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Digital Video Broadcasting (DVB); Extensions to the CI Plus™ Specification

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Foreword

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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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The Digital Video Broadcasting Project (DVB) is an industry-led consortium of broadcasters, manufacturers, network operators, software developers, regulatory bodies, content owners and others committed to designing global standards for the delivery of digital television and data services. DVB fosters market driven solutions that meet the needs and economic circumstances of broadcast industry stakeholders and consumers. DVB standards cover all aspects of digital television from transmission through interfacing, conditional access and interactivity for digital video, audio and data. The consortium came together in 1993 to provide global standardization, interoperability and future proof specifications.

Modal verbs terminology

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Introduction

The DVB Common Interface specifications CENELEC EN 50221 [1] and ETSI TS 101 699 [2] describe a system whereby a removable Conditional Access CICAM, given the appropriate rights, unscrambles protected content and routes it back to the Host over the same interface. The Common Interface connector is an industry standard PCMCIA slot. The DVB Common Interface specifications were extended by the CI Plus specification [3], developed by CI Plus LLP, which provides common methods (i.e. methods that are independent of the up-stream CA system) for mutual authentication of the CICAM and Host, and link encryption over the return interface from the CICAM to the Host.

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1 Scope

The present document specifies extensions to the CI Plus V1.3 specification [3], which was produced and continues to be published by CI Plus LLP.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are necessary for the application of the present document.

- [1] CENELEC EN 50221 (02-1997): "Common interface specification for conditional access and other digital video broadcasting decoder applications".
- [2] ETSI TS 101 699 (V1.1.1) (11-1999): "Digital Video Broadcasting (DVB); Extensions to the Common Interface Specification".
- [3] CI Plus specification (V1.3.1) (09-2011): "Content Security Extensions to the Common Interface".

NOTE: Available from http://www.CIPlus.com/data/CIPlus_specification_V1.3.1.pdf.

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NOTE: Available from: <http://tools.ietf.org/html/rfc4122>.

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- [8] ISO/IEC 14496-12:2012: "Information technology -- Coding of audio-visual objects -- Part 12: ISO base media file format".
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- [12] Open IPTV Forum: "Release 1 Specification, Volume 5 - Declarative Application Environment", V1.2, September 2012.

NOTE: Available from <http://www.oipf.tv/specifications>.

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- [18] IETF RFC 791: "Internet Protocol".
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- [22] IETF RFC 2460: "Internet Protocol, Version 6 (IPv6) Specification".
- [23] IETF RFC 4443: "Internet Control Message Protocol (ICMPv6) for the Internet Protocol, Version 6 (IPv6) Specification".
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- NOTE: Available from <http://www.dtcp.com/specifications.aspx>.
- [26] A173-2: "Second Generation Common Interface (CI); Part 2: Extensions to the CI Plus Specification (CI Plus 2.0)" June 2015.
- NOTE: Available from https://www.dvb.org/resources/public/standards/a173-2_ci_plus_2_-_part_2.pdf.
- [27] "High-bandwidth" Revision 1.4.
- NOTE: Available from <https://www.digital-cp.com/hdcp-specifications>.
- [28] IETF RFC 4291: "IP Version 6 Addressing Architecture".

2.2 Informative references

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NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced document is not necessary for the application of the present document but it assists the user with regard to a particular subject area.

- [i.1] ETSI TS 102 727 (01-2010): "Digital Video Broadcasting (DVB); Multimedia Home Platform (MHP) Specification 1.2.2".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

application coordination framework: set of CI Plus specific rules around the coordination of broadcast and CICAM applications

NOTE: As specified in clause 12.4 of the present document.

application MMI resource: As defined in clause 14.4 of CI Plus 1.3 [3].

NOTE: CI Plus V1.3 [3] also uses this term to mean the CI Plus browser. ETSI TS 101 699 [2] also uses this term to mean an application started using the application MMI resource or to mean an application controlled by that resource.

background tune: tune operation in multi-stream mode whereby the received service is not for presentation to the user at the time of reception

broadcast application: broadcast signalled application or an application started by a broadcast application even if itself not signalled in a DVB service

broadcast signalled application: application signalled in a DVB service which may be carried in-band in that service (e.g. with DSM-CC object carousel) or out-of-band (e.g. via HTTP or on the CICAM auxiliary file system)

CICAM application: application provided by the CICAM, either using its auxiliary file system or using the application MMI resource

CICAM AppMMI application: application launched by the CICAM using the CI Plus Application MMI resource

CICAM broadcast application: broadcast application loaded from the CICAM auxiliary file system

DVB service: service signalled or announced in a way that is defined by DVB specifications, including DVB-SI [10], SD&S [16] and OSDT (see clause 15 and annex C)

foreground tune: tune operation in multi-stream mode whereby the received service is for presentation to the user

Host: IRD that includes a CI Plus compliant CICAM slot

Input Mode: mode of operation of the TS Interface whereby the CICAM generates a new TS that is provided for the Host

IP-delivered content: AV content that is received via the IP network interface of an IRD

IP delivery CICAM player mode: mode of handling IP-delivered content whereby the CICAM handles the delivery protocols and encapsulation format of the content

IP delivery Host player mode: mode of handling IP-delivered content whereby the Host handles the delivery protocols and encapsulation format of the content

IP network interface: wired or wireless IRD interface that supports IP based communications

Local TS: sequence of TS packets in which each TS packet has the same Local TS Identifier

Local TS Identifier: unique number allocated to a Local TS, whereby this number replaces the sync byte in each TS packet header

multi-stream mode: mode of operation that allows multiple Local TSs to be carried over the TS interface

Normal Mode: mode of operation of the Local TS for the carriage of a conventional TS