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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Telepresence,
immersive environments, virtual and extended reality

Service scenario of immersive live experience (ILE)

Recommendation ITU-T H.430.3



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ITU-T H-SERIES RECOMMENDATIONS
AUDIOVISUAL AND MULTIMEDIA SYSTEMS

CHARACTERISTICS OF VISUAL TELEPHONE SYSTEMS	H.100–H.199
INFRASTRUCTURE OF AUDIOVISUAL SERVICES	
General	H.200–H.219
Transmission multiplexing and synchronization	H.220–H.229
Systems aspects	H.230–H.239
Communication procedures	H.240–H.259
Coding of moving video	H.260–H.279
Related systems aspects	H.280–H.299
Systems and terminal equipment for audiovisual services	H.300–H.349
Directory services architecture for audiovisual and multimedia services	H.350–H.359
Quality of service architecture for audiovisual and multimedia services	H.360–H.369
Telepresence, immersive environments, virtual and extended reality	H.420–H.439
Supplementary services for multimedia	H.450–H.499
MOBILITY AND COLLABORATION PROCEDURES	
Overview of Mobility and Collaboration, definitions, protocols and procedures	H.500–H.509
Mobility for H-Series multimedia systems and services	H.510–H.519
Mobile multimedia collaboration applications and services	H.520–H.529
Security for mobile multimedia systems and services	H.530–H.539
Security for mobile multimedia collaboration applications and services	H.540–H.549
VEHICULAR GATEWAYS AND INTELLIGENT TRANSPORTATION SYSTEMS (ITS)	
Architecture for vehicular gateways	H.550–H.559
Vehicular gateway interfaces	H.560–H.569
BROADBAND, TRIPLE-PLAY AND ADVANCED MULTIMEDIA SERVICES	
Broadband multimedia services over VDSL	H.610–H.619
Advanced multimedia services and applications	H.620–H.629
Ubiquitous sensor network applications and Internet of Things	H.640–H.649
IPTV MULTIMEDIA SERVICES AND APPLICATIONS FOR IPTV	
General aspects	H.700–H.719
IPTV terminal devices	H.720–H.729
IPTV middleware	H.730–H.739
IPTV application event handling	H.740–H.749
IPTV metadata	H.750–H.759
IPTV multimedia application frameworks	H.760–H.769
IPTV service discovery up to consumption	H.770–H.779
Digital Signage	H.780–H.789
E-HEALTH MULTIMEDIA SYSTEMS, SERVICES AND APPLICATIONS	
Personal health systems	H.810–H.819
Interoperability compliance testing of personal health systems (HRN, PAN, LAN, TAN and WAN)	H.820–H.859
Multimedia e-health data exchange services	H.860–H.869
Safe listening	H.870–H.879

For further details, please refer to the list of ITU-T Recommendations.

Recommendation ITU-T H.430.3

Service scenario of immersive live experience (ILE)

Summary

Recommendation ITU-T H.430.3 identifies service scenarios by analysing several use cases on immersive live experience (ILE) services, in order to classify ILE services and to clarify a reference model of ILE. This Recommendation also summarises several use cases and identifies candidate technologies for implementing ILE, including standards gap analysis related to ILE technologies.

History

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Immersive live experience (ILE), service scenario, standards gap analysis, use cases.

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Table of Contents

		Page
1	Scope.....	1
2	References.....	1
3	Definitions	1
	3.1 Terms defined elsewhere	1
	3.2 Terms defined in this Recommendation.....	1
4	Abbreviations and acronyms	1
5	Conventions	2
6	High-level service category	2
7	Categorized service scenarios.....	3
	7.1 Live sports scenario.....	3
	7.2 Entertainment scenarios.....	5
	7.3 Telepresence scenarios	6
	7.4 Controller scenarios.....	7
	7.5 Meeting scenarios.....	8
	7.6 Emergency scenarios	8
	Appendix I – Use cases for immersive live experience (ILE) services	9
	I.1 Introduction	9
	I.2 Use cases of ILE services	9
	I.3 Configuration of ILE	13
	I.4 Candidate technologies used for ILE	14
	I.5 Standards gap analysis of ILE related technologies	15
	Bibliography.....	17

Introduction

In recent times, a number of major sporting and music events have not only been broadcast, but have also been delivered to remote sites for public or live viewing with the aim of sharing the emotional experience with spectators in remote sites as if they themselves were also in main event venue. At the same time ultra high definition (UHD) broadcasting known as 4K (resolution of approximately 4000 pixels) and 8K (resolution of approximately 8000 pixels) broadcasting is becoming increasingly popular. It is therefore to be expected that many people in all over the world will wish to share in the excitement of viewing sporting or musical events on UHD TV or public viewing sites in the near future. However, realistic experience with flat displays has limitations.

In order to provide high-realistic sensations to audiences at remote sites, immersive live experience (ILE) needs to be implemented to reconstruct event sites virtually with presentation of real-sized objects and sound direction by transmitting environmental information together with audio and video streams. For example using ILE musicians could harmonize with player images which are transmitted from several locations. By using ILE, the real objects such as in this case the musicians at the remote sites can collaborate with 3D images of remote musicians which are projected onto the screen. ILE enables virtual concerts with high-realistic sensations.

In order to share the enthusiasm of event venues with large audiences even if they are in remote sites, far from the event venue, implementing ILE services based on standardized designs is desirable. ILE can allow audiences anywhere in the world cheer their favourite sporting teams or musical artists at remote sites even if they are not themselves present in the event venue and they may feel a sense of togetherness and even become passionate just as though they were actually present in the event venue.

This Recommendation specifies several service scenarios of ILE to identify key requirements and architectural frameworks for implementing ILE services and also provides several ILE use cases around the world. This Recommendation also provides candidate technologies for implementing ILE and standardization gap analysis of ILE related technologies.

Recommendation ITU-T H.430.3

Service scenario of immersive live experience (ILE)

1 Scope

The objective of this Recommendation is to analyse several use cases for immersive live experience (ILE), specify service scenarios and help to identify key requirements and architectural considerations.

The scope of this Recommendation includes:

- Service scenarios
- Use cases of ILE services
- Candidate technologies for implementing ILE
- Standards gap analysis of ILE related technologies

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.

None.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following term defined elsewhere:

3.1.1 immersive live experience (ILE) [b-ITU-T H.430.1]: A shared viewing experience that stimulates emotions within audiences at both the event site and the remote sites, as if the audience at the remote sites had wandered into substantial event venue and had actually watched the events taking place in front of them. This impression is due to high-realistic sensations provided by a combination of multimedia technologies such as sensorial information acquisition, media processing, media transport, media synchronization and media presentation.

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

6DOF	6 Degrees Of Freedom
AR	Augmented Reality
CI	Composition Information
HEVC	High Efficiency Video Coding

HMD	Head Mounted Device
IPTV	Internet Protocol Television
ILE	Immersive Live Experience
OMAF	Omnidirectional Media Format
UAV	Unmanned Aerial Vehicle
UHD	Ultra High Definition
VR	Virtual Reality

5 Conventions

Service scenarios in this Recommendation are described using the following template, in relation with other Recommendations; use cases, requirements, etc.

Title-X: high-level service scenario title	Sub-title: Specific title of service scenario related to the high-level service scenario
Description	General description for service scenario of ILE
Service scenario	General explanation of how a service works
Stakeholders (Actors)/Domains	Roles of related stakeholders and domains
Main requirements	Service and technical requirements
Source (References)	Use cases in Appendix I and/or reference document, websites

6 High-level service category

This clause provides a brief description for the high-level service categories shown in Figure 1. ILE services or use cases can be classified into several categories, such as live sports scenarios, entertainment scenarios, telepresence scenarios, etc.