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

**Title: 3GPP SA4 SQ SWG report at SA4#110-e**

**Document for: Approval**

**Agenda item: 13.4**

**3GPP SA4 #110-e Speech Quality Sub-Working Group**

The SQ SWG during SA4#110-e was held as a combination of email discussions and two telcos.

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

<https://list.etsi.org/scripts/wa.exe?A0=3GPP_TSG_SA_WG4_SQ>

**A.I. 9.1 Opening of the session**

SQ chair Stéphane Ragot (Orange): welcome to delegates and review of schedule in S4-201160. The Wednesday EVS slot may become an SQ slot if needed.

Peter Isberg (Sony) kindly volunteered to take minutes.

**A.I. 9.2 Registration of documents**

Stéphane: Suggest to go in numerical order for agenda items and Tdocs.

**A.I. 9.3 Liaison Statements**

None.

**A.I. 9.4 CRs to Features in Release 16 and earlier, and other contributions on terminal acoustics**

None.

**A.I. 9.5 ATIAS (Terminal Audio quality performance and Test methods for Immersive Audio Services)**

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| [**S4-201115**](http://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_110-e/Docs/S4-201115.zip) | Measurement of Possible Reference Scenario for ATIAS | HEAD acoustics GmbH |

**Presenter:** Magnus Schaefer (HEAD acoustics)

**Comments / questions:**

Magnus: typo above Fig 2 (in ‘from A3 to B2’), the fig is correct. ITD and frequency responses were measured for three paths from HATS mouth to HATS ears, for a conferencing scenario at a table

Stefan Bruhn: You reported before on perceptual quality attributes. How do you think ITD and frequency responses map to those?

Magnus: Important question. Target? What would be a perfect communication system? These are simple to calculate and verify, and they can give the designer/tester direct feedback. Ideally human perception from a simple measurement should be obtained.

Markus M: What do you think is the connection between your figures and the final DUT?

Magnus: The idea is that we have the actual reference scenario, this should be recreated by the communication system. The test can be split into two sides, sending and receiving.

Peter: angles etc are just for the testing purposes, right?

Magnus: Yes, it’s just an example

Peter: the reference scenario is guiding in terms of ITD etc but levels may have to be different than in reality, as they are in traditional mono telephony

Magnus: yes, looking mostly into spatial aspects as ITD

Stefan B: Referring to docs from HEAD acoustics and Sony in Wroclaw. One approach is end-to-end. Another is the divided with a point of interconnect in between. I am concerned about the end-to-end approach. There could be many.

Magnus: Describing a send/receive partitioned system derived from end-to-end

Stefan B: Maybe we need to consider both

Jan R: End-to-end testing are valuable as reference, but the partitioned testing with a POI should work

Stéphane: What about room aspects (reflection, reverb)

Magnus: Correct, the chamber has impact. Sometimes reflections have a large impact on e.g. frequency responses while less for perception.

Peter: Fig 3 has large difference at 100 Hz. Standing wave?

Magnus: Could be a modal effect. Will check.

Stéphane: Good input, we need this for ATIAS. Do you have any specific proposal?

Magnus: It is a setup that can be fairly easily be recreated, we suggest it and the two parameters for a test case to evaluate the communication systems.

Stéphane: We will need to create requirements and test method specifications.

Jan: The example we presented is one of many possible reference scenarios. We are open for others.

Stéphane: The proposal received some support, especially using POI. How would you like to proceed? Invite follow-up contributions? Telco?

Jan: We could draft something for the test setup.

Stefan B: In SQ, do you define requirements first or methods first?

Stéphane: Sometimes round-robin. Requirements are decided at the end but some idea about criteria are good to have also in the beginning. Should we try to estimate something at the perceptual level?

Jan: Perceptual attributes are tricky. P.863 perhaps not good for the reverberation. We should first stick to the simpler parameters. Methods first, then requirements.

Stéphane: If possible, we should have a basis in perceptual tests. We are contribution driven. It would be fair to consider this update with more details.

Stefan B: The contribution is very good. ITD and frequency response are important. We need some kind of understanding about deviations from the expected result to set limits, based on perception.

Stéphane: Summary: we can conclude that HEAD acoustics is invited to bring more details. In addition, levels.

**Decision:** S4-201115 is noted.

Stéphane: For ATIAS, shall we update the time plan? Myself and Stefan B are co-rapporteurs.

Stefan B: Unfortunately, the work has not progressed in the pace we hoped for but we are still within the plan, we may update in Nov. The related IVAS is also progressing more slowly.

Stéphane: Any request to update the plan at this meeting?

Jan: What about telcos?

Stéphane: We can have without updating the time plan. Proposals for telco dates? Offline? Discuss in the next slot?

**A.I. 9.6 HaNTE (Handsets Featuring Non-Traditional Earpieces)**

Stéphane: The 1096 document is a late submission. The source is invited to submit the document as an S4 document (even if it is a copy of AHQ-146 that was distributed over the SA4 reflector).

Andre Schevciw (Qualcomm): I can do that

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| S4-201096 | Results of HaNTE round robin tests in Lab 1 | Qualcomm Technologies Int |

**Presenter:**

**Comments / questions:**

**Decision:**

**A.I. 9.7 HInT (Extension for headset interface tests of UE)**

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| [**S4-201113**](http://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_110-e/Docs/S4-201113.zip) | Headset Interface Tests for 3GPP TS 26.132 | HEAD acoustics GmbH |

**Presenter:** Jan Reimes (HEAD acosutics)

**Comments / questions:**

Tomas T (Ericsson): Wording changes. Should it be unified?

Jan: Yes. We could use “electrical interface”

Tomas: I meant only “electric” and “electrical”

Stéphane: we can check also “acoustic” vs “acoustical”

Stefan B: Is wireless included in electric interface?

Jan: yes. Analogue or digital, wired or wireless.

usb-c connections are special, there may be signal processing such as noise reduction.

If Bluetooth is considered, there could be a by-pass to have a transparency test

Stéphane: see the WID where there is similar text on wired and wireless interfaces

Jan: It is obvious that analogue accessories cannot perform speech processing. How to handle the digital?

Not always headsets, one may use the wording accessory interface or UE auxiliary interface.

Peter: Regarding “it is in general assumed for all tests in the following clauses that typical signal processing for telecommunication (e.g., noise reduction, echo cancellation) takes places only in the UE”, I don’t see how we can assume anything. If we specify for the future, we can require future products to behave in a certain way. If we specify testing of products that are now on the market, we cannot just assume how they work.

Jan: We may be guided by ITU-T P.1100/1110 about testing when handshaking takes place (speech processing takes place in accessory or not).

**Decision:**

S4-201113 is parked.

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| [**S4-201157**](http://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_110-e/Docs/S4-201157.zip) | HInT requirements | Orange |

**Presenter:**

**Comments / questions:**

**Decision:**

**A.I. 9.8 New Work / New Work Items and Study Items**

**A.I. 9.9 Any other business**

**A.I. 9.10 Close of the session**

**Annex A – Meeting agenda**

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| **9** | **Speech Quality (SQ) SWG** |  |
| 9.1 | Opening of the session |  |
| 9.2 | Registration of documents |  |
| 9.3 | Liaison Statements |  |
| 9.4 | CRs to Features in Release 16 and earlier, and other contributions on terminal acoustics |  |
| 9.5 | ATIAS (Terminal Audio quality performance and Test methods for Immersive Audio Services) | **1115** |
| 9.6 | HaNTE (Handsets Featuring Non-Traditional Earpieces) | **1096** |
| 9.7 | HInT (Extension for headset interface tests of UE) | **1113, 1157** |
| 9.8 | New Work / New Work Items and Study Items |  |
| 9.9 | Any Other Business |  |
| 9.10 | Close of the session |  |

**Annex B – List of participants**

**B.1 Telco on 21st August 2020 (15:30-17:00 CEST)**

**B.2 Telco on 25th August 2020 (15:30-17:00 CEST)**

**Annex C - Documents status**

**C.1 Agreed documents (not presented to SA4 plenary)**

**C.2 Agreed documents (to be presented to SA4 plenary)**

**C.3 Other status than agreed documents (not to be presented to SA4 plenary)**

**C.4 Other status than agreed documents (to be presented to SA4 plenary)**

1. **Mr. Stéphane Ragot, Orange**

 **stephane [dot] ragot [at] orange [dot] com**

 **M: +33 6 76 63 09 23** [↑](#footnote-ref-1)