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Information technology — High efficiency coding and media delivery in heterogeneous environments —

Part 13: MMT implementation guidance

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This third edition cancels and replaces the second edition (ISO/IEC 23008-13:2017), which has been technically revised. The main changes compared to the previous edition are as follows:

— Guidance added to show how the MMT protocol can transmit media streams adaptively to environment changes such as network congestions, while also minimizing service quality degradation.

— Guidance added to describe the scenario in which MMT and MPEG-2 TS are used as transport schemes in broadband networks and broadcast channels, respectively.

— Guidance added for constraints on signalling splicing points that are specified for changing points or splicing points on MMT assets.

— Application Layer Forward Error Correction (AL-FEC) guidance added to describe the usage of Rate-Adaptive AL-FEC, Layer-Aware (LA) FEC coding structure and FEC scheme for interleaved source symbol block.

— Broadcasting MMT deployment guidance added to describe the implementation of MMT based on D-TMB in China and MMT Deployment in ATSC 3.0 systems.

— MMT deployment guidance added to show the usage of MMT signalling for multiple timed text assets and for the viewport-dependent baseline media profile with packed streaming for VR.

— MMT developments in mobile environments guidance added to describe the usage of true real time video streaming over lossy channels, dynamic asset change, and media adaptation for quality control.

— MMT developments in mobile environments guidance added to describe the usage of signalling messages for supporting Package retransmission and dynamic media resource allocation.

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Introduction

This document provides guidance for implementation and deployment of multimedia systems based on ISO/IEC 23008-1. These document include the following:

— Guidance on usage of MMT functions;

— Guidance on deployment use cases designed based on ISO/IEC 23008-1.

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Information technology — High efficiency coding and media delivery in heterogeneous environments —

Part 13:
MMT implementation guidance

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1 Scope

This document provides guidance for implementing and deploying systems based on ISO/IEC 23008-1.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 23008-1:2017, *Information technology — High efficiency coding and media delivery in heterogeneous environments — Part 1: MPEG media transport (MMT)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 23008-1 apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 General overview of MPEG media transport

4.1 System overview

This clause describes the exemplary but typical system overview of MPEG media transport (MMT) as shown in Figure 1.

The media origin provides A/V media or generic files to MMT sending entity in the form of packages or assets which are defined in ISO/IEC 23008-1. A package is comprised of assets, presentation information and transparent characteristics, etc. physically, an asset is a group of MPUs or generic files.

The MMT sending entity fragments MPU/generic files and generates MMTP packets to deliver A/V media data itself. Concurrently, it also generates signalling message for the successful delivery and presentation of A/V media included on that MMTP packet flow.

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