

Recommendation **ITU-T F.780.5 (01/2024)**

SERIES F: Non-telephone telecommunication services

Multimedia services

Requirements, reference framework and use cases for telemonitoring systems in rapid deployment hospitals

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Recommendation ITU-T F.780.5

Requirements, reference framework and use cases for telemonitoring systems in rapid deployment hospitals

Summary

Recommendation ITU-T F.780.5 describes the application scenarios, functional requirements, and reference architecture of telemonitoring systems in rapid deployment hospitals (RDHs) and applies them to planning and designing in RDHs. The appendix to this Recommendation includes use cases of the proposed reference system.

History*

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Rapid deployment hospital, reference framework, requirement, telemonitoring, use cases.

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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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Recommendation ITU-T F.780.5

Requirements, reference framework and use cases for telemonitoring systems in rapid deployment hospitals

1 Scope

This Recommendation describes the use cases, reference framework and technical requirements for telemonitoring systems in a rapid deployment hospitals (RDHs). The scope of this Recommendation includes:

- Requirements for telemonitoring systems in rapid deployment hospitals.
- Reference framework for telemonitoring systems in rapid deployment hospitals.
- Use cases for telemonitoring systems in rapid deployment hospitals.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

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|-------------------|---|
| [ITU-T F.760.1] | Recommendation ITU-T F.760.1 (2022), <i>Requirements and reference framework for emergency rescue systems</i> . |
| [ITU-T F.780.2] | Recommendation ITU-T F.780.2 (V2) (2023), <i>Accessibility of telehealth services</i> . |
| [ITU-T H.860] | Recommendation ITU-T H.860 (2014), <i>Multimedia e-health data exchange services: Data schema and supporting services</i> . |
| [ITU-T Y.3500] | Recommendation ITU-T Y.3500 (2014), <i>Information technology – Cloud computing – Overview and vocabulary</i> . |
| [ITU-T Y.3502] | Recommendation ITU-T Y.3502 (2014), <i>Information technology – Cloud computing – Reference architecture</i> . |
| [ITU-T Y.3601] | Recommendation ITU-T Y.3601 (2018), <i>Big data – Framework and requirements for data exchange</i> . |
| [ITU-T Y.4101] | Recommendation ITU-T Y.4101/Y.2067 (2017), <i>Common requirements and capabilities of a gateway for Internet of things applications</i> . |
| [ITU-T Y.4208] | Recommendation ITU-T Y.4208 (2020), <i>Internet of things requirements for support of edge computing</i> . |
| [Bluetooth CS5.4] | Bluetooth CS5.4 (2023), <i>Bluetooth Core Specification, v5.4</i> . |
| [ETSI GS MEC 003] | ETSI GS MEC 003 V3.1.1 (2022), <i>Multi-access Edge Computing (MEC): Framework and Reference Architecture</i> . |
| [ETSI TS 123 501] | ETSI TS 123 501 V17.10.0 (2023), <i>5G; System Architecture for the 5G System (5GS) (3GPP TS 23.501 version 17.10.0 Release 17)</i> . |



[IEEE 802.11]	IEEE 802.11 (2020), <i>IEEE Standard for Information Technology – Telecommunications and Information Exchange between Systems Local and Metropolitan Area Networks – Specific Requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications</i> .
[IEEE 802.15.4]	IEEE 802.15.4 (2020), <i>IEEE Standard for Low-Rate Wireless Networks</i> .
[IETF RFC 6120]	IETF RFC 6120 (2011), <i>Extensible Messaging and Presence Protocol (XMPP): Core</i> .
[IETF RFC 7252]	IETF RFC 7252 (2014), <i>The Constrained Application Protocol (CoAP)</i> .
[IETF RFC 8259]	IETF RFC 8259 (2017), <i>The JavaScript Object Notation (JSON) Data Interchange Format</i> .
[ISO 18308]	ISO 18308:2022, <i>Health informatics – Requirements for an electronic health record architecture</i> .
[ISO 19605-1]	ISO 19605-1:2018, <i>Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling – Part 1: Concepts and principles</i> .
[ISO 23247-1]	ISO 23247-1:2021, <i>Automation systems and integration – Digital twin framework for manufacturing – Part 1: Overview and general principles</i> .
[ISO/IEC 19464]	ISO/IEC 19464:2014, <i>Information technology, Advanced Message Queuing Protocol (AMQP) v1.0 specification</i> .
[ISO/IEC 20922]	ISO/IEC 20922:2016, <i>Information technology, Message Queuing Telemetry Transport (MQTT) v3.1.1</i> .

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 service level agreement (SLA) [ITU-T Y.3500]: Documented agreement between the service provider and customer that identifies services and service targets.

NOTE 1 – A service level agreement can also be established between the service provider and a supplier, an internal group or a customer acting as a supplier.

NOTE 2 – A service level agreement can be included in a contract or another type of documented agreement.

3.1.2 Internet of things (IoT) [ITU-T Y.4000]: A global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies.

NOTE 1 – Through exploiting identification, data capture, processing and communication capabilities, the IoT makes full use of things to offer services to all kinds of applications, ensuring that security and privacy requirements are fulfilled.

NOTE 2 – From a broader perspective, the IoT can be perceived as a vision with technological and societal implications.

3.1.3 electronic health record [ISO 18308]: It is a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery settings. This information includes patient's demographics, progress notes, problems description, medication receipts, vital signs, past medical treatment history, immunizations, laboratory data and radiology reports.

3.1.4 personal health record [b-ISO/TR 14292]: It is an electronic, universally available, lifelong health information resource for individuals who need to make health decisions. Individuals own and manage the information in the PHR, which comes from healthcare providers and the individual.

3.1.5 fast healthcare interoperability resources [b-HL7 FHIR]: It is a set of rules and specifications for exchanging electronic healthcare data, such as EHR and PHR. It is designed to be flexible and adaptive and can be applied in a wide range of settings and different healthcare information systems.

3.1.6 user plane function [ETSI TS 123 501]: The UPF is a user plane network element in IMT-2020 system architecture and is responsible for all user plane functions, including traffic routing and forwarding, policy enforcement. Depending on different application scenarios, UPFs with different function sets are derived, including roles such as PSA UPF and ULCL UPF.

3.1.7 building information modelling (BIM) [ISO 19605-1]: The process of generating and managing building data through the whole life cycle of a built asset, from its initial design, and construction, to maintaining and de-commissioning. Implementing BIM facilitates project management and cross-disciplinary collaboration by sharing project information between engineers, owners, architects and contractors.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 rapid deployment hospital (RDH): The most important characteristic of RDH is rapid deployment to accept patients as soon as possible, including deployment of containers and facilities and deployment of computed tomography (CT) and information technology (IT) systems to support medical services.

3.2.2 telemonitoring: A continuous or non-continuous monitoring process that allows a healthcare professional to remotely interpret the data necessary for a patient's medical follow-up and, if necessary, make decisions regarding the patient's state of health.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

5G	5th Generation of Mobile Networks
5GC	5G Core Network
AMQP	Advanced Message Queuing Protocol
BIM	Building Information Modelling
CoAP	Constrained Application Protocol
COVID-19	Corona Virus Disease 2019
CT	Computed Tomography
DICOM	Digital Imaging and Communications in Medicine
DNN	Data Network Name
ECG	Electrocardiogram
EHR	Electronic Health Record
EMR	Electronic Medical Record
FHIR	Fast Healthcare Interoperability Resources
HTTPS	Hypertext Transfer Protocol over Secure Socket Layer

