TECHNICAL CODE

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

Developed by

Malaysian Technical Standards Forum Bhd

Registered by

MCMC

Registered date:

MCMC MTSFB TC GXXX:2019

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 (MBR SWG) under the Broadcast Technology Working Group (BT WG) of Malaysian Technical Standards Forum Bhd (MTSFB) consists of representatives from the following organisations:

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Media Prima Berhad

MYTV Broadcasting Sdn Bhd

Panasonic AVC Networks Kuala Lumpur Malaysia Sdn Bhd

Radio Televisyen Malaysia

Samsung Malaysia Electronics (SME) Sdn Bhd

Sharp (M) Sdn Bhd

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 Terminal Working Group.

Major modifications in this revision are as follows:

a) The inclusion of HbbTV default setting.
b) The addition of language and font requirement for Malaysia.

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

0. 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 states the Malaysian HbbTV requirements for a compliant receiver for the Malaysian digital broadcast market.

1. Scope

This Technical Code specify 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.

2. 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.

3. Abbreviations

DRM	Digital Rights Management
DASH	Dynamic Adaptive Streaming over HTTP
HbbTV	Hybrid broadcast broadband TV
MPEG	Moving Pictures Expert Group

4. Requirement

4.1 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.

4.2 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 (CI) + extensions;

c) download extensions; and

d) Real Time Stream Protocol (RTSP) extensions.

4.3 Extensions

The receiver shall support the features listed in 4.3.1 until 4.3.4 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 5.3 of the Open IPTV Forum Release 2 - Volume 5a - Web Standards TV Profile.

The receiver should support the multi-language features as specified in Clause 5.3 of the Open IPTV Forum Release 2 - Volume 5a - Web Standards TV Profile

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 MPEG DASH as specified in ISO/IEC 23009-1 as profiled in Annex B of HbbTV Specification Version 1.5.

4.3.4 Media encryption and file format

The receiver shall implement media encryption (see ISO/IEC 23001-7) for ISOBMFF (see ISO/IEC 14496-12) with the requirements specified in Annex B of ETSI TS 102 796 V1.2.1.

4.3.5 OIPF DAE profile

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

4.4 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.

4.5 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 DRM shall be complied.

DRM protected content shall use ISO BMFF of ISO/IEC 14496-12 and common encryption as specified in ISO/IEC 23001-7.

Annex A
(normative)

Normative references

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

HbbTV Specification Version 1.5,

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*

ISO/IEC 23009-2, *Information technology - Dynamic adaptive streaming over HTTP (DASH) - Part 2: Conformance and reference software*

ISO/IEC TR 23009-3, *Information technology - Dynamic adaptive streaming over HTTP (DASH) - Part 3: Implementation guidelines*

Marlin Developer Community, Marlin - *Simple Secure Streaming Specification, Version 1.0*

PlayReady Integration to HbbTV Specification, version 1.0

PlayReady Binding to MPEG-DASH Specification, version 1.1

PlayReady Format Specification, version 2.0

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

Acknowledgements

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