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MHEG-5 Broadcast Profile

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Foreword

This ETSI Standard (ES) has been produced by Joint Technical Committee (JTC) Broadcast of the European Broadcasting Union (EBU), Comité Européen de Normalisation ELECtrotechnique (CENELEC) and the European Telecommunications Standards Institute (ETSI).

NOTE: The EBU/ETSI JTC Broadcast was established in 1990 to co-ordinate the drafting of standards in the specific field of broadcasting and related fields. Since 1995 the JTC Broadcast became a tripartite body by including in the Memorandum of Understanding also CENELEC, which is responsible for the standardization of radio and television receivers. The EBU is a professional association of broadcasting organizations whose work includes the co-ordination of its members' activities in the technical, legal, programme-making and programme-exchange domains. The EBU has active members in about 60 countries in the European broadcasting area; its headquarters is in Geneva.

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Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Introduction

The present document provides a Profile of the International MHEG-5 Standard specification ISO/IEC 13522-5 [14] that is adapted for use in enhanced digital television broadcasting. This allows for the broadcast of applications and their presentation in digital TV receivers using an interpreted language (MHEG-5) that is designed explicitly for television use and is robust and easy to use. The Profile also serves to extend some detailed elements of the ISO/IEC 13522-5 [14] (MHEG-5) specification in a manner that has been found to be useful in practical implementations.

The Profile provides a system for enhanced TV that enables client software in digital TV receivers to be of relatively low complexity. Future versions may include extensions to enable further functionality - in particular return path communications - to be incorporated in a compatible way.

1 Scope

1.0 Introduction

The present document describes a complete system that provides for enhanced interactive TV in the context of a television service that uses the standards set out in the published ETSI specifications for digital TV. Applications for the technology include programme guides, information services, games and enhanced TV services with synchronized interactions and multiple content streams. The Profile identifies the minimum functionality that the receiver will need to support.

The present document contains a number of clarifications related to streaming content and stream event handling and various other changes to increase interoperability of implementations of the specification.

1.1 Localizing the present document

1.1.0 Approach to creating a local implementation

Unless otherwise stated, the functionality in the present document is mandatory.

In addition, there is functionality which should be considered in a local implementation of the Profile. This information should be put into a localized profile of the ETSI-MHEG Profile. The following issues are addressed when determining what information is necessary in a localized profile:

- which extensions are mandatory or optional;
- allocation of codes;
- handling duplicate services.

1.1.1 Extensions

The present document also describes a number of "extensions". An "extension" is a collection of functionality that, if provided, is implemented as a whole. In some cases it may be necessary to implement one or more extensions in order to satisfy mandatory functionality. In other cases implementation of a extension may be optional.

For a particular implementation, a localized profile specifies exactly which extensions are mandatory or optional.

- Signalling extension:
  - Functionality for identifying and booting an application is provided by the PMT and ServiceGateway extension (see clause 9.3).
- Service Information extension:
  - Functionality for retrieving DVB Service Information (SI) is provided by the SI extension (see clause 11.14). A localized profile states whether this extension is mandatory or optional.
- HDGraphicsPlaneExtension (see clause 12.11.1):
  - This extends the MHEG-5 engine to allow support for an HD graphics plane.
- HDVideoExtension (see clause 12.11):
  - This extends the MHEG-5 engine to allow support for HD video and audio coding and presentation.
- InteractionChannelExtension (see clause 15.1.2 and table 11.14);
  - This extends the MHEG-5 engine to allow support for static content retrieval over an always-on IP connection.