3GPP TSG SA WG4#117-e meeting Tdoc S4-220155

14th – 23rd February 2022

**Source: Orange, HEAD acoustics GmbH**

**Title: New WID on Enhancements to UE Testing**

**Document for: Discussion**

**Agenda Item: 9.7**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: Enhancements to UE Testing

Acronym: eUET

Unique identifier:

Potential target Release: *Rel-18*

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  | x |  |  |  |
| No | x |  | x | x | x |
| Don't know |  |  |  |  |  |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
| x | Feature |
|  | Building Block |
|  | *Work Task* |
|  | Study Item |

## 2.2 Parent Work Item

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| N/A |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| 580067 | ART\_LTE: Acoustic Requirements and Test methods for IMS-based conversational speech services over LTE | Initial introduction of requirements and jitter buffer performance requirements |
| 860012 | HaNTE: Handsets Featuring Non-Traditional Earpieces | Incomplete aspects from HaNTE moved to Rel-18 in the present work item |
| 880012 | HInT: Extension for headset interface tests of UE | Introduction of electrical interface UE tests |

**Dependency on non-3GPP (draft) specification:**

None

# 3 Justification

This work item addresses some left overs from activities partially completed in previous releases.

* The support of both MTSI-based speech and superwideband (SWB) and fullband (FB) speech have been introduced in TS 26.131 and TS 26.132 since Rel-12.
* Some SWB frequency masks were left underdefined by lack of sufficient evidence and maturity (see clauses 7.4.2.2 Headset UE receiving, 7.4.3 Desktop and vehicle-mounted hands-free UE sending, 7.4.4 Desktop and vehicle-mounted hands-free UE receiving, 7.4.5 Hand-held hands-free UE sending, 7.4.6 Hand-held hands-free UE receiving).
* The specification of tests on the performance of jitter buffers in MTSI was also kept to a basic reporting of performance statistics. In the field (e.g. drive tests), speech quality in MTSI-based services was found to depend on UE implementations (models, vendors) in a large extent, especially when jitter conditions are not those from clean or good channel conditions.
* The work under the HaNTE work item investigated performance at maximum volume control. Before introducing any requirement in this area, more evidence is required and new requirements (if any) should apply to all types of devices, and not ony HaNTE devices, for all relevant bandwidths (NB, WB, SWB). Test results from the round robin conducted in the context of HaNTE may be be postprocessed and properly reported.

Moreover, issues have been reported in the field concerning the implementation of RTP payload formats for 3GPP codecs in UE. While the 3GPP speech/audio codecs are properly defined with a set of test vectors and conformance tests, there is no reference implementation for the higher-level support of the RTP payload format. It should be noted that an example SDK for EVS floating-point including the support for RTP dumps has been provided in S4-211541, however such tool is not included in any specification. The main issue for AMR/AMR-WB is the definition of the ‘Q-bit’, while for EVS it would be helpful for the industry to have a set of tests verifying the correct implementation of features, such as correct UE response to CMRs, correct mapping of SDP parameters to RTP media. Such tests should consider the UE as a black box and preferably use live calls similar to TS 26.131 and 26.132. To simplify the setup, the UE electrical interface may be used.

# 4 Objective

The work item has the following objectives:

* Update clause 7.4 (“Sensitivity/frequency characteristics”) of TS 26.131 to define missing SWB frequency masks and review related test methods in TS 26.132.
* Update clauses 5.15, 6.14, 7.14, 8.14 ("Jitter buffer management behaviour") of TS 26.131 and clauses 7.13, 8.18, 9.13, 10.13 ("Test conditions") of TS 26.132 for jitter buffer management.
* Develop a new specification to verify correct implementations of the RTP payload format for 3GPP codecs, based on a system simulator, for instance using UE electrical interface tests. Additional tools such as direct decoding of RTP payload or RTP payload dissectors may also be specified.
* Review receiving performance of UEs at maximum volume control (especially receiving frequency responses) and define requirements and test methods in 3GPP TS 26.131 and TS 26.132 to ensure an adequate user experience.
* Document in TR 26.801 any relevant finding from the round robin activity and additional tests conducted in the Rel-17 HaNTE work.

# 5 Expected Output and Time scale

|  |
| --- |
| New specifications {One line per specification. Create/delete lines as needed} |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Rapporteur |
| TS | 26.xxx(26.130 if possible) | Speech/Audio Codec RTP Payload Format Conformance for UE Testing | TSG#100 | TSG#102 | Stéphane Ragot, Orange, stephane.ragot@orange.com |
|  |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| TS 26.131 | Updated requirements | TSG#102 |  |
| TS 26.132 | Updated test methods | TSG#102 |  |
| TR 26.801 | Update with relevant test results | TSG#102 | Editor: TBD |

# 6 Work item Rapporteur(s)

Stéphane Ragot, Orange, stephane.ragot@orange.com (requirements in 26.131, new TS)

Jan Reimes, HEAD acoustics, Jan.Reimes@head-acoustics.com (test methods in 26.132)

# 7 Work item leadership

SA4

# 8 Aspects that involve other WGs

None identified yet.

# 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| Orange |
| HEAD acoustics GmbH |
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