

Supplement

ITU-T Y Suppl. 59 (07/2024)

SERIES Y: Global information infrastructure, Internet protocol aspects, next-generation networks, Internet of Things and smart cities

Supplements to the Y-series Recommendations

ITU-T Y.3100-series – IMT-2020 and beyond standardization roadmap

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Supplement 59 to ITU-T Y-series Recommendations

ITU-T Y.3100-series – IMT-2020 and beyond standardization roadmap

Summary

Supplement 59 to ITU-T Y-series Recommendations provides the standardization roadmap for IMT-2020 and beyond in the information and communication technologies area. This revised Supplement 59 to ITU-T Y.3100-series Recommendations IMT-2020 and beyond standardization roadmap has been developed to assist in the development of IMT-2020 and beyond related standards in the ICT fields by providing information about existing and under developing standards in key standards development organizations (SDOs).

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FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

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Supplement 59 to ITU-T Y-series Recommendations

ITU-T Y.3100-series – IMT-2020 and beyond standardization roadmap

1 Scope

This revised Supplement provides the standardization roadmap for IMT-2020 and beyond area in the telecommunication sector. It addresses the following subjects:

- The collection/pointers to the standards and publications of IMT-2020 and beyond deliverables in ITU-T study groups (SGs) and other standards development organisations (SDOs);
- Responsible group (owner);
- Status;
- Subject;
- Topics.

2 References

[ITU-T Y.3101] Recommendation ITU-T Y.3101 (2018), *Requirements of the IMT-2020 network*.

3 Definitions

3.1 Terms defined elsewhere

This Supplement uses the following terms defined elsewhere:

3.1.1 backhaul [b-ITU-T Y.3100]: A network path between base station systems and a core network.

3.1.2 fixed mobile convergence [b-ITU-T Y.3100]: In the context of IMT-2020, the capabilities that provide services and applications to end users regardless of the fixed or mobile access technologies being used and independently of the users' location.

3.1.3 fronthaul [b-ITU-T Y.3100]: A network path between centralized radio controllers and remote radio units of a base station function.

3.1.4 functional architecture [b-ITU-T Y.4406]: A set of functional entities used to describe the structure of an NGN. These functional entities are separated by reference points, and thus, they define the distribution of functions. The functional entities can be used to describe a set of reference configurations. These reference configurations identify which reference points are visible at the boundaries of equipment implementations and between administrative domains.

3.1.5 IMT-2020 [b-ITU-T Y.3100]: (Based on [ITU-R M.2083-0]) Systems, system components, and related technologies that provide far more enhanced capabilities than those described in [b-ITU-R M.1645].

NOTE – [b-ITU-R M.1645] defines the framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000 for the radio access network.

3.1.6 management [b-ITU-T Y.3100]: In the context of IMT-2020, the processes aiming at fulfilment, assurance, and billing of services, network functions, and resources in both physical and virtual infrastructure including compute, storage, and network resources.

3.1.7 network function [b-ITU-T Y.3100]: In the context of IMT-2020, a processing function in a network.

NOTE 1 – Network functions include but are not limited to network node functionalities, e.g., session management, mobility management and transport functions, whose functional behaviour and interfaces are defined.

NOTE 2 – Network functions can be implemented on a dedicated hardware or as virtualized software functions.

NOTE 3 – Network functions are not regarded as resources, but rather any network functions can be instantiated using the resources.

3.1.8 network slice [b-ITU-T Y.3100]: A logical network that provides specific network capabilities and network characteristics.

NOTE 1 – Network slices enable the creation of customized networks to provide flexible solutions for different market scenarios which have diverse requirements, with respect to functionalities, performance and resource allocation.

NOTE 2 – A network slice may have the ability to expose its capabilities.

NOTE 3 – The behaviour of a network slice is realized via network slice instance(s).

3.1.9 network slice blueprint [b-ITU-T Y.3100]: A complete description of the structure, configuration and work flows on how to create and control a network slice instance during its life cycle.

NOTE – A network slice template can be used synonymously with a network slice blueprint.

3.1.10 network slice instance [b-ITU-T Y.3100]: An instance of network slice, which is created based on a network slice blueprint.

NOTE 1 – A network slice instance is composed of a set of managed run-time network functions, and physical/logical/virtual resources to run these network functions, forming a complete instantiated logical network to meet certain network characteristics required by the service instance(s).

NOTE 2 – A network slice instance may also be shared across multiple service instances provided by the network operator. A network slice instance may be composed of none, one or more sub-network slice instances which may be shared with another network slice instance.

3.1.11 network softwarization [b-ITU-T Y.3100]: An overall approach for designing, implementing, deploying, managing and maintaining network equipment and/or network components by software programming.

NOTE – Network softwarization exploits the nature of software such as flexibility and rapidity all along the lifecycle of network equipment and/or components, for the sake of creating conditions that enable the re-design of network and services architectures, the optimization of costs and processes, self-management and bring added values in network infrastructures.

3.1.12 network virtualization [b-ITU-T Y.3011]: A technology that enables the creation of logically isolated network partitions over shared physical networks so that heterogeneous collection of multiple virtual networks can simultaneously coexist over the shared networks. This includes the aggregation of multiple resources in a provider and appearing as a single resource.

3.1.13 orchestration [b-ITU-T Y.3100]: In the context of IMT-2020, the processes aiming at the automated arrangement, coordination, instantiation and use of network functions and resources for both physical and virtual infrastructures by optimization criteria.

3.1.14 service instance [b-ITU-T Y.3100]: An instance of a service that is realized within a network slice.

NOTE 1 – A service may be represented by one or more service instances.

NOTE 2 – A service instance may be provided by the network slice operator or a third party.

3.1.15 software-defined networking [b-ITU-T Y.3300]: A set of techniques that enables to directly program, orchestrate, control and manage network resources, which facilitates the design, delivery and operation of network services in a dynamic and scalable manner.

3.1.16 user plane [b-ITU-T Y.1714]: Refers to the set of traffic forwarding components through which traffic flows.

NOTE – "User plane" is referred to as "transport plane" in other ITU-T Recommendations.

3.1.17 virtualized network function [b-ITU-T Y.3321]: A network function whose functional software is decoupled from hardware, and runs on virtual machine(s).

3.2 Terms defined in this Supplement

None.

4 Abbreviations and acronyms

This Supplement uses the following abbreviations and acronyms:

3GPP	3rd Generation Partnership Project
5GCN	5G Core Network
5GS	5G System
AGF	Aggregator Gateway Function
AMS	Analog/Mixed-Signal
API	Application Programming Interface
BBF	Broadband Forum
BNG	Broadband Network Gateway
CM	Configuration Management
CT	Core network and Terminals
CUPS	Control and User Plane Separation
E2E	End to End
EE	Energy Efficiency
eMBB	Enhanced Mobile Broadband
EMF	Electromagnetic Field
ENNI	External Network Network Interface
EPS	Evolved Packet System
ETSI	European Telecommunications Standards Institute
E-UTRAN	Evolved Universal Terrestrial Radio Access Network
EVC	Ethernet Virtual Connection
FlexE	Flexible Ethernet
FM	Fault Management
FMC	Fixed-Mobile Convergence
FMIF	Fixed Mobile Interworking Function
FTTdp	Fibre To The distribution point
GPRS	General Packet Radio Service
ICNIRP	International Commission for Non-Ionizing Radiation Protection

ICT	Information and Communication Technologies
IEEE	Institute of Electrical and Electronics Engineers
IMT	International Mobile Telecommunications
IMT-Advanced	International Mobile Telecommunications-Advanced
IoT	Internet of Things
IP	Intellectual Property
ITS	Intelligent Transportation Systems
KPI	Key Performance Indicator
LAN	Local Area Network
LCM	Life Cycle Management
LCS	Location Services
LR-WPAN	Low-Rate Wireless Personal Area Network
MAC	Medium Access Control
MAN	Metro Area Network
MANO	Management and Orchestration
MEC	Mobile Edge Computing
MEF	Metro Ethernet Forum
MPLS	Multiprotocol Label Switching
MTC	Massive Machine Type Communications
NaaS	Network as a Service
NAS	Non-Access-Stratum
NFV	Network Functions Virtualisation
NFVI	Network Function Virtualization Infrastructure
NGMN	Next Generation Mobile Networks
NGSON	Next Generation Service Overlay Network
NRM	Network Resource Model
NSA	Non-standalone
ONAP	Open Network Automation Platform
OTN	Optical Transport Network
PAC	Peer Aware Communication
PHY	Physical Layer
PICS	Protocol Implementation Conformance Statement
PM	Performance Management
PON	Passive Optical Network
QoS	Quality of Service
RAN	Radio Access Network
REST	Representational state transfer

RF-EMF	Radio Frequency Electromagnetic Field
RFID	Radio Frequency Identification
ROOF	Real-time Onsite Operations Facilitation
SA	Services and systems Aspects
SA	Standalone
SAR	Specific Absorption Rate
SDN	Software Defined Networking
SOAM FM IA	Service OAM Fault Management Implementation Agreement
SOAM	Service OAM
SoC	System on Chip
TEDS	Transducer Electronic Data Sheet
TM Forum	TeleManagement Forum
TSDSI	Telecommunications Standards Development Society, India
TSG	Technical Specification Groups
UE	User Equipment
ULI	Upper Layer Interface
UML	Unified Modelling Language
URLLC	Ultra-Reliable Low Latency Communications
V2X	Vehicle to Everything
VHDL	VHSIC Hardware Description Language
vNID	Virtual NID
WAVE	Wireless Access in Vehicular Environments
WLAN	Wireless Local Area Network
WPAN	Wireless Personal Area Networks
WRAN	Wireless Regional Area Networks
YANG	Yet Another Next Generation

5 Conventions

None.

6 IMT-2020 and beyond network overview

The IMT-2020 and beyond network will enable a variety of services, including enhanced mobile broadband (eMBB) services, massive machine type communications (MTC) based services and ultra-reliable low latency communications (URLLC) based services [ITU-T Y.3101], on an infrastructure of network and computing resources.

Among the numerous features of the IMT-2020 and beyond network, the following are specific key features that characterize the IMT-2020 and beyond network:

- Distributed architecture based on softwarized network functions.
- Access network agnostic common core network.

- Network slicing.

The following requirements constitute design considerations for the IMT-2020 and beyond network architecture:

- Support of network slicing;
- Support of network capability exposure;
- Common interface to support access network agnostic common core network;
- Separation of control plane and user plane;
- Efficient support of different mobility requirements;
- Support of low latency requirements;
- Leveraging existing techniques including network functions virtualisation (NFV)/software defined networking (SDN).

7 IMT-2020 and beyond standards roadmap

7.1 3rd Generation Partnership Project (3GPP)

The 3rd Generation Partnership Project (3GPP) unites seven telecommunications standard development organizations (ARIB, ATIS, CCSA, European Telecommunications Standards Institute (ETSI), Telecommunications Standards Development Society, India (TSDSI), TTA, TTC), known as "Organizational Partners" and provides their members with a stable environment to produce the Reports and Specifications that define 3GPP technologies.

The project covers cellular telecommunication network technologies, including radio access, the core transport network, and service capabilities – including work on codecs, security, and quality of service – and thus provides complete system specifications. The specifications also provide hooks for non-radio access to the core network (CN), and for interworking with Wi-Fi networks.

There are three Technical Specification Groups (TSG) in 3GPP: Radio Access Networks (RAN), Services and Systems Aspects (SA), and Core Network and Terminals (CT).

The current main focus of 3GPP is specifications for IMT-2020 and beyond/5G.

Table 7-1 provides a list of 3GPP deliverables associated with IMT-2020 and beyond networks.

Table 7-1 – 3GPP deliverables

Name	Responsible group	Status	Subject	Topics
3GPP TS 22.261	3GPP TSG SA	Draft	Service requirements for the 5G system; Stage 1	IMT-2020 and beyond
3GPP TS 23.273	3GPP TSG SA	Draft	5G System (5GS) Location Services (LCS); Stage 2	IMT-2020 and beyond
3GPP TS 23.278	3GPP TSG CT	Draft	Service requirements for the Evolved Packet System (EPS)	IMT-2020 and beyond
3GPP TS 23.288	3GPP TSG SA	Draft	Architecture enhancements for 5G System (5GS) to support network data analytics services	IMT-2020 and beyond
3GPP TS 23.316	3GPP TSG SA	Draft	Wireless and wireline convergence access support for the 5G System (5GS)	IMT-2020 and beyond

Table 7-1 – 3GPP deliverables

Name	Responsible group	Status	Subject	Topics
3GPP TS 23.401	3GPP TSG SA	Draft	General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access	IMT-2020 and beyond
3GPP TS 23.501	3GPP TSG SA	Draft	System Architecture for the 5G System; Stage 2	IMT-2020 and beyond
3GPP TS 23.502	3GPP TSG SA	Draft	Procedures for the 5G System; Stage 2	IMT-2020 and beyond
3GPP TS 23.503	3GPP TSG SA	Draft	Policy and Charging Control Framework for the 5G System; Stage 2	IMT-2020 and beyond
3GPP TS 24.501	3GPP TSG CT	Draft	Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3	IMT-2020 and beyond
3GPP TS 24.502	3GPP TSG CT1	Draft	Access to the 3GPP 5G Core Network (5GCN) via non-3GPP access networks	IMT-2020 and beyond
3GPP TS 24.526	3GPP TSG CT	Draft	User Equipment (UE) policies for 5G System (5GS); Stage 3	IMT-2020 and beyond
3GPP TS 28.310	3GPP TSG SA	Draft	Management and orchestration; Energy Efficiency (EE) of 5G; Concepts, use cases and requirements	IMT-2020 and beyond
3GPP TS 28.500	3GPP TSG SA	Draft	Telecommunication management; Management concept, architecture and requirements for mobile networks that include virtualized network functions	IMT-2020 and beyond
3GPP TS 28.510	3GPP TSG SA	Draft	Telecommunication management; Configuration Management (CM) for mobile networks that include virtualized network functions; Requirements	IMT-2020 and beyond

Table 7-1 – 3GPP deliverables

Name	Responsible group	Status	Subject	Topics
3GPP TS 28.511	3GPP TSG SA	Draft	Telecommunication management; Configuration Management (CM) for mobile networks that include virtualized network functions; Procedures	IMT-2020 and beyond
3GPP TS 28.512	3GPP TSG SA5	Draft	Configuration Management (CM) for mobile networks that include virtualized network functions; Stage 2	IMT-2020 and beyond
3GPP TS 28.513	3GPP TSG SA5	Draft	Configuration Management (CM) for mobile networks that include virtualized network functions; Stage 3	IMT-2020 and beyond
3GPP TS 28.515	3GPP TSG SA	Draft	Telecommunication management; Fault Management (FM) for mobile networks that include virtualized network functions; Requirements	IMT-2020 and beyond
3GPP TS 28.516	3GPP TSG SA	Draft	Telecommunication management; Fault Management (FM) for mobile networks that include virtualized network functions; Procedures	IMT-2020 and beyond
3GPP TS 28.517	3GPP TSG SA	Draft	Telecommunication management; Fault Management (FM) for mobile networks that include virtualized network functions; Stage 2	IMT-2020 and beyond
3GPP TS 28.518	3GPP TSG SA	Draft	Telecommunication management; Fault Management (FM) for mobile networks that include virtualized network functions; Stage 3	IMT-2020 and beyond
3GPP TS 28.520	3GPP TSG SA	Draft	Performance Management (PM) for mobile networks that include virtualized network functions; Requirements	IMT-2020 and beyond

Table 7-1 – 3GPP deliverables

Name	Responsible group	Status	Subject	Topics
3GPP TS 28.521	3GPP TSG SA	Draft	Performance Management (PM) for mobile networks that include virtualized network functions; Procedures	IMT-2020 and beyond
3GPP TS 28.523	3GPP TSG SA5	Draft	Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Stage 3	IMT-2020 and beyond
3GPP TS 28.525	3GPP TSG SA5	Draft	Telecommunication management; Life Cycle Management (LCM) for mobile networks that include virtualized network functions; Requirements	IMT-2020 and beyond
3GPP TS 28.526	3GPP TSG SA5	Draft	Telecommunication management; Life Cycle Management (LCM) for mobile networks that include virtualized network functions; Procedures	IMT-2020 and beyond
3GPP TS 28.527	3GPP TSG SA5	Draft	Life Cycle Management (LCM) for mobile networks that include virtualized network functions; Stage 2	IMT-2020 and beyond
3GPP TS 28.528	3GPP TSG SA5	Draft	Telecommunication management; Life Cycle Management (LCM) for mobile networks that include virtualized network functions; Stage 3	IMT-2020 and beyond
3GPP TS 28.530	3GPP TSG SA5	Draft	Management and orchestration; Concepts, use cases and requirements	IMT-2020 and beyond
3GPP TS 28.531	3GPP TSG SA	Draft	Performance Management (PM) for mobile networks that include virtualized network functions; Procedures	IMT-2020 and beyond
3GPP TS 28.532	3GPP TSG SA5	Draft	Management and orchestration; Generic management services	IMT-2020 and beyond

Table 7-1 – 3GPP deliverables

Name	Responsible group	Status	Subject	Topics
3GPP TS 28.533	3GPP TSG SA5	Draft	Management and orchestration; Architecture framework	IMT-2020 and beyond
3GPP TS 28.541	3GPP TSG SA5	Draft	Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3	IMT-2020 and beyond
3GPP TS 29.500	3GPP TSG CT4	Draft	5G System; Technical Realization of Service Based Architecture; Stage 3	IMT-2020 and beyond
3GPP TS 29.501	3GPP TSG CT4	Draft	5G System; Principles and Guidelines for Services Definition; Stage 3	IMT-2020 and beyond
3GPP TS 29.502	3GPP TSG CT4	Draft	Session Management Services Stage 3	IMT-2020 and beyond
3GPP TS 29.503	3GPP TSG CT4	Draft	5G System; Unified Data Management Services; Stage 3	IMT-2020 and beyond
3GPP TS 29.507	3GPP TSG CT3	Draft	Access and Mobility Policy Control Service; Stage 3	IMT-2020 and beyond
3GPP TS 29.508	3GPP TSG CT3	Draft	Session Management Event Exposure Service; Stage 3	IMT-2020 and beyond
3GPP TS 29.509	3GPP TSG CT4	Draft	5G System; Authentication Server Services; Stage 3	IMT-2020 and beyond
3GPP TS 29.510	3GPP TSG CT4	Draft	5G System; Network function repository services; Stage 3	IMT-2020 and beyond
3GPP TS 29.511	3GPP TSG CT4	Draft	5G System; Equipment Identity Register Services; Stage 3	IMT-2020 and beyond
3GPP TS 29.512	3GPP TSG CT3	Draft	5G System; Session Management Policy Control Service; Stage 3	IMT-2020 and beyond
3GPP TS 29.513	3GPP TSG CT3	Draft	5G System; Policy and Charging Control signalling flows and QoS parameter mapping; Stage 3	IMT-2020 and beyond
3GPP TS 29.514	3GPP TSG CT3	Draft	5G System; Policy Authorization Service; Stage 3	IMT-2020 and beyond
3GPP TS 29.518	3GPP TSG CT4	Published	5G System; Access and Mobility Management Services; Stage 3	IMT-2020 and beyond

Table 7-1 – 3GPP deliverables

Name	Responsible group	Status	Subject	Topics
3GPP TS 29.519	3GPP TSG CT3	Draft	5G System; Usage of the Unified Data Repository Service for Policy Data, Application Data and Structured Data for Exposure; Stage 3	IMT-2020 and beyond
3GPP TS 29.520	3GPP TSG CT3	Draft	5G System; Network Data Analytics Services; Stage 3	IMT-2020 and beyond
3GPP TS 29.531	3GPP TSG CT4	Draft	5G System; Network Slice Selection Services; Stage 3	IMT-2020 and beyond
3GPP TS 29.540	3GPP TSG CT4	Draft	5G System; SMS Services; Stage 3	IMT-2020 and beyond
3GPP TS 29.561	3GPP TSG CT3	Draft	5G System; Interworking between 5G Network and external Data Networks; Stage 3	IMT-2020 and beyond
3GPP TS 29.571	3GPP TSG CT4	Draft	5G System; Common Data Types for Service Based Interfaces; Stage 3	IMT-2020 and beyond
3GPP TS 32.972	3GPP TSG SA5	Draft	Telecommunication management; Study on system and functional aspects of energy efficiency in 5G networks	IMT-2020 and beyond
3GPP TS 33.501	3GPP TSG SA3	Draft	Security Architecture and Procedures for 5G System	IMT-2020 and beyond
3GPP TS.28.522	3GPP TSG SA5	Draft	Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Stage 2	IMT-2020 and beyond

7.2 Broadband Forum

The Broadband Forum, a non-profit industry organization, is focused on engineering smarter and faster broadband networks. Their work defines best practices for global networks, enables service and content delivery, establishes technology migration strategies, engineers critical device and service management tools, and is key to redefining broadband. Free technical reports and white papers can be found at broadband-forum.org.

Table 7-2 provides a list of Broadband Forum deliverables associated with IMT-2020 and beyond networks.

Table 7-2 – Broadband Forum deliverables

Name	Responsible group	Status	Subject	Topics
BBF MD-305i3	BROADBAND FORUM	Draft	MPLS Mobile Backhaul Evolution – 4G and Beyond – Tutorial	IMT-2020 and beyond
BBF MD-342	BROADBAND FORUM	Draft	Energy Efficient Mobile Backhaul White Paper	IMT-2020 and beyond
BBF MD-343	BROADBAND FORUM	Draft	Energy Efficient Mobile Backhaul Tutorial	IMT-2020 and beyond
BBF MD-391	BROADBAND FORUM	Draft	Evolution to 5G Mobile Backhaul Networks – White Paper	IMT-2020 and beyond
BBF MD-427	BROADBAND FORUM	Draft	5G Fixed Mobile Convergence – white paper	IMT-2020 and beyond
BBF MD-464	BROADBAND FORUM	Draft	Migrating Fixed Access to 5G	IMT-2020 and beyond
BBF MD-521	BROADBAND FORUM	Draft	Whitepaper for 5G Transport Networks	IMT-2020 and beyond
BBF OD-379	BROADBAND FORUM	Draft	Interoperability Test Plan for FTTdp PMA/DPU Management Interface	IMT-2020 and beyond
BBF Open Source	BROADBAND FORUM	Draft	WWC Reference Implementation for 5G-RG	IMT-2020 and beyond
BBF SD-406	BROADBAND FORUM	Draft	End-to-End Network Slicing	IMT-2020 and beyond
BBF SD-407	BROADBAND FORUM	Draft	5G Fixed Mobile Convergence	IMT-2020 and beyond
BBF SD-420	BROADBAND FORUM	Draft	R1 5G Fixed Mobile Convergence	IMT-2020 and beyond
BBF SD-521	BROADBAND FORUM	Draft	Study Document for 5G Transport Networks	IMT-2020 and beyond
BBF SD-5GTransport	BROADBAND FORUM	Draft	5G Transport – market drivers, architecture, requirements	IMT-2020 and beyond

Table 7-2 – Broadband Forum deliverables

Name	Responsible group	Status	Subject	Topics
BBF SDxFlexEMPLS45G	BROADBAND FORUM	Draft	Flexible Ethernet (FlexE) use with MPLS networks	IMT-2020 and beyond
BBF TR-124 Issue 8 (12/2022)	BROADBAND FORUM	Published	Functional Requirements for Broadband Residential Gateway Devices	Cable-based video services and IPTV; Home gateways; IMT-2020 and beyond
BBF TR-355	BROADBAND FORUM	Published	YANG Modules for FTTdp Management	IMT-2020 and beyond
BBF TR-370 Issue 2 (04/2020)	BROADBAND FORUM	Published	Fixed Access Network Sharing – Architecture and Nodal Requirements	Fixed Access Network Sharing; IMT-2020 and beyond
BBF TR-383	BROADBAND FORUM	Published	Common YANG Modules for Access Networks	IMT-2020 and beyond
BBF TR-384 (01/2018)	BROADBAND FORUM	Published	Cloud Central Office Reference Architectural Framework	General on Access Network Architecture and Functions; IMT-2020 and beyond
BBF TR-386 Issue 2 (06/2024)	BROADBAND FORUM	Published	Fixed Access Network Sharing – Access Network Sharing Interfaces	Fixed Access Network Sharing; IMT-2020 and beyond
BBF TR-411	BROADBAND FORUM	Published	Definition of interfaces between CloudCO Functional Modules	IMT-2020 and beyond
BBF TR-413	BROADBAND FORUM	Published	SDN Management and Control Interfaces for CloudCO Network Functions	IMT-2020 and beyond

Table 7-2 – Broadband Forum deliverables

Name	Responsible group	Status	Subject	Topics
BBF TR-436 (02/2021)	BROADBAND FORUM	Published	Access & Home Network O&M Automation/Intelligence	Systems management and control; Management of Home Network devices; IMT-2020 and beyond
BBF TR-456 Issue 2 Corrigendum 1 (07/2023)	BROADBAND FORUM	Published	AGF Functional Requirements	Wireline-Wireless Convergence; Home gateways; IMT-2020 and beyond
BBF TR-470 Issue 2 (03/2022)	BROADBAND FORUM	Published	5G Wireless Wireline Convergence Architecture	Wireline-Wireless Convergence; IMT-2020 and beyond
BBF TR-484 (09/2022)	BROADBAND FORUM	Published	Access Network Abstraction	General on Access Network Architecture and Functions; IMT-2020 and beyond
BBF TR-522	BROADBAND FORUM	Published	Mobile-transport network slice instance Management Interfaces	IMT-2020 and beyond
BBF WT-221 Amendment 2	BROADBAND FORUM	Draft	Technical Specifications for MPLS in Mobile Backhaul Networks, Amendment 2	IMT-2020 and beyond
BBF WT-221a2	BROADBAND FORUM	Draft	Technical Specifications for MPLS in Mobile Backhaul Networks, Amendment 2	IMT-2020 and beyond
BBF WT-355a1	BROADBAND FORUM	Draft	YANG Modules for FTTdp Management – Amendment 1	IMT-2020 and beyond

Table 7-2 – Broadband Forum deliverables

Name	Responsible group	Status	Subject	Topics
BBF WT-383a1	BROADBAND FORUM	Draft	Common YANG Modules	IMT-2020 and beyond
BBF WT-386 Issue 2	BROADBAND FORUM	Draft	Fixed Access Network Sharing – Access Network Sharing Interfaces	IMT-2020 and beyond
BBF WT-456	BROADBAND FORUM	Draft	AGF Functional Requirements	IMT-2020 and beyond
BBF WT-457	BROADBAND FORUM	Draft	FMIF Functional Requirements	IMT-2020 and beyond
BBF WT-458	BROADBAND FORUM	Draft	CUPS for 5G FMC	IMT-2020 and beyond
BBF WT-459	BROADBAND FORUM	Draft	Control and User Plane Separation for a Disaggregated BNG	IMT-2020 and beyond
BBF WT-460	BROADBAND FORUM	Draft	YANG Modules for Broadband Network Gateways	IMT-2020 and beyond
BBF WT-486	BROADBAND FORUM	Draft	Interfaces for Automated Intelligent Management (AIM)	IMT-2020 and beyond
BBF WT-493	BROADBAND FORUM	Draft	IMS for 5G-RG Architecture	IMT-2020 and beyond
BBF WT-494	BROADBAND FORUM	Draft	IMS for 5G-RG Residential Voice Requirements	IMT-2020 and beyond
BBF WT-521	BROADBAND FORUM	Draft	5G Transport Networks	IMT-2020 and beyond

7.3 ETSI

The European Telecommunications Standards Institute (ETSI) is an independent, non-profit, standardization organization in the telecommunications industry (equipment makers and network operators) in Europe. It is headquartered in Sophia-Antipolis, France, with worldwide projection. ETSI produces standards that are globally applicable for information and communication technologies (ICT), including fixed, mobile, radio, converged, broadcast and Internet technologies.

Table 7-3 provides a list of ETSI deliverables associated with IMT-2020 and beyond networks.

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI DGR/NFV-EVE018	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV); Evolution and Ecosystem; Report on Multi-tenancy in NFV	IMT-2020 and beyond
ETSI DGR/NFV-EVE019	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 4; Architectural Framework; Report on VNF generic OAM functions	IMT-2020 and beyond
ETSI DGR/NFV-IFA035	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 4; Architectural Framework Report on network connectivity integration and operationalization for NFV	IMT-2020 and beyond
ETSI DGR/NFV-IFA037	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 4; Architectural Framework; Report on further NFV support for 5G	IMT-2020 and beyond
ETSI DGR/NFV-IFA038	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 4; Architectural Framework; Report on network connectivity for container based VNF	IMT-2020 and beyond
ETSI DGR/NFV-IFA039	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 4; Architectural Framework Report on Service Based Architecture (SBA) design	IMT-2020 and beyond
ETSI DGR/NFV-IFA041	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV); Release 4 Management and Orchestration; Report on enabling autonomous management in NFV-MANO	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI DGR/NFV-REL 012	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Reliability Report on availability and reliability under failure and overload conditions in NFV-MANO	IMT-2020 and beyond
ETSI DGR/NFV-SOL017	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 3 Protocols and Data Models Report on protocol and data model solutions for Multi-site Connectivity Services	IMT-2020 and beyond
ETSI DGS/MEC-0028WlanAPI	ETSI ISG	Draft	Multi-access Edge Computing (MEC); WLAN Information API	IMT-2020 and beyond
ETSI DGS/NFV-IFA 036	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 4; Management and Orchestration; Specification of requirements for the management and orchestration of container cluster nodes	IMT-2020 and beyond
ETSI DGS/NFV-SEC 023	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 4; Security; Container Security Specification	IMT-2020 and beyond
ETSI DGS/NFV-SEC 024	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 4 Security; Security Management Specification	IMT-2020 and beyond
ETSI DGS/NFV-SOL011 (GS)	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; RESTful protocols specification for the Or-Or Reference Point	IMT-2020 and beyond
ETSI DMI/MEC-DEC34	ETSI ISG	Draft	Multi-access Edge Computing (MEC) MEC Sandbox	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI DMI/NFV-SOL008 (MI)	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV); Protocol and Data Models; Creation and Management of the OpenAPI Work Programme	IMT-2020 and beyond
ETSI ETSI GS NFV-TST 009	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 3; Testing; Specification of Networking Benchmarks and Measurement Methods for NFVI	IMT-2020 and beyond
ETSI GR MEC 017	ETSI ISG	Published	Mobile Edge Computing (MEC); Deployment of Mobile Edge Computing in an NFV environment	IMT-2020 and beyond
ETSI GR MEC 018	ETSI ISG	Published	Mobile Edge Computing (MEC); End to End Mobility Aspects	IMT-2020 and beyond
ETSI GR MEC 022	ETSI ISG	Published	Multi-access Edge Computing (MEC); Study on MEC Support for V2X Use Cases	IMT-2020 and beyond
ETSI GR MEC 024	ETSI ISG	Published	Multi-access Edge Computing (MEC); MEC support for network slicing	IMT-2020 and beyond
ETSI GR MEC 027	ETSI ISG	Published	Multi-access Edge Computing (MEC); Study on MEC support for containers alternative virtualization technologies	IMT-2020 and beyond
ETSI GR MEC 031	ETSI ISG	Draft	Multi-access Edge Computing (MEC) MEC 5G Integration	IMT-2020 and beyond
ETSI GR MEC-DEC 023	ETSI ISG	Draft	Multi-access Edge Computing (MEC); Describing ETSI MEC RESTful APIs using the OpenAPI specification	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GR MEC-DEC 025	ETSI ISG	Published	Multi-access Edge Computing (MEC); MEC Testing Framework	IMT-2020 and beyond
ETSI GR mWT 012	ETSI ISG	Draft	Millimetre Wave Transmission Scenarios for 5G	IMT-2020 and beyond
ETSI GR mWT 016	ETSI ISG	Published	Applications and use cases of Software Defined Networking (SDN) as related to microwave and millimetre wave transmission	IMT-2020 and beyond
ETSI GR NFV 001	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Use Cases	IMT-2020 and beyond
ETSI GR NFV-EVE 008	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 3; Charging; Report on Usage Metering and Charging Use Cases and Architectural Study	IMT-2020 and beyond
ETSI GR NFV-EVE 010	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 3; Licensing Management; Report on License Management for NFV	IMT-2020 and beyond
ETSI GR NFV-EVE 012	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 3; Evolution and Ecosystem; Report on Network Slicing Support with ETSI NFV Architecture Framework	IMT-2020 and beyond
ETSI GR NFV-EVE 016	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV); Connection Based Virtual Services; Report on Connection Based Virtual Services Support with ETSI NFV Architecture Framework	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GR NFV-EVE 017	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV); Management and Orchestration; Report on the support of real-time/ultra-low latency aspects in NFV related to service and network handling	IMT-2020 and beyond
ETSI GR NFV-IFA 012	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Report on Os-Ma-Nfvo reference point – application and service management use cases and recommendations	IMT-2020 and beyond
ETSI GR NFV-IFA 015	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 2; Management and Orchestration; Report on NFV Information Model	IMT-2020 and beyond
ETSI GR NFV-IFA 016	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 2; Information Modeling; Papyrus Guidelines	IMT-2020 and beyond
ETSI GR NFV-IFA 017	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 2; Information Modeling; UML Modeling Guidelines	IMT-2020 and beyond
ETSI GR NFV-IFA 021	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Report on management of NFV-MANO and automated deployment of EM and other OSS functions	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GR NFV-IFA 022	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Report on Management and Connectivity for Multi-Site Services	IMT-2020 and beyond
ETSI GR NFV-IFA 023	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Management and Orchestration; Report on Policy Management in Mano; Release 3	IMT-2020 and beyond
ETSI GR NFV-IFA 024	ETSI ISG NFV	Published	Network Function Virtualisation (NFV) Release 2; Information Modeling; Report on External Touchpoints related to NFV Information Model	IMT-2020 and beyond
ETSI GR NFV-IFA 025	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV); Management and Orchestration; Report on the support of real-time/ultra-low latency aspects in NFV related to service and network handling [Release 3]	IMT-2020 and beyond
ETSI GR NFV-IFA 028	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Report on architecture options to support multiple administrative domains	IMT-2020 and beyond
ETSI GR NFV-IFA 029	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 3; Architecture; Report on the Enhancements of the NFV architecture towards "Cloud-native" and "PaaS"	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GR NFV-IFA 034	ETSI ISG NFV	Draft	Network Function Virtualization (NFV) Release 3; Management and Orchestration; Report on Architectural enhancement for VNF License Management support and use of VNF licenses	IMT-2020 and beyond
ETSI GR NFV-REL 007	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Reliability; Report on the resilience of NFV-MANO critical capabilities	IMT-2020 and beyond
ETSI GR NFV-REL 008	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV); Reliability; Report on Error Handling; Detection, Correlation, Notification	IMT-2020 and beyond
ETSI GR NFV-REL 010	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV); Reliability; Report on NFV Resiliency for the Support of Network Slicing	IMT-2020 and beyond
ETSI GR NFV-REL 011	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 4; Management and Orchestration; Report on NFV-MANO software modification	IMT-2020 and beyond
ETSI GR NFV-SEC 005	ETSI ISG NFV	Draft	Network Functions Virtualization (NFV); Trust; Report on Certificate Management	IMT-2020 and beyond
ETSI GR NFV-SEC 007	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Trust; Report on Attestation Technologies and Practices for Secure Deployments	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GR NFV-SEC 011	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Security; Report on NFV LI Architecture	IMT-2020 and beyond
ETSI GR NFV-SEC 016	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV); Security; Report on location, timestamping of VNFs	IMT-2020 and beyond
ETSI GR NFV-SEC 017	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV); Security; Security Policy Guidelines Report	IMT-2020 and beyond
ETSI GR NFV-TST 004	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Testing; Guidelines for Test Plan on Path Implementation through NFVI	IMT-2020 and beyond
ETSI GR NFV-TST 005	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Continuous Development and Integration; Report on use cases and recommendations for VNF Snapshot	IMT-2020 and beyond
ETSI GR NFV-TST 006	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV); Testing; Report on NFV CICD and Devops	IMT-2020 and beyond
ETSI GR NFV-TST 007	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Testing; Guidelines on Interoperability Testing for MANO	IMT-2020 and beyond
ETSI GR NFV-TST 011	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Testing; Test Domain and Description Language Recommendations	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GR NFV-TST 012	ETSI ISG NFV	Draft	Network Function Virtualisation (NFV); Testing; VIM & NFVI Control and Management Performance Evaluation	IMT-2020 and beyond
ETSI GS MEC 001	ETSI ISG	Published	Multi-access Edge Computing (MEC); Terminology	IMT-2020 and beyond
ETSI GS MEC 002	ETSI ISG	Published	Multi-access Edge Computing (MEC); Phase 2: Use Cases and Requirements	IMT-2020 and beyond
ETSI GS MEC 003	ETSI ISG	Published	Multi-access Edge Computing (MEC); Framework and Reference Architecture	IMT-2020 and beyond
ETSI GS MEC 009	ETSI ISG	Published	Multi-access Edge Computing (MEC); General principles for MEC Service APIs	IMT-2020 and beyond
ETSI GS MEC 010-1	ETSI ISG	Published	Mobile Edge Computing (MEC); Mobile Edge Management; Part 1: System, host and platform management	IMT-2020 and beyond
ETSI GS MEC 010-2	ETSI ISG	Published	Mobile Edge Computing (MEC); Mobile Edge Management; Part 2: Application lifecycle, rules and requirements management	IMT-2020 and beyond
ETSI GS MEC 011	ETSI ISG	Published	Mobile Edge Computing (MEC); Mobile Edge Platform Application Enablement	IMT-2020 and beyond
ETSI GS MEC 012	ETSI ISG	Published	Mobile Edge Computing (MEC); Radio Network Information API	IMT-2020 and beyond
ETSI GS MEC 013	ETSI ISG	Published	Multi-access Edge Computing (MEC); Location API	IMT-2020 and beyond
ETSI GS MEC 014	ETSI ISG	Published	Mobile Edge Computing (MEC); UE Identity API	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GS MEC 015	ETSI ISG	Published	Mobile Edge Computing (MEC); Bandwidth Management API	IMT-2020 and beyond
ETSI GS MEC 016	ETSI ISG	Published	Mobile Edge Computing (MEC); UE application interface	IMT-2020 and beyond
ETSI GS MEC 021	ETSI ISG	Published	Multi-access Edge Computing (MEC); MEC Application Mobility Service API	IMT-2020 and beyond
ETSI GS MEC 026	ETSI ISG	Published	Multi-access Edge Computing (MEC); Support for regulatory requirements	IMT-2020 and beyond
ETSI GS MEC 028	ETSI ISG	Draft	Multi-access Edge Computing (MEC); WLAN Information API	IMT-2020 and beyond
ETSI GS MEC 029	ETSI ISG	Published	Multi-access Edge Computing (MEC); Fixed Access Information API	IMT-2020 and beyond
ETSI GS MEC 030	ETSI ISG	Draft	Multi-access Edge Computing (MEC); MEC V2X API	IMT-2020 and beyond
ETSI GS MEC 033	ETSI ISG	Draft	Multi-access Edge Computing (MEC) IoT API	IMT-2020 and beyond
ETSI GS MEC-DEC 032-1	ETSI ISG	Draft	Multi-access Edge Computing (MEC); API Conformance Test Specification Part 1: Test Requirements and Implementation Conformance Statement (ICS)	IMT-2020 and beyond
ETSI GS MEC-DEC 032-2	ETSI ISG	Draft	Multi-access Edge Computing (MEC); API Conformance Test Specification Part 2: Test Purposes (TP)	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GS MEC-DEC 032-3	ETSI ISG	Draft	Multi-access Edge Computing (MEC); API Conformance Test Specification; Part 3: Abstract Test Suite (ATS)	IMT-2020 and beyond
ETSI GS MEC-IEG 004	ETSI ISG	Published	Mobile-Edge Computing (MEC); Service Scenarios	IMT-2020 and beyond
ETSI GS MEC-IEG 005	ETSI ISG	Published	Mobile-Edge Computing (MEC); Proof of Concept Framework	IMT-2020 and beyond
ETSI GS MEC-IEG 006	ETSI ISG	Published	Mobile Edge Computing; Market Acceleration; MEC Metrics Best Practice and Guidelines	IMT-2020 and beyond
ETSI GS NFV 002	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Architectural Framework	IMT-2020 and beyond
ETSI GS NFV 003	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Terminology for Main Concepts in NFV	IMT-2020 and beyond
ETSI GS NFV 004	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Virtualisation Requirements	IMT-2020 and beyond
ETSI GS NFV 006	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 4; Management and Orchestration; Architectural Framework Specification 4.5.1	IMT-2020 and beyond
ETSI GS NFV-EVE 001	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Virtualisation Technologies; Hypervisor Domain Requirements specification; Release 3	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GS NFV-EVE 003	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Ecosystem; Report on NFVI Node Physical Architecture Guidelines for Multi-Vendor Environment	IMT-2020 and beyond
ETSI GS NFV-EVE 004	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Virtualisation Technologies; Report on the application of Different Virtualisation Technologies in the NFV Framework	IMT-2020 and beyond
ETSI GS NFV-EVE 005	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Ecosystem; Report on SDN Usage in NFV Architectural Framework	IMT-2020 and beyond
ETSI GS NFV-EVE 007	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 3; NFV Evolution and Ecosystem; Hardware Interoperability Requirements Specification	IMT-2020 and beyond
ETSI GS NFV-EVE 011	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 3; Virtualised Network Function; Specification of the Classification of Cloud Native VNF implementations	IMT-2020 and beyond
ETSI GS NFV-EVE 018	ETSI ISG NFV	Published	GR NFV-EVE 018, Network Functions Virtualisation (NFV) Release 5; Evolution and Ecosystem; Report on Multi-tenancy in NFV, 5.1.1	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GS NFV-IFA 001	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Acceleration Technologies; Report on Acceleration Technologies & Use Cases	IMT-2020 and beyond
ETSI GS NFV-IFA 002	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 2; Acceleration Technologies; VNF Interfaces Specification	IMT-2020 and beyond
ETSI GS NFV-IFA 003	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 2; Acceleration Technologies; vSwitch Benchmarking and Acceleration Specification	IMT-2020 and beyond
ETSI GS NFV-IFA 004	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 2; Acceleration Technologies; Management Aspects Specification	IMT-2020 and beyond
ETSI GS NFV-IFA 005	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 5; Management and Orchestration; Or-Vi reference point - Interface and Information Model Specification 5.1.1	IMT-2020 and beyond
ETSI GS NFV-IFA 006	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 5; Management and Orchestration; Vi-Vnfm reference point - Interface and Information Model Specification 5.1.1	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
<u>ETSI GS NFV-IFA 007</u>	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 5; Management and Orchestration; Or-Vnfm reference point - Interface and Information Model Specification 5.1.1	IMT-2020 and beyond
<u>ETSI GS NFV-IFA 008</u>	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 5; Management and Orchestration; Ve-Vnfm reference point - Interface and Information Model Specification 5.1.1	IMT-2020 and beyond
<u>ETSI GS NFV-IFA 009</u>	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Management and Orchestration; Report on Architectural Options	IMT-2020 and beyond
<u>ETSI GS NFV-IFA 010</u>	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 5; Management and Orchestration; Functional requirements specification 5.1.1	IMT-2020 and beyond
<u>ETSI GS NFV-IFA 011</u>	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 5; Management and Orchestration; VNF Descriptor and Packaging Specification 5.1.1	IMT-2020 and beyond
<u>ETSI GS NFV-IFA 013</u>	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 5; Management and Orchestration; Os-Ma-Nfvo reference point - Interface and Information Model Specification 5.1.1	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GS NFV-IFA 014	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 5; Management and Orchestration; Network Service Templates Specification 5.1.1	IMT-2020 and beyond
ETSI GS NFV-IFA 018	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Acceleration Technologies; Network Acceleration Interface Specification; Release 3	IMT-2020 and beyond
ETSI GS NFV-IFA 019	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Acceleration Technologies; Acceleration Resource Management Interface Specification; Release 3	IMT-2020 and beyond
ETSI GS NFV-IFA 026	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Architecture enhancement for Security Management Specification	IMT-2020 and beyond
ETSI GS NFV-IFA 027	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 5; Management and Orchestration; Performance Measurements Specification 5.1.1	IMT-2020 and beyond
ETSI GS NFV-IFA 030	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 5; Management and Orchestration; Multiple Administrative Domain Aspect Interfaces Specification 5.1.1	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GS NFV-IFA 031	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 5; Management and Orchestration; Requirements and interfaces specification for management of NFV-MANO 5.1.1	IMT-2020 and beyond
ETSI GS NFV-IFA 032	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 5; Management and Orchestration; Interface and Information Model Specification for Multi-Site Connectivity Services 5.1.1	IMT-2020 and beyond
ETSI GS NFV-IFA 033	ETSI ISG NFV	Draft	Network Functions Virtualization (NFV) Release 3; Management and Orchestration; Sc-Or, Sc-Vnfm, Sc-Vi reference points - Interface and Information Model Specification	IMT-2020 and beyond
ETSI GS NFV-IFA012	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration Os-Ma-Nfvo reference point – Application and Service Management Interface and Information Model Specification	IMT-2020 and beyond
ETSI GS NFV-INF 001	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Infrastructure Overview	IMT-2020 and beyond
ETSI GS NFV-INF 003	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Infrastructure; Compute Domain	IMT-2020 and beyond
ETSI GS NFV-INF 004	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Infrastructure; Hypervisor Domain	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GS NFV-INF 005	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Infrastructure; Network Domain	IMT-2020 and beyond
ETSI GS NFV-INF 007	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Infrastructure; Methodology to describe Interfaces and Abstractions	IMT-2020 and beyond
ETSI GS NFV-INF 010	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Service Quality Metrics	IMT-2020 and beyond
ETSI GS NFV-MAN 001	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Management and Orchestration	IMT-2020 and beyond
ETSI GS NFV-PER 001	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); NFV Performance & Portability Best Practises	IMT-2020 and beyond
ETSI GS NFV-PER 002	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Proofs of Concept; Framework	IMT-2020 and beyond
ETSI GS NFV-REL 001	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Resiliency Requirements	IMT-2020 and beyond
ETSI GS NFV-REL 002	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Reliability; Report on Scalable Architectures for Reliability Management	IMT-2020 and beyond
ETSI GS NFV-REL 003	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Reliability; Report on Models and Features for End-to-End Reliability	IMT-2020 and beyond
ETSI GS NFV-REL 004	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Assurance; Report on Active Monitoring and Failure Detection	IMT-2020 and beyond

Table 7-3 – ETSI deliverables

Name	Responsible group	Status	Subject	Topics
ETSI GS NFV-REL 005	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); Accountability; Report on Quality Accountability Framework	IMT-2020 and beyond
ETSI GS NFV-REL 006	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV) Release 3; Reliability; Maintaining Service Availability and Continuity Upon Software Modification	IMT-2020 and beyond
ETSI GS NFV-REL 009	ETSI ISG NFV	Draft	Network Functions Virtualisation (NFV); Reliability; Specification of Requirements to Support NFV Reliability and Availability	IMT-2020 and beyond
ETSI GS NFV-SEC 002	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); NFV Security; Cataloguing security features in management software	IMT-2020 and beyond
ETSI GS NFV-SEC 003	ETSI ISG NFV	Published	Network Functions Virtualisation (NFV); NFV Security; Security and Trust Guidance	IMT-2020 and beyond
ETSI GS NFV-SEC 004 V1.1.1 (2015-09)	ETSI NFV	Published	Network Functions Virtualisation (NFV); NFV Security; Privacy and Regulation; Report on Lawful Interception Implications	Lawful interception; Network security; Privacy; IMT-2020 and beyond
ETSI GS NFV-SEC 006 V1.1.1	ETSI NFV	Published	Network Functions Virtualisation (NFV); Security Guide; Report on Security Aspects and Regulatory Concerns	Security management standards and guidance documents; IMT-2020 and beyond