**Draft Terms of Reference (ToR) for a new ETSI TC MTS WG (Testing Specifications)**

1. **Rationale and Vision**
   1. **A brief review of the testing activities**

The industry is massively developing new products and services for the internet of things (IoT), industrial automation, new communication and software-based systems etc. and many customers and authorities are uncertain about the quality of the offers.

Security and interoperability are the main concerns in particular, followed by other non-functional quality characteristics like connectivity, reliability, operability and performance. For example, current IoT related testing activities are very heterogeneous and include traditional conformance testing, interoperability testing, plug fests, hacking, or crowd testing and more.

Today, there are several initiatives who try to set-up quality labels or certification schemes for e.g. IoT solutions but without a systematic strategy of required quality assurance activities implied by the used technologies. In this situation, it becomes necessary to have a common view on the scope of needed tests for IoT quality assessment and certificates.

* 1. **An urgent need**

Due to the speed of new development and the public demand to provide a common approach for reliable quality criteria the WG is a fast and appropriate means to provide international reference documents for industrial quality test criteria. A common approach for the test specification of IoT test purposes will support the interoperability, quality and confidence into the IoT industry.

* 1. **Existing relating trends**

ETSI is one of the most professional standardization bodies who is able to provide vendor-independent test specifications in multiple domains like telecommunication, intelligent transport services, and smartcards. ETSI has developed a lot of Technical Specifications and Technical Reports for testing various technology standards from different sources (ETSI, 3GPP, IETF etc.).

Other industrial fora, open source communities or standardization bodies do provide test specifications that differ very much in their systematic approach, scope/coverage or notations/languages.

* 1. **Possible impacts**

Certification bodies refer to the set of MTS WG documents in order to allow the inclusion of a justified set of test objectives for the quality assurance and conformity of IoT technology etc. in certified products and solutions. The outcome of the first set of documents provides a basis for growing base of a common set of IoT test definitions.

The position of ETSI becomes more feasible and stronger within the fast growing ecosystem of industrial fora, standardization bodies and market players for the IoT and others. The MTS WG initiative allows addressing all different testing aspects, including functionality, security and performance in a common style.

1. **Scope**

The new Testing Specifications WG („*TST*“) will develop e.g. ETSI Reports (TR) and Specifications (TS) for test aspects/artefacts, studies and guidelines regarding new IT technologies, products or services. The initial focus of this WG is the IoT industry; in particular, the most important communication protocols that are used on the network level (node connectivity, edge computing etc.). In future the WG will also address IoT platform (data accumulation and aggregation) and application (user interfaces, business processes etc.) levels. There will be a close cooperation with other groups like oneM2M and OMA etc. to avoid any duplicated work. The activities carried out within ETSI TC MTS WG *TST* aim to:

* Collect relevant technologies to be part of the initial set of group reports and specifications.
* Develop and build up a set of test catalogues for conformance, security and performance testing.

The WG will strongly make use of the well-established test development methodology developed by ETSI TC MTS, i.e. the selected test definitions will consist of multiple parts addressing the Implementation Conformance Statements (ICS), Test Suite Structure (TSS) and Test Purposes (TPs).

Furthermore, the WG members will consider the applicability and usage of the new ETSI multi-part standard ES 203119 for The Test Description Language (TDL).

1. **Planned deliverables and delivery dates for the first period**

The technical priorities of the technical work items in the WG scope will be subject of the initial discussion of the WG members. A draft initial schedule is in the following:

* (T0+1): Liaisons to major organisation informing of the work and requesting comments/input
* (T0+3): Collection of IoT technology for the WG work, F2F workshop
* (T0+6): Report on IoT test configurations, testing objectives (incl. security and performance)
* (T0+12): Specification for testing CoAP, MQTT
* (T0+18): Specification for testing OPC-UA, LoRa, …
* (T0+22): Report for certification bodies using WG group specifications
* (T0+24): Review and proposals to TC MTS for next period

1. **Collaboration with other bodies (both inside and outside ETSI)**

The WG will work in close cooperation with the ETSI TC MTS regarding test methods and techniques. In addition, the WG work plan will be aligned with various sources using e.g. liaisons with (not restricted):

* ETSI TC SmartM2M, regarding the priorities of the scope
* oneM2M, e.g. regarding specific oneM2M protocol bindings
* AIOTI, regarding the landscape of the IoT protocols
* IETF, regarding CoAP
* ISO/IEC JTC1/WG10, regarding MQTT and IoT
* ISA, regarding industrial network and system security
* OASIS, regarding MQTT
* OPC Foundation, regarding OPC-UA
* OMA device management, e.g. regarding LightweightM2M

1. **References**

* ETSI European Standard (ES) 201 873 The Testing and Test Control Notation version 3; <http://www.ttcn-3.org>
* ETSI Making Better Standards, <https://docbox.etsi.org/MTS/MTS/10-PromotionalMaterial/MBS-20111118/Testing/testing.htm>

1. **Initial ETSI member/nonmember supporters**

Members: Ericsson LM, EasyGlobalMarket (EGM), OÜ Elvior, Iskratel, Sintesio, Inst. f. Informatik (Uni Göttingen), Spirent Communications, IBM, Institut Mines-Télécom, FSCOM, Fraunhofer FOKUS.

Non-members (candidates for new ETSI membership): DEKRA Exam, relayr GmbH.