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

**Title: 3GPP SA4 SQ SWG report at SA4#108-e**

**Document for: Approval**

**Agenda item: 13.4**

**3GPP SA4 #108-e Speech Quality Sub-Working Group**

The SQ SWG during SA4#108-e was held as a combination of email discussions and 2 telcos.

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

<https://list.etsi.org/scripts/wa.exe?A1=ind2004A&L=3GPP_TSG_SA_WG4_SQ>

Teleconference, April 6th 2020 at 17-18 CEST

The interim SQ chairman Frédéric Gabin (Ericsson) declared the SQ SWG meeting opened and invited delegates to candidate for the open SQ SWG chair position.

Frédéric asked the SA4 secretary Jayeeta Saha to record participants and asked for a volunteer SQ secretary for the SQ sessions for SA4 #108-e. Peter Isberg (Sony) volunteered. The registration of documents found in the tdoc allocation rev3 from the opening plenary (draft folder) was projected and agreed.

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| 9 | Speech Quality (SQ) SWG |  |
| 9.1 | Opening of the session |  |
| 9.2 | Registration of documents |  |
| 9.3 | Liaison Statements | 537 (GCF CAG), proposed reply in 605 |
| 9.4 | CRs to Features in Release 15 and earlier, and other contributions on terminal acoustics | 504, 505, 606 |
| 9.5 | ATIAS (Terminal Audio quality performance and Test methods for Immersive Audio Services) |  |
| 9.6 | HaNTE (Handsets Featuring Non-Traditional Earpieces) | 565 (telco) |
| 9.7 | ANTeM (Ambient noise test methodology for evaluation of acoustic UE performance) | 567 |
| 9.8 | Joint sessions of SQ SWG with other SWGs |  |
| 9.9 | New Work / New Work Items and Study Items |  |
| 9.10 | Output Documents from the SQ SWG session to the SA4 Plenary |  |
| 9.11 | Any Other Business |  |
| 9.12 | Close of the session |  |

**A.I. 9.3 Liaison Statements**

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| [**S4-200537**](http://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_108-e/Docs/S4-200537.zip) | Audio ‘Headset’ Requirements in 3GPP TS 26.132 | GCF CAG#61 |

This LS from GCF had by SA4 plenary email agreement been allocated to SQ SWG, presentation was not found necessary.

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| [**S4-200605**](http://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_108-e/Docs/S4-200605.zip) | Draft reply LS on Audio Headset Requirements in 3GPP TS 26.132 | Sony Corporation |

This draft reply had been submitted and discussed by email resulting in allocation to SQ SWG and a revised version in Draft v1 of S4-200636. The draft was shared by Frédéric and presented by Peter.

Five questions from GCF had been extracted from the input LS and draft answers were covered one-by-one.

Andre Schevciw (Qualcomm) had suggested to add the words “acoustic interface” and this was discussed. Peter had a slightly different interpretation of TS 26.131 clause 4 but found this addition acceptable, as already reflected in the draft 636.

Stepháne Ragot (Orange): Sometimes a headset is not part of the mobile phone sales item and therefore no headset is provided for mobile phone certification in GCF. Although 3GPP does not specify requirements for an electrical headset interface, such as an audio jack/plug interface, it is suggested to inform about TR 26.954, which addresses some such aspects.

Peter: It might be confusing for GCF since it is a technical report, not a specification that can be used for GCF certification, but if the group agrees, I will not object.

On question 4, Stepháne suggested to add that since Headset UE testing is not possible when no headsets are included, there is some limitation in what potential performance issues can be found in the testing.

Peter: This has been the case for something like 30 years. But it is acceptable to add some information nevertheless.

Frédéric: There is no time to conclude on the document in this session. Please progress offline with email agreement and, if needed, presentation at the next SQ sub-working group teleconference. Document status is open.

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

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| [**S4-200565**](http://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_108-e/Docs/S4-200565.zip) | Proposals for data collection of HaNTE – test methods | Qualcomm Incorporated |

Tdoc 565 was presented by (Andre Scheciw)

Background: HaNTE devices with non-traditional earpieces. Have agreed on conducting a round-robin test.

4. The list of devices was presented. In addition, Qualcomm offered to add another device.

Alain Curti (Orange): Shall we discuss mounting procedures now?

Andre: We have mounting information for one device, but so far not for the others. Good time to have the discussion.

Alain: We may have some information. I will ask for authorization to share it.

Antero Tossavainen (Huawei): We can share information for Huawei devices.

Frédéric: Any more companies on the call willing to share information? No reply.

Stepháne: If the positioning is not provided, what is the approach?

Andre: One option is that a volunteer (e.g. the first) lab suggests a suitable position.

Frédéric: Is it agreeable? No objections.

Frédéric summarized actions.

Stepháne: Not only the position as such. Also the additional variables, such how the device is held.

Alain: Additional information; Also the information on guiding pins is needed. Recommend taking pictures.

Frédéric: Andre, will you update the document?

Andre: I will update the document but not during SA4#108-e.

Frédéric: Move on to the Appendix?

Andre: Some proposals were already made by Orange. Also input from ETSI documents have been considered. Does anyone have comments about the values 9-12 kHz from ETSI?

Jan Reimes (Head Acoustics): Perhaps 12 kHz has something to do with the super-wideband fractional-octave band limits. Not sure though.

Andre: Assume the limits are due to current ear simulator limitations. Comment from Orange?

Alain: We asked for higher than 12 kHz because we registered out-of-band components above 12 kHz.

Stepháne: Resolution 1/3rd or 1/12th octave bands?

Andre: The ETSI spec doesn’t define the resolution. Suggest to discuss offline and provide an analysis method.

Stepháne: It’s just a round-robin, we could measure two resolutions.

Andre: Yes, we just have to agree so it is consistent.

Bandwidths:

Andre: No major problem if super-wideband is not possible, for these particular tests. Also some practical issues.

Alain: More UE:s use EVS SWB. Agree though, that it can be for further study.

Frédéric: Agreement to focus on wideband.

MOS-LQO:

Andre: Regarding the value 4.0, we have considered the AMR-WB codec. This value is given as a ballpark number. The importance is to collect the data.

Volume control:

Andre: Inputs?

Alain: Important to test at maximum volume control. Also nominal could be included.

Frédéric: Other views? None.

Privacy

Andre: Drafted a test plan. A microphone is placed at the height of the HATS ear simulator. Repeat RLR at every 45 degree incidence. The relation between intelligibility and RLR can provide guidance.

Frédéric: Need to close due to time. Continue presentation at the next SQ teleconference.

Decision: Document status is Parked.

Participants list

|  |  |  |  |
| --- | --- | --- | --- |
| TITLE | Family Name | Given Name | Organization Represented |
| Mr. | Schevciw | Andre | Qualcomm Technologies Int |
| Mr. | Tossavainen | Antero | HUAWEI TECHNOLOGIES Co. Ltd. |
| Dr. | Feiten | Bernhard | Deutsche Telekom AG |
| Dr. | Lee | Brian | Dolby Laboratories Inc. |
| Mr. | Gibellino | Diego | TELECOM ITALIA S.p.A. |
| Mr. | Plante | Fabrice | Apple Italia S.R.L. |
| Mr. | Gabin | Frédéric | Ericsson LM |
| Mr. | Teniou | Gilles | Orange UK |
| Mr. | Singh | Gurdeep | Fraunhofer HHI |
| Mr. | Varga | Imre | QUALCOMM JAPAN LLC. |
| Mr. | Kleinrouweler | Jan Willem | KPN N.V. |
| Mr. | Zhou | Jiajun | China Mobile Com. Corporation |
| Mr. | Laaksonen | Lasse | Nokia France |
| Mr. | Morita | Naotaka | NTT corporation |
| Dr. | Peters | Nils | Qualcomm Korea |
| Mr. | Dillen | Paul | Philips International B.V. |
| Mr. | Isberg | Peter | Sony Corporation |
| Dr. | Kroon | Peter | Apple Benelux B.V. |
| Mr. | Abhishek | Rohit | Tencent |
| Dr. | Isabelle | Scott | Amazon |
| Mr. | Xu | Song | China Mobile Com. Corporation |
| Dr. | Bruhn | Stefan | Dolby Laboratories Inc. |
| Mr. | Doehla | Stefan | Fraunhofer IIS |
| Mr. | Ragot | Stepháne | Orange |
| Mr. | Jansson Toftgård | Tomas | Ericsson-LG Co., LTD |
| Ms. | Teng | Yidan | HUAWEI TECHNOLOGIES Co. Ltd. |
| Dr. | Zhang | Zhuoyun | Tencent |
| Mr. | Peipei\* | Guo | China Mobile |
| Mr. | Jiajun\* | Zhou | China Mobile |
| Mr. | Curti\* | alain | Orange |
| Mr | Reimes | Jan | Head Acoustics |

\* delegate not registered to SA4#108-e at the time of the teleconference

Teleconference April 8th 2020 at 17-18 CEST

**A.I. 9.7 ANTeM (Ambient noise test methodology for evaluation of acoustic UE performance)**

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| [**S4-200567**](http://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_108-e/Docs/S4-200567.zip) | WI summary for ANTeM | HEAD acoustics GmbH |

Frédéric: This has been endorsed by email. Still checking if there are further comments. None.

Decision: S4-200467 is endorsed at SQ level and sent to plenary

A.I. 9.3 Liaison Statements

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| [**S4-200636**](http://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_108-e/Docs/S4-200636.zip) | Draft reply LS on Audio Headset Requirements in 3GPP TS 26.132 | Sony Corporation |

Tdoc 605 had been revised to Draft v1 of 636 which was discussed in SQ on April 6th, put for offline progress and further drafts were posted in the drafts folder. Draft v4 was sent to SQ as tdoc 636. Two sentences added to “Answer 5”.

Kyunghun (Samsung): Prefers initial version. Especially would like to keep last paragraph. We need a “quick fix”, otherwise it can be tricky for manufacturers.

Andre: First of two sentences is supported. Could be even stronger, e.g. “are only applicable”. Prefer to revise the second sentence.

Frédéric: Suggest “beyond the testing of the Headset UE acoustic…”

Stepháne: Suggest to make the last sentence a separate paragraph and add “e.g. electrical interface”

Peter: prefer not to be too specific since no study/work item is started

Frédéric: Kyunghun, what about the last sentence (referring to a deleted sentence “Therefore, the headset requirements…”?

Kyunghun: Samsung thinks it should be included

Andre: We should not erode our specs by sending this statement

Frédéric: Kyunghun, do you object to sending without the last sentence

Kyunghun: Samsung objects

Frédéric: Go offline. 636->640. If a new version is available at 7 pm today, an email discussion will be trigged. Otherwise direct to plenary.

Decision: S4-200636 is revised to S4-200640 to be considered via email and at closing plenary.

Decision: S4-200504, S4-200505 and S4-200606 are postponed

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| [**S4-200565**](http://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_108-e/Docs/S4-200565.zip) | Proposals for data collection of HaNTE – test methods | Qualcomm Incorporated |

Andre: We have the last part of this tdoc left to discuss.I have an updated version in the drafts folder.

Frédéric: Any objection to present? None.

Andre (Qualcomm): Added a non-HaNTE phone into the list. Time plan modified. Huawei added as lab 4. Time July-Aug-2020 with review for SA4#110. Some additional comments. Appendix: The ETSI test focuses on aliasing. Not necessarily related to the problem seen in a HaNTE device. Does this method makes sense (question to Orange).

Alain: We made a POLQA test and noticed a low score (below 3). Wanted to understand. We could notice using “POLQA speech signal”.

Stepháne: We reused the super-wideband frequency response measurement for a wideband phone.

Jan: What kind of additional distortion did Orange experience? We haven’t been able to reproduce it. Was it peaks or more continuous spectrum?

Alain: We will send results to Jan.

Stepháne: Important to use the maximum volume control.

Alain: Yes, maximum.

Jan: OK, will check.

Andre: The next main edit is in appendix D, receive frequency response robustness to holding position. Need to define an arbitrarily defined ECRP for the case that manufacturer-defined position is not available. Need inputs on “holding points”. Do not support to reduce the reduced length of speech stimuli, the main time is spent on positioning.

Peter: The reuse of frequency response is incorrect and we should fix that going forward.

Andre: Yes. But this is practical.

Stepháne: Regarding position. We may need to decide a single position.

Andre: It is valid to have more than one position, if the result is affected.

Stepháne: The grid points shall include the MECRP.

Andre: Yes. A 3x3 grid takes a lot of time. Suggest 2x2 plus centre point (5 in total)

Stepháne: Regarding FR, we could combine with the normal FR and make checking conditional of passing the wideband mask

Peter: Object to using FR method

Andre: Agree, but the same recording could be used

Peter: yes, it is just a matter of a different post processing

Frédéric: Would you like to present to the plenary tomorrow?

Andre: Yes, a cleaned version of what we discussed now.

Frédéric: 565 revised to (Frédéric gives tdoc number to Andre later). Do you plan telcos in the work plan?

Andre: Yes, end of June. We can also progress on the reflector.

Stepháne: Orange requested provisional results for the privacy measurement. Important that one lab really does the test so the method is a bit validated before we measure in multiple labs.

Andre: We expect to present some results at SA4#109.

Frédéric: Need level of progress tomorrow

Decision: S4-200565 is revised to S4-200676

Summary:

S4-200640 Draft reply LS on Audio Headset Requirements in 3GPP TS 26.132 goes directly to plenary. Revised 565 in 676 HaNTE goes directly to plenary

Final agenda

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| 9 | Speech Quality (SQ) SWG |  |
| 9.1 | Opening of the session |  |
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| 9.3 | Liaison Statements | 537 (GCF CAG), proposed reply in 605->636->640 (email/plenary) |
| 9.4 | CRs to Features in Release 15 and earlier, and other contributions on terminal acoustics | 504pp, 505pp, 606pp |
| 9.5 | ATIAS (Terminal Audio quality performance and Test methods for Immersive Audio Services) |  |
| 9.6 | HaNTE (Handsets Featuring Non-Traditional Earpieces) | 565-> 676 (plenary) |
| 9.7 | ANTeM (Ambient noise test methodology for evaluation of acoustic UE performance) | 567e (plenary) |
| 9.8 | Joint sessions of SQ SWG with other SWGs |  |
| 9.9 | New Work / New Work Items and Study Items |  |
| 9.10 | Output Documents from the SQ SWG session to the SA4 Plenary |  |
| 9.11 | Any Other Business |  |
| 9.12 | Close of the session |  |

**Annex C - Documents status**

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

None

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

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Tdoc** | Title | Source | Type | For | SWG A.I. | Status | Plenary A.I. |
| [**S4-200567**](http://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_108-e/Docs/S4-200567.zip) | WI summary for ANTeM | HEAD acoustics GmbH | WI summary | Endorsement | 9.7 | endorsed | 16.4 |

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

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| **Tdoc** | Title | Source | Type | For | SWG A.I. | Status | Plenary A.I. |
| **S4-200636** | Draft reply LS on Audio Headset Requirements in 3GPP TS 26.132 | Sony Corporation | LS out | Agreement | 9.3 | revised |  |
| [**S4-200504**](http://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_108-e/Docs/S4-200504.zip) | Clarifying nature of headset requirements | Samsung Electronics Polska | CR | Approval | 9.4 | postponed |  |
| [**S4-200505**](http://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_108-e/Docs/S4-200505.zip) | Handling insert-type headsets that not fitting ear simulators properly | Samsung Electronics Polska | CR | Approval | 9.4 | postponed |  |
| [**S4-200606**](http://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_108-e/Docs/S4-200606.zip) | Comments to S4-200504 and S4-200505 on Headset Testing | Sony Corporation | discussion |  | 9.4 | Postponed |  |
| [**S4-200565**](http://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_108-e/Docs/S4-200565.zip) | Proposals for data collection of HaNTE – test methods | Qualcomm Incorporated | discussion | Agreement | 9.6 | revised |  |

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

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Tdoc** | Title | Source | Type | For | SWG A.I. | Status | Plenary A.I. |
| **S4-200640** | Draft reply LS on Audio Headset Requirements in 3GPP TS 26.132 | Sony Corporation | LS out | Agreement | 9.3 | available | 5.3 |
| [**S4-200567**](http://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_108-e/Docs/S4-200567.zip) | WI summary for ANTeM | HEAD acoustics GmbH | WI summary | Endorsement | 9.7 | endorsed | 16.4 |

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