Terms of Reference Template

Testing Task Force (TTF)

**INSTRUCTIONS for completing the document:**

The template is for TTF use and it consists in four parts:

Part I – TTF technical proposal: Provides the D-G/OCG/Board with the essential elements to mainly understand the rationale and objective

**The parts hereinafter are composed of the TTF details that may be updated prior to the final set-up of the project team.**

Part II – Details of the TTF Technical Proposal: Organisation of the work and links with other stakeholders.

Part III - Execution of the work: detailed description of the work to be done, deliverables to be produced, tasks structure, milestones estimate of the maximum budget to be allocated. The information provided in this is part must be precise enough to be used to select contractors in the Call for Expertise.

Part IV - Performance Indicators: these must provide the elements for the Reference Body report to the D-G on the performance of the TTF.

**PLEASE REMOVE ALL GUIDELINE TEXT IN THE FINAL VERSION OF THE ToRs
(hint: search for style "Guideline" and delete the paragraphs)**

**For any questions e-mail to CTI Director** **Ultan.Mulligan@etsi.org**

|  |
| --- |
| ToR TTF XXX (Ref. Body XXX) |
| Version: 0.4 |
| Author: Dr. Marija Jankovic, Dr. Philip Makedonski, Finn Kristoffersen– Date: 2023-08-25 |
| Last updated by: Firstname Lastname – Date: 20YY-mm-dd |
| page 2 of  |

Terms of Reference –Testing Task Force Proposal

TTF XXX (Ref. Body XXX)

**Conformance and Interoperability Test Specification Development – Survey and Future Directions**

Summary information

|  |  |  |
| --- | --- | --- |
| Approval status | Approved by Ref. Body (doc ref: XXXX) | **YES/NO** |
| Reference Body | TC MTS |
| ETSI Funding | **Maximum budget: 39 500 EUR** |
| Minimum of 4 ETSI Members Support | **YES** |
| Time scale | **From** | 2024-03-05 |
| **To** | 2025-03-10 |
| Work Items  | See clause 3.2 below |
| TTF Roadmap reference | [https://docbox.etsi.org/MTS/MTS/05-CONTRIBUTIONS/2023//MTS(23)000048\_Test\_Specification\_Methodology\_Roadmap.docx](https://docbox.etsi.org/MTS/MTS/05-CONTRIBUTIONS/2023//MTS%2823%29000048_Test_Specification_Methodology_Roadmap.docx) |

Part I –TTF Technical Proposal

# Rationale & Objectives

## Rationale

According to the ETSI *"*[Testing, Interoperability and Technical Quality](https://portal.etsi.org/Services/Centre-for-Testing-Interoperability/ETSI-Approach/Introduction)*"* framework published by the ETSI "Centre for Testing and Interoperability" (CTI), testing is categorised into [Conformance Testing](https://portal.etsi.org/Services/Centre-for-Testing-Interoperability/ETSI-Approach/Conformance) and [Interoperability Testing](file:///C%3A%5CUsers%5Cmaryj%5CDocuments%5C_IoTAC%5C_ETSI%5CETSI%20PROPOSALS%5C1%20TTF%20Call%5CInteroperability%20Testing). ETSI has traditionally followed a stepwise approach in developing conformance and interoperability test specifications based on the methodology defined in ISO/IEC 9646-1[[1]](#footnote-1). The ETSI test development process illustrated in Figure 1 involves multiple steps defined in ETSI TR 102 840 V1.2.1 (2011-02) and EG 203 130 V1.1.1 (2013-04). Each step has a corresponding outcome, e.g., TP is the result of the step "Specification of test purposes". The ETSI testing methodology was the foundation for developing RESTful API testing methods centred around the OpenAPI Specification, as outlined in ETSI EG 203 647 V1.1.1 (2020-11).



Figure 1: ETSI Test Specification Development [ETSI TR 102 840 V1.2.1 (2011-02)] [EG 203 130 V1.1.1 (2013-04)] [ETSI EG 203 647 V1.1.1 (2020-11)]

A brief description of the ETSI Test Specification Development methodology follows.

* **Step 1: Cataloguing of Requirements.** Organise requirements in a structured catalogue using the base standard, as detailed in ETSI EG 202 568 V1.1.3 (2007-04), to ensure clarity and traceability of expectations.
* **Step 2: Creation of Implementation Checklists (ICS/IFS).** Identify the Item Under Test (IUT) for Conformance and Interoperability testing using the Implementation Conformance Statements (ICSs) and the Interoperable Function Statements (IFSs), respectively.
* **Step 3: Identification of Test Suite Structure (TSS).** Outline a tree structure of test groups and subgroups, which can be defined based on the functional grouping in the requirements catalogue or additional testing criteria.
* **Step 4: Specification of Test Purposes (TP).** Define clear and uniform test objectives for specific requirements using the TDL-TO notation recommended in ETSI ES 203 119-4 (2018-04).
* **Step 5: Specification of Test Descriptions (TD).** Provide detailed test instructions using the TDL ETSI ES 203 119-1 (2014-1).
* **Step 6: Specification of Test Cases (TC).** Define TCs as part of an Abstract Test Suite (ATS) using TTCN-3 ETSI ES 201 873-1 V4.15.1 (2023-04), forming the foundation for automated conformance and interoperability testing.
* **Step 7: Validation of Test Cases.** Validate each test description case externally, as detailed in ETSI EG 201 015 V2.1.1 (2012-02), EG 202 107 V1.1.1 (1999-05), and ETR 304 (1996), focusing on validation activities, as the current framework does not consider verification.

Steps 1-7 of the ETSI Test Specification Development Methodology introduced in ETSI TR 102 840 V1.2.1 are briefly elaborated in EG 203 130 V1.1.1 and ETSI EG 203 647 V1.1.1, respectively. As mentioned in the description of the individual steps above, specific steps are further expanded in dedicated ETSI documents. Despite this granularity, test case development is inherently iterative and cascading. At its core, high-level Test Purposes (TPs) are systematically refined into Test Descriptions (TDs), which subsequently give rise to executable Test Cases (TCs), ideally mirroring an agile progression. Figure 1 illustrates the resulting artefacts clearly, but it can be further enhanced by illustrating their dynamic interaction and workflow that drives their genesis.

The MTS recognises a pressing need for further refinement of ETSI's Test Specification Development methodology. Among the key factors motivating this need are:

* **Complexity and variability of modern technologies.**The growing demand and utilisation of web, cloud, and RESTful APIs have led to specialised testing guidelines specifically designed to address the unique requirements of various ETSI Technical Bodies (TBs). These guidelines draw upon the TC MTS and ISO/IEC standards, underscoring the essential need for ETSI to transition from a traditional focus on protocol to a more targeted emphasis on service-level testing. The efforts of this TTF will consider the findings of the STF 576 as a starting point. In particular, the proposed RESTful APIs testing methodology (ETSI EG 203 647 V1.1.1 (2020-11) and 'RESTful APIs Adoption Survey' carried out from December 2019 to January 2020 across multiple ETSI TBs and Industry Specification Groups (ISGs) such as NFV, MEC, ZSM, 3GPP, SmartM2M, etc. Another crucial area that requires careful investigation is an ongoing joint effort between INT and MTS technical committees on the application of Artificial Intelligence (AI) technology, primarily Machine Learning (ML), in the context of software systems testing as outlined in ETSI TR 103 748 V1.1.1 (2022-06), ETSI TR 103 901, ETSI TS 6756, and the white paper[[2]](#footnote-2).
* **Modern software development processes.** The MTS acknowledges the predominance of current software development processes like DevOps techniques, collaborative development and testing practices, reusable test specifications for multi-vendor support, and agile techniques. ETSI TR 103 748 V1.1.1 (2022-06) emphasises the importance of Agile testing and the emergence of TestOps, an approach integrating software testing into development and operational processes. This approach is crucial for efficient development workflows and continuous integration and delivery. Moreover, reusable test specifications ensure consistency and compatibility across multi-vendor environments. As the software development landscape evolves, testing methodologies should be refined to align with modern practices, encompassing all development stages from design to deployment and maintenance.
* **Rising importance of non-functional requirements (NFRs).** The MTS recognises the growing importance of NFRs, such as security, robustness, and performance. As highlighted in ETSI TR 101 583 (V1.1.1) and ETSI EG 202 251 (v1.1.1), security testing is crucial for overall system robustness and performance. However, since the current ETSI testing approach focuses on functional testing, the integration of new methodologies for testing non-functional requirements should be carefully planned based on a detailed elicitation and prioritisation of user requirements collected from various sources (e.g., ETSI TBs, industrial users, etc.).

Undoubtedly, the rapid advancement of new technologies and modern software development processes has brought about significant changes in testing methodologies. Such evolution has resulted in diverse interpretations of ETSI guidelines across its technical bodies, threatening a coherent landscape of test methodologies. With a predominant lean towards manual testing, there's an evident need for ETSI to adopt a more structured and formalised testing method to uphold quality and consistency. This is especially crucial considering ETSI's established reputation in producing standardised test specifications.

However, any enhancements to the methodology must be rooted in a deep understanding and robust argumentation drawn from a thorough examination of the current test specification practices across diverse ETSI technical bodies. This underscores the importance of data-driven decisions in the realm of methodological advancements. Hence, the immediate priority pivots towards orchestrating a comprehensive survey. This survey will be instrumental in collectingvital information and fostering a more detailed understanding of the pressing needs and potential areas of improvement for the ETSI test specification. It will be essential to ensure that any adaptations or evolutions of the methodology are well-informed, relevant, and meet the actual demands of the stakeholders involved.

## Objectives of the work to be executed

The primary objective of this proposal is to evaluate the alignment of the current testing practices within ETSI TBs with the recommendations outlined in TR 102 840, EG 203 130 and directions outlined in the [Testing, Interoperability, and Technical Quality](https://portal.etsi.org/Services/Centre-for-Testing-Interoperability/ETSI-Approach/Introduction) framework on the CTI's website. By conducting an internal ETSI survey on current testing practices and a comprehensive state-of-the-art review in the field, the intention is to establish a solid baseline supported by empirical data. This will serve as the foundation for the systematic formulation of subsequent enhancements to the ETSI test process as outlined in the Roadmap.

In detail, the following sub-objectives will be achieved:

* **In-depth Analysis of Contemporary Test Specification Practices:** A systematic literature review of current test specification methodologies and standards, including those outside ETSI, such as ISO/IEC/IEEE 29119-1:2022[[3]](#footnote-3), will be conducted. This exploration will identify the latest trends, their principles, and efficacy. By contrasting these with ETSI's current methods, the goal is to extract insights that can shape ETSI's strategy. This ensures ETSI stays aligned with top industry practices and remains at the cutting edge of testing innovation.
* **Survey Design and Analysis:** This sub-objective is centred around the design and subsequent analysis of the internal ETSI survey. The primary intent of the internal survey is to delve deep into ETSI's existing conformance and interoperability test strategies. The systematic investigation will shed light on the degree to which different stages of the ETSI Test Specification Methodology have been adopted across the spectrum. Some of the expected outcomes, distilled from this survey, are:
	+ **Trend Analysis in Adoption**: This will be the basis to identify and categorise the specific features of the ETSI Test Specification Methodology that are widely adopted. It will empower a holistic view of active deployment's dominant testing models and technologies.
	+ **Integration Insights on TDL/TOP**: A crucial aspect of the survey will be to determine the extent to which the most recent TDL and TOP advancements have been integrated into the testing frameworks.
	+ **Assessment of Validation Techniques**: Analysis of the validation processes currently in place will provide insight into the robustness, thoroughness, and effectiveness of validation, ensuring that tests not only conform to stipulated standards but also achieve the broader objectives for which they are intended.
	+ **Expansion into Other Testing Domains**: ETSI has traditionally prioritised protocol testing as its primary focus. However, with evolving technological landscapes and shifting industry demands, it is now imperative for ETSI to also emphasise service testing to remain relevant and comprehensive in its approach. Additionally, the survey will venture beyond conformance and interoperability, seeking insights into ETSI's endeavours in other testing domains like performance and security.

This understanding will shape the refinement process, ensuring that the updates are practical and aligned with the ETSI community's needs.

* **Blueprint for Future ETSI Test Processes:** Following the survey findings and comprehensive analysis, the suggested Roadmap for ETSI's forthcoming testing strategies and improvements will be updated periodically, and future trajectories will be outlined in the final deliverable. The ultimate objective is to present a roadmap that facilitates the introduction of a testing methodology that is clear, efficient, and straightforward to implement.

To ensure the optimal execution and alignment of the core objective, a robust and collaborative engagement with the Centre for Testing and Interoperability (CTI) is imperative. We anticipate a CTI representative will actively support our survey efforts, providing essential promotion and ensuring that the right technical bodies are engaged. This is crucial for assimilating current technical perspectives and ensuring a harmonised application of our refined methodologies in the future.

## Previous funded activities in the same domain

ETSI MTS currently does not have any STF or TTF initiatives specifically targeting the refinement of the ETSI Test Specification Methodology. Nonetheless, ETSI MTS has established crucial foundational elements for enhancing and optimising the testing processes, ensuring that they remain aligned with industry best practices and evolving technological trends. The previous standardisation efforts in establishing the ETSI Test Specification Development methodology can be briefly summarised as follows.

Recent standardisation efforts (< 5 years):

* **ETSI EG 203 647 V1.1.1 (2020-11):** "Methods for Testing and Specification (MTS); Methodology for RESTful APIs specifications and testing" provided a report on standardisation for telecommunication interfaces using RESTful APIs, compiling conventions, and methodologies from ETSI and industry sources to guide the entire standardisation process from design to validation.
* **ETSI ES 203 119-4 (2018-05):** "Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 4: Structured Test Objective Specification (Extension)" specifies an extension of the TDL enabling the specification of structured test objectives.

Earlier relevant standardisation efforts:

* **ETSI TR 102 840 V1.2.1 (2011-02):** "Methods for Testing and Specifications (MTS); Model-based testing in standardisation"laid out the foundation of the ETSI Test Specification Development process and outlined the main steps and their corresponding outputs.
* **EG 203 130 V1.1.1 (2013-04):** "Methods for Testing and Specification (MTS); Model-Based Testing (MBT); Methodology for standardised test specification development" provided general guidelines for using model-based testing with automated test generation in conformance test development for ETSI standards. Besides, it outlined a vision of how Model-based Testing (MBT) could be integrated into the ETSI test development process.

Validation-related standardisation efforts:

* **EG 202 107 V1.1.1 (1999-05)**: "Methods for Testing and Specification (MTS); Planning for validation and testing in the standards-making process" provides an overview of the specification and validation of base standards.
* **ETR 304 (1996)**: "Methods for Testing and Specification (MTS); The future in ETSI of quality of standards-making, validation, and testing" outlines an analysis of the different validation and testing activities possible for ETSI and suggests recommendations for the implementation of the different activities.
* **ETSI EG 201 015 V2.1.1 (2012-02):** "Methods for Testing and Specification (MTS); Standards engineering process; A Handbook of validation methods" identifies and describes several practical validation methods that can be used within ETSI's standards engineering process (e.g., review methods, model-based methods, product-based methods, and testing).

## Consequences if not agreed

The primary aim of this TTF is to conduct a comprehensive State-of-the-art analysis and a survey that evaluates ETSI's prevailing test specification practices, setting a definitive foundation for strategic future improvements.

If outlined objectives are not realised, the following potential consequences might emerge:

* **Limited Understanding of Contemporary Practices:** If an in-depth analysis of contemporary test specification methodologies is not achieved, ETSI risks operating with outdated or suboptimal testing strategies, potentially hindering its ability to align with modern industry trends and diminishing its competitive edge in the ever-evolving technological landscape.
* **Incomplete Picture of Adoption:** Without a survey design and its subsequent analysis of current testing practices, ETSI would not have a complete picture of how its current methodologies are adopted across its user base, nor would it understand the extent of integration of new advancements like TDL/TOP.
* **Missed Opportunities for Enhancements:** Without establishing a data-driven baseline of the current state, ETSI may miss out on understanding the potential areas of improvement, thereby losing the opportunity to enhance and optimise test processes in order to create a coherent test process landscape across all ETSI TBs.
* **Neglect of key testing domains:** If ETSI continues to prioritise the conformance and interoperability testing on the protocol level without considering expansion into other crucial domains like service, performance, and security testing, it could lag in providing comprehensive testing solutions for contemporary technology landscapes.
* **Suboptimal collaboration with CTI:** Not actively engaging with the Centre for Testing and Interoperability can result in limited exposure and reach of any surveys or methodologies that ETSI puts forth. Moreover, the potential to benefit from the expertise and relationships the CTI brings to the table might be undervalued or neglected.
* **Lack of clarity for future roadmaps:** Without a blueprint derived from data-driven insights, the future test processes of ETSI might be based on assumptions or outdated methods, which could lead to inefficient or ineffective testing methodologies in the future.

Overall, if ETSI doesn't stay ahead of or at least on par with the latest industry practices and trends, its influence in setting standards and best practices could wane, and its methodologies might be seen as less relevant or comprehensive by the broader technical community.

# ETSI Members Support

Provide the list of ETSI Members supporting the request for this TTF (minimum 4), the name of the supporting delegate.

Note: This support is not the same as for the Work Item. ETSI Members listed here are supporting that ETSI invests financial resources for an TTF to produce the Work Item(s).

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **ETSI Member** | **Supporting delegate** | **Motivation** |
| 1 | Centre for Research and Technology Hellas (CERTH) | Dr. Marija Jankovic | Testing is a vital cross-functional activity in CERTH's R&D projects. Active involvement in standardisation and maintenance task forces is essential as it allows for the consistent reinforcement of test specification and implementation practices. This effectively addresses the challenges posed by emerging technologies and evolving testing processes. Ongoing commitment ensures that testing methodologies remain robust and relevant in the face of rapid technological advancements. |
| 2 | Institut für Informatik, Universität Göttingen | Dr. Phillip Makedonski | There is an increasing need to adapt to the changing technological landscape and ensure the ongoing effectiveness of testing methodologies. The current recommendations may not adequately address emerging technologies, resulting in challenges and gaps in testing and divergent approaches and adaptations to address them. By surveying the current state of practice and updating the methodology, the specifications and tests developed at ETSI can be aligned with industry advancements, in order to enhance the accuracy and reliability of testing, and ultimately support the development of robust and interoperable standards. |
| 3 | Fraunhofer FOKUS | Sascha Hackel | Testing plays a central role in our R&D projects and our standardisation activities. In our projects, we are mainly responsible for validation and testing projects on next-generation networks and software technologies. Our motivation is to expand and develop our knowledge by tackling testing challenges in this area. |
| 4 | Cinderella ApS | Finn Kristoffersen | It is important that MTS provides an up-to-date test specification process definition that is based on current practices in other ETSI TB's, ETSI working procedures, as well as integrates new test methodologies. This to make the test development processes more efficient and ensure the quality of testing standards. |
| 5 | Bundesnetzagentur | Taras Holoyad | A proper understanding of trends regarding the development of current testing practices plays a crucial role for public authorities responsible for conformity assessment as well as market surveillance. Especially with rising legislations covering novel systems, the understanding for the adaptability of currently existing testing schemes lays the basis for resource-efficient risk and impact assessment of products for the European single market. |
| 6 | Siemens AG | Dr. Andreas Ulrich | The shift towards agile practices and DevOps as well as the broader use of new technologies such as cloud and web services and AI, require an urgent review of the current practice for conformance and interoperability testing and an update of testing process description. |
| 7 | Adare | Konrad Schaupp | To cover both conformance and interoperability tests in a unified test case development process, there is a need for an enhanced Test Model Definition, which is not restricted to "Tester" and "System Under Test". The development of test descriptions is a vital step when high-level test objectives driven by test coverage considerations have to be detailed and elaborated to finally come to executable test cases. A holistic process definition covering all development steps has to ensure extensive tool support and reduce manual effort. |
| 8 | ETSI CTI | … | (to be addressed) |

# Deliverables

## Base documents

|  |  |  |
| --- | --- | --- |
| **Document** | **Title** | **Status** |
| ISO/IEC 9646-1 | Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 1: General concepts | Published |
| ETSI EG 203 130 V1.1.1 | Methods for Testing and Specification (MTS); Model-Based Testing (MBT); Methodology for standardised test specification development | Published |
| ETSI EG 203 647 V1.1.1 | Methods for Testing and Specification (MTS); Methodology for RESTful APIs specifications and testing | Published |
| ETSI ES 203 119-1 V1.4.1 (2018-05) | Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 1: Abstract Syntax and Associated Semantics | Published |
| ETSI ES 203 119-4 (2018-05) | Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 4: Structured Test Objective Specification (Extension | Published |

## New deliverables

*Working titles sufficient for part I. Complete with full WI reference when final ToR are submitted*

|  |  |  |  |
| --- | --- | --- | --- |
| **Deliv.** | **Work Item code****Standard number** | **Working title** | **Expected date for publication** |
| D1\* | D/XXX-XXXXX-XXXXX XXX-X | Conformance and Interoperability Test Specification Development – Survey and Future Directions(new document-Technical Report) | 5/2025 |

\* Work Item number to be added after creation. Additional deliverable might be added.

# Maximum budget

## Task summary/Manpower Budget

Provide the budget per task that should be allocated for this TTF considering the provision of the expertise for the qualification required

The estimate of the manpower must include the cost for travels which are necessary to attend the working session.

|  |  |
| --- | --- |
| **Task short description** | Budget (EUR) |
|
| T0 Project Management | 2000 |
| T1 Survey design considering Contemporary Test Specification approaches | 8000 |
| T2 Survey Implementation and Analysis | 20000 |
| T3 Derived requirements on future test specification techniques | 5000 |
| **TOTAL** | **35.000** |

## Travel budget

Travel is required for the TTF lead or deputy to attend the three MTS Plenary Meetings to discuss the achieved progress. Additional budget is required for promotion activities at conferences and workshops inside and outside ETSI.

|  |  |
| --- | --- |
| **Expected travels** | **Cost estimate (EUR)** |
| Participation to 3 MTS meetings  | 3000 |
| Participation at UCAAT to promote the results | 1.500 |
| **TOTAL** | **4.500** |

## Other budget line

None.

Part II – Details on TTF Technical Proposal

# Tasks, Technical Bodies and other stakeholders

## Organisation of the work

Describe how the work will be organised.

Indicate whether a Steering Group (SG) will be created, its role, the frequency of the meetings, participants to this SG

Identify how the relation with other Reference Bodies and stakeholders will be managed, the interfaces and the critical timing.

## Other interested ETSI Technical Bodies

List the other ETSI Reference Bodies that must be involved in this activity.

This is more than a "bullet points" list. For each Reference Body you must identify their role (e.g. consultation, dissemination, joint review/approval of deliverables, etc.). The interactions with these Reference Bodies must be specified in the Work Plan.

## Other stakeholders

Provide the same information concerning stakeholder inside and outside ETSI (e.g. other Standard Organizations, governmental institutions, industry partners, research projects, Universities etc.).

Part III: Execution of Work

# Work plan, time scale and resources

## Task description

This section must provide detailed information on the tasks to be performed by the TTF.

The suggested structure "Objectives/Input/Output/Interactions/Resources" may be consolidated in the table below, if this can provide the equivalent information. However, task descriptions cannot be limited to text such as "producing the stable draft": these are milestones.

Fill-in as many tables as tasks needed

|  |  |
| --- | --- |
| **Task #** | **Title** |
| **Objectives** | Indicate here the objective of the task in general terms. |
| **Input** | Identify the base documents/information/decisions that are required to perform the task and, if these are not yet available, at which point in time they are needed and who is responsible to provide. |
| **Output** | Give a precise description the outcome of the task in qualitative and, if possible, quantitative terms. |
| **Interactions** | Identify the interactions with the Reference Body and other stakeholders that are required to complete the task (e.g. guidance, consultation, approval). |
| **Resources required** | Identify the type of resources and expertise required.The estimated effort may be summarised in the task table below. |

## Milestones

Milestone A – Title

Objectives to be achieved (e.g. maturity and content of the deliverables)

Date at which the documents must be available (e.g. with respect to the Reference Body meeting calendar).

Level of approval required

Reproduce as much milestones as needed

|  |  |  |
| --- | --- | --- |
| **Milestone** | **Description** | **Cut-Off Date** |
| **A** | General Description | 20YY-MM-DD |
| Reference Body Deliverable | Early/Stable Draft approved by Reference Body |
| ETSI Deliverable | Progress/Interim/Final Report approved by Reference Body |

Examples:

Tasks 1 and 2 completed. Early draft XX/X-XXX available for review. Progress Report approved by Ref. Body#XX (date). Documents must be uploaded on the Ref. Body docbox at least two weeks before the start of the Ref. Body plenary.

Final draft XX/X-XXXX approved by Ref. Body #XX (date) and accepted by the ETSI Secretariat for publication. TTF Final Report approved by Ref. Body.

## Task summary

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | **Task / Milestone**  | Target Date | Estimated Cost (EUR) |
| From | To |
|  | Start of work |  |  |  |
| T1 |  |  |  |  |
| T2 |  |  |  |  |
| Milestone A |  |  |  |  |
| T3 |  |  |  |  |
| T4 |  |  |  |  |
| Milestone*Z* | Deliverables published, TTF closed |  |  |  |
|  | **0** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MA |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MB |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

# Expertise required

## Team structure

Define precisely the type of competence required. These items will be used in the Call for Expertise to assess whether the applicants are qualified to be short-listed for the final selection.

(Up to) X participants to ensure the following mix of competences:

|  |  |
| --- | --- |
| **Priority** | **Qualifications and competences** |
| High/Low |  |
| High/Low |  |
| High/Low |  |
| High/Low |  |
| High/Low |  |

Part IV: TTF performance evaluation criteria

# Performance Indicators

In this section you must identify indicators to assess the quality of the result and the interest of ETSI Members and other stakeholders.

In the course of the activity, the TTF Leader will collect the relevant information, as necessary to measure the performance indicators. The result must be presented in the Final Report.

After the conclusion of the TTF, the Reference Body Chair will report to the D-G on the actual achievement of the performance indicators set in these ToRs. This information will be used to assess further requests from the Reference Body.

The performance indicators must include qualitative and quantitative assessment of the following elements, as applicable:

|  |
| --- |
| **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, organisation of workshops, events) |  |
| Steering Group meetings (number of meetings / participants / duration) |  |
| Number of delegates directly involved in the review of the deliverables |  |
| Contributions/comments received from the Reference Bodies |  |
| 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 standardisation 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 |  |
| Respect of time scale, with reference to start/end dates in the approved ToR |  |
| Comments from Quality review by Reference Body |  |
| Comments from Quality review by ETSI Secretariat |  |
|  |  |

# Document history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Date** | **Author** | **Status** | **Comments** |
| 0.1 | 2023-07-13 | Jankovic | Initial | Created the initial draft based on the discussion and feedback from the MTS committee on 2023-06-15 |
| 0.2 | 2023-08-17 | Jankovic, Makedonski | Revised | Minor refinements to Part 1 based on the input from Konrad Schaupp, Adare |
| 0.3 | 2023-08-21 | Jankovic, Makedonski | Revised | Additional refinements to Part 1, budget adjustments |
| 0.4 | 2023-08-24 | Jankovic | Revised | Refinements based on the suggestions during TDL-TO Open meeting |

1. https://www.iso.org/standard/17473.html [↑](#footnote-ref-1)
2. ETSI TC INT AFI WG 5G PoC White Paper No. 5: "Artificial Intelligence (AI) in Test Systems,

Testing AI Models and ETSI GANA Model's Cognitive Decision Elements (DEs) via a Generic

Test Framework for Testing GANA Multi-Layer Autonomics & their AI Algorithms for

Closed-Loop Network Automation". [↑](#footnote-ref-2)
3. https://www.iso.org/standard/81291.html [↑](#footnote-ref-3)