# TS 102 796 v1.2.1 Errata 1

*24th October 2013*

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# 1 Introduction

This document contains the currently identified and resolved errata to the current version of the HbbTV specification published by ETSI as TS 102 796 v1.2.1. It is a living document which will be updated based on experience of implementing receivers, services and tests. Versions of this document will periodically be made publicly available via the www.hbbtv.org web site.

For avoidance of doubt, the contents of this document have not been reviewed or approved by ETSI.

# 2 Conventions

In this document, text quoted from other documents or to be added to other documents is indented except where it appears in a table. Fine-grained changes in text from other documents are shown using the underline and strikethrough convention.

# 3 Summary

The following table summarises the changes included in this document.

| HbbTV internal ref. | Short Description | Category | Clauses Impacted | Clause in this document |
|---|---|---|---|---|
| 1317 | getSIDescriptors optional argument | Ambiguity | A.1 | 4.8.1 |
| 1356 | Error in default xmlCapabilities re trick mode support | Ambiguity | 10.2.4 | 4.7.2 |
| 1442 | Clarification of URL example | Editorial | 9.2 | 4.6.1 |
| 1443 | Dynamic MPD served with cache control off | Ambiguity | E.2.1 | 4.9.1 |
| 1446 | Sample application no longer provided | Editorial | 10.2.5 | 4.7.4 |
| 1451 | Incorrect section names | Editorial | A.1 | 4.8.7 |
| 1461 | StreamEvent event description | Ambiguity | 8.2.1.2 | 4.5.2 |
| 1462 | Mismatch in removeStreamEventListener arguments | Editorial | 8.2.1.1 | 4.5.1 |
| 1488 | Misspelling of countryId | Editorial | A.1 | 4.8.6 |
| 1492 | Missing text in 6.2.2.4 | Editorial | 6.2.2.4 | 4.3.1 |
| 1493 | DVB-SI parental rating | Ambiguity | A.1 | 4.8.2 |
| 1525 | Video scaling and visibility of decoded video | Editorial | 10.2.1 | 4.7.1 |
| 1531 | Trick modes with adaptive bitrate content | Editorial | 9.4 | 4.6.1 |

| HbbTV internal ref. | Short Description | Category | Clauses Impacted | Clause in this document |
|---|---|---|---|---|
| 1531 | Clarify support for PlaySpeedChange | Error | A.1 | 4.8.4 |
| 1544 | Missing window.onload property | Implementation | A.2.8.1 | 4.8.6 |
| 1554 | Errors in the example XML capabilities | Ambiguity | 10.2.4 | 4.7.2 |
| 1554 | Location of the DRM information in the XML capabilities | Editorial | 10.2.4 | 4.7.3 |
| 1569 | Missing text in E.4.2.1 | Editorial | E.4.2.1 | 4.9.2 |
| 1577 | Explicitly linking EIT to metadata search | Ambiguity | A.2.9 | 4.8.10 |
| 1581 | Missing channel.nid property | Error | A.1 | 4.8.5 |
| 1615 | Definition of programmeID | Ambiguity | A.1 | 4.8.3 |
| 1628 | Location of the DRM information in the XML capabilities | Ambiguity | 10.2.4 | 4.7.3 |
| 1633 | Incorrect references to DAE Annex B | Editorial | A.1 | 4.8.8 |
| 1635 | HTTP User Agent | Implementation | 7.3.2.4 | 4.4.1 |
| 1640 | Editorial correction | Editorial | 7.3.2.5 | 4.4.2 |
| 1715 | Queue management on type change | Ambiguity | A.2.5 | 4.8.12 |
| 1767 | Modification to application lifecycle on channel selection | Ambiguity | 6.2.2.2 | 4.3.2 |
| 1784 | Mandatory argument to sendDRMMessage | Error | A.1 | 4.8.11 |
| 1848 | Remove reference to external application authorisation descriptor | Editorial | 6.2.2.3 | 4.3.3 |
| 1887 | Audio from memory | Error | A.1 | 4.8.13 |
| 1894 | OIPF errata to R1 V1.2 | Ambiguity | 2.1 | 4.1.1 |
| 1914 | Examples of different application types | Editorial | 4.1 | 4.2.1 |

Key to categories

| | |
|---|---|
| Ambiguity | Feature where different implementations may behave in different ways. This includes under-specified features as well as inconsistencies within the specification. |
| Editorial | Purely editorial change |

| | |
|---|---|
| Error | Clear technical error in the specification. Cannot be implemented as written. |
| Implementation | Feature removed, simplified or modified in order to simplify implementation and testing. |

# 4 Changes to TS 102 796 v1.2.1

## *4.1 Clause 2 – References*

### 4.1.1 OIPF errata to R1 V1.2

Implementations shall take into account any changes to the OIPF specifications as indicated in the OIPF Release 1 IPTV Solution V1.2 Errata 1.

## *4.2 Clause 4 – Overview*

### 4.2.1 Examples of different application types

Modify the first set of bullets as follows:

- Broadcast-independent application (i.e. not associated withany broadcast service). This type of application is downloaded via broadband and accesses all of its associated data via broadband.
    - Examples of this type of service are catch-up services and games where the application does not need access to any broadcast resources.
- Broadcast-related application (i.e. associated with one or more broadcast services or one or more broadcast events within a service) that may be launched automatically ("autostart") or explicitly upon user request. This type of application may be downloaded via broadband or broadcast and may access its data via either method.
    - Examples of this type of service are electronic program guides and teletext-like services where the application may wish to present the broadcast video in a window and access other broadcast resources (e.g. EIT metadata)..

## *4.3 Clause 6 – Service and application model*

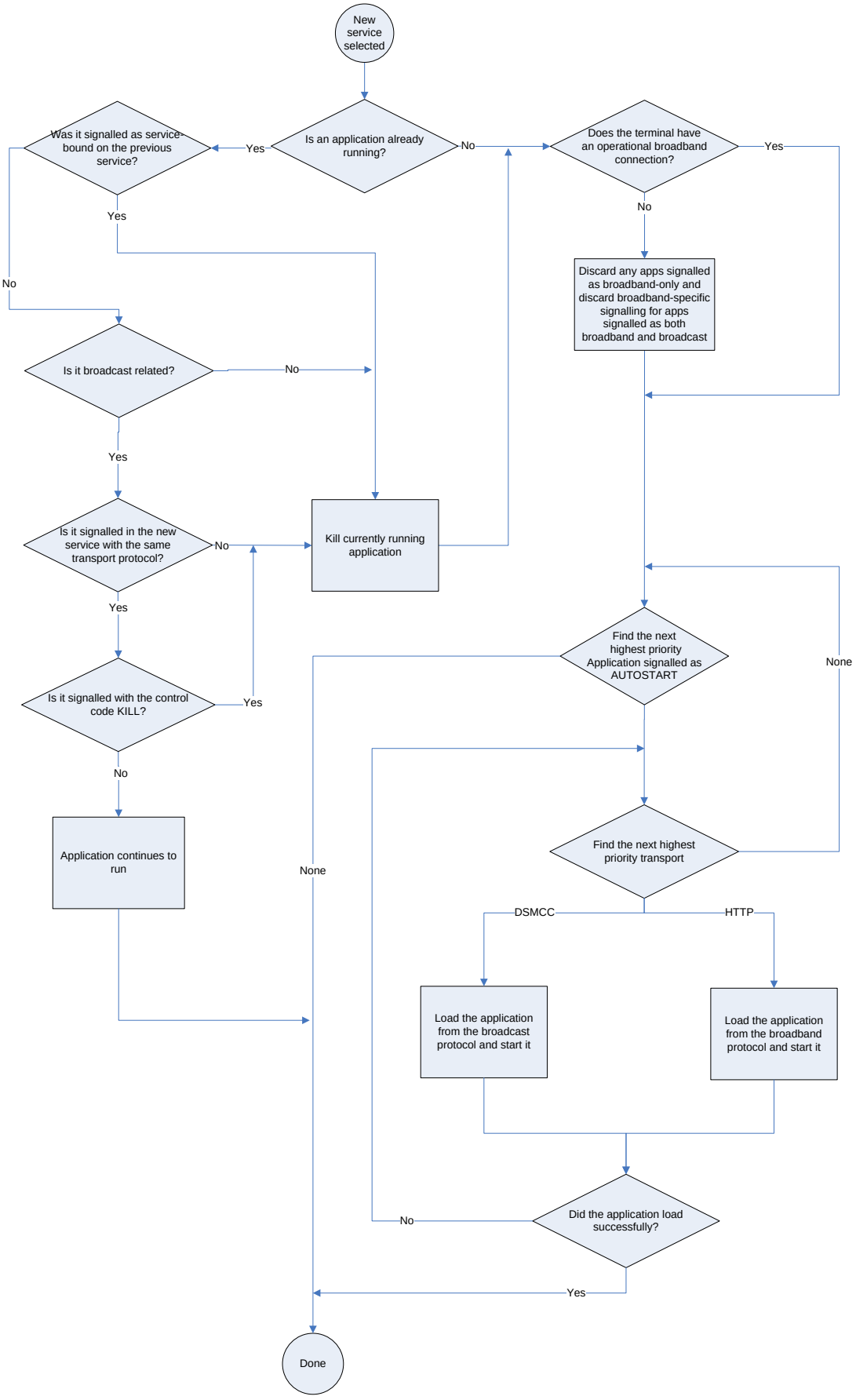
### 4.3.1 Missing text in 6.2.2.4

Modify the text in section 6.2.2.4 as follows:

- The timeShiftSynchronized property of the application/oipfConfiguration object shall be set to true (see clause A.2.4.3).

### 4.3.2 Modification to application lifecycle on channel selection

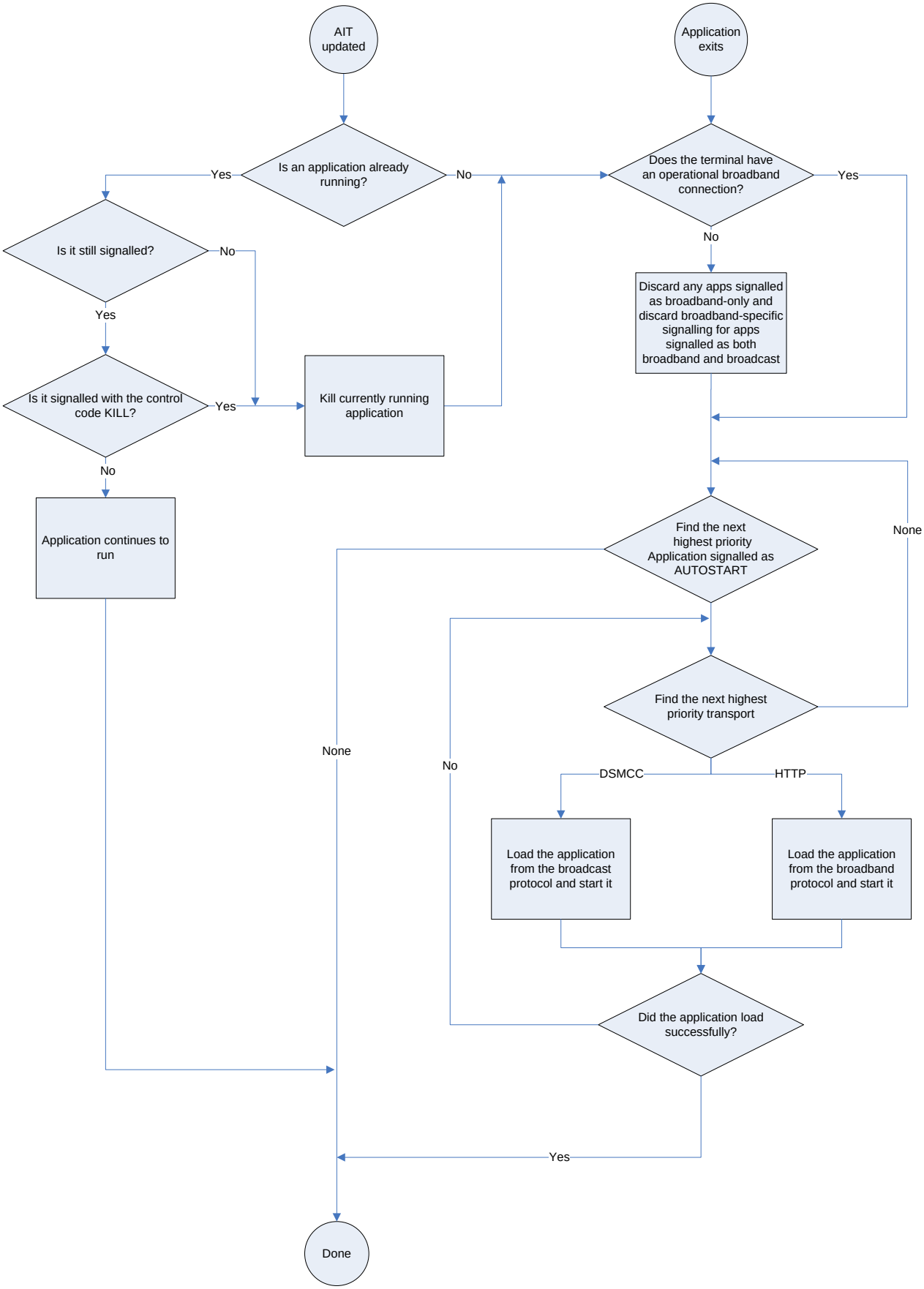
Replace Figure 13 with:


New service selected
Is an application already running?
Yes
Was it signalled as service-bound on the previous service?
No
Does the terminal have an operational broadband connection?
Yes
No
Discard any apps signalled as broadband-only and discard broadband-specific signalling for apps signalled as both broadband and broadcast
Yes
No
Is it broadcast related?
No
Yes
Kill currently running application
Is it signalled in the new service with the same transport protocol?
No
Yes
Is it signalled with the control code KILL?
Yes
No
Application continues to run
Find the next highest priority Application signalled as AUTOSTART
None
Find the next highest priority transport
None
DSMCC
HTTP
Load the application from the broadcast protocol and start it
Load the application from the broadband protocol and start it
Did the application load successfully?
No
Yes
Done

Note: The change is that “Is it signalled in the new service?” has been replaced by “Is it signalled in the new service with the same transport protocol?”

### 4.3.3 Remove reference to external application authorisation descriptor

Replace Figure 14 with:


AIT updated
Application exits
Is an application already running?
Yes
No
Does the terminal have an operational broadband connection?
Yes
No
Is it still signalled?
No
Yes
Discard any apps signalled as broadband-only and discard broadband-specific signalling for apps signalled as both broadband and broadcast
Is it signalled with the control code KILL?
Yes
Kill currently running application
No
Application continues to run
Find the next highest priority Application signalled as AUTOSTART
None
Find the next highest priority transport
None
No
DSMCC
HTTP
Load the application from the broadcast protocol and start it
Load the application from the broadband protocol and start it
Did the application load successfully?
Yes
Done

Note: The change is that “Is it still signalled, as a separate entity or through an external application authorization descriptor?” has been replaced by “Is it still signalled?”.

## *4.4 Clause 7 - Formats and Protocols*

### 4.4.1 HTTP User Agent

Add a note after the first paragraph of 7.3.2.4:

> NOTE: This does not apply to HTTP requests made by the MPEG DASH player or the DRM agent.

### 4.4.2 Editorial correction

Change the first sentence of 7.3.2.5 to:

> HTTP redirects as defined in [HTTP] in response to ~~a~~ an HTTP request shall be supported as described in this clause.

## *4.5 Clause 8 – Browser Application Environment*

### 4.5.1 Mismatch in removeStreamEventListener arguments

Change the definition of the removeStreamEventListener method in section 8.2.1.1 to:

> void removeStreamEventListener(String targetURL ~~eventURL~~, String eventName, EventListener listener)

### 4.5.2 StreamEvent event description

Change the description of the status property in section 8.2.1.2 to:

> Equal to "`trigger`" when the event is dispatched in response to a trigger in the stream or "`error`" when an error occurred (e.g. attempting to add a listener for an event that does not exist, or when a StreamEvent object with registered listeners is removed from the carousel).
>
> Circumstances under which an event shall be dispatched with an error status include ~~An event might be dispatched with an error status if~~:
>
> - the `StreamEvent` object pointed to by `targetURL` is not found in the carousel or via broadband;
> - the `StreamEvent` object pointed to by `targetURL` does not contain the event specified by the `eventName` parameter;
> - the carousel cannot be mounted;
> - the elementary stream which contains the StreamEvent event descriptor is no longer being monitored (e.g. due to another monitoring request or because it disappears from the PMT).
>
> Once an error is dispatched, the listener is automatically unregistered by the terminal.

## *4.6 Clause 9 – System Integration*

### 4.6.1 Clarification of URL example

Change the text of the third sub-bullet of examples of URLs:

> The application is signaled in a DSMCC Carousel with a Component Tag of 4 and a Base URL of /index.~~php~~html?param1=value1 and the current service location is dvb://1.2.3
>
> createApplication URL: dvb://current.ait/1.1?param2=value2#foo
>
> Resulting URL: dvb://1.2.3.4/index.~~php~~html?param1=value1&param2=value2#foo

Add new text at the end of the section:

> NOTE: Some browsers may use the filename suffix as a means for detecting the content type for files not served via HTTP. Application authors should be careful about filename suffixes used as incorrect suffixes may result in unexpected behaviour.

### 4.6.2 Trick modes with adaptive bitrate content

Change the text in section 9.4:

> ~~If the terminal supports trick modes, the behaviour defined in clause A.2.3 shall be supported including the generation of a PlaySpeedChangedd event reporting the actual speed of fast forwards and fast rewind.~~ It is optional for a terminal to support trick modes for adaptive bitrate content.

## *4.7 Clause 10 – Capabilities*

### 4.7.1 Video scaling and visibility of decoded video

Change Table 11 in section 10.2.1 to:

| | | |
|---|---|---|
| Video scaling | Terminals shall be able to present video at sizes down to 1/8 by 1/8 of the width and height of the logical video plane - equivalent to 160 x 90 pixels in the Hybrid Broadcast Broadband TV application graphics plane.<br>Terminals shall be able to scale video down to 1/4 by 1/4 and should be able to scale video down to 1/8 by 1/8. For sizes between 1/4 by 1/4 and 1/8 by 1/8, terminals which cannot scale video shall crop the video instead and display it centered in the according video object of the Hybrid Broadcast Broadband TV application graphics plane.<br><br>Terminals shall be able to scale video up to 2 x 2 of the width and height of the logical video plane.<br><br>Within these limits, any arbitrary scaling factor shall be allowed. ~~The aspect ratio of decoded video shall be preserved such that all of the decoded video is visible within the area of the video/broadcast or AV Control object.~~ The aspect ratio of the video shall be preserved at all scaling factors.<br><br>See OIPF DAE Annex H.2 for more information. | |

### 4.7.2 Errors in the example XML capabilities

Change the xml text in section 10.2.4 to:

```
<profilelist xmlns="urn:oipf:config:oitf:oitfCapabilities:2009-1"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:oipf:config:oitf:oitfCapabilities:2011-1 config-oitf-
oitfCapabilities.xsd">
  <ui_profile name="OITF_HD_UIPROF+DVB_S+TRICK_MODETRICKMODE">
    <ext>
      <parentalcontrol schemes="dvb-si">true</parentalcontrol>
      <clientMetadata type="dvb-si">true</clientMetadata>
    </ext>
```

```
  </ui_profile>
  <clientMetadata type="dvb-si">true</clientMetadata>
  <video_profile name="MP4_AVC_SD_25_HEAAC" type="video/mp4" transport="dash"/>
  <video_profile name="MP4_AVC_HD_25_HEAAC" type="video/mp4" transport="dash"/>
  <audio_profile name="MPEG1_L3" type="audio/mpeg"/>
  <audio_profile name="HEAAC" type="audio/mp4"/>
  <video_profile name="MP4_AVC_SD_25_HEAAC" type="video/mp4" transport="dash"/>
  <video_profile name="MP4_AVC_HD_25_HEAAC" type="video/mp4" transport="dash"/>
  <video_profile name="TS_AVC_SD_25_HEAAC" type="video/mpeg"/>
  <video_profile name="TS_AVC_HD_25_HEAAC" type="video/mpeg"/>
  <video_profile name="MP4_AVC_SD_25_HEAAC" type="video/mp4"/>
  <video_profile name="MP4_AVC_HD_25_HEAAC" type="video/mp4"/>
  <audio_profile name="MPEG1_L3" type="audio/mpeg"/>
  <audio_profile name="HEAAC" type="audio/mp4"/>
</profilelist>
```

### 4.7.3 Location of the DRM information in the XML capabilities

Modify the paragraph following Table 13 to:

> The support of the DRM feature shall be indicated by the addition of one or more <drm> elements in the OIPF extension to the <profileList> as defined in section 9.3.10 and Annex F of the OIPF DAE specification [1] ~~to the end of the profilelist element in the above XML~~. For example:

### 4.7.4 Sample application no longer provided

Section 10.2.5 is deleted.

## *4.8 Annex A – OIPF DAE Specification Profile*

### 4.8.1 getSIDescriptors optional argument

Change Table A.1 in Annex A.1 to:

| | | | | |
|---|---|---|---|---|
| Basics | 7.16.2.1, 7.16.2.2 | M(*) | The following properties are required:<br>- name<br>- programmeID<br>- programmeIDType<br>- description<br>- longDescription<br>- startTime<br>- duration<br>- channelID<br>- parentalRatings<br>All other properties and methods are not included.<br><br>The constants defined in clause 7.16.2.1 shall be supported however support for CRIDs is outside the scope of the present document.<br><br>~~The following method is required for Programme objects returned by the programmes property of the video/broadcast object:~~<br>~~- getSIDescriptors~~ | Broadcast-related |
| Metadata extensions to Programme | 7.16.2.3 | NI | | |
| DVB-SI extensions to Programme | 7.16.2.4 | ~~NI~~ M | The optional argument descriptorTagExtension to the method getSIDescriptors is mandatory when descriptorTag is 0x7f and ignored in all other cases. | |

### 4.8.2 DVB-SI parental rating

Change Table A.1 in Annex A.1 to:

| | | | | |
|---|---|---|---|---|
| The ParentalRatingScheme class | 7.9.2 | ~~M~~ M(*) | A scheme supporting DVB-SI age based rating shall be supported.<br><br>The description of the “dvb-si” rating scheme in the name property is changed to:<br>▪ the string value “dvb-si”: this means that the scheme of a minimum recommended age encoded as per ratings 0x01 to 0x0f in the parental rating descriptor from [EN300468], is used to represent the parental rating values.<br><br>NOTE: If the broadcaster defined range from 0x10 to 0xff is used then that would be a different parental rating scheme and not "dvb-si". | None |

### 4.8.3 Definition of programmeID

Change Table A.1 in Annex A.1 to:

| | | | | |
|---|---|---|---|---|
| Programme, ScheduledRecording, Recording and Download | 8.4.4 | M(*) | Only for properties that are required by the present document.<br><br>The property programmeID shall contain a DVB URI including the event_id and not an integer. | |

### 4.8.4 Clarify support for PlaySpeedChange

Change Table A.1 in Annex A.1 to:

| | | | | |
|---|---|---|---|---|
| Extensions for recording and timeshift | 7.13.2 | M(*), M-P | Terminals that support time-shift of broadcast video shall support the following events and properties even if they do not support the full PVR option:<br>• onRecordingEvent ~~RecordingEvent~~<br>• recordingState<br>• playPosition<br>• onPlayPositionChanged<br>• playSpeed<br>• onPlaySpeedChanged | |
| Extensions to AV object for | 7.14.3 | M(*) | Only the onPlayPositionChanged ~~property and event~~ and onPlaySpeedChanged properties and events are required. | None |

| | | | | |
|---|---|---|---|---|
| trickmodes | | | | |

### 4.8.5 Missing channel.nid property

Change Table A.1 in Annex A.1 to:

| | | | | |
|---|---|---|---|---|
| Channel class | 7.13.11 | M(*) | The following properties shall be supported:<br>- `channelType`<br>- `ccid`<br>- `dsd`<br>- `nid`<br>- `onid`<br>- `tsid`<br>- `sid`<br>- `name`<br>All other properties and methods are not included. | Broadcast-related |

### 4.8.6 Misspelling of countryId

Change Table A.1 in Annex A.1 to:

| | | | | |
|---|---|---|---|---|
| The Configuration class | 7.3.2 | M(*) | Support for read-only access to the following properties is mandatory:<br>- `preferredAudioLanguage`<br>- `preferredSubtitleLanguage`<br>- `preferredUILanguage`<br>- ~~`countryID`~~ `countryId`<br>All other properties and methods are optional. | None |

### 4.8.7 Incorrect section names

Change Table A.1 in Annex A.1 to:

| | | | | |
|---|---|---|---|---|
| ~~IMS Related~~ Communication Services APIs | 7.8 | NI | | |

| ~~**Broadcast video**~~ **Scheduled content and hybrid tuner APIs** | | | | |
|---|---|---|---|---|
| video/broadcast embedded object | 7.13.1 | M(*) | In the `setChannel()` method, the optional `contentAccessDescriptorURL` parameter may be ignored.<br><br>The `setVolume`() and `getVolume`() methods are not included.<br><br>The modifications in clause A.2.4 shall be supported. | See clause A.2.4 |
| Extensions to video/broadcast for recording and timeshift | 7.13.2 | M(*), M-P | Terminals that support time-shift of broadcast video shall support the following events and properties even if they do not support the full PVR option:<br>- `RecordingEvent`<br>- `recordingState`<br>- `playPosition`<br>- `playSpeed` | Broadcast-related |
| Extensions to video/broadcast for access to ~~DVB-SI~~ EIT p/f | 7.13.3 | M | | Broadcast-related |

| | | | | |
|---|---|---|---|---|
| Extensions to video/broadcast for ~~channel scan~~ current channel information | 7.13.7 | M | Access to the `currentChannel` property by broadcast-independent applications shall return `null`. | Broadcast-related |
| Extensions to video/broadcast for creating Channel lists from SD&S fragments | 7.13.8 | NI | | |
| ChannelConfig ~~object~~ class | 7.13.9 | M(*) | The channelList property shall be supported. Other properties, methods and events are not included. | Broadcast-related |

| | | | | |
|---|---|---|---|---|
| ~~IMS~~ Communication Services API Support | 9.3.9 | NI | | |

## 4.8.8 Incorrect references to DAE Annex B

Change Table A.1 in Annex A.1 to:

| | | | | |
|---|---|---|---|---|
| ~~5.4 Compatibility with CEA-2027-A~~ | ~~B~~ | ~~M~~ | | |
| 5.4 Window scripting object changes | B | M(*) | See clause A.2.8 | None |
| ~~5.4 Omit Window.download()~~ | ~~B~~ | ~~M~~ | | |

| | | | | |
|---|---|---|---|---|
| 5.4 ~~change to 5.4.a.7~~ modifications to 5.7.1.f and 5.7.1.g | B | M | | None |

## 4.8.9 Missing window.onload property

Change the text in section A.2.8.1 to:

> The window object shall be supported as defined in annex B of the OIPF DAE specification [1] except as follows. The following properties shall be supported on the window object:

```
document, frames, history, innerHeight, innerWidth, location, name, navigator,
oipfObjectFactory, onkeypress, onkeydown, onkeyup, onload, parent, self, top, window,
XMLHttpRequest, onblur, onfocus, frameElement
```

### 4.8.10 Explicitly linking EIT to metadata search

Add new section A.2.9:

#### A.2.9 Access to EIT Schedule Information

The Metadata APIs listed in table A.1 of this document shall allow access to DVB-SI EIT event schedule information for the actual transport stream and for the other transport streams (as defined in EN 300 468 [16]) that are carried on the transport stream of the currently selected broadcast service, unless access to broadcast resources is suspended according to 6.2.2.7. The terminal shall use EIT-schedule information if it is present, or EIT-present/following information otherwise. If both EIT-schedule and EIT-present/following information are present, it is implementation dependent which shall be used in cases where there are conflicts.

### 4.8.11 Mandatory argument to sendDRMMessage

Change Table A.1 in Annex A.1 to:

| | | | | |
|---|---|---|---|---|
| Content Service Protection AP | 7.6 | M-C, M-M | Mandatory if the DRM feature is supported or if the terminal supports CI+.<br><br>The DRMSystemID argument for the sendDRMMessage method shall be specified and shall not be null. | Trusted |

### 4.8.12 Queue management on type change

Make the following change in Annex A.2.5:

Calling stop(),modifying the data and/or type property or entering the error state shall cause any queued media item to be discarded.

### 4.8.13 Audio from memory

Change Table A.1 in Annex A.1 to:

| | | | | |
|---|---|---|---|---|
| Media control | 4.4.5 | M(*) | Shall be modified as defined in clause A.2.1.<br>In addition, all references to playing audio from memory in this clause shall not apply. | |

## *4.9 Annex E – Profiles of MPEG DASH*

### 4.9.1 Dynamic MPD served with cache control off

Add new text at the end of Annex E.2.1:

If a dynamic MPD is not served with "Cache-Control: no-cache" then terminals may not be able to acquire the updated version.

### 4.9.2 Missing text in E.4.2.1

Between the first set of numbered bullets and the lettered bullets, add the following text:

Notes: