

TECHNICAL CODE

DIGITAL TERRESTRIAL TELEVISION (DTT) - HYBRID BROADCAST BROADBAND TELEVISION MIDDLEWARE PROFILE (SECOND REVISION)

Developed by



Registered by



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Development of technical codes

The Communications and Multimedia Act 1998 ('the Act') provides for Technical Standards Forum designated under section 184 of the Act or the Malaysian Communications and Multimedia Commission ('the Commission') to prepare a technical code. The technical code prepared pursuant to section 185 of the Act shall consist of, at least, the requirement for network interoperability and the promotion of safety of network facilities.

Section 96 of the Act also provides for the Commission to determine a technical code in accordance with section 55 of the Act if the technical code is not developed under an applicable provision of the Act and it is unlikely to be developed by the Technical Standards Forum within a reasonable time.

In exercise of the power conferred by section 184 of the Act, the Commission has designated the Malaysian Technical Standards Forum Bhd ('MTSFB') as a Technical Standards Forum which is obligated, among others, to prepare the technical code under section 185 of the Act.

A technical code prepared in accordance with section 185 shall not be effective until it is registered by the Commission pursuant to section 95 of the Act.

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Committee representation

This technical code was developed by Multimedia Broadcast Receiver Sub Working Group under the Broadcast Technology Working Group of the Malaysian Technical Standards Forum Bhd (MTSFB) which consists of representatives from the following organisations:

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MYTV Broadcasting Sdn Bhd

Panasonic AVC Networks Kuala Lumpur Malaysia Sdn Bhd

Samsung Malaysia Electronics (SME) Sdn Bhd

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SIRIM QAS International Sdn Bhd

Sony EMCS (Malaysia) Sdn Bhd

Foreword

This technical code for Digital Terrestrial Television (DTT) - Hybrid Broadcast Broadband Television Middleware Profile ('this Technical Code') was developed pursuant to section 185 of the Act 588 by the Malaysian Technical Standards Forum Bhd ('MTSFB') via its Multimedia Broadcast Receiver Sub Working Group under the Broadcast Technology Working Group.

Major modifications in this revision are as follows:

- a) inclusion of Hybrid broadcast broadband Television (HbbTV) default setting; and
- b) addition on language and font requirement.

This Technical Code cancels and replaces the SKMM MTSFB TC G002:2017, *Digital Terrestrial Television (DTT) - Hybrid Broadcast Broadband Television Middleware Profile (First Revision)*.

This Technical Code shall continue to be valid and effective until reviewed or cancelled

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DIGITAL TERRESTRIAL TELEVISION (DTT) - HYBRID BROADCAST BROADBAND TELEVISION MIDDLEWARE PROFILE

1. Introduction

This Technical Code outlines the minimum broadcast middleware requirements for Malaysia. The middleware outlined here is based on Hybrid broadcast broadband Television (HbbTV) consortiums hybrid platform based on open internet standards.

The purpose of this Technical Code is to profile the minimum requirements needed for a compliant receiver for Malaysian digital broadcast.

This Technical Code specifies a compliant receiver requirement for the Malaysian HbbTV.

2. Scope

This Technical Code specifies the requirements for HbbTV profile for any Malaysian digital broadcast including but not limited to terrestrial free to air set top box receivers, integrated digital television or personal video recorders.

3. Normative references

The following normative references are indispensable for the application of this Technical Code. For dated references, only the edition cited applies. For undated references, the latest edition of the normative references (including any amendments) applies.

See Annex A.

4. Abbreviations

For the purposes of this Technical Code, the following abbreviations apply.

CI+	Common Interface Plus
DRM	Digital Rights Management
HbbTV	Hybrid broadcast broadband Television
MPEG-DASH	Moving Pictures Expert Group - Dynamic Adaptive Streaming over HTTP
MS3	Marlin Simple Secure Streaming
OIPF DAE	Open Internet Protocol Television Forum Declarative Application Environment
PVR	Personal Video Recorder
RTSP	Real Time Stream Protocol

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5. Requirement

5.1 General requirement

The receiver shall comply all the mandatory requirements specified in ETSI TS 102 796 V1.2.1 which is equivalent to HbbTV Specification Version 1.5.

5.2 Optional requirement

The following features below which specified in ETSI TS 102 796 V1.2.1 shall be optional for Malaysian profile.

- a) Personal Video Recorder (PVR) extensions;
- b) Common Interface Plus (CI+) extensions;
- c) download extensions; and
- d) Real Time Stream Protocol (RTSP) extensions.

5.3 Extensions

The receiver shall support the features listed in 4.3.1 until 4.3.5 as specified in HbbTV Specification Version 1.5.

4.3.1 Enabled HbbTV setting

The HbbTV functionality shall be enabled by default after factory start-up.

4.3.2 Multi-language support

The receiver should support multi-language as specified in clause 5.3 of the Open IPTV Forum Release 2 - Volume 5a.

The receiver shall support the multi-language features as follows:

- a) custom downloadable fonts function; and
- b) implement the right-to-left and words with joined character such as Arabic / Jawi font.

4.3.3 Adaptive streaming

The receiver shall support Moving Pictures Expert Group Dynamic Adaptive Streaming over HTTP (MPEG-DASH) as specified in ISO/IEC 23009-1.

4.3.4 Media encryption and file format

The receiver shall implement media encryption as specified in ISO/IEC 23001-7 and ISO/IEC 14496-12.

4.3.5 Open IPTV Forum Declarative Application Environment (OIPF DAE) profile

The receiver shall support all items profiles in Annex A of HbbTV Specification Version 1.5.

5.4 Recording

During a recording, the following rules shall be followed:

- a) broadcast application shall not be recorded;
- b) background application (live application) shall be closed and exited before playback is started; and
- c) HbbTV broadband content shall not be recorded.

5.5 Digital Rights Management (DRM)

The receiver shall implement Marlin Simple Secure Streaming (MS3) as specified in Marlin Developer Community and/or at least a minimum version of the following PlayReady:

- a) PlayReady Integration to HbbTV Specification, version 1.0;
- b) PlayReady Binding to MPEG-DASH Specification, version 1.1; and
- c) PlayReady Format Specification, version 2.0.

Any additional requirements set out by the vendor of the Digital Rights Management (DRM) shall be complied.

The DRM protected content shall comply to ISO/IEC 14496-12 and common encryption shall comply to ISO/IEC 23001-7.

Annex A

Normative references

ISO/IEC 14496-12, *Information technology - Coding of audio-visual objects - Part 12: ISO Base Media File Format*

ISO/IEC 23001-7, *Information Technology - MPEG Systems Technologies - Part 7: Common encryption in ISO base media file format files*

ISO/IEC 23009-1, *Information Technology - Dynamic adaptive streaming over HTTP (DASH) - Part 1: Media presentation description and segment formats*

ETSI TS 102 796 V1.2.1 *Hybrid Broadcast Broadband TV*

HbbTV Specification Version 1.5

Marlin Developer Community, Marlin - *Simple Secure Streaming Specification*

PlayReady Binding to MPEG-DASH Specification

PlayReady Format Specification

PlayReady Integration to HbbTV Specification

Open IPTV Forum Release 2 - Volume 5a - *Web Standards TV Profile*

Acknowledgements

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