

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

F.734

(10/2014)

SERIES F: NON-TELEPHONE TELECOMMUNICATION
SERVICES

Audiovisual services

Definitions, requirements and use cases for telepresence systems

Recommendation ITU-T F.734

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Recommendation ITU-T F.734

Definitions, requirements and use cases for telepresence systems

Summary

Recommendation ITU-T F.734 provides definitions, use cases and functional requirements for telepresence systems. Telepresence is an interactive audio-visual communications experience between remote locations, where the users enjoy a strong sense of realism and presence between participants by optimizing a variety of attributes. A telepresence system is a set of functions, devices and network elements which are able to capture, deliver, manage and render multiple high quality interactive audio and video signals in a telepresence conference to deliver a telepresence experience.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T F.734	2014-10-14	16	11.1002/1000/12216

* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

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.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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Recommendation ITU-T F.734

Definitions, requirements and use cases for Telepresence Systems

1 Scope

This Recommendation provides definitions, use cases and functional requirements for telepresence systems. A telepresence system is a set of functions, devices and network elements which are able to capture, deliver, manage and render multiple high quality interactive audio and video signals in a telepresence conference. An appropriate number of devices (e.g., cameras, screens, loudspeakers, microphones, codecs, multipoint control units (MCUs), PCs) and environmental characteristics are used to establish telepresence. Specific requirements include those for:

- User experience
- Control, including:
 - Call control functions
 - Media control functions
 - Conference control functions
 - Collaboration functions
- Inter-operability
- Network
- Security

The requirements in this Recommendation relate to functions that a telepresence system is required to support. That is, a telepresence system should be able to provide the functions in its design or by utilizing existing mechanisms. Recommended requirements do not mandate the implementation or the deployment of a particular function. For example: Whilst a telepresence system should support mechanisms for assured QoS, it may be deployed in a network where QoS is not assured.

Unless the requirement mentions a specific function or device, the requirements listed in this Recommendation apply to a telepresence system as a whole. The inclusion of a requirement does not necessarily mean that new protocols need to be developed to meet it. For example whilst there may be a requirement to support QoS for telepresence, ultimately existing QoS mechanisms may be utilized for this.

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.

[ITU-T H.243] Recommendation ITU-T H.243 (2005), *Procedures for establishing communication between three or more audiovisual terminals using digital channels up to 1920 kbit/s*.

[ITU-T H.323] Recommendation ITU-T H.323 (2009), *Packet-based multimedia communications systems*.

3 Definitions

3.1 Terms defined elsewhere

None.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 actual size: A rendered figure in a display is the same size as if the person is in the room.

3.2.2 capture: Media acquired from a capture device such as a camera or microphone or constructed from other media (for example combining the signals from several microphones).

3.2.3 endpoint: For the purposes of this Recommendation an endpoint is a device representing the logical point of final termination through receiving, decoding and rendering, and/or the point of origination through capturing, encoding, and sending of media streams, e.g., an H.323 terminal.

3.2.4 gaze awareness: Awareness of gaze direction of persons by watching their eyes, head and body position. There is awareness of both direct gaze and averted gaze. Direct gaze is the perception of persons looking at each other directly and simultaneously. Averted gaze is the perception that other persons are looking at someone/something else in the environment.

3.2.5 gaze direction: The vector positioned along the visual axis, pointing from the fovea of the looker through the centre of the pupil to the looked at spot.

3.2.6 eye contact: Mutual direct-gaze between two persons communicating.

3.2.7 natural response: Interaction between local and remote participants that is not impeded by the delay introduced by the telepresence system.

3.2.8 telepresence: An interactive audio-visual communications experience between remote locations, where the users enjoy a strong sense of realism and presence between participants by optimizing a variety of attributes such as audio and video quality, eye contact, gaze awareness, body language, spatial audio, coordinated environments and natural image size.

3.2.9 telepresence-enabled audio endpoint: An audio-only endpoint that supports telepresence endpoint functions/signalling and delivers a strong sense of presence and realism through the use of technologies such as wider bandwidth speech and spatial audio (e.g., stereo telephony).

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

3D	Three Dimensional
FECC	Far End Camera Control
HDTV	High Definition Television
IP	Internet Protocol
IPv4	Internet Protocol Version 4
IPv6	Internet Protocol Version 6
MCU	Multipoint Control Unit
NAT	Network Address Translation
PC	Personal Computer
QoE	Quality of Experience