

# Freeview Play — Technical Specification

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## 2018 Profile

Version: 3.0.9

Date: 14/07/2017

DigitalUK

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## 2. Revision History

Revision History		
Version Number	Date	Comment
1.1.1	2014-11-21	Release sign-off.
1.1.2	2014-11-26	Publication release.
1.2.0	2015-09-10	Launch Profile maintenance release. Corrections & clarifications.
1.2.1	2016-01-12	Maintenance release with corrections
1.9.4	2016-02-04	Draft of 2017 profile (based on HbbTV 2.0.1 Redmine tickets)
2.0.0	2016-05-20	Draft of 2017 profile
2.1.0	2016-07-15	Pre-publication release
2.1.1	2016-07-21	Publication release
3.0.6	2017-02-31	Draft 2018 profile
3.0.9	2017-07-13	2018 publication release.

### 3. Summary

Informative: The purpose of this document is to detail the technologies required to implement a Freeview Play hybrid (Broadcast & IPTV) device aimed at the horizontal market. It identifies existing specifications that are required to be supported and also adds a small amount of normative text which is required to provide cohesion between the technologies required.

The platform environment has the following key features:

- HbbTV conformant HTML5 application environment
- Broadcast profile based on D-Book 9
- DASH streaming technology with integrated EBU-TT-D subtitles [ETSI\_103\_285]
- Aggregated source of metadata providing:
  - Forward and Backwards EPG with deep links to player content
  - Search and Recommendations API across on-demand and Freeview content
  - FVP Application listings and launch locations
- Multiple video object ad-insertion into DASH-based streams
- Digital Rights Management capability
- General security requirements
- Support for accessibility experiences
- Mandatory support for HEVC [HEVC] for streamed services
- Optional support for Companion Screen and UHD and HDR
- Support for legacy streaming format Microsoft Smooth.

The specification will use D-Book 9 as the base profile for broadcast services and signalling, including interactive IP-delivered services and applications by reference to the HbbTV 2.0.1 [ETSI\_102\_796] standard.

The specifications for Freeview Play will follow a managed evolution. These will be presented as current profile and future dated profile. This document details requirements for 2018 products, specifically for devices tested from 1<sup>st</sup> Dec 2017 (based on test materials available from July 2017 onwards).

Other companion documents will cover metadata access APIs, presentation rules and branding and other product requirements.

The key words "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

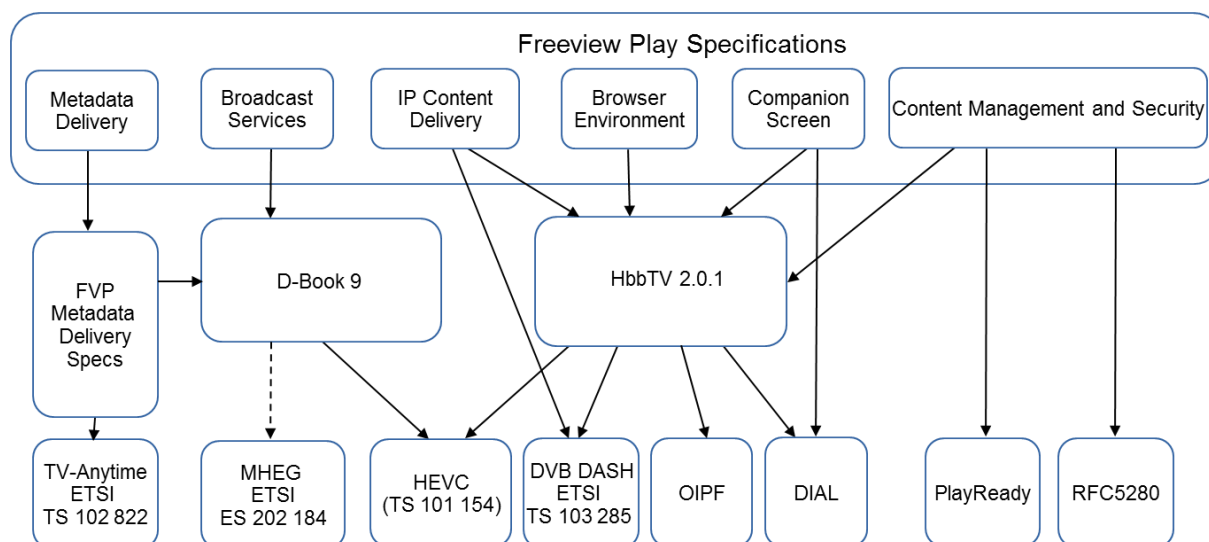
#### 3.1 Reference Specifications

This document is built around published specifications which are illustrated in Figure 1 and detailed in Section 3.1.1.

### 3.1.1 Freeview Play 2018 Profile

The 2018 product cycle of Freeview Play will require all mandatory clauses of the present document and those of the following specifications:

- HbbTV 2.0.1
- D-Book 9
- Microsoft PlayReady DRM version 2.0 (or later)
- DIAL



**Figure 1: Freeview Play 2018 specification set**

### 3.1.2 Companion Documents

This document should be read in conjunction with the current version of the following Freeview Play documentation:

- Freeview Play Content Management and Security
- Freeview Play Business-to-Consumer Interface Specification
- Freeview Play Taxonomy Vocabulary
- Freeview Play Accessibility Statement
- Freeview Play Product Overview Document

### 3.2 References

References	
Ref	Document
DBOOK	D-Book 9 2016, Digital TV Group.
DIAL	Discovery And Launch protocol specification (DIAL) Version 1.7, <a href="http://www.dial-multiscreen.org/">http://www.dial-multiscreen.org/</a>
ETSI_103_285	DVB Document A168: "Digital Video Broadcasting (DVB); MPEG-DASH Profile for Transport of ISO BMFF Based DVB Services over IP Based Networks".
ETSI_202_184	ETSI ES 202 184 V2.3.1 (2013-03), MHEG-5 Broadcast Profile
FREEVIEW_TML	Freeview Manufacturers' Trade Mark Licence, available from Freeview.
FREEVIEW_TCA	Freeview Testing, Conformance and Assurance overview. Available from Digital UK.
ETSI_102_796	ETSI TS 102 796 V1.4.1 Hybrid Broadcast Broadband TV (HbbTV)
HBBTV_ERRATA	Hybrid Broadcast Broadband TV (HbbTV), Errata 2 to TS 102 796 V1.4.1.
PLAYREADY_SMOOTH	<a href="http://msdn.microsoft.com/en-us/library/dn189154.aspx">http://msdn.microsoft.com/en-us/library/dn189154.aspx</a>
RFC2119	IETF RFC 2119 (1997-03), IETF, "Key words for use in RFCs to Indicate Requirement Levels"
SMOOTH	Microsoft Smooth Streaming <a href="http://www.iis.net/downloads/microsoft/smooth-streaming">http://www.iis.net/downloads/microsoft/smooth-streaming</a>

## 4. Alignment with D-Book 9

In order to achieve widely agreed commonality in the use of the HbbTV 2.0.1 standard and to ensure the route to technical alignment with Freeview Play is as smooth as possible for manufacturers, D-Book 9 [DBOOK] contains the base technical requirements for Freeview Play. D-Book 9 Chapter 13 contains HbbTV specific details that would previously been in this specification.

### 4.1 Broadcast Services

The DTT broadcast profile for Freeview Play builds upon the FreeviewHD/Freeview+HD Trade Mark Licence [FREEVIEW\_TML] hence the device SHALL conform to the broadcast profile and receiver requirements specified in D-Book 9 [DBOOK].

### 4.2 Application Environment

D-Book 9 [DBOOK] requires that either HbbTV or MHEG application environments are supported. For the avoidance of doubt this document requires that HbbTV shall be supported. In making HbbTV mandatory it is recognised that some profiling of the HbbTV is required for 2018 devices based on test suite coverage, manufacturer readiness and content provider service development roadmaps.

This profile is described in Section 5.6 of this document. This should be read in conjunction with the extensions set out in Section 13.4 of [DBOOK]. Section 13.5 of [DBOOK] is provided to guide manufacturers through the mandatory aspects of HbbTV 2.0.1. In some areas, Section 5.6 of the present document overrides mandatory requirements set out in Section 13.4 and Section 13.5 of [DBOOK].

Support for MHEG [ETSI\_202\_184] is optional for Freeview Play devices. However, if a device supports MHEG then the device shall conform to the MHEG profile specified in Sections 11 and 12 of [DBOOK]. Also, the specific requirements on application lifecycle for combined HbbTV and MHEG receivers set out in Section 8.5.2.6 of [DBOOK] and the launching of HbbTV applications from MHEG (see Section 12.1.2 of [DBOOK]) shall be followed.

Launching of broadcast HbbTV and MHEG (if supported) applications SHALL be enabled by default.

## 5. Freeview Play Specific Features

### 5.1 Terminal Capabilities Signalling

For Freeview Play certified (FVC) devices conforming to this specification the `ui_profile` element's name attribute within the `xmlCapabilities` property of the `application/oipfCapabilities` embedded object (see section 10.2.4 of [ETSI\_102\_796]) SHALL include the string "DVB\_T\_FVC\_P3" to indicate the device is a DVB Terrestrial Freeview Play receiver conforming to the 2018 specification.

### 5.2 DIAL

The device SHALL support the launching of applications via DIAL [DIAL] directly. Launching of specific players registered in the DIAL registry is defined in player specific guidelines available from Freeview Play content providers, e.g. BBC.

### 5.3 HTTP User-Agent

The User-Agent requirements defined in Section 7.3.2.4 of [ETSI\_102\_796] SHALL be included in all requests from the device.

The browser user-agent information SHALL also be provided.

The User-Agent shall also include the Freeview Play certified (FVC) string:

FVC/<version> (<vendorName>; <familyName>; <reserved>)

where:

- Version shall be **3.0** for devices conforming to this specification.
- The `familyName` is described in Section 7.3.2.4 of [ETSI\_102\_796].
- The `<reserved>` field is reserved for future extensions.

A valid example of the syntax above is

```
User-Agent: HbbTV/1.4.1 (+DRM; Sonic; TV14/551TB; 1.32.455; 2.002;  
com.example.2016VX700;) TinterKit/99.9 FVC/3.0 (Sonic;  
com.example.2016VX700;)
```

The `<vendorName>` and `<familyName>`, and `<modelName>` used in the HbbTV part of the User-Agent, SHALL be supplied to Freeview during the Freeview Play certification process.

### 5.4 Software Management

#### 5.4.1 Trials Management

The device SHALL support procedures whereby player releases, software upgrades, etc., can be trialed across small populations in collaboration between manufacturer and Digital UK. It is expected these trials would feature a small number of receivers, such that software updates could be provided directly to trialists (e.g. via USB/SD card).



#### 5.4.2 Software Update

In-the-field update capability is required. The device SHALL be updatable in a practical manner. Existing DRM system provider agreements MAY require additional update mechanisms (e.g. in case of a DRM breach) which SHALL be implemented.

Receivers SHALL support a local mechanism for firmware update (e.g. USB).

#### 5.4.3 Development and Testing Override

In order to facilitate development and some early testing the device SHALL support procedures whereby the default location of the MDS (see [FVP\_B2C]) used by the device can be configured. For example, this could be achieved by supplying a file on a USB stick containing a URL of the development MDS. This SHALL be disabled in production devices.

### 5.5 Content Management

The requirements for content management and general device security are described in the companion document: Freeview Play Content Management and Security available from Digital UK.

### 5.6 Streaming Format

The primary streaming format used in the Freeview Play environment, in alignment with HbbTV, is DASH [ETSI\_103\_285]. In addition to the requirements around DASH specified in [ETSI\_102\_796] devices shall conform requirements in Section 13 of [D-BOOK].

#### 5.6.1 Legacy Streaming Format

In order to support incumbent streaming applications, devices SHALL also support Microsoft Smooth Streaming [SMOOTH]. A segment size of 2 seconds will be used.

PlayReady protection of Smooth Streaming SHALL be as described in [PLAYREADY\_SMOOTH]. Note that the broadcaster MAY switch between protected and unprotected modes within the same stream.

The use of Smooth Streaming will be according to profiles already in use by UK broadcasters and will be tested as part of their application conformance tests.

## 6. HbbTV Profile

The section describes the areas of the HbbTV specification where full compliance is not required. Manufacturers are still requested to run the full test suite as described by the Freeview Play TCA [FREEVIEW\_TCA] but the following sections represent automatic exemption from feature compliance. Any exemption or concession is dependent the device having no adverse reaction to these tests.

By implication this also makes aspects of [DBOOK] optional to implement.

The optional features are separated into two types:

- **Optional:** Those features with limited test coverage or where Freeview Play content providers have no intention of using the feature in the UK
- **Optional for 2018:** Those where test coverage is currently felt to be insufficient, or manufacturers have indicated lack of readiness for the feature, and/or Freeview Play content providers have no plans to launch services using the feature in 2018 but would be interested in working with lead manufacturers on developing such services.

### 6.1 Optional:

#### 6.1.1 Download Feature

Support for downloading A/V content from the broadcast or broadband channel into persistent memory, “download feature” is optional, which also implies File Download Protocol (FDP) is also optional (see Section 7.2.8 of [ETSI\_102\_796]).

#### 6.1.2 PVR Capability

Support of the Download and PVR features listed in Table A.1 of [ETSI\_102\_796], i.e. those features with status M-P and M-D are optional.

Note that this makes the requirement in Section 13.4.7 of [DBOOK] optional.

#### 6.1.3 File System Acceleration

File System Acceleration (see Section 7.2.7 of [ETSI\_102\_796]) is optional.

### 6.2 Optional for 2018

#### 6.2.1 Availability of Device Id

The availability of device id to all applications is optional for 2018 devices. This is a relaxation of the requirement in Section 13.4.6 of [DBOOK].

#### 6.2.2 Multi-stream Synchronisation

Multi-stream synchronisation as mandated in HbbTV Section 10.2.8 and Section 8.2.3 of [ETSI\_102\_796] is optional for 2018 devices.

#### 6.2.3 Companion Screen

Companion screen functionality described in Section 8.2.6 of [ETSI\_102\_796] is optional for 2018 devices.

#### 6.2.4 Inter-device Synchronisation

Inter-device synchronisation described in Section 10.2.9 of [ETSI\_102\_796] is optional for 2018 devices.

Where the device implements inter-device synchronisation then it SHALL adhere to Section 4.5.1 and Section 4.9.1 of the HbbTV Errata Draft 2 [HBBTV\_ERRATA] concerning Section 8 and Section 13 of [ETSI\_102\_796], i.e. the means to avoid leaking “secret” stream URLs.

## 7. DASH Implementation

Receiver manufacturers are required to comply with the requirements for DVB DASH streaming as outlined in Annex E of [ETSI\_102\_796].

Content providers in the Freeview Play environment require manufacturers to pay particular attention to the MPD anchor requirements of Section E.4.5 of [ETSI\_102\_796] and support the event mechanism detailed in Section 9.3.2 of [ETSI\_102\_796].

DASH streams used in the Freeview Play environment will include the use of multiple periods. Manufacturers should pay particular attention to Section 10.5 of [ETSI\_103\_285].

Content providers require the transition between multiple *non-period-continuous* periods to have the same requirement as that used for transitions between multiple video objects (described in Section 9.6.3 of [ETSI\_102\_796]), i.e. 250ms. Where consecutive periods are flagged, and constrained, to be *period-continuous* then any transition between such periods shall be seamless. This is as specified in Section 10.5.3 of [ETSI\_103\_285].