document for: Approval**

**Agenda item: tbd**

**Executive summary**

The meeting (11 participants, 1 hour) covered all four input Tdocs. The outcome is summarized below:

* The test plan in S4aQ200164 preparing next measurements for ATIAS has been discussed and noted.
* An incremental version of the dCR to TS 26.132 in S4aQ200165, cleaning Editor’s notes and comments, has been agreed as a basis for further editing. The wish is to remove brackets (around draft/non-agreed text) at SA4#113-e.

**A.I. 1 Approval of Agenda and Tdoc allocation**

|  |  |  |
| --- | --- | --- |
| [**S4aQ200166**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_SQ/Docs/S4aQ200166.zip) | Proposed agenda for SQ SWG teleconference on ATIAS and HInT (15 March 2021) | SA4 SQ SWG Chair |

**Presenter:** Stéphane

**Comments / questions:**

None.

**Decision:**

S4aQ200166 is approved.

**A.I. 2 Reports/Liaisons**

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| [**S4aQ200167**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_SQ/Docs/S4aQ200167.zip) | 3GPP SA4 SQ SWG report from teleconference on HaNTE (5 March 2021) | SA4 SQ SWG Chair |

**Presenter:** Stéphane

**Comments / questions:**

None.

**Decision:**

S4aQ200167 is agreed.

**A.I. 4.3 HInT**

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| [**S4aQ200165**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_SQ/Docs/S4aQ200165.zip) | dCR on TS26.132 on Headset Interface Description (update) | HEAD acoustics GmbH |

**Presenter:** Jan Reimes

Within the scope of the work item HInT, it is intended to add new test methods to TS 26.132 for analogue and digital interfaces of UE. As a preparation for these, a detailed specification and description of the introduced interfaces has to be included. This dCR brings the following changes to TS 36.132: Introduction of new clauses for analogue and digital interfaces, editorial changes in the existing clauses regarding measurement equipment.

In this version of the dCR, most changes consist of deleting comments and editor’s notes that have been resolved.

**Comments / questions:**

Stéphane: no brackets are removed in this version?

Jan: the wish is to remove brackets at the next SA4 meeting.

Stéphane: Any comment?

**Answer: no.**

Stéphane: we can give a status to this Tdoc.

Jan: it was submitted for agreement.

Stéphane: can we agree on this Tdoc?

**Answer: yes.**

**Decision:**

S4aQ200165 is agreed (as a basis for further editing).

The wish is to remove brackets (around draft/non-agreed text) at SA4#113-e.

**A.I. 4.6 ATIAS**

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| --- | --- | --- |
| [**S4aQ200164**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_SQ/Docs/S4aQ200164.zip) | Upcoming measurements for ATIAS | HEAD acoustics GmbH |

**Presenter:** Jan Reimes

In previous contributions, an approach to rely on reference scenarios for testing immersive communication systems was introduced. Subsequently, acoustic measurements of a conferencing situation to provide an example of such a reference scenario were presented. To investigate which analyses provide meaningful insight into the spatial properties of such communication systems, two simplified communication systems were investigated.

This contribution gives a brief overview of the ideas for the next steps that came up during the last meeting to discuss the next steps and measurements to progress the work item.

Three ideas are considered, it is proposed to continue with the headphone measurements. Three different types of signals for these measurements are briefly described. The target of the measurements would be to gather additional data to progress the work item regarding the applicability of evaluation metrics for immersive communication systems. Preliminary results are expected for SA4#113-e.

**Comments / questions:**

Milan: question for 3rd case on signal rendering, talking about transfer functions, are you using 2 speakers? how do you consider 2 speakers combined?

Jan: you have ch1 and ch2 as input to loudspeakers, this goes to input 1 and 2 of the ear, this may be too artificial but you measure all 4 transfer functions, and there are several tools to render 2 channels to 2 artificial ears, not sure which one to take, one may take the algorithm from the ETSI BGN specification with a 2x2 matrix.

Milan: yes, you are considering both speakers, I was note sure, as you mentioned sound from the center.

Jan: we assume that the device is at the center. See Fig. 2 which is more correct.

Tomas: you already measured this scenario without transfer functions but with real recordings.

Jan: yes, the idea is to compare measurements, there may not be a good match between real and 2ch cases, we could measure with equalization, we do not have to remount and we can do the measurement in a smaller room. We have limited access to lab capabilities.

We will get impulse responses from loudspeakers to ears and see if we apply headphone equalization.

Tomas: why equalize?

Jan: se Fig. 2 (right), take green listener, we use the transfer function from the loudspeakers to the HATS ears and render it, we have to compensate for the difference, it should be the same as the reference. There will be a mismatch due to inverse filtering, so the initial plan is to equalize loudspeakers. We can simulate headphone playback. We have to see if there is a mismatch between real recordings or simulated measurements.

Tomas: compensate path?

Jan: see Fig. 1 setup, we artificially introduce a recording of a 2-microphone array. The loudspeakers may be equalized or not, headphone may be equalized because it’s like a degradation. Since there is no codec, we would like to know the effect of spatial distortions.

For the case 2) of signal rendering, we expect a large difference. If we compensate for this difference as in case 3) of signal rendering, we expect to be closer.

Stefan B.: I see the word listener, are you intending to do a test with real listeners?

Jan: we have measurements from previous contributions, we also plan subjective evaluations, last time we have questions on the perceptual side, on how does it sound, but for the next SA4 meeting we will only have objective results.

Stefan B.: what kind of tools are you using?

Jan: ILD, ITD, transform function, loudness ratings, basic and simple tools

Stefan B.: how do we know it correlates to the true subjective impression?

Jan: the idea is to define the scenario, conditions and check that objective measurements approximately make sense, before getting formal or informal subjective testing.

Stefan B.: regarding test signals, anything particular? if do objective tests, use some noise? what is your plan?

Jan: recording impulse responses, with a sweep. we also have recordings with P.501 speech (different talkers and languages), so it’s not only the sweep signal.

Stéphane: at some point, it may be good to discuss about test methodologies for subjective tests?

Jan: if there are no measurements in the objective domain, we would not evaluate subjectively.

Stéphane: do you expect more feedback on the Tdoc?

Jan: no, there was no strong objection so far. With things discussed last time, it seems to be a good compromise and there is no objection to run the proposed tests.

Stéphane: this Tdoc was for discussion, can we note it?

**Answer: yes**

**Decision:**

S4aQ200164 is noted.

**A.I. 5 Review of the future work plan**

None.

**A.I. 6 Any other topic of discussion**

The SQ Chairman thanked HEAD acoustics for the contributions and all delegates for their participation. He invited contributions to progress the work at SA4#113-e. The meeting was closed at 16:56.

**Annex A – Meeting agenda**

**Source: SA4 SQ SWG Chair[[2]](#footnote-2)**

**Title: Proposed agenda for SQ SWG teleconference on ATIAS and HInT (15 March 2021)**

**Document for: Approval**

**Agenda item: 1**

**Agenda for this telco (keeping only relevant items from the unique agenda for 3GPP SA4 AH telcos post-112e):**

|  |  |  |
| --- | --- | --- |
| 1 | Approval of Agenda | S4aQ200166app |
| 3 | Reports /Liaison if any, postponed from the formal preceding SA4 meeting | S4aQ200167a |
| 4.3 | HInT | S4aQ200165a (HEAD acoustics, dCR to TS 26.132) |
| 4.6 | ATIAS | S4aQ200164n (HEAD acoustics, upcoming measurements) |
| 5 | Review of the future work plan |  |
| 6 | Any other topic of discussion |  |

**Legend for Tdocs:**

* **Color: not-yet processed**, **processed**, **late**, **~~withdrawn~~**, **moved to a different A.I.**, **under email agreement**
* a agreed, app approved, n noted, pa partially agreed, np not pursued, pp postponed…

**Unique agenda for AH telcos post-112e (for information):**

|  |  |
| --- | --- |
| 1 | Approval of Agenda |
| 2 | IPR and Anti Trust Reminder |
| 3 | Reports /Liaison if any, postponed from the formal preceding SA4 meeting |
| 4 | List of Work Items for submission of Contributions in the current meeting |
| 4.1 | FS\_5GSTAR |
| 4.2 | FS\_5GMS\_Multicast |
| 4.3 | HInT |
| 4.4 | 5GMS3 |
| 4.5 | ITT4RT |
| 4.6 | ATIAS |
| 4.7 | HaNTE |
| 4.8 | IVAS\_Codec |
| 4.9 | FS\_VR\_CoGui |
| 4.10 | FS\_5GVideo |
| 4.11 | FS\_FLUS\_NBMP |
| 4.12 | FS\_EMSA |
| 4.13 | FS\_XRTraffic |
| 4.14 | 8K\_VR\_5G |
| 4.15 | FS\_5GMS\_EXT |
| 5 | Review of the future work plan |
| 6 | Any other topic of discussion |

**Annex B – List of participants**

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| Apple - Fabrice Plante |
| Dolby – Stefan Bruhn |
| Ericsson – Tomas Toftgard |
| Fraunhofer IIS – Markus Multrus |
| HEAD acoustics - Jan Reimes |
| Huawei Technologies – Huan-Yu Su |
| Orange - Alain Curti |
| Orange - Stéphane Ragot |
| Qualcomm - Andre Schevciw |
| Samsung - Sungryeul Rhyu |
| VoiceAge – Milan Jelinek |

**Annex C - Documents status**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tdoc | Title | Source(s) | Agenda Item(s) | Status |
| [**S4aQ200164**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_SQ/Docs/S4aQ200164.zip) | Upcoming measurements for ATIAS | HEAD acoustics GmbH | 4.6 | Noted |
| [**S4aQ200165**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_SQ/Docs/S4aQ200165.zip) | dCR on TS26.132 on Headset Interface Description (update) | HEAD acoustics GmbH | 4.3 | Agreed |
| [**S4aQ200166**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_SQ/Docs/S4aQ200166.zip) | Proposed agenda for SQ SWG teleconference on ATIAS and HInT (15 March 2021) | SA4 SQ SWG Chair | 1 | Approved |
| [**S4aQ200167**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_SQ/Docs/S4aQ200167.zip) | 3GPP SA4 SQ SWG report from teleconference on HaNTE (5 March 2021) | SA4 SQ SWG Chair | 3 | Agreed |

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