3GPP TSG SA WG4 Meeting #81*S4-141407*

Tenerife, Spain, November, 3rd – 7th, 2014

Source: Qualcomm, Incorporated, HEAD acoustics GmbH, Sony Mobile Communications, Vodafone GmbH, Audience, Inc., ORANGE

Title: New work item on Acoustic Test Methods and Performance Objectives for Speakerphone Performance in Noisy Environments (ATeMPO\_SPINE)

Document for: Approval

Agenda Item: 18

3GPP™ Work Item Description

For guidance, see [3GPP Working Procedures](http://www.3gpp.org/About/WP.htm), article 39; and [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm).

# Title \* : Acoustic Test methods and Performance Objectives for Speakerphone Performance in Noisy Environments

## Acronym \* : ATeMPO\_SPINE

## Unique identifier \*

## 1 3GPP Work Area \*

|  |  |
| --- | --- |
|  | Radio Access |
|  | Core Network |
| X | Services |

## 2 Classification of WI and linked work items

### 2.0 Primary classification \*

This work item is a … \*

|  |  |
| --- | --- |
|  | Study Item (go to 2.1) |
| X | Feature (go to 2.2) |
|  | Building Block (go to 2.3) |
|  | Work Task (go to 2.4) |

### 2.1 Study Item

|  |  |  |
| --- | --- | --- |
| Related Work Item(s) (if any] | | |
| Unique ID | Title | Nature of relationship |
|  |  |  |

Go to §3.

### 2.2 Feature

|  |  |  |
| --- | --- | --- |
| Related Study Item or Feature (if any) \* | | |
| Unique ID | Title | Nature of relationship |
|  |  |  |

Go to §3.

### 2.3 Building Block

|  |  |  |
| --- | --- | --- |
| Parent Feature (or Study Item) | | |
| Unique ID | Title | TS |
|  |  |  |

This work item is … \*

|  |  |
| --- | --- |
|  | Stage 1 (go to 2.3.1) |
|  | Stage 2 (go to 2.3.2) |
|  | Stage 3 (go to 2.3.3) |
|  | Test spec (go to 2.3.4) |
|  | Other (go to 2.3.5) |

#### 2.3.1 Stage 1

|  |  |  |
| --- | --- | --- |
| Source of external requirements (if any) \* | | |
| Organization | Document | Remarks |
|  |  |  |

Go to §3.

#### 2.3.2 Stage 2 \*

|  |  |  |
| --- | --- | --- |
| Corresponding stage 1 work item | | |
| Unique ID | Title | TS |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| Other source of stage 1 information | | |
| TS or CR(s) | Clause | Remarks |
|  |  |  |

**If no identified source of stage 1 information, justify: \***

Go to §3.

#### 2.3.3 Stage 3 \*

|  |  |  |
| --- | --- | --- |
| Corresponding stage 2 work item (if any) | | |
| Unique ID | Title | TS |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| Else, corresponding stage 1 work item | | |
| Unique ID | Title | TS |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| Other justification | | |
| TS or CR(s)  Or external document | Clause | Remarks |
|  |  |  |

**If no identified source of stage 2 information, justify: \***

Go to §3.

#### 2.3.4 Test spec \*

|  |  |  |
| --- | --- | --- |
| Related Work Item(s) | | |
| Unique ID | Title | TS |
|  |  |  |

Go to §3.

#### 2.3.5 Other \*

|  |  |  |  |
| --- | --- | --- | --- |
| Related Work Item(s) | | | |
| Unique ID | Title | Nature of relationship | TS / TR |
|  |  |  |  |

Go to §3.

### 2.4 Work task \*

|  |  |  |
| --- | --- | --- |
| Parent Building Block | | |
| Unique ID | Title | TS |
|  |  |  |

## 3 Justification \*

Test methods and requirements for objective speech quality in the presence of background noise have recently been finalized in 3GPP SA4. Current test methods and requirements in 3GPP TS 26.131/132 are limited to handset mode only. However, the receiving UE listening experience is equally impacted by the speech quality of the sending UE in other modes, including speakerphone.

Most MNOs currently have test methods and requirements in place for speakerphone mode noise suppression. Many of these test methods have been an adaptation of the current 3GPP handset test plan. Because 3GPP does not actually define a test setup for speakerphone noise suppression, the test plans have been inconsistent in the choice of suitable noise environments, proper calibration of the noise field at the UE hand-held hands-free position, definition of adequate test speech material, and performance targets. Recently, new background noise generation methods have been defined in ITU-T SG12 and ETSI STQ that may have enhanced noise rendering properties at the UE location. Those methods may prove useful in tackling some of the issues mentioned.

The lack of an industry standard on speakerphone testing leads to increased costs for OEMs in development, tuning and certification of UEs. For MNOs, inconsistent performance of devices is a concern. This work item aims to address those problems.

## 4 Objective \*

Develop a test method and performance objectives for objective speech quality in the presence of background noise for speakerphone operation. It is expected the following is defined as an outcome of the work:

* Appropriate test position(s).
* Adequate reproducibility and repeatability of results for the test position(s).
* Noise scenarios and speech signals that are representative of speakerphone usage.
* Appropriate performance objectives.

## 5 Service Aspects

None

## 6 MMI-Aspects

None

## 7 Charging Aspects

None

## 8 Security Aspects

None

## 9 Impacts \*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Affects:** | UICC apps | ME | AN | CN | Others |
| **Yes** |  | X |  |  |  |
| **No** | X |  | X | X |  |
| **Don't know** |  |  |  |  | X |

## 10 Expected Output and Time scale \*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| New specifications \* [If Study Item, one TR is anticipated] | | | | | | | | | |
| Spec No. | Title | | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | | Approved at plenary# | | Comments |
|  |  | |  |  |  | |  | |  |
|  |  | |  |  |  | |  | |  |
| Affected existing specifications \* [None in the case of Study Items] | | | | | | | | | |
| Spec No. | CR | Subject | | | | Approved at plenary# | | Comments | |
| 26.131 |  | Terminal acoustic characteristics for telephony; Requirements | | | | SA#68 | |  | |
| 26.132 |  | Speech and video telephony terminal acoustic test specification | | | | SA#68 | |  | |
|  |  |  | | | |  | |  | |
|  |  |  | | | |  | |  | |
|  |  |  | | | |  | |  | |
|  |  |  | | | |  | |  | |

## 11 Work item rapporteur(s) \*

Andre Schevciw, Qualcomm Incorporated, E-mail: aschevci@qti.qualcomm.com

Scott Isabelle, Audience, Inc., E-mail: sisabelle@audience.com

## 12 Work item leadership \*

TSG SA WG 4

## 13 Supporting Individual Members \*

|  |
| --- |
| Supporting IM name |
| Qualcomm, Incorporated |
| HEAD Acoustics, GmbH |
| Sony Mobile Communications |
| Vodafone, GmbH |
| Audience, Inc. |
| ORANGE |
|  |

form change history:

v1.13.2: adds tdoc header

v1.13.1: minor changes resulting from discussions at CT#41 & SA#41

v1.13.0: mods to enforce linkage amongst stages 1, 2, 3

draft mods Scarrone-Meredith 2008-07 ff

v1.12.1: removes revision marks following approval at SP-29  
v1.12.0: includes provision for Study Items (SP-29)

v1.11.0: includes those changes from v1.8.0 agreed at SP-25.

v1.10.0: full circle

v1.9.0: a clean sheet

v1.8.0: includes comments from SA#24

v1.7.0: includes comments from RAN, CN and T #24; also includes “early implementation” data

v1.6.0: includes comments made during review period prior to TSGs#24

v1.5.0: includes comments made at TSGs#23 (Phoenix)

v1.4.0: offered to SA#23 for approval

v1.3.0: offered to CN#23, RAN#23 and T#23 for comments

DRAFT4 v1.3.0: 2004-03-09: Incorporation of comments from Leaders list

DRAFT3 v1.3.0: 2004-02-19: Incorporation of comments from MCC members

DRAFT2 v1.3.0: 2004-01-29: Complete redraft:

v1.2.0: 2002-07-04: "USIM" box changed to "UICC apps"

2003-05-28: spelling of “rapporteur” corrected

2002-07-04: "USIM" box changed to "UICC apps"