IEC TR 63614-3

Edition 1.0 2026-03

TECHNICAL REPORT

Multimedia systems and equipment for metaverse -
Part 3: Gap analysis

ICS 33.160.60

ISBN 978-2-8327-1082-1

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Multimedia systems and equipment for metaverse - Part 3: Gap analysis

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IEC TR 63614-3 has been prepared by IEC technical committee TC 100: Audio, video and multimedia systems and equipment. It is a Technical Report.

The text of this Technical Report is based on the following documents:

Draft	Report on voting
100/4408/DTR	100/4437/RVDTR

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Report is English.

A list of all parts in the IEC 63614 series, published under the general title *Multimedia systems and equipment for metaverse*, can be found on the IEC website.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

INTRODUCTION

The term "metaverse" originated from the science fiction novel "Snow Crash," combining "meta" and "universe." It refers to a digital-based virtual world that extends the boundaries of the real world, allowing users to engage in various activities, including imagination and fantasy, within the virtual space. In the viewpoint of content/platform/network/device, the metaverse can also be defined as a technology in which a user (using a metaverse device) can access (through network) a virtual space (a metaverse platform) and experience all activities (metaverse contents) through an avatar.

At the time of writing, the global industrial metaverse market is experiencing significant growth. It is noted that the metaverse can be implemented and realized with multimedia systems and equipment. Accordingly, there is a crucial need for standardization on the subject of metaverse in IEC TC 100 as a leading standardization group in the area of multimedia systems and equipment.

The IEC 63614 series consists of the following parts:

– Part 1: General;
– Part 2: Classification; and
– Part 3: Gap analysis.

IEC TR 63614-1 [1] describes general considerations to be taken for standardization on multimedia systems and equipment for metaverse.

IEC TS 63614-2[2] describes the classification of metaverse in terms of C (contents), P (platform), N (network), D (device).

IEC TR 63614-3 (this document) describes the gap analysis for the existing standards on metaverse and the services/products in the metaverse-related industry.

[1] Under preparation. Stage at time of publication: IEC DTR 63614-1:2025

[2] Under consideration.

1 Scope

This document describes the gap analysis for metaverse systems and equipment, including examination of existing standards and services/applications within the metaverse domain. The analysis includes a comprehensive review of developments in various Standards Development Organizations (SDOs) and the relevant industry.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

– IEC Electropedia: available at https://www.electropedia.org/
– ISO Online browsing platform: available at https://www.iso.org/obp

3.1 Terms and definitions

No terms and definitions are listed in this document.

3.2 Abbreviated terms

AI	Artificial intelligence
AR	Augmented reality
API	Application programming interface
CPND	Content, Platform, Network, Device
DLT	Distributed ledger technology
glTF	Graphics Library Transmission format
HMD	Head-mounted display
ICT	Information and communication technology
IIDL	Interaction Information Description Language
IoT	Internet of Things
LAE	Live actor and entity
MAR	Mixed and augmented reality
MMORPG	Massively multiplayer online role-playing games
MR	Mixed reality
MTP	Motion to photon
NFT	Non-fungible token
NPC	Non-player character
OME	Object management entity
QoE	Quality of experience
SDK	Software development kit
SDO	Standard Development Organization
UI/UX	User interface/User experience