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| --- |
| ToR TTF T021 (Ref. Body STQ) |
| Version: 0.9 |
| Author: Joachim Pomy – Date: 2021-07-16 |
| Last updated by: ETSI Secretariat – Date: 2022-03-23 |
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Terms of Reference –Testing Task Force Proposal

TTF T021 (Ref. Body STQ)

Characterization of the New ETSI speech codec based on subjective Test data bases – CNET step 2

Summary information

|  |  |  |
| --- | --- | --- |
| Approval status | Approved by TC STQ (doc ref: STQ(21)068008r6) | **YES** |
| Reference Body | Ref. Body STQ |
| ETSI Funding | **Maximum budget : 123 500 EUR** |
| Minimum of 4 ETSI Members Support | **YES** |
| Time scale | **From** | 2022-05-16 |
| **To** | 2023-10-31 |
| Work Items  | RTS/STQ-301: Objective assessment of the speech data bases used for the subjective tests using POLQA (ITU-T P.863): new Annex to TS 103 624RTS/STQ-301: Equipment Impairment Factors for the different bandwidth modes of the codec: new Annex to TS 103 624NB: 2 Annexes which are going to be included in revision of TS 103 624 |
| TTF Roadmap reference | TTF 2022 Roadmap |

Part I –TTF Technical Proposal

# Rationale & Objectives

## Rationale

There are two more topics which had not been included in TTF T005, because they could only be initiated after it was confirmed by TTF T005 that the New ETSI Speech Codec (LC3plus) fulfils the requirements set out in TS 103 624. This has now been confirmed by the subjective tests conducted by the TTF T005 team.

Therefore, the proposed activity under this new TTF consists of the following two topics, which are required in context of the New ETSI Speech Codec:

1. According to TS 103 624 clause 5.5, the subjective tests shall be followed by a verification with the objective method ITU-T P.863.
NOTE: At the time when TS 103 624 was drafted, there was the expectation that these tests would be provided by a specific STQ member at no extra cost. However, that company is no longer a member of ETSI and will not provide these tests.
2. For the purpose of inclusion of the New ETSI Speech Codec in transmission planning, ITU-T SG12 is requesting ETSI to provide information on the so-called Equipment Impairment factor(s) (*abbreviation: Ie*) of the New ETSI Speech Codec for future inclusion in ITU-T G.113.
*Ie* -Factors are a characterization of the impact of speech codecs on the perceived quality on a psychological scale; their values are available for all codecs which are of relevance in modern networks and terminals.
In order to fully establish the New ETSI Speech Codec internationally, the knowledge about the *Ie* -Factors is required and it would be highly promotional for ETSI to provide the international community with the Equipment Impairment Factors for transmission planning for the New ETSI Speech Codec for all three instances of the Transmission Planning with the E-model, namely narrowband (NB), wideband (WB) and fullband (FB).
In order to provide the values for FB, a new methodology will have to be established; this can be done based on existing work in the field, like (1) , (2), (3) or (4)[[1]](#footnote-2) where the Ie factor has been derived for the OPUS codec[[2]](#footnote-3).

## Objectives of the work to be executed

1. Objective assessment of the subjective test result already produced by TTF T005.
This cross check shall verify that the test results on the New ETSI Speech Codec (LC3plus) show no statistically significant differences between subjective or objective assessment.
2. Determination of the Equipment Impairment Factors for the different bandwidth modes of the codec.
	1. Test plan definition:
	As the exact procedure for FB Ie is currently not standardized, it is necessary to design and agree upon the complete test procedure. Also test plans for the determination of NB and WB Ie are to be compiled based on ITU-T P.833, P.833.1 P.834 and P.834.1.
	2. Preparation of test material, recordings:
	To derive the *Ie* parameter, a combination of subjective and objective tests is needed. These tests will require a set of test recordings to be used as input materials for both test types.
	3. Subjective test:
	As ITU-T C-208 shows a discrepancy between subjectively (P.833.1) objectively (P.834.1) derived *Ie* values, *Ie* will be derived based on both objective and subjective tests.
	4. Objective assessment using POLQA (ITU-T P.863)
	5. Statistical analysis, conclusion and derivation of one single *Ie* value per bandwidth mode, if possible.

## Previous funded activities in the same domain

TC STQ did benefit of STF support in this domain during the past 5 years for the following projects:

STF 504 on Detection of Emotions in Telecommunication Measurement Applications. The resources used amounted approximately to 60 kEUR.

This work dealt with development of a standard on emotion detectors. Initially, the classification of Emotion Detectors for written text and its performance assessment were made. This included analysis of existing solutions. Consequently, a classification of Emotion Detectors for spoken speech and its performance assessment was performed, including analysis of existing solutions.

As a next step and based on the results of previous tasks, the set of minimum requirements for emotion detectors in telecommunications was defined. The final clause contains minimum mandatory and optional input and output requirements, memory and power requirements, and types of operation.

STF575 dealt with Methods for Objective assessment of Listening Effort based on subjective test data bases. The resources used amounted approximately to 71 kEUR.

The work performed was to create, at acoustical interfaces in the presence of background noise, a set of:

• high quality reference speech samples

• test conditions which impair the reference items

• high quality recordings of the impaired reference items (test sequences)

and to conduct a statistically significant number of auditory tests (subjective tests) for objective model training and model validation.

STF 590 on Methods for Objective assessment of Listening Effort based on subjective test data bases. The resources used amounted to 68.5 kEUR

The task was to design experiments to measure Listening Effort (LE), at the electrical interface, using methods that include all relevant aspects of accessibility for persons with hearing impairment, and to collect an initial corpus of results over a wide range of conditions relevant to contemporary telecommunications systems, with initial focus on persons with normal hearing.

In addition, there is currently ongoing:

TTF T005 on Characterization of the New ETSI speech codec based on subjective test data bases. The work performed by TTF T005 is to create a set of high-quality recordings for the codec tandeming scenarios stipulated by TS 103 624 (test sequences) and conduct a statistically sufficiently large number of auditory tests (subjective tests). The resources used will amount to 89 kEUR.

## Consequences if not agreed

If the TTF is not accepted, the work will not be undertaken and the required knowledge about the Ie -Factors for transmission planning using the New ETSI Speech Codec (LC3plus) will not be available, and the codec will not be established internationally outside ETSI. This has to be seen in the context that for the OPUS codec Ie - values are already known and can be used for network planning purposes.

The VoIP market will be fragmented by non-standardized solutions and uncertainty will prevail to whether this codec can be used with confidence in maintaining high speech quality under all circumstances.

The LC3plus codec technology is also contributed to the SIG Bluetooth providing a significant improvement to previous technologies. In order to provide the technical benefits also to groups outside ETSI this TTF activity is required.

# ETSI Members Support

|  |  |  |
| --- | --- | --- |
| **#** | **ETSI Member** | **Supporting delegate** |
| 1 | Focus Infocom | Wolfgang Balzer |
| 2 | Fraunhofer IIS | Markus Schnell |
| 3 | Ericsson LM | Jonas Svedberg |
| 4 | DSPG Edinburgh Ltd | Heinz Thürauf |
| 5 | Mesaqin.com s.r.o (Ltd.) | Jan Holub |
| 6 | Ministry of Transport and Cons. | Peter Pocta |
| 7 | Orange | Vincent Barriac |

# Deliverables

## Base documents

|  |  |  |
| --- | --- | --- |
| **Document** | **Title** | **Status** |
| ETSI TS 103 624 | Characterization Methodology and Requirement Specifications for the ETSI LC3plus codec | Approved |
| ETSI TS 103 634 | Digital Enhanced Cordless Telecommunications (DECT);Low Complexity Communication Codec Plus (LC3plus); | Approved |

## New deliverables

|  |  |  |  |
| --- | --- | --- | --- |
| **Deliv.** | **Work Item code****Standard number** | **Working title** | **Expected date for publication** |
| D1 | RTS/STQ-301 | Objective assessment of the speech data bases used for the subjective tests using POLQA (ITU-T P.863): new Annex to TS 103 624 | August 2023 |
| D2 | RTS/STQ-301 | Equipment Impairment Factors for the different bandwidth modes of the codec: new Annex to TS 103 624 | August 2023 |

# Maximum budget

## Task summary/Manpower Budget

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| --- | --- |
| **Task short description** | Budget (EUR) |
|
| #1: Objective assessment of the subjective test result already provided in TS 103 624 v1.2.1 | 3 000 |
| #2: Determination of Equipment Impairment Factors for the different bandwidth modes of the codec |  |
| #2.1: Test plan definition | 5 000 |
| #2.2: Preparation of test material, recordings9 experiments @ 1.5kEUR each(3 bandwidths (NB, WB, FB) x 3) | 13 500 |
| #2.3: Subjective tests9 experiments @ 10kEUR each(3 bandwidths (NB, WB, FB) x 3) | 90 000 |
| #2.4 &2.5: Objective assessment using POLQA, *Ie* derivation and analysis | 5 000 |
| #3: Overall coordination and project management | 7 000 |
| **TOTAL** | 123 500 |

## Travel budget

None.

## Other budget line

None.

Part II – Details on TTF Technical Proposal

# Tasks, Technical Bodies and other stakeholders

## Organization of the work

## The work will be organized following, where relevant, the procedures successfully used in the subjective characterization of the EVS codec. Objective testing has to be made according to P.863 using its fully compliant implementation and performed by experienced expert team.

Subjective testing has to be made by experienced subjective test lab with premises fully conforming to P.800, having test and calibration equipment required and having access to test subjects of required mother tongue.

## A steering committee will be created. The committee will meet in conjunction with STQ regular meetings and by conference calls as necessary. The steering committee will be chaired by a member of the STQ management team and will include interested participants from the DECT TB.

## The relations with other stakeholders, will be managed via liaison communication and attendance at their meeting(s) to present the status of the TTF work.

## Other interested ETSI Technical Bodies

No other interested ETSI TB have been identified.

## Other stakeholders

No other stakeholders are identified at this time.

However, ITU-T SG12, TIA TR41 and 3GPP SA4 will be informed about the progress and the results of the TTF. This will be of interest for these standardization bodies, e.g. for interworking situations.

Part III: Execution of Work

# Work plan, time scale and resources

## Task description

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| --- | --- |
| **Task # 1** | **Objective Assessment of new ETSI LC3plus codec** |
| **Objectives** | Objective assessment of the subjective test result achieved in TS 103 624 v1.2.1  |
| **Input** | Source and distorted speech samples as created and described in TS 103 624 v1.2.1, algorithm implementation conforming to ITU-T P.863  |
| **Output** | MOS-LQO results of all test samples tested previously in TS 103 624 v1.2.1, detailed statistical analysis and comparison between MOS-LQO and MOS-LQS results |
| **Interactions** | Coordination with the Steering committee. Interactions with the authors of TS 103 624 v1.2.1 if clarifications are needed. Coordination with the listening lab(s) providing MOS-LQS results if clarifications are needed. |
| **Resources required** | Speech sample processing tools (including quality estimator conforming to P.863), expertise in sample processing, statistics, and result analysis. |

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| **Task # 2.1** | **Test plan definition, proposal of FB Ie derivation** |
| **Objectives** | To define the listening methods and test conditions for subjective tests focused to derivation of the Ie factor of the ETSI LC3plus codec.To propose a methodology for derivation of FB Ie for the ETSI LC3plus codec. |
| **Input** | ITU-T C-208 (made available in the context of this planned project by one of the authors)P.833.1 P.834.1 |
| **Output** | As the exact procedure for FB Ie is currently not standardized, it is necessary to design and agree upon the complete test procedure. Also test plans for the determination of NB and WB Ie are to be compiled based on ITU-T P.833, P.833.1 P.834 and P.834.1. |
| **Interactions** | Coordination with the Steering committee on progress and issuesApproval of the test plan by TC STQ as Deliverable 1 |
| **Resources required** | Resources include the input documents and expertise in principles of speech quality testing and Ie parameter derivation. |

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| **Task # 2.2** | **Preparation of test material, recordings** |
| **Objectives** | To prepare all speech materials for the objective testing and all test conditions defined in the Test Plan for the subjective tests |
| **Input** | Test plan (result of Task 2.1)Source speech materials as defined in Deliverable 1 delivered by Listening lab(s). |
| **Output** | Processed speech samples for all test conditions of objective and subjective tests, in all aspects (language, processing, number of sentences, etc.) as defined in the test plan, Archival methods for the processed speech samples, including file formatting and naming, are to be agreed with the processing lab for the objective tests and listening lab(s) for the subjective tests. |
| **Interactions** | Coordination with the Steering committee. Interactions with the authors of Deliverable 1 if clarifications are needed. Coordination with the processing lab and listening lab(s) for proper speech sample archival methods and delivery. |
| **Resources required** | All required signal processing tools for all conditions defined in the Test Plan, along with expertise in applying said tools. |

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| **Task # 2.3** | **Subjective tests** |
| **Objectives** | To accept the speech samples as prepared in Task #2.2To conduct all listening tests using the methods and plan defined in the Test plan, generating results for each test condition. |
| **Input** | Test Plan, Deliverable 1, from Task # 2.1.Processed speech test materials for all 9 experiments from Task # 2.2. |
| **Output** | The listening lab(s) will deliver raw voting results for each condition defined in the Test plan (Deliverable 1) for each of the 9 experiments. In addition, results will be provided on the quality of the listening panels (e.g. number of listeners excluded for cause, etc.). |
| **Interactions** | Coordination with the Steering Committee. Interactions with the authors of Deliverable 1, if clarification of the test methods are required. Interactions with the creators of the test materials for agreement on archival format, for efficient hand-over. |
| **Resources required** | Definitions of all test methods from the Characterization test plan, Task #2.1.Speech materials for all tests, outcome of Task #2.2.Expertise in the conduct of subjective listening tests, including ability to recruit, screen, and appropriately train persons for listening panels. Appropriate source speech materials as defined in the Test Plan, or skills and equipment required to collect such source speech if not existent. |

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| **Task # 2.4** | **Subjective and Objective derivation of Ie**  |
| **Objectives** | To derive Ie parameter using POLQA (ITU-T P.863) and ITU-T P.834.1To derive Ie parameter using speech samples and ITU-T P.833.1.Take into account the newly defined methodology for FB. |
| **Input** | Test Plan (Deliverable 1)Samples from Task 2.2Raw voting score from Task #2.3P.833.1, P.834.1 |
| **Output** | Separate Ie parameter values for different bandwidth modes, derived objectively and subjectively |
| **Interactions** | Coordination with the Steering committee. Consultation with the authors of Deliverable 1, Task 2.2 and Task 2.3 if clarification is needed.  |
| **Resources required** | Test Plan, Deliverable 1 from Task # 2.1.Samples for objective Ie derivation, from Task # 2.2.Raw voting score from Task #2.3 |

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| **Task # 2.5** | **Derivation of a single Ie value for each bandwidth mode** |
| **Objectives** | Statistical analysis, conclusion and derivation of one single *Ie* value per bandwidth mode  |
| **Input** | Results of Task # 2.4 |
| **Output** | A set of Ie values for the new ETSI LC3plus codec, single Ie value per each bandwidth mode |
| **Interactions** | Coordination with the Steering committee. Consultation with the authors of Deliverable 1, and results of 2.3 and 2.4Approval by TB STQ as Deliverable 2. |
| **Resources required** | Results of Tasks #2.3 and # 2.4, expertise in statistical analysis and Ie derivation following P.833.1 and P.834.1 |

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| **Task # 3** | **Overall coordination and project management** |
| **Objectives** | To coordinate all work streams among all participants.  |
| **Input** | Results from Tasks # 2.1. - 2.5. |
| **Output** | Progress reports to the TC STQ.Presentation of results to ITU-T SG-12. |
| **Interactions** | Coordination with the Steering committee and all workstream participants. Presentation of progress reports to TC STQ, and presentation of final results to ITU-T SG-12. |
| **Resources required** | Timely communications with all participants and stakeholders. |

## Milestones

Milestone A – Objective Assessment of new ETSI LC3plus codec, Test plan definition, Ie parameter derivation proposal

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| **Milestone** | **Description** | **Cut-Off Date** |
| **A** | Objective Assessment of new ETSI LC3plus codec, Test plan definition, Ie parameter derivation proposal | 2022-05-15 |
| TC STQ | Task 1: Early Draft D1 delivered to TC STQ:Task 2.1: Early Draft D2 including Test plan definition, proposal of FB Ie derivation accepted by SC |
| ETSI Secretariat | Progress Report approved by TC STQ |

Milestone B – Progress in preparation of test material, recordings, subjective test performance

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| **Milestone** | **Description** | **Cut-Off Date** |
| **B** | Progress in preparation of test material, recordings, performance of subjective tests | 2022-09-30 |
| TC STQ |  |
| ETSI Secretariat | Progress Report approved by TC STQ |

Milestone C – Preparation of test material, recordings, subjective test performed and analysed

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| **Milestone** | **Description** | **Cut-Off Date** |
| **C** | Preparation of test material, recordings, subjective test performed and analysed (Includes Tasks 2.2 and 2.3) | 2023-02-15 |
| TC STQ | Stable Drafts D1 and D2 accepted by TC STQ |
| ETSI Secretariat | Progress Report approved by TC STQ |

Milestone D – Subjective and Objective derivation of *Ie*, derivation of a single *Ie* value for each bandwidth mode

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| **Milestone** | **Description** | **Cut-Off Date** |
| **D** | Subjective and Objective derivation of Ie, derivation of a single Ie value for each bandwidth mode (Includes Tasks 2.4 and 2.5) | 2023-05-15 |
| TC STQ | Final Drafts D1 and D2 approved by TC STQ |
| ETSI Secretariat | Final Report approved by TC STQ |

Milestone E – Deliverables published, TTF closed

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| **Milestone** | **Description** | **Cut-Off Date** |
| **E** | Deliverables published, TTF closed | 2023-06-30 |
| ETSI Secretariat | Deliverables published, TTF closed |

## Task summarySchedules of this TTF will be aligned with the dates of ordinary meetings of the TB before the project is actually being started.Therefore, the following milestones and dates have to be considered as provisional.

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| --- | --- | --- | --- |
| **Code** | **Task / Milestone**  | Target Date | Estimated Cost (EUR) |
| From | To |
|  | Start of work | May 2022 |  |  |
| T1 | Objective Assessment of new ETSI LC3plus codec | May 2022 | July 2022 | 3 000 |
| T2.1 | Test plan definition, proposal of FB *Ie* derivation  | May 2022 | July 2022 | 3 000 |
|  |  |  |  |  |
| T2.1 | Test plan definition, *Ie* parameter derivation proposal | July 2022 | August 2022 | 2 000 |
| T2.2 | Preparation of test material, recordings | August 2022 | September 2022 | 13 500 |
| Milestone A | Early Draft D1 delivered to TC STQ, Early Draft D2 including test plan definition, proposal of FB *Ie* derivation delivered to TC STQProgress Report approved by TC STQ |  | 2022-09-30 STQ#71 |  |
| T2.3 | Subjective tests (9 experiments) | September 2022 | July 2023 | 90 000 |
| Milestone B | Progress in preparation of test material, recordings, performance of subjective testsProgress Report approved by TC STQ |  | 2023-02-28 |  |
| Milestone C | Stable Drafts D1 and D2 accepted by TC STQProgress Report approved by TC STQ |  | 2023-07-07 |  |
| T2.4 & T2.5 | Subjective and Objective derivation of *Ie*  | July 2023 | October 2023 | 5 000 |
| T3 | Overall coordination and project management | May 2022 | October 2023 | 7 000 |
| Milestone D | Final Drafts D1 and D2 approved by TC STQFinal Report approved by TC STQ |  | 2023-10-13 |  |
| Milestone*E* | Deliverables published, TTF closed |  | October 2023 |  |
|  | **123 500** |

Gantt Chart

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Task/ Mil.** | **J** | **F** | **M** | **A** | **M** | **J** | **J** | **A** | **S** | **O** | **N** | **D** |  | **J** | **F** | **M** | **A** | **M** | **J** | **J** | **A** | **S** | **O** | **N** | **D** |
| T1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T2.1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T2.2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MA |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T2.3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MB |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T2.4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T2.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MD |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ME |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

# Expertise required

## Team structure

Up to two labs and one senior expert to ensure the following mix of competences:

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| --- | --- |
| **Priority** | **Qualifications and competences** |

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| --- | --- |
| High | A Laboratory able to produce test sequences in a high quality and to be able to provide any impairment needed for the characterizationof the codec.  |
| High | A laboratory able to conduct the subjective tests according to the rules |
| High | Experts able to define the test plan and the relevant test conditions |
| High | Expert(s) able to manage the work program according to the time and requirements plans, and to produce all the needed reports and communications |

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| High | Thorough expertise and experience in QoS and QoE. |

Part IV: TTF performance evaluation criteria

# Performance Indicators

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| --- |
| **Select relevant Performance indicators applicable for these ToR (X)** |
| Contribution from ETSI Members to TTF work |
| Direct financial contribution (co-funding) |  |
| Support to the TTF work (e.g., provision of test–beds, organization of workshops, events) | X |
| Steering Group meetings (number of meetings / participants / duration) | X |
| Number of delegates directly involved in the review of the deliverables | X |
| Contributions/comments received from the Reference Bodies | X |
| Contributions/comments received from other Reference Bodies |  |
|  |  |
| **Contribution from the TTF to ETSI work** |
| Contributions to Reference Body meetings (number of documents / meetings / participants) |  |
| Contributions to other Reference Bodies |  |
| Presentations in workshops, conferences, stakeholder meetings |  |
|  |  |
| **Liaison with other stakeholders** |
| Stakeholder participation in the project (category, business area) |  |
| Cooperation with other standardization bodies |  |
| Potential interest of new members to join ETSI |  |
| Liaison to identify requirements and raise awareness on ETSI deliverables  |  |
| Comments received on drafts (e.g. on WEB site, mailing lists, etc.) |  |
|  |  |
| **Quality of deliverables** |
| Approval of deliverables according to schedule | X |
| Respect of time scale, with reference to start/end dates in the approved ToR | X |
| Comments from Quality review by Reference Body | X |
| Comments from Quality review by ETSI Secretariat | X |
|  |  |

# Document history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Date** | **Author** | **Status** | **Comments** |
| 0.4 | 2021-09-20 | JP |  | version for STQ approval |
| 0.7 | 2022-03-04 | UJM |  | Rev. marks accepted from TB approval, editorial changes. |
| 0.8 | 2022-03-18 | UJM |  | Updated milestones, schedule, performance indicators |
| 0.9 | 2022-03-23 | ETSI Secretariat |  | Update before CL publication |

Annex I Response to the Request for Proposals
CfE – TTF T021 (TC STQ) Deadline: 25 April 2022

|  |  |
| --- | --- |
| **Contractor name \****Indicate the Company/Organization Name* |  |

|  |
| --- |
| **Contractor information \*** |
| **Contact person for the technical aspects** | **Contact person for Decision on ETSI financial offer to this project (if any)** |
| Title |  | Title |  |
| First name |  | First name |  |
| Last name  |  | Last name  |  |
| Role |  | Role |  |
| e-mail |  | e-mail |  |
| Phone |  | Phone |  |
|  |
|  | **Yes** | **No** |
| Do you or any employee of your Company/Organization hold an elected or appointed position in the Reference Body requesting the TTF T021 creation? | 🞏Indicate in which position:----------------------------------- | 🞏 |
| **If you are self-employed candidate:**Do you currently have other contracts in progress with ETSI? | 🞏 | 🞏  |

**1.1 Introduction**

*A short presentation of the technical structure responsible for this activity, e.g.:*

* Business area, number of employees, link to WEB site
* Department(s)/team(s)/experts in charge of the technical activities related to the TTF.
* Reference to products/services of your Company/Organization to which the standards developed by the TTF will apply
* Motivation for your Company/Organization to participate in the TTF

**1.2 Proposed approach**

**Proposed contribution to tasks & related cost**

Identify the tasks to which your Company/Organization is proposing to contribute and provide a description of the proposed approach, competences, reference to related activities:

* Explain the scope that your Company/Organization will cover
* Explain your approach to the management of the quality and,
* Explain your approach to the management of the risks and their mitigation
* Describe and justify the proposed costs to achieve the project objectives

Annex II Terms and Conditions
CfE – TTF T021 (TC STQ) Deadline: 25 April 2022

**2.1 Submission of Proposals**

All proposals in response to this CfE shall be submitted before the deadline indicated in thisCollective Letter, using exclusively the WEB application on the ETSI Portal at the following address: <https://portal.etsi.org/cfe>.

Proposals shall be composed of Curriculum Vitae of the proposed service providers’ personnel and the Annex B of this CfE duly filled-out.

Proposals that will be partial or incomplete at the deadline will not be accepted.

The Terms and Conditions in this Annex will apply.

**2.2 Modification and Withdrawal of Proposals**

Applicants may, without prejudice to themselves, modify or withdraw their proposal by written request, provided that the request is received by ETSI prior to the due date and time, at the address to which their proposal was submitted. The applicant may submit a new proposal provided that such new proposal is received prior to the deadline for responding which is specified in this Collective Letter.

**2.3 Assessment of Proposals**

The ETSI Director-General, in consultation with the Reference Body Chairman, is responsible for the selection of the service providers that will be contracted to perform the TTF work. The ETSI Director-General and the Reference Body Chairman may be assisted by a Selection Panel to assess the applications received and make the final decision.

As per article 1.10.4 of the ETSI Directives, the Director-General may discard proposals that could be identified as creating potential conflict of interest.

The ETSI Secretariat will only communicate to the applicants the result of the selection (accepted or not accepted). Should applicants need more information on the rationale for the selection, they must address a formal request to the ETSI Director-General.

The following evaluation criteria will be applied to all proposals, in order of priority:

* Evidence that the applicant has the necessary structure and expertise to ensure delivery
* Reference to current or previous activities in the specific technical domain of this project
* Critical review of the most efficient way to achieve the objectives in the TTF ToR
* Effective proposed approach/methodology for the execution of the tasks
* Implementation schedule
* Clear pricing policy

Compliance with the first two (2) criteria is mandatory.

Proposals that are not considered compliant with these criteria will be discarded.

Priority will be given to technical quality of the proposals. Pricing considerations will be taken into account to ensure that the best value for money is achieved. Compatibility with the maximum budget allocated to this TTF will be verified before placing a Service Contract.

Following the assessment process, ETSI reserves the right to grant contracts to other than the cheapest proposals, to accept or reject any offer completely or in part, or to reject all proposals, without providing the reasons. If no offer is accepted, ETSI may decide to abandon the work or proceed in any other manner ETSI may select.

**2.4 IPR and confidentiality Agreements**

The information provided in this CfE, as well as the fact that the applicant has received the CfE, is considered confidential and protected under copyright laws. The applicant may not discuss, share, or use the information in this CfE for any purpose other than the response to this CfE.

ETSI will not disclose the content of any proposals to other applicants or any other party, with the exception of the persons involved in the assessment process described in §C.3 above.

However, ETSI reserves the right to make use of the information provided in this proposal to improve the project definition for the purpose of this CfE or any other manner in which ETSI may decide to proceed to select the service providers.

If successful, the applicant will be required to sign a Service Contract, which includes IPR and Confidentiality clauses aligned with the relevant policies in the ETSI Directives.

**2.5 Preparation cost**

ETSI will not be responsible for any costs or expenses that the applicant may incur in preparing and/or submitting the proposal.

**2.6 Service Contract**

A Service Contract will be proposed to the applicants that will be selected to perform the work.

Details on the Terms and Conditions of this contract can be found on the ETSI Portal, at the following address: <https://portal.etsi.org/STF/STFs/Contracts.aspx>

1. (1) Sebastian Möller, Nicolas Côté, Valérie Gautier-Turbin, Nobuhiko Kitawaki and Akira Takahashi, "Instrumental Estimation of E-Model Parameters for Wideband Speech Codecs", EURASIP Journal on Audio Speech and Music Processing, vol. 2010, no. 1, pp. 1-16, 2010.

(2) S. Moller, A. Raake, N. Kitawaki, A. Takahashi and M. Waltermann, "Impairment factor framework for wide-band speech codecs", IEEE Transactions on Audio Speech and Language Processing, vol. 14, no. 6, pp. 1969-1976, Nov 2006.

(3) M. Al-Ahmadi, P. Pocta and H. Melvin, "Instrumental estimation of e-model equipment impairment factor parameters for super-wideband opus codec", Proc. Ir. Signals Syst. Conf., pp. 1-5, Jun. 2019.

(4) M. Al-Ahmadi, P. Pocta and H. Melvin, "Derivation of E-model Equipment Impairment Factors for Narrowband and Wideband Opus Codec Using the Instrumental Method," 2020 31st Irish Signals and Systems Conference (ISSC), 2020, pp. 1-6, doi: 10.1109/ISSC49989.2020.9180160. [↑](#footnote-ref-2)
2. IETF RFC 6716: "Definition of the Opus Audio Codec" [↑](#footnote-ref-3)