Fifth Generation Fixed Network (F5G)

RELEASE 1 DESCRIPTION

Release 1 exhibits the first set of documents produced by the ETSI ISG F5G. The rational of this release is to start the work with the definition of the different generations of fixed networks and what specific characteristics and business drivers each past and current generation had.

The logic of Release 1 is based on various aspects including the 5th generation network characteristics, a set of use cases a F5G network shall be able to implement, based on that functional and performance characteristics of those use cases. Finally, the overall vision of F5G. All of those aspects are driving the F5G system architecture.
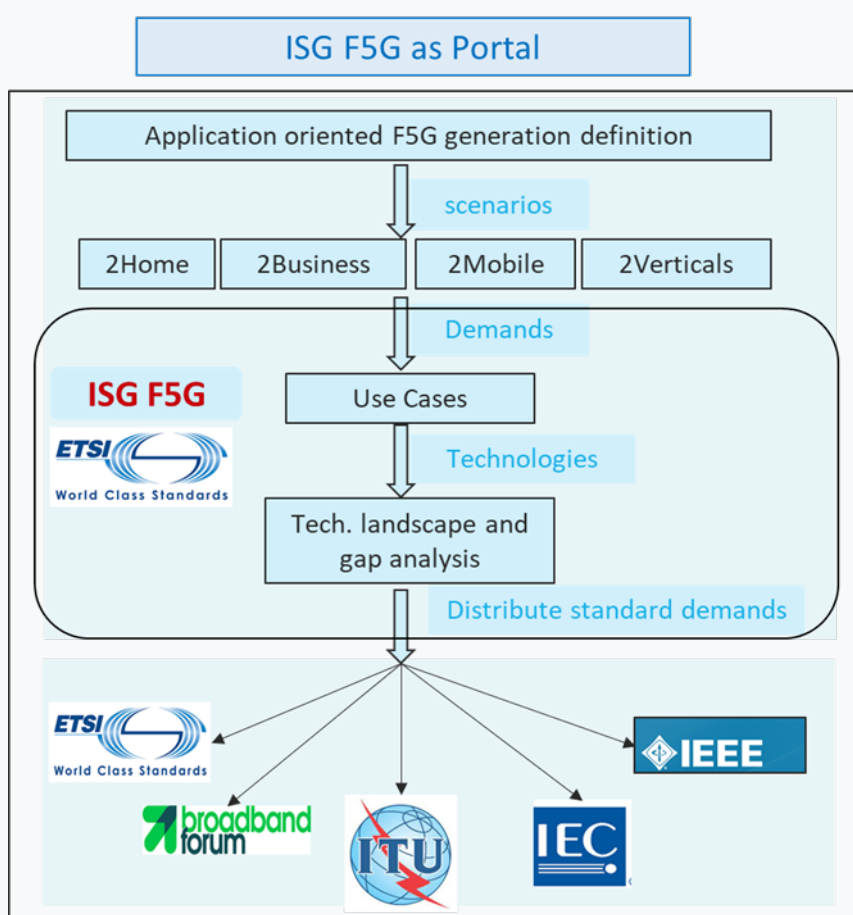
OVERVIEW OF RELEASE 1

The fixed network generations definitions (ETSI GR F5G 001 V1.1.1) addresses the history of fixed networks and summarizes their development paths and driving forces. The factors that influence the definition of fixed, cable and mobile network generations is analysed. Based upon this, the business and technology characteristics of F5G are described.

The lack of a clear fixed network generation definitions have prevented a wider technology standards adoption and prevented the creation and use of global mass markets equipment. The success of the mobile and cable network deployments, supported by clear specifications

related to particular technological generations, has shown how important this generation definition is. The focus of the 5th generation fixed networks (F5G) specifications is on networks, which consist fully of optical fibre elements up to the connection serving locations (user, home, office, base station, etc.). That being said, the connection to some terminals can still be assisted with wireless technologies (for instance, Wi-Fi®).

- ETSI GR F5G 001, "Fifth Generation Fixed Network (F5G); F5G Generation Definition Release #1"
- ETSI GR F5G 002, "Fifth Generation Fixed Network (F5G); F5G Use Cases Release #1"
- ETSI GS F5G 003, "Fifth Generation Fixed Network (F5G); F5G Technology Landscape"
- ETSI GS F5G 004, "Fifth Generation Fixed Network (F5G); F5G Network Architecture"
- ETSI GS F5G 005, "Fifth Generation Fixed Network (F5G) F5G High-Quality Service Experience Factors Release #1"
- ETSI GS F5G 009, "Fifth Generation Fixed Network (F5G); Proof of Concept Framework"
- ETSI GS F5G 010, "Fifth Generation Fixed Network (F5G); Security Thread and Risk Analysis"
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HIGHLIGHT OF EACH STANDARD DOCUMENT

Highlight of ETSI GR F5G 002: Use Cases

A first set of use cases (ETSI GR F5G 002 V1.1.1) are described and classified along the dimensions of technical characteristics, network/service/operations topics, and the application categories. The use cases cover a wide range of applications and dimensions as defined in the F5G generation definition.

List of Release 1 Use cases

	New/Enhanced Services to Users
6.1	Use case #1: Cloud Virtual Reality
6.2	Use case #2: High Quality Private Line
6.3	Use case #3: High quality low cost private line for small and medium enterprises
	Expanded Fibre Infrastructure and Services
6.4	Use case #4: PON on-premises
6.5	Use case #5: Passive optical LAN
6.6	Use case #6: PON for Industrial Manufacturing
6.7	Use case #7: Using PON for City Public Service
6.8	Use case #8: Multiple Access Aggregation over PON
6.9	Use case #9: Extend PON to legacy Ethernet Uplink
	Management and Optimization
6.10	Use case #10: Scenario based broadband
6.11	Use case #11: Enhanced traffic monitoring and network control in Intelligent Access Network
6.12	Use case #12: On Demand High Quality Transport for Real time applications
6.13	Use case #13: Remote Attestation for Secured Network Elements
6.14	Use case #14: Digitalized ODN/FTTX

Highlight of ETSI GS F5G 003: Technology Landscape and Gap Analyses

Based on those use cases, the requirements for each use case are described and the technologies available to implement those use cases are shown. The gaps against the current technology landscape is showing missing pieces and recommendations of action to be taken to fill those gaps. ETSI GS F5G 003 V1.1.1 lists recommendation for further standardization work inside or outside of ETSI ISG F5G.

Highlight of ETSI GS F5G 004: Network Architecture

The end-to-end F5G network architecture is specified taking all the use cases and technologies into account and combines them to an overall F5G architecture (ETSI GS F5G 004 V1.1.1). The main features of the architecture are listed below.

Highlight of ETSI GS F5G 005: Quality of Experience

One particular aspect of the benefit of the F5G architecture is the improved Quality of Experience through several mechanisms in the F5G architecture. The QoE document (ETSI GS F5G 005 V1.1.1) discusses the key quality indicators for F5G applications and different ways of measuring QoS and with that data to assess F5G Quality of Experience.

Highlight of ETSI GR F5G 009: Proof of Concepts

The Proof of Concept framework defines the goals, scope and governance for proof of concepts performed. It also specifies the roles and obligations of the various stakeholders. For the current status

Highlight of ETSI GS F5G 010: Security Analyses

The F5G architecture is targeting high-level of security for certain use cases, therefore the architecture is analysed from a security thread and risk perspective (ETSI GS F5G 010 V1.1.1).

SPECIFICATIONS

A full list of related standards in the public domain is accessible via the [ETSI F5G committee page](#).