

SDO	Technical Committee	Reference	Title	Scope
ISO/IEC/JTC 1	ISO/IEC/JTC 1/SC 41	ISO/IEC 20924:2019	Internet of Things (IoT) - Vocabulary	ISO/IEC 20924:2019 provides a definition of Internet of Things along with a set of terms and definitions forming a terminology foundation for the Internet of Things.
ISO/IEC/JTC 1	ISO/IEC/JTC 1/SC 41	ISO/IEC 21823-1:2019	Internet of Things (IoT) - Interoperability for IoT systems - Part 1: Framework	ISO/IEC 21823-1:2019 provides an overview of interoperability as it applies to IoT systems and a framework for interoperability for IoT systems. This document enables IoT systems to be built in such a way that the entities of the IoT system are able to exchange information and mutually use the information in an efficient way. This document enables peer-to-peer interoperability between separate IoT systems. This document provides a common understanding of interoperability as it applies to IoT systems and the various entities within them.
ISO/IEC/JTC 1	ISO/IEC/JTC 1/SC 41	ISO/IEC 21823-2:2020	Internet of Things (IoT) - Interoperability for IoT systems - Part 2: Transport interoperability	ISO/IEC 21823-2:2020 specifies a framework and requirements for transport interoperability, in order to enable the construction of IoT systems with information exchange, peer-to-peer connectivity and seamless communication both between different IoT systems and also among entities within an IoT system. This document specifies Transport Interoperability interfaces and requirements between IoT systems. Transport Interoperability interfaces and requirements within an IoT system.
ISO/IEC/JTC 1	ISO/IEC/JTC 1/SC 41	ISO/IEC TR 22417:2017	Information technology - Internet of Things - IoT use cases	ISO/IEC TR 22417:2017 identifies IoT scenarios and use cases based on real-world applications and requirements. The use cases provide a practical context for considerations on interoperability and standards based on user experience. They also clarify where existing standards can be applied and highlight where standardization work is needed.
ISO/IEC/JTC 1	ISO/IEC/JTC 1/SC 41	ISO/IEC TR 24614:2017	Information technology - Data structures -- Unique identification for the Internet of Things	ISO/IEC TR 24614:2017 establishes a unique identification scheme for the Internet of Things (IoT), based on existing and evolving data structures. This International Standard specifies the common rules applicable for unique identification that are required to ensure full compatibility across different identities. The unique identification is a universal identifier for IoT information and is used to track or otherwise refer to entities. It is intended for use with any IoT media.
ISO/IEC/JTC 1	ISO/IEC/JTC 1/SC 41	ISO/IEC 30244:2018	Information technology - Internet of Things - Internet of Things Reference Architecture (IoT RA)	ISO/IEC 30244:2018 provides a standardized IoT Reference Architecture using a common vocabulary, reusable designs and industry best practices. It uses a top down approach, beginning with collecting the most important characteristics of IoT, abstracting those into a generic IoT Conceptual Model, deriving a high level system based reference with subsequent differentiation of that model into five architecture views from different perspectives.
ISO/IEC/JTC 1	ISO/IEC/JTC 1/SC 41	ISO/IEC TR 30164:2020	Information technology - Internet of Things (IoT) - Edge computing	ISO/IEC TR 30164:2020 provides an overview of edge computing, its characteristics, use cases and technologies (including data management, coordination, processing, network functionality, heterogeneous computing, security, hardware/software optimization) of edge computing for IoT systems applications. This document is also meant to assist in the identification of potential areas for standardization in edge computing for IoT.
ISO/IEC/JTC 1	ISO/IEC/JTC 1/SC 41	ISO/IEC TR 30766:2020	Internet of Things (IoT) - Industrial IoT	ISO/IEC TR 30766:2020 describes the following: General Industrial IoT (IIoT) systems and landscapes which outline characteristics, technical aspects and functional, as well as non-functional elements of the IIoT structure and a list of standardizing organizations, consortia and open-source communities with work on all aspects in IIoT; Recommendations for the future standardization perspective of IIoT including risk analysis, new technologies and identified collaboration.
ISO/IEC/JTC 1	ISO/IEC/JTC 1/SC 25	ISO/IEC 14543-3-10:2020	Information technology - Home electronic system (HES) architecture - Part 3-10: Wireless short-packet (WSP) protocol optimized for energy harvesting - Architecture and lower layer protocols	ISO/IEC 14543-3-10:2020 specifies a wireless protocol for low-powered devices such as energy harvesting devices in a Home environment. This wireless protocol is specifically designed to keep the energy consumption of such sensors and switches extremely low. [...]
ISO/IEC/JTC 1	ISO/IEC/JTC 1/SC 25	ISO/IEC 14543-3-12:2019	Information technology - Home electronic system (HES) architecture - Part 5-12: Intelligent grouping and resource sharing for HES Class 2 and Class 3 - Remote access test and verification	ISO/IEC 14543-3-12:2019 specifies the test and verification methods for an intelligent grouping and resource sharing (IGRS) remote access (RA) use or device, defines the structure of a user and device testing system for IGRS remote access, describes and specifies the execution of a user or device under the various standard IGRS service elements (IGRS) and describes and specifies the rules to be used to validate the operation. This document is applicable to the test and verification of an IGRS RA device or user.
ISO/IEC/JTC 1	ISO/IEC/JTC 1/SC 25	ISO/IEC 14543-3-101:2019	Information technology - Home electronic system (HES) architecture - Part 5-101: Intelligent grouping and resource sharing remote AV access profile	ISO/IEC 14543-3-101:2019 enables a media connection, resource sharing and co-operation among computers, home appliances and consumer electronics using remote access (RA). Also, users and devices can share and control media resources. This document specifies an IGRS remote media access profile based on the IGRS RA core protocol and the IGRS RA platform protocol, and Application rules for the interoperation between IGRS RA media users and devices.
ISO/IEC/JTC 1	ISO/IEC/JTC 1/SC 25	ISO/IEC 14543-3-101-020:2020	Information technology - Home electronic system (HES) architecture - Part 5-102: Intelligent grouping and resource sharing - Remote universal management profile	ISO/IEC 14543-3-101-020:2020 specifies the system architecture and communication protocols for remote universal management profile to achieve intelligent grouping, resource sharing and service collaboration among different devices and controllers. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 103 290 V1 1.1 (04/2015)	Machine-to-Machine communications (M2M); Impact of Smart City Activity on IoT Environment	The present document would undertake compilation and review of activities taking place in the area of Smart City. It will analyse the relevance of Smart City applications, and possible underlying network architecture. The present document will describe use case descriptions for Smart City applications in context of but not limited to IoT communications.
ETSI	ETSI/TC SmartM2M	ETSI TR 103 375 V1 1.1 (10/2016)	SmartM2M; IoT Standards landscape and future evolutions	The scope of the present document is to provide an overview of the IoT standards landscape: requirements, architecture, protocols, tests, etc. to provide the roadmaps of the IoT standards, when they are available. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 103 376 V1 1.1 (10/2016)	SmartM2M; IoT LSP use cases and standards gaps	Starting from the use case families selected for the IoT Large Scale Pilots (LSPs) with respect to their technical report aim: to provide the collection of all missing functionalities that have been identified in standards bodies (SDOs) to offer solutions addressing the use case requirements; to check that there are no omissions in the standardization activity with regard to the use cases. In particular, gaps with respect to the framework as identified by oneM2M should be identified, to propose some recommendations to overcome potential gaps. Particular attention will be paid on horizontal application layer standardization and to assess an interworking framework among different vertical industrial segments.
ETSI	ETSI/TC 310	ETSI TR 103 467 V1 1.1 (06/2018)	Speech and multimedia Transmission Quality (STQ); Quality of Service aspects for IoT; Discussion of QoS aspects of services related to the IoT ecosystem	The present document discusses Quality of Service (QoS) aspects of services related to the Internet of Things (IoT) ecosystem from an end-to-end perspective; a strict end-user, service-oriented point of view. Here, end-to-end is understood as "from a service user/terminal/provider to a service user/terminal/provider". [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 103 527 V1 1.1 (07/2018)	SmartM2M; Virtualized IoT Architectures with Cloud Back-ends	The present document: makes a description of some use cases that benefit from virtualization and outlines which one will be used for the Proof-of-Concept that is described in depth in ETSI TR 103 529; addresses the rationale and requirements for the use of virtualization - and of the cloud in general - in support of IoT systems; it also introduces a functional model for virtualization and further implementation of virtualized IoT systems such as microservices; provides the identification of new architectural elements (components, mappings, Application Programming Interfaces (APIs), etc.) that are required to address IoT on a cloud back-end. In particular, one objective of the present document is to describe how current IoT nodes e.g. the oneM2M CSE, can be modified and improved by the introduction of micro-services.
ETSI	ETSI/TC SmartM2M	ETSI TR 103 528 V1 1.1 (08/2018)	SmartM2M; Landscape for open source and standards for cloud native software applicable for a Virtualized IoT Service layer	The present document: recalls the main elements of the High-Level Architecture (HLA) in support of IoT Virtualization as its described in ETSI TR 103 527 and how Open Source Software (OSS) and Standards can be used in the implementation of virtualized IoT systems; presents, for each of the layers (and sub-layers) of the HLA, the OSS communities, main open source developments in the context of the OSS communities, users and their requirements in standardization that can be supported by the HLA.
ETSI	ETSI/TC SmartM2M	ETSI TR 103 529 V1 1.1 (08/2018)	SmartM2M; IoT over Cloud back-ends: A Proof of Concept	The present document: recalls the main elements of the Proof-of-Concept (PoC) in support of IoT Virtualization; use case description; High-Level Architecture of the application developed; presents the main implementation choices; outlines the lessons learned and the possible impact of future IoT Virtualization implementations.
ETSI	ETSI/TC SmartM2M	ETSI TR 103 536 Ver. 1.1.1 (12/2019)	SmartM2M; Strategic/Technical approach on how to achieve interoperability/intworking of existing standardized IoT Platforms	The present document is addressing the issues related to the interoperability and interworking of IoT platforms, in particular standardized IoT platforms, and how the way they are handled can foster their adoption by the IoT community. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 118 101 V1 2.0 (10/2014)	oneM2M; Functional Architecture (oneM2M TS-0001 version 2.1.0 Release 2)	The present document describes the end-to-end oneM2M functional architecture, including the description of the functional entities and associated reference points. oneM2M functional architecture focuses on the Service Layer aspects and takes Underlying Network-independent view of the end-to-end services. The Underlying Network is used for the transport of data and potentially for other services.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 102 V1 2.0 (10/2014)	oneM2M; Requirements (oneM2M TS-0002 version 2.1.0 Release 2A)	The present document contains an informative functional role model and normative technical requirements for oneM2M.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 104 V1 2.1 (10/2014)	oneM2M; Service Layer Core Protocol Specification (oneM2M TS-0004 version 2.1.1 Release 2)	The present document specifies the communication protocol(s) for oneM2M compliant Systems, M2M Applications, and/or other M2M systems. The present document also specifies the common data formats, interfaces and message sequences to support reference points(s) defined by oneM2M.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 105 V1 2.0 (10/2014)	oneM2M; Management Enablement (OMA) (oneM2M TS-0005 version 2.0.2 Release 2A)	The present document specifies the protocol translation and mappings between the oneM2M Service Layer and the management technologies specified by OMA such as OMA DM 1.3, OMA DM 2.0 and OMA LightweightM2M. Note that OMA DM 1.3 and OMA DM 2.0 are collectively referred as OMA DM in the present document.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 106 V1 2.1 (10/2014)	oneM2M; Management Enablement (BBF) (oneM2M TS-0006 version 2.1 Release 2A)	The present document describes the protocol mappings between the management Resources for oneM2M and the BBF TR-381.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 108 V1 2.1 (10/2014)	oneM2M; CoAP Protocol Binding (oneM2M TS-0008 version 2.1.1 Release 2A)	The present document will cover the protocol specification of communication protocol used by oneM2M compliant systems as 'RESTful CoAP binding'. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 118 109 V1 2.1 (10/2014)	oneM2M; HTTP Protocol Binding (oneM2M TS-0009 version 2.1.1 Release 2A)	The present document covers the protocol specific part of communication protocol used by oneM2M compliant systems as 'oneM2M HTTP binding'. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 118 110 V1 2.1 (10/2014)	oneM2M; MQTT Protocol Binding (oneM2M TS-0010 version 2.1.1 Release 2)	The present document specifies the binding of Mca and Mcc primitives (message flows) into the MQTT protocol. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 118 111 V1 2.1 (10/2014)	oneM2M; Common Terminology (oneM2M TS-0011 version 2.1.1 Release 2)	The present document contains a collection of special technical terms, definitions and abbreviations referenced within the oneM2M specifications. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 118 112 V1 2.1 (10/2014)	oneM2M; Base Ontology (oneM2M TS-0012 version 2.1.1 Release 2A)	The present document contains the specification of the oneM2M base ontology formal OWL representation of the base ontology can be found at http://www.etsi.org/ontology/Basic_Ontology. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 118 113 V1 2.0 (10/2014)	oneM2M; Interoperability Testing (oneM2M TS-0013 version 2.1.1 Release 2)	The present document specifies Interoperability Test Descriptions (TSDs) for the oneM2M Primitives as specified in ETSI TR 118 104, ETSI TR 118 105, ETSI TR 118 106, ETSI TR 118 107 and ETSI TR 118 110.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 114 V1 2.0 (10/2014)	oneM2M; LWM2M Interworking (oneM2M TS-0014 version 2.0.0 Release 2)	The present document specifies the interworking capabilities of the M2M Service Layer between ASN/NN/CSEs and LWM2M Endpoints with the architecture identified in Annex F of ETSI TR 118 101 for the following interworking scenarios: interworking for transport of encoded LWM2M Objects and commands in Content Sharing Resources between LWM2M Endpoints and M2M Applications; interworking with full mapping of LWM2M Objects in LWM2M Endpoints to semantically enabled Content Sharing Resources that are utilized by M2M Applications. NOTE: The present document includes LWM2M Content Sharing Resources to coexist with content sharing resources.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 115 V1 2.0 (10/2014)	oneM2M; Testing Framework (oneM2M TS-0015 version 2.0.0 Release 2)	The present document defines a testing framework defining a methodology for development of conformance and interoperability test strategies, test systems and the resulting test specifications for oneM2M standards.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 120 V1 2.1 (10/2014)	oneM2M; WebSocket Protocol Binding (oneM2M TS-0020 version 2.1.1 Release 2A)	The present document specifies the binding of Mca and Mcc primitives into the WebSocket binding. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 118 121 V1 2.1 (10/2014)	oneM2M; oneM2M and All4IoT Interworking (oneM2M TS-0021 version 2.1.1 Release 2A)	The present document specifies the interworking technologies that enable All4IoT applications and oneM2M entities production/consumption services [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 118 122 V1 2.1 (10/2014)	oneM2M; Field Device Configuration (oneM2M TS-0022 version 2.1.1 Release 2A)	The present document specifies the architectural options, resources and procedures needed to pre-provision and maintain devices in the Field Domain (i.e. ASN, ASN/NN) in order to establish M2M Service Layer operation between the device's AE and/or CSE and a Registrar and/Hosting CSE. The resources and procedure includes information about the Registrar CSE, and/or Hosting CSE needed in the Field Domain (i.e. ASN, ASN/NN) in order to establish M2M Service Layer operation.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 123 V1 2.0 (10/2014)	oneM2M; Home Appliances Information Model and Mapping (oneM2M TS-0023 version 2.0.2 Release 2A)	The present document describes the architecture of oneM2M, including the description of how data is mapped with other information models from external organizations. It also explains the ontology for the home domain information model.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 124 V1 2.0 (10/2014)	oneM2M; OIC Interworking (oneM2M TS-0024 version 2.0.2 Release 2A)	The present document specifies the interworking technologies for oneM2M and OIC interworking using the architecture identified in Annex F of ETSI TR 118 101 for the following scenario: interworking using oneM2M Resource Types for transparent transport of encoded OIC Resources and commands in oneM2M Resource Types between OIC Devices and M2M Applications. NOTE: The present document limits Content Sharing Resources to content-sharing and content-sharing resources.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 125 V1 2.0 (10/2014)	Definition of product profiles (oneM2M TS-0025 version 2.0.2 Release 2A)	The present document specifies the detailed defined product profiles that can be used by manufacturers and service providers where for each dedicated product, one of the defined product profile can be selected. The product profile would provide guidance to what features will be implemented, what features should be implemented and what features may be implemented. The present document also describes the test purposes that need to go through if the product used to be certified.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 126 V1 2.0 (10/2014)	3GPP Interworking (oneM2M TS-0026 version 3.0.0 Release 3)	The present document specifies interworking between the oneM2M service layer and a 3GPP manufacturing network, so that relevant 3GPP features defined for Cellular IoT can be used by the oneM2M service layer for the benefit of IoT applications.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 132 V1 2.1 (11/2017)	MAF and MEF interface Specification (oneM2M TS-0032 version 2.0.2 Release 2A)	The present document specifies communication between the M2M Authentication Function (MAF) and MAF clients on the reference point Mmaf and between the M2M Enrollment Function (MEF) and MEF clients on the reference point Mmfef.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 304 V1 0.0 (05/2015)	oneM2M Use Case collection	The present document includes a collection of use cases from a variety of M2M industry segments. Each use case may include a description, source, actors, pre-conditions, triggers, normal and alternative flow of sequence of interactions among actors and system, post-conditions, illustrations and potential requirements. The potential requirements provide an initial view of what oneM2M requirements could arise from the Use Case as seen by the contributor. These are intended to help the reader understand the use case's needs. These potential requirements may have been subsequently submitted by the contributor for consideration as candidate oneM2M requirements, which may or may not have been agreed as a oneM2M requirement (often after much editing). As such, they may not be a direct mapping from the potential requirements to agreed oneM2M requirements.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 500 V1 0.0 (04/2015)	Architecture Part 1: Analysis of the architectures proposed for consideration by oneM2M	The present document provides an analysis and comparison of existing M2M-related Architecture work undertaken by the founding partners of oneM2M, including: the Association of Radio Industries and Businesses (ARIB) and the Telecommunication Technology Committee (TTC) of Japan; the Alliance for Telecommunications Industry Solutions (ATIS) and the Telecommunications Industry Association (TIA) of the USA; the China Communications Standards Association (CCSA); the European Telecommunications Standards Institute (ETSI); and the Telecommunications Technology Association (TTA) of Korea. Common Functional Entities and Reference Points are identified, as well as critical differences. New functionality will not be considered as part of this study. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 118 501 V1 0.0 (04/2015)	oneM2M Architecture Part 2: Study for the merging of architectures proposed for consideration by oneM2M	The present document provides an analysis of existing M2M-related Architecture work undertaken by the founding partners of oneM2M, including: the Association of Radio Industries and Businesses (ARIB) and the Telecommunication Technology Committee (TTC) of Japan; the Alliance for Telecommunications Industry Solutions (ATIS) and the Telecommunications Industry Association (TIA) of the USA; the China Communications Standards Association (CCSA); the European Telecommunications Standards Institute (ETSI); and the Telecommunications Technology Association (TTA) of Korea. Common Functional Entities and Reference Points are identified, as well as critical differences. New functionality will not be considered as part of this study. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 118 506 V1 0.0 (04/2015)	Study of Management Capability Enablement Technologies for Consideration by oneM2M	The present document describes and collects the state-of-art of the existing technologies on management capability, evaluates if the technologies can match the requirements defined in oneM2M, analyzes how the technologies can leverage the design of the architecture of oneM2M.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 517 V1 0.0 (09/2016)	oneM2M; Home Domain Abstract Information Model (oneM2M TR-0031 version 2.0.0)	The present document allows application developers to describe the status of devices as resources on oneM2M-based platform in various ways. This different application developers can create different resource trees even when they build the same kinds of applications. Moreover when handling the same kinds of devices from different vendors on M2M platforms, application developers may create disintegrated resource trees without common information model. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 118 518 V1 0.0 (10/2016)	oneM2M; Industrial Domain Enablement (oneM2M TR-0038 version 2.5.1 Release 2A)	The present document collects the requirements for the industrial domain and the requirements needed to support the use case collection. In addition it identifies the necessary technical work needed to be addressed while enhancing future oneM2M specifications.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 522 V1 0.0 (09/2016)	oneM2M; Continuation & Integration of HGI Smart Home activities (oneM2M TR-0022 version 2.0.0)	The present document is a study of the continuation and integration of some HGI Smart Home activities into oneM2M, following the (PT2) HGI announcement of its closure by June 2016. It includes the description of HGI SH deliverables versus the appropriate oneM2M deliverables for the integration of these HGI achievements. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 118 524 V1 0.0 (09/2016)	oneM2M; 3GPP Release 13 Interworking (oneM2M TR-0024 version 2.0.0)	The present document is a study of interworking between oneM2M Architecture and 3GPP Rel-13 architecture for Service Capability Exposure as defined in the release 13 version of ETSI TS 123 682. The key objective and value is analyzed and described. The document also investigates the potential solution in oneM2M by evaluating the existing technical interworking.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 525 V1 0.0 (10/2016)	oneM2M; Application Developer Guide (oneM2M version 1.0.0 Release 1)	The present document provides a guide for application developers to develop applications using functionalities provided by any oneM2M compliant service platform with the scope of as follows: objective of the use case; the step by step process of the use case mapped into an oneM2M service platform; the execution procedure for implementation of the use case; implementation details of the use case.
ETSI	ETSI/TC SmartM2M	ETSI TR 118 526 V1 1.1 (06/2017)	IPV6-based Internet of Things; Deployment of IPv6-based Internet of Things	The present document outlines the motivation for IPv6 in IoT, the technical requirements to address IoT on constrained devices and networks, the impact on the IPv6 technology and protocols, the technology guidelines, the step by step process, the benefits, the risks, as applicable to IoT domains including: M2M, Energy, Industrial, Mining, Oil and Gas, Smart city, Transportation (including EVs), etc. [...]
ITU-T	ITU-T SG5	ITU-T E.200 (12/2019)	Criteria for M2M/IoT-related assignments Under Recommendation ITU-T E.164.1 and Recommendation ITU-T E.212 Annex A	This supplement defines criteria for assigning ITU-T E.164 identification codes and ITU-T E.212 mobile network codes under shared mobile country codes (MCCs) for machine-to-machine (M2M)/Internet of Things (IoT) services.
ITU-T	ITU-T SG5.11	ITU-T Q.3055 (12/2019)	Signalling protocols for Heterogeneous IoT gateways	This Recommendation describes the signalling protocol for heterogeneous Internet of Things gateways. [...]
ITU-T	ITU-T SG5.11	ITU-T Q.3745 (04/2020)	Protocol for time constraint IoT-based applications over SDN	This Recommendation describes the protocol for providing network performance requirements requested by an IoT server for IoT applications in software-defined networking (SDN) and network function virtualization (NFV) based networks in International Mobile Telecommunications-2020 (IMT-2020). This protocol defines a set of application-level interface conventions between the IoT server and the orchestrator application layer (management application/MAA). High-level architecture, functions and message formats are addressed in this Recommendation.
ITU-T	ITU-T SG5.11	ITU-T Q.3913 (08/2014)	Set of parameters for monitoring internet of things devices	This Recommendation provides measurement metrics for device monitoring and defines a set of parameters that indicate device status, including device traffic, anomalous behaviour, events, performance and power supply. These parameters may be generated by network elements, terminals and access gateways. The definitions provided here are dependent on certain generation networks (NGN), which use Internet Protocol (IP) as the bearer protocol. How these parameters are monitored is outside the scope of this Recommendation.
ITU-T	ITU-T SG5.11	ITU-T Q.3952 (01/2018)	The architecture and facilities of Model network for IoT testing	Testing of Internet of Things (IoT) technologies requires a specific model network architecture. This Recommendation defines the test architecture and the requirements for such a model network. This Recommendation defines the architecture of model networks to be used for IoT testing.
ITU-T	ITU-T SG5.11	ITU-T Q.4000 (10/2018)	The structure of the testing of heterogeneous Internet of Things gateways in a laboratory environment	This Recommendation describes the testing methodology of the heterogeneous network gateway which is to be used for communication among IoT devices. [...]
ITU-T	ITU-T SG5.17	ITU-T X.676 (11/2018)	Object Identifier-based resolution framework for IoT grouped services	This Recommendation introduces the following items: overview of object identifier (OID)-based resolution framework for Internet of Things (IoT) grouped services; requirements for resolution framework for IoT grouped services; procedures for resolution framework for IoT grouped services; and Oid-based resolution framework and scenarios for IoT grouped services.
ITU-T	ITU-T SG5.17	ITU-T X.683 (09/2017)	Supplement 31 to ITU-T X-series Recommendations - ITU-T X.686 Guidelines for using object identifiers for the Internet of Things	This Supplement includes the following items: requirements for identifying objects in the Internet of Things (IoT) and how object identifiers (OIDs) satisfy these requirements; general procedures for establishing OID-based IoT identification systems; detailed considerations for establishing OID-based IoT identification systems, including considerations when designing/choosing identification schemes for OIDs, considerations when establishing a resolution system and considerations when establishing Oid authorities and operational procedures.
ITU-T	ITU-T SG5.20	ITU-T Y.4007 / Y.2060 (06/2021)	Overview of Internet of Things	This Recommendation provides an overview of the Internet of Things (IoT) with the main objective of highlighting its important area for future standardization. [...]
ITU-T	ITU-T SG5.20	ITU-T Y.4001 (06/2019)	Overview of Smart Manufacturing in the context of Industrial Internet of Things	This Recommendation provides an overview of smart manufacturing in the context of the industrial Internet of Things (IIoT). [...]
ITU-T	ITU-T SG5.20	ITU-T Y.4009 / Y.2069 (07/2014)	Terms and definitions for Internet of Things	This Recommendation specifies the terms and definitions relevant to the Internet of Things (IoT) from an ITU perspective, in order to clarify the Internet of Things and IoT-related activities.
ITU-T	ITU-T SG5.20	ITU-T Y.4100 / Y.2066 (04/2014)	Common requirements of Internet of Things	Recommendation ITU-T Y.2066 provides the common requirements of the Internet of Things (IoT). These requirements are based on general use cases of the IoT and IoT actors, which are built from the definition of IoT contained in Recommendation ITU-T Y.2060. The common requirements of the IoT are independent of any specific application domain, knowledge, activities, applications, use cases, specific scenarios, commercial or administrative scope, such as transport application, domain and health application domain. [...]
ITU-T	ITU-T SG5.20	ITU-T Y.4101/Y.2067 (10/2017)	Common requirements and capabilities of a gateway for Internet of Things applications	Recommendation ITU-T Y.4101/Y.2067 provides the common requirements and capabilities of a gateway for Internet of Things (IoT) applications. The common requirements and capabilities provided are intended to be generally applicable in gateway application scenarios. [...]
ITU-T	ITU-T SG5.20	ITU-T Y.4102 / Y.2074 (01/2015)	Requirements for Internet of Things devices and operation of Internet of Things applications during disaster	Recommendation ITU-T Y.2074 provides requirements for Internet of Things (IoT) devices used for operation of IoT applications in the context of disaster. In addition to the common requirements to the common requirements of the IoT contained in Recommendation ITU-T Y.2066, it also provides requirements for the operation of IoT applications during disaster. [...]

ITU-T	ITU-T Y.4103 / E.748.0 (10/2014)	ITU-T Y.4103 / E.748.0 (10/2014)	Common requirements for Internet of Things (IoT) applications	Recommendation ITU-T Y.448.0 includes the common requirements for Internet of Things (IoT) applications enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving, interoperable information and communication technologies. [...]
ITU-T	ITU-T Y.4111 / Y.2076 (02/2016)	ITU-T Y.4111 / Y.2076 (02/2016)	Semantics based requirements and framework of the Internet of Things	The purpose of Recommendation ITU-T Y.2076 is to specify semantics based requirements and framework of the IoT as a basis for further IoT semantics based standardization work, including semantic aspects for IoT services in different business domains, semantically enhanced IoT capabilities and others.
ITU-T	ITU-T Y.4112 / Y.2077 (03/2016)	ITU-T Y.4112 / Y.2077 (03/2016)	Requirements of the Plug and Play capability of the Internet of Things	Recommendation ITU-T Y.2077 specifies the requirements of the plug and play capability of the Internet of Things (IoT), as a basis for further standardization work related to plug and play aspects in the IoT. [...]
ITU-T	ITU-T Y.4113 (09/2016)	ITU-T Y.4113 (09/2016)	Requirements of the network for the Internet of Things	This Recommendation describes the requirements of the network for the Internet of Things (IoT) that enhance the common requirements of the IoT identified in ITU-T Recommendation Y.2066. The requirements focus on the transport functions of the network, but also cover service support functions. [...]
ITU-T	ITU-T Y.4114 (02/2017)	ITU-T Y.4114 (02/2017)	Specific requirements and capabilities of the IoT for Big Data	The purpose of this Recommendation is to specify requirements and capabilities of the IoT for Big Data. This Recommendation complements the developments on common requirements of the IoT (ITU-T Y.2066) and functional framework of the IoT (ITU-T Y.2068) in terms of the specific requirements and capabilities that the IoT is expected to support in order to address the challenges related to Big Data. Also, it constitutes a basis for further standardization work (e.g. functional entities, APIs and protocols) concerning Big Data in the IoT.
ITU-T	ITU-T Y.4115 (04/2017)	ITU-T Y.4115 (04/2017)	Reference architecture for IoT device capability exposure	This Recommendation specifies reference architecture of IoT device capability exposure (IoT DCE) which supports IoT applications in DCE devices (e.g., smart phones, tablets and home gateways) to access device capabilities exposed by IoT devices connected to the DCE device.
ITU-T	ITU-T Y.4117 (02/2017)	ITU-T Y.4117 (02/2017)	Requirements and capabilities of Internet of Things for support of wearable devices and related services	The purpose of this Recommendation is to describe characteristics, specific requirements and capabilities of the IoT for support of wearable devices and related services. [...]
ITU-T	ITU-T Y.4118 (06/2018)	ITU-T Y.4118 (06/2018)	Internet of Things requirements and technical capabilities for support of accounting and charging	This Recommendation provides accounting and charging requirements for IoT as well as an IoT accounting and charging technical capability framework, in order to assist in the standardization of accounting and charging technical mechanisms for IoT and to facilitate the development of the IoT market. The Recommendation focuses on the network layer capabilities and service support and application support layer capabilities, as well as business use cases applied to IoT.
ITU-T	ITU-T Y.4119 (03/2018)	ITU-T Y.4119 (03/2018)	Requirements and capability framework for IoT-based automotive emergency response system	This Recommendation provides an overview of an IoT-based automotive emergency response system (AERS), identifies requirements of the AERS for aftermarket devices, and provides a capability framework of the AERS.
ITU-T	ITU-T Y.4120 (06/2018)	ITU-T Y.4120 (06/2018)	Requirements of Internet of Things applications for smart retail stores	This Recommendation provides requirements of Internet of Things (IoT) applications for smart retail stores. Specifically, this Recommendation addresses concepts, requirements and ecosystem aspects for smart retail stores. Use cases of IoT applications for smart retail stores are provided in Appendix I.
ITU-T	ITU-T Y.4121 (06/2018)	ITU-T Y.4121 (06/2018)	Requirements of an Internet of Things enabled network for support of applications for global processes of the Earth	This Recommendation describes requirements of an Internet of Things (IoT) enabled network for support of applications monitoring and studying global processes of the Earth. This innovative concept of "Internet of things for monitoring and studying global processes (IoT GPM)" combines geographically distributed IoT devices, and one or more control and management centres (CMCs) for the monitoring of global natural and man-made processes. [...]
ITU-T	ITU-T Y.4203 (03/2019)	ITU-T Y.4203 (03/2019)	Requirements of things description in the Internet of Things	This Recommendation specifies requirements of things description in the Internet of Things (IoT). [...]
ITU-T	ITU-T Y.4204 (02/2019)	ITU-T Y.4204 (02/2019)	Accessibility requirements for the Internet of Things applications and services	Recommendation ITU-T Y.4204 provides accessibility requirements specific to Internet of Things (IoT) applications and services. [...]
ITU-T	ITU-T Y.4205 (02/2019)	ITU-T Y.4205 (02/2019)	Requirements and reference model of IoT-related crowdsourced systems	Recommendation ITU-T Y.4205 introduces the concept of crowdsourced systems, as well as the reference model of IoT-related crowdsourced systems for the support of Internet of Things (IoT) applications and services to be provided via systems employing crowdsourcing principles. It addresses IoT-related crowdsourced systems in terms of functional requirements and the reference model as well as identifying relevant security, privacy and trust issues. [...]
ITU-T	ITU-T Y.4208 (01/2020)	ITU-T Y.4208 (01/2020)	IoT requirements for support of edge computing	This Recommendation provides service requirements from an edge-computing (EC) deployment perspective. This Recommendation also specifies functional requirements of the Internet of Things (IoT) for support of EC. [...]
ITU-T	ITU-T Y.4210 (06/2020)	ITU-T Y.4210 (06/2020)	Requirements and use cases for universal communication module of mobile IoT devices	N/A
ITU-T	ITU-T Y.4401 / Y.2068 (03/2013)	ITU-T Y.4401 / Y.2068 (03/2013)	Functional framework and capabilities of the Internet of Things	Recommendation ITU-T Y.2068 provides a description of the basic capabilities of the Internet of Things (IoT), based on the functional view, the implementation view and the deployment view of the IoT functional framework described in this Recommendation, in order to fulfil the IoT common requirements specified in Recommendation ITU-T Y.2066. [...]
ITU-T	ITU-T Y.4416 (06/2018)	ITU-T Y.4416 (06/2018)	Architecture of the Internet of Things based on NGNe	This Recommendation provides a description of the architecture of the Internet of Things (IoT) based on next generation network evolution (NGNe), taking account of the IoT reference model specified in Recommendation ITU-T Y.4000/Y.2060, the IoT common requirements specified in Recommendations ITU-T Y.4100/Y.2066, and the IoT functional framework and capabilities specified in Recommendation ITU-T Y.4401/Y.2068. It describes extensions to NGNe functional entities, reference points and NGNe functional components, and enhancement to NGNe capabilities as described in ITU-T Y.2012, and other related Recommendations in order to support the IoT.
ITU-T	ITU-T Y.4417 (06/2018)	ITU-T Y.4417 (06/2018)	Framework of self-organization network in the IoT environments	The scope of this Recommendation includes: concepts of self-organization networking in Internet of Things (IoT) environments; characteristics of self-organization networking in IoT environments; requirements for self-organization networking in IoT environments; requirements for self-organization networking in IoT; functional architecture for self-organization networking in IoT.
ITU-T	ITU-T Y.4418 (06/2018)	ITU-T Y.4418 (06/2018)	Functional architecture of gateway for Internet of Things applications	This Recommendation provides the functional architecture of gateway for IoT applications, including the gateway's functional entities, relevant reference points and logical flows.
ITU-T	ITU-T Y.4455 (10/2017)	ITU-T Y.4455 (10/2017)	Reference architecture for Internet of Things network service capability exposure	This Recommendation introduces IoT network capability exposure (IoT NCE). The IoT NCE is a functional entity in network domain, and facilitates the Internet of Things (IoT) applications and services to make full use of capabilities of their underlying networks. The IoT NCE can optimize user experience, improve network efficiency and expose network capability in order to optimize IoT applications and services. [...]
ITU-T	ITU-T Y.4457 (06/2018)	ITU-T Y.4457 (06/2018)	Architectural framework for transportation safety services	This Recommendation addresses transportation safety management model that describes disaster management steps based on Internet of Things (IoT) technologies in order to reduce damage from disasters. [...]
ITU-T	ITU-T Y.4459 (01/2020)	ITU-T Y.4459 (01/2020)	Digital entity architecture framework for IoT interoperability	Recommendation ITU-T Y.4459 introduces a digital entity architecture and its prospective in addressing interoperability and security among Internet of Things (IoT) applications. [...]
ITU-T	ITU-T Y.4460 (06/2019)	ITU-T Y.4460 (06/2019)	Architectural reference models of devices for IoT applications	Recommendation ITU-T Y.4460 describes the architectural reference models of devices for Internet of Things (IoT) applications, based on a classification of devices defined by processing power and communication capabilities. The architectural reference models described also includes the device's functional entities and the functional entities interaction for each device's architectural reference model. [...]
ITU-T	ITU-T Y.4462 (01/2020)	ITU-T Y.4462 (01/2020)	Requirements and functional architecture of open IoT identity correlation service	This Recommendation provides information on the concept and requirements of the open Internet of Things (IoT) identity correlation service, functional architecture of the open IoT identity correlation service, basic capabilities, relevant reference points and procedures of the open IoT identity correlation service.
ITU-T	ITU-T Y.4463 (01/2020)	ITU-T Y.4463 (01/2020)	Framework of delegation service for IoT devices	Recommendation ITU-T Y.4463 is a framework of the delegation service for transferring ownership (i.e., access rights to the Internet of Things (IoT) devices) among authorized IoT devices. This Recommendation gives an overview and types of delegation service in IoT environment. It also describes the requirements and architectural models of delegation service.
ITU-T	ITU-T Y.4464 (01/2020)	ITU-T Y.4464 (01/2020)	Framework of blockchain of things as decentralized service platform	Recommendation ITU-T Y.4464 introduces a decentralized IoT service platform, blockchain of things (BoT), which is enabled by blockchain-related technologies. This Recommendation analyzes the concept, common characteristics and high-level requirements of BoT, and provides common capabilities and functionalities, general procedures and relevant use cases for BoT. [...]
ITU-T	ITU-T Y.4465 (01/2020)	ITU-T Y.4465 (01/2020)	Framework of IoT Services based on Visible Light Communications	Recommendation ITU-T Y.4465 describes a framework of Internet of Things (IoT) services based on visible light communications (VLC). After describing the technical overview of VLC and the concepts of IoT services based on VLC, this Recommendation describes requirements and a reference model.
ITU-T	ITU-T Y.4469 (08/2020)	ITU-T Y.4469 (08/2020)	Reference architecture of sparse computational capability exposure of IoT devices for smart home	N/A
ITU-T	ITU-T Y.4473 (08/2020)	ITU-T Y.4473 (08/2020)	SensorThings API - Semantics	N/A
ITU-T	ITU-T Y.4474 (08/2020)	ITU-T Y.4474 (08/2020)	Functional architecture for IoT services based on Visible Light Communications	N/A
ITU-T	ITU-T Y.4475 (08/2020)	ITU-T Y.4475 (08/2020)	Lightweight intelligent software framework for IoT devices	N/A
ITU-T	ITU-T Y.4552 / Y.2078 (02/2016)	ITU-T Y.4552 / Y.2078 (02/2016)	Application support models of the Internet of Things	Recommendation ITU-T Y.2078 provides application support models of Internet of Things (IoT). It includes basis of IoT application support models, the configurable application support model, the adaptable application support model and the reliable application support model. The three application support models are described in functional view, implementation view and deployment view, in order to identify, respectively, the configurable capabilities, the adaptable capabilities and the reliable capabilities for support of IoT applications having some characteristic requirements. [...]
ITU-T	ITU-T Y.4555 (02/2019)	ITU-T Y.4555 (02/2019)	Service Functionalities of Self-quantification over Internet of Things	This Recommendation describes service functionalities of self-quantification over Internet of Things. It clarifies the concept of self-quantification services, identifies their considerations, and specifies their requirements and functionalities.
ITU-T	ITU-T Y.4560 (08/2020)	ITU-T Y.4560 (08/2020)	Blockchain-based data exchange and sharing for supporting Internet of Things and smart cities and communities	N/A
ITU-T	ITU-T Y.4561 (08/2020)	ITU-T Y.4561 (08/2020)	Blockchain-based Data Management for supporting Internet of Things and smart cities and communities	N/A
ITU-T	ITU-T Y.4702 (03/2016)	ITU-T Y.4702 (03/2016)	Common requirements and capabilities of device management in the Internet of Things	This Recommendation provides the common requirements and capabilities of device management in the Internet of Things (IoT).
ITU-T	ITU-T Y.5035.3 to Y.4000 series (10/2018)	ITU-T Y.5035.3 to Y.4000 series (10/2018)	IoT use cases	Supplement 53 to ITU-T Y-series Recommendations provides use cases related to different application domains of the Internet of Things.
ITU-T	ITU-T Y.5035.4 to ITU-T Y.4000 series (04/2019)	ITU-T Y.5035.4 to ITU-T Y.4000 series (04/2019)	Framework for home environment profiles and levels of IoT systems	Supplement 54 to ITU-T Y-series Recommendations establishes a set of data fields that reflect consumer preferences for IoT-enabled devices in specific environments. These data fields could be incorporated into a consumer device, stored in some fashion, and used by compatible IoT devices in the home and elsewhere to automatically implement those preset user preferences.
ITU-T	ITU-T Y.5035.5 to ITU-T Y.4000 series (07/2020)	ITU-T Y.5035.5 to ITU-T Y.4000 series (07/2020)	Internet of Things and smart cities and communities standards roadmap	Supplement 58 to the ITU-T Y-series presents the Joint Coordination Activity on Internet of Things and Smart Cities and Communities (ICA-IoT and SC&C) roadmap, which contains a collection of standards and ITU-T Recommendations related to Internet of Things (IoT), smart cities and communities (SC&C), network aspects of identification systems, including RFID (NFC) and ubiquitous sensor networks (USNs).
ITU-T	ITU-T Y.5035.6 to ITU-T Y.4000 series (07/2020)	ITU-T Y.5035.6 to ITU-T Y.4000 series (07/2020)	Features of application programming interface (APIs) for IoT data in smart cities and communities	N/A
ITU-T	ITU-T Y.5035.6 to ITU-T Y.4000 series (07/2020)	ITU-T Y.5035.6 to ITU-T Y.4000 series (07/2020)	Overview of blockchain for supporting Internet of Things and smart cities and communities in data processing and management aspects	N/A
ITU-T	ITU-T Y.5035.6 to ITU-T Y.4000 series (07/2020)	ITU-T Y.5035.6 to ITU-T Y.4000 series (07/2020)	Unlocking Internet of Things with artificial intelligence	N/A

SDO	Technical Committee	Reference	Title	Scope
ETSI	ETSI/TC SmartM2M	ETSI SR 003 480 (03/2020)	SmartM2M; Guidelines for Security, Privacy and Interoperability in IoT System Definition; A Concrete Approach	The present document intends to be a high-level document for the general public and is not specifically addressing a technical audience (e.g. designers, developers, etc.). It is introducing, in a relatively non-technical manner, to some of the main issues that individuals and organizations should address when they face the development of an IoT system. A strong emphasis is put on interoperability, security, privacy and standards in support. [...]
ETSI	ETSI/TC CYBER	ETSI TS 103 458 V1.1.1 (06/2018)	Application of Attribute Based Encryption for PII and personal data protection on IoT devices, WLAN, Cloud and mobile services – High level requirements	The present document specifies high level requirements for the application of Attribute Based Encryption (ABE) to protect PII and personal data on IoT devices/services, cloud services, Wireless Local Area Networks and mobile services, where access to data has to be given to multiple parties and under different conditions. With a main focus on the confidentiality of data, including personal data and Personally Identifiable Information, the present document may help in supporting the General Data Protection Regulation. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 103 534 V1.1.1 (08/2019)	SmartM2M; Security Standards Landscape and best practices	The present document provides an overview of the Standards Landscape and best practices for the application of security technology to the IoT. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 103 534 V1.1.1 (08/2019)	SmartM2M; Teaching material; Part 1: Security	The present document presents teaching material to allow readers, identified by role, to gain knowledge of the fundamentals of IoT security. [...]
ETSI	ETSI/TC SmartM2M	ETSI TR 103 534-2 Ver. 1.1.1 (10/2019)	SmartM2M; Teaching material; Part 2: Privacy	The focus of the present document is to present a summary of the teaching material to help in acquiring knowledge on IoT Privacy. The teaching slides are in annex B of the present document. The present document is to support the IoT Technical Report (TR) and it will re-enforce the knowledge in the TR such that reader can acquire basic knowledge to apply IoT privacy in their area of engagement or at least know where to obtain that information. The present document does not address IoT security, although closely linked but this is being addressed in a separate report which is ETSI TR 103 534-1. [...]
ETSI	ETSI/TC CYBER	ETSI TS 103 645 V2.1.2 (20/20-00)	CYBER; Cyber Security for Consumer Internet of Things	The present document specifies high-level security and data protection provisions for consumer IoT devices that are connected to network infrastructure (such as the Internet or home network) and their interactions with associated services. [...]
ETSI	ETSI/TC CYBER	ETSI EN 303 645 V2.1.1 (06/2020)	CYBER; Cyber Security for Consumer Internet of Things: Baseline Requirements	The present document specifies high-level security and data protection provisions for consumer IoT devices that are connected to network infrastructure (such as the Internet or home network) and their interactions with associated services. [...]
ETSI	ETSI/TC CYBER	ETSI TS 118 103 V2.12.1 (04/2019)	oneM2M; Security solutions (oneM2M TS-003) version 2.12.1 Release 2A)	The present document defines security solutions applicable within the M2M systems.
ETSI		ETSI TR 118 508 V1.0.0 (07/2014)	Analysis of Security Solutions for the oneM2M System	The scope of the present document is to create a common understanding on security within oneM2M systems. To achieve that, security services are explained, threats analysed and security requirements within oneM2M identified and derived from use cases. In addition the present document discusses how security mechanisms relate to the oneM2M architecture. Suitable security procedures and mechanisms are defined within ETSI TS 118 003.
ETSI		ETSI TR 118 512 V2.0.0 (09/2016)	oneM2M; End-to-End Security and Group Authentication (oneM2M TR-002 version 2.0.0)	The present document provides options and analyses for the security features and mechanisms providing end-to-end security and group authentication for oneM2M. The scope of this technical report includes use cases, threat analyses, high level architecture, generic requirements, available options, evaluation of options, and detailed procedures for executing end-to-end security and group authentication.
ETSI		ETSI TR 118 516 V2.0.0 (09/2016)	oneM2M; Study of Authorization Architecture for Supporting Heterogeneous Access Control Policies (oneM2M TR-0016 version 2.0.0)	The present document provides technical solutions for oneM2M authorization architecture, authorization procedures and access control policies. The present document also gives evaluations of these proposed technical solutions. [...]
ITU-T	ITU-T SG 17	ITU-T X.1363 (09/2018)	Security framework for the Internet of things based on the gateway model	Recommendation ITU-T X.1363 describes a security framework for the Internet of things (IoT) using security gateways. This Recommendation analyses security threats and challenges in an IoT environment, and describes capabilities that could address and mitigate these threats and challenges. A framework methodology is provided for determining which security capabilities are required for mitigating and addressing these threats and challenges for the IoT.
ITU-T	ITU-T SG 17	ITU-T X.1363 (03/2017)	Simple encryption procedure for Internet of Things (IoT) environments	Recommendation ITU-T X.1363 specifies encryption with associated mask data (EAMD) for the Internet of things (IoT) devices. It describes EAMD and how it provides a set of security services for traffic using it.
ITU-T	ITU-T SG 17	ITU-T X.1363 (05/2020)	Technical framework of personally identifiable information (PII) handling system in Internet of things (IoT) environment	Recommendation ITU-T X.1363 specifies a technical framework for PII handling in an IoT environment with single or multiple service providers.
ITU-T	ITU-T SG 17	ITU-T X.1364 (03/2020)	Security requirements and framework for narrow band Internet of things	Recommendation ITU-T X.1364 analyses potential deployment schemes and typical application scenarios for narrowband Internet of things (NB-IoT). It specifies security threats and requirements specific to the NB-IoT deployments and establishes a security framework for the operator to safeguard new NB-IoT technology applications. [...]
ITU-T	ITU-T SG 17	ITU-T X.1365 (03/2020)	Security methodology for use of identity-based cryptography in support of Internet of Things (IoT) services over telecommunication networks	Recommendation ITU-T X.1365 provides a security methodology for the use of identity-based cryptography (IBC) public key technology in support of Internet of things (IoT) services over telecommunication networks, including mechanisms of identity management, key management architecture, key management operations and authentication. [...]
ITU-T	ITU-T SG 20	ITU-T Y.4806 (11/2017)	Security capabilities supporting safety of the Internet of Things	This Recommendation provides a classification of the security issues for the Internet of Things and examines how the security threats may affect safety, in order to determine which security capabilities specified in Recommendation ITU-T Y.4401/Y.2068 support safe execution of the Internet of Things. [...]
ITU-T	ITU-T SG 20	ITU-T Y.4807 (01/2020)	Agility by design for Telecommunications/ICT Systems Security used in the Internet of Things	Recommendation ITU-T Y.4807 addresses possible improvement of security and stability of the Internet of things by ensuring the supporting telecommunication/information and communication technology (ICT) systems and related infrastructure – protocols, standards, etc. – have the flexibility to keep up with advances in telecommunication/ICT security and cryptography. This Recommendation intentionally does not provide guidance on specific cryptosystems, standards or algorithms.
ITU-T	ITU-T SG 20	ITU-T Y.4808 (08/2020)	Digital entity architecture framework to combat counterfeiting in IoT	N/A

SDO	Technical Committee	Reference	Title
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	ISO/IEC 20924 (ed. 2)	Internet of Things (IoT) - Vocabulary
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	ISO/IEC 21823-3	Internet of things (IoT) -- Interoperability for Internet of things systems -- Part 3: Semantic interoperability
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	ISO/IEC 21823-4	Internet of Things (IoT) - Interoperability for Internet of Things Systems --Part 4: Syntactic interoperability
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	ISO/IEC 30141 (ed. 2)	Internet of Things (IoT) - Reference architecture
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	ISO/IEC 30161	Internet of Things (IoT) -- Requirements of IoT data exchange platform for various IoT services
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	ISO/IEC 30162	Internet of Things (IoT) -- Compatibility requirements and model for devices within industrial IoT systems
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	ISO/IEC 30163	Internet of Things (IoT) -- System requirements of IoT/SN technology-based integrated platform for chattel asset monitoring
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	ISO/IEC 30165	Internet of Things (IoT) -- Real-time IoT framework
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	ISO/IEC TR 30167	Internet of Things (IoT) - Underwater Communication Technologies for IoT
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	ISO/IEC 30169	Internet of things (IoT) - IoT applications for electronic label system (ELS)
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	TR JTC1-SC41-2	Internet of Things (IoT) - Guidance on the application of the IoT Reference Architecture to Wearables and Implantables based IoT Systems
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	JTC1-SC41-3	Internet of Things (IoT) -- Socialized IoT system resembling human social interaction dynamics
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	TR JTC1-SC41-4	Internet of Things (IoT) - Integration of IoT and DLT/Blockchain: Use Cases
CEN	CEN/TC 225	EN 17230	Information technology -- RFID in rail
ETSI		ETSI TS 103 757	SmartM2M; Asynchronous Contact Tracing System; Fighting pandemic disease with Internet of Things
ETSI		ETSI TS 118 101	oneM2M; Functional Architecture (oneM2M TS-0001 version 3.9.0 Release 3)
ETSI		ETSI TS 118 102	oneM2M Requirements (oneM2M TS-0002 version 3.1.0 Release 3)
ETSI		ETSI TS 118 104	oneM2M; Service Layer Core Protocol Specification (oneM2M TS-0004 version 3.9.0 Release 3)
ETSI		ETSI TS 118 105	oneM2M; Management Enablement (OMA) (oneM2M TS-0005 version 3.4.0 Release 3)
ETSI		ETSI TS 118 106	oneM2M; Management Enablement (BBF) (oneM2M TS-0006 version 3.6.0 Release 3)
ETSI		ETSI TS 118 108	oneM2M; CoAP Protocol Binding (oneM2M TS-0008 version 3.2.0 Release 3)
ETSI		ETSI TS 118 109	oneM2M; HTTP Protocol Binding (oneM2M TS-0009 version 3.1.0 Release 3)
ETSI		ETSI TS 118 110	oneM2M; MQTT Protocol Binding (oneM2M TS-0010 version 3.0.0 Release 3)
ETSI		ETSI TS 118 111	oneM2M; Common Terminology (oneM2M TS-0011 version 3.0.0 Release 3)
ETSI		ETSI TS 118 112	oneM2M; Base Ontology (oneM2M TS-0012 version 3.7.1 Release 3)
ETSI		ETSI TS 118 114	oneM2M; LWM2M Interworking (oneM2M TS-0014 version 3.1.0 Release 3)
ETSI		ETSI TS 118 115	oneM2M; Testing Framework (oneM2M TS-0015 version 2.0.0 Release 2A)
ETSI		ETSI TS 118 117	oneM2M Implementation Conformance Statements (oneM2M TS-0017 version 2.1.1 Release 2)
ETSI		ETSI TS 118 118	oneM2M Test Suite Structure and Test Purposes (oneM2M TS-0018 version 2.13.1 Release 2)
ETSI		ETSI TS 118 119	oneM2M Abstract Test Suite and Implementation eXtra Information for Test (oneM2M TS-0019 version 2.3.0 Release 2)
ETSI		ETSI TS 118 123	oneM2M; Home Appliances Information Model and Mapping (oneM2M TS-0023 version 3.7.1 Release 3)
ETSI		ETSI TS 118 124	oneM2M; OIC Interworking (oneM2M TS-0024 version 3.2.0 Release 3)
ETSI		ETSI TS 118 130	oneM2M Ontology based Interworking (oneM2M TS-0030 v3.0.1 Release 3)
ETSI		ETSI TS 118 131	oneM2M Feature Catalogue (oneM2M TS-0031v2.2.0 Release 2A)
ETSI		ETSI TS 118 134	oneM2M; Semantics Support (oneM2M TS-0034 version 0.5.0 Release 3)
ETSI		ETSI TS 118 135	oneM2M; OSGi Interworking (oneM2M TS-0035 version 0.2.0 Release 3)
ETSI		ETSI TR 118 501	oneM2M; Use Case collection (oneM2M TR-0001 version 2.4.1 Release 2A)
ETSI		ETSI TR 118 503	oneM2M Roles and Focus Areas
ETSI		ETSI TR 118 507	oneM2M; Study on Abstraction and Semantics Enablement (oneM2M TR-0007 Version 2.11.1 Release 2A)
ETSI		ETSI TR 118 513	oneM2M Home Domain Enablement
ETSI		ETSI TR 118 514	oneM2M; oneM2M and AllJoyn Interworking (oneM2M TR-0014)
ETSI		ETSI TR 118 520	oneM2M Study of service transactions and re-usable service layer context
ETSI		ETSI TR 118 521	oneM2M Study of the action triggering in M2M
ETSI		ETSI TR 118 523	oneM2M and OIC Interworking
ETSI		ETSI TR 118 526	oneM2M: Vehicular Domain Enablement (oneM2M TR-0026 version 0.10.0)

ETSI		ETSI TR 118 530	oneM2M Service Layer Forwarding (oneM2M TR-0030 v03.0)
ETSI		ETSI TR 118 531	oneM2M LWM2M DM & Interworking Enhancements (oneM2M TR-0031 v0.5.0)
ETSI		ETSI TR 118 533	oneM2M Study on Enhanced Semantic Enablement (oneM2M TR-0033 study on Enhanced Semantic Enablement Release 3)
ETSI		ETSI TR 118 534	oneM2M; Developer Guide: CoAP binding and long polling for temperature monitoring (oneM2M TR-0034 v2.0.0 release 2A)
ETSI		ETSI TR 118 535	oneM2M; Developer guide: device management (oneM2M TR-0035 v2.0.0 release 2A)
ETSI		ETSI TR 118 538	oneM2M; Developer guide: Implementing security example (oneM2M TR-0038 v2.0.0 release 2A)
ETSI		ETSI TR 118 539	oneM2M; Developer guide; Interworking Proxy using SDT (oneM2M TR-0039 version 2.0.0 release 2A)
ETSI		ETSI TR 118 541	oneM2M Decentralized Authentication (oneM2M TR-0041 version 0.4.0 Release 4)
ETSI		ETSI TR 118 545	oneM2M; Developer Guide: Implementing Semantics (oneM2M TR-0045 version 2.0.0)
ETSI		ETSI TR 118 551	oneM2M API guide (oneM2M TR-0051 version 0.6.0 Release 2A)
ETSI		ETSI TR 118 556	oneM2M; Summary of Differences between Release 2A & Release 3 (oneM2M TR-0056 version 1.0.0)
ETSI	ETSI/ISG MEC	ETSI GS MEC 033	Multi-access Edge Computing (MEC); IoT API
ITU-T	ITU-T/SG 3	ITU-T D.IoT/M2M	Roaming Roaming aspects of IoT and M2M including any related development and tariff principles
ITU-T	ITU-T/SG 3	ITU-T D.IoTpolicy	Guidelines on Tariff and regulatory aspects of Internet of Things (IoT)
ITU-T	ITU-T/SG 2	ITU-T E.IoT-NNAI	Internet of Things Naming Numbering Addressing and Identifiers
ITU-T	ITU-T/SG 15	ITU-T G.IoT	System architecture, PHY layer and DLL layer for IoT Smart Home over PLC
ITU-T	ITU-T/SG 11	ITU-T Q.4062	Framework for IoT Testing
ITU-T	ITU-T/SG 11	ITU-T Q.4063	The framework of testing of identification systems used in IoT
ITU-T	ITU-T/SG 11	ITU-T Q.GDC-IoT-test	Testing requirements and procedures for Internet of Things based green data centres
ITU-T	ITU-T/SG 3	ITU-T TR_IoTM2M_roaming	Roaming aspects of IoT and M2M including any related development and tariff principles
ITU-T	ITU-T/SG 20	ITU-T Y.4472	Open data application programming interface (APIs) for IoT data in smart cities and communities
ITU-T	ITU-T/SG 20	ITU-T Y.4908	Performance evaluation frameworks of e-health systems in the IoT
ITU-T	ITU-T/SG 20	ITU-T Y.AM-SC-reqts	IoT technical requirements and framework for monitoring physical city assets
ITU-T	ITU-T/SG 20	ITU-T Y.BC-SON	Framework of blockchain-based self-organization networking in IoT environments
ITU-T	ITU-T/SG 20	ITU-T Y.blockchain-terms	Vocabulary for blockchain for supporting Internet of things and smart cities and communities in data processing and management aspects
ITU-T	ITU-T/SG 20	ITU-T Y.cii	Requirements and reference model of IoT related data from city infrastructure
ITU-T	ITU-T/SG 20	ITU-T Y.cnce-IoT-arch	Functional architecture of cellular-radio network capability exposure for smart hospital based on Internet of things
ITU-T	ITU-T/SG 20	ITU-T Y.CS-framework	Service requirements and capability framework of IoT-related crowdsourced systems
ITU-T	ITU-T/SG 20	ITU-T Y.data-MP	Framework for data middle-platform in IoT and smart sustainable cities
ITU-T	ITU-T/SG 20	ITU-T Y.dec-IoT-arch	Decentralized IoT communication architecture based on information centric networking and blockchain
ITU-T	ITU-T/SG 20	ITU-T Y.DFR-SM	Data format requirements and protocols for remote data collection in smart metering systems
ITU-T	ITU-T/SG 20	ITU-T Y.DPM-framework	Data processing and management framework for IoT and smart cities and communities
ITU-T	ITU-T/SG 20	ITU-T Y.DPM-interop	Requirements and functional model to support data interoperability in IoT environments
ITU-T	ITU-T/SG 20	ITU-T Y.DPM-qm	Requirements and functional model to support data quality management in IoT
ITU-T	ITU-T/SG 20	ITU-T Y.FW.IC.MDSC	Framework of identification and connectivity of moving devices in smart city
ITU-T	ITU-T/SG 20	ITU-T Y.IoT-AOS-prot	Protocols of supporting autonomic operations in the Internet of things
ITU-T	ITU-T/SG 20	ITU-T Y.IoT-AR	Framework for AR and VR based control in IoT
ITU-T	ITU-T/SG 20	ITU-T Y.IoT-Ath-SC	Framework of IoT-devices authentication in smart city
ITU-T	ITU-T/SG 20	ITU-T Y.IoT-AV-Reqts	Requirements and capability framework of IoT infrastructure to support network-assisted autonomous vehicles
ITU-T	ITU-T/SG 20	ITU-T Y.IoT-BPM-reqts	Specific requirements of the Internet of things for business process management
ITU-T	ITU-T/SG 20	ITU-T Y.IoT-CEIHMOn-Reqts	Requirements of IoT-based civil engineering infrastructure health monitoring system
ITU-T	ITU-T/SG 20	ITU-T Y.IoT-CSIADe-fw	Reference framework of converged service for identification and authentication for IoT devices in decentralized environment
ITU-T	ITU-T/SG 20	ITU-T Y.IoT-EC-GW	Capabilities and framework of edge computing-enabled gateway in the IoT
ITU-T	ITU-T/SG 20	ITU-T Y.IoT-SQAF	Sensing quality assessment framework of IoT systems

ITU-T	ITU-T/SG 20	ITU-T Y.IoT-UAS-Reqts	Use cases, requirements and capabilities of unmanned aircraft systems for Internet of things
ITU-T	ITU-T/SG 20	ITU-T Y.RA-FML	Requirements and reference architecture of IoT and smart city & community service based on federated machine learning
ITU-T	ITU-T/SG 20	ITU-T Y.SCC-Reqts	Common requirements and capabilities of smart cities and communities from IoT and ICT perspectives
ITU-T	ITU-T/SG 20	ITU-T Y.Sup.SmartAgri-usecases	Use cases of IoT based smart agriculture
ITU-T	ITU-T/SG 20	ITU-T Y.Sup.Web-DM	Web based data model for IoT and smart city
ITU-T	ITU-T/SG 20	ITU-T Y.Sup-IoT-Eco-Plan	Framework for Internet of things ecosystem master plan
ITU-T	ITU-T/SG 20	ITU-T Y.TM.DM-API	IoT Device Management API REST Specification
ITU-T	ITU-T/SG 20	ITU-T Y.TM.SM-API	IoT Service Management API REST Specification
ITU-T	ITU-T/SG 20	ITU-T YSTR.Feas-DID-IoT	Feasibility of Decentralised Identifiers (DIDs) in IoT
ITU-T	ITU-T/SG 20	ITU-T YSTR-IADIoT	Intelligent Anomaly Detection System for IoT

SDO	Technical Committee	Reference	Title
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 25	ISO/IEC 15045-3-1	Information technology — Home Electronic System (HES) gateway — Part 3-1: Introduction to privacy, security, and safety
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 25	ISO/IEC 15045-3-2	Information technology — Home Electronic System — HES Gateway Privacy Framework
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	ISO/IEC 30147	Information technology -- Internet of things -- Methodology for trustworthiness of IoT system/service
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	ISO/IEC 30149	Internet of Things (IoT) -- Trustworthiness framework
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	ISO/IEC TS 30168	Internet of Things (IoT) - Generic Trust Anchor Application Programming Interface for Industrial IoT Devices
ISO/IEC JTC 1	ISO/IEC JTC 1/SC 41	JTC1-SC41-172	Internet of Things (IoT) - Trustworthiness Principles
ETSI	ETSI/TC CYBER	ETSI TS 103 486	CYBER; Identity Management and Discovery for IoT
ETSI	ETSI/TC MTS	ETSI TS 103 646	MTS; Test Specification for foundational Security IoT-Profile
ETSI	ETSI/TC CYBER	ETSI TS 103 701	CYBER; Cybersecurity assessment for consumer IoT products
ETSI		ETSI TS 118 103	oneM2M; Security solutions (oneM2M TS-0003 version 3.10.0 Release 3)
ETSI		ETSI TS 118 116	oneM2M; Secure Environment Abstraction (oneM2M TS-0016 version 3.0.0 Release 3)
ETSI		ETSI TS 118 129	oneM2M; Security Abstract Test Suite & Implementation eXtra Information for Test
ETSI		ETSI TR 118 508	oneM2M; Security (oneM2M TR-0008 version 2.0.0 Release 2A)
ETSI		ETSI TR 118 519	oneM2M Dynamic Authorization for IoT (oneM2M TR-0019 version 2.0.0 Release 2)
ETSI		ETSI TR 118 538	oneM2M; Developer guide: Implementing security example (oneM2M TR-0038 v2.0.0 release 2A)
ETSI	ETSI/TC CYBER	ETSI DTR/CYBER-0057	CYBER; Guide to Cyber Security for Consumer Internet of Things
ITU-T	ITU-T/SG 17	ITU-T X.1366	Aggregate message authentication scheme for IoT environment (X. amas-iot)
ITU-T	ITU-T/SG 17	ITU-T X.1367	Standard format for Internet of things error logs for security incident operations
ITU-T	ITU-T/SG 17	ITU-T X.iotsec-4	Security requirements for IoT devices and gateway
ITU-T	ITU-T/SG 17	ITU-T X.sc-iot	Security controls for Internet of Things (IoT) systems
ITU-T	ITU-T/SG 17	ITU-T X.secup-iot	Secure software update for IoT devices
ITU-T	ITU-T/SG 17	ITU-T X.ssp-iot	Security requirements and framework for IoT service platform
ITU-T	ITU-T/SG 20	ITU-T Y.Data.Sec.IoT-Dev	Requirements of data security for the heterogeneous IoT devices
ITU-T	ITU-T/SG 20	ITU-T Y.IoT-IoD-PT	Identity of IoT devices based on secure procedures to enhance trust of IoT systems
ITU-T	ITU-T/SG 20	ITU-T Y.IoT-Smartcity-Risk	Reference framework of cybersecurity risk management of IoT ecosystems on smart cities