TECHNICAL CODE

MIDDLEWARE PROFILE FOR DIGITAL TERRESTRIAL TELEVISION BROADCAST SERVICE

Developed by

Registered by

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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

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Conax AS Asia Pacific
Digital TV Labs Limited
LG Electronics (M) Sdn. Bhd.
ManQana Sdn. Bhd.
Measat Broadcast Network Sdn. Bhd. (ASTRO)
Media Prima Berhad
Panasonic R&D Centre Malaysia Sdn. Bhd.
Radio Television Malaysia (RTM)
Rohde & Schwarz Malaysia Sdn. Bhd.
SIRIM Berhad
Sony EMCS (M) Sdn. Bhd.
Strategy and Technology
Telekom Malaysia Berhad
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FOREWORD

This technical code for the Middleware Profile for Digital Terrestrial Television Broadcast Service (‘this Technical Code’) was developed pursuant to section 185 of the Act 588 by the Malaysian Technical Standard Forum Berhad (‘MTSFB’) via its Multimedia Terminal Working Group.

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

This profile outlines the minimum Broadcast Middleware requirements for Malaysia. The middleware outlined here is based on Hybrid Broadcast Broadband TV (HbbTV) consortiums hybrid platform based on open internet standards.

The purpose of this document is to profile the minimum requirements needed for a compliant receiver for Malaysian Digital Broadcast.

1. Scope

This document outlines the HbbTV profile for any Malaysian Digital Broadcast including and not limited to Terrestrial free to Air Set Top Box receivers, Integrated Digital Television or Personal Video Recorders.

1.1 Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTT</td>
<td>Digital Terrestrial Television</td>
</tr>
<tr>
<td>DVB</td>
<td>Digital Video Broadcast organization</td>
</tr>
<tr>
<td>DVB-CI</td>
<td>DVB-Common Interface</td>
</tr>
<tr>
<td>DVB-T</td>
<td>DVB-Terrestrial</td>
</tr>
<tr>
<td>DVB-T2</td>
<td>DVB-Terrestrial T2</td>
</tr>
<tr>
<td>EPG</td>
<td>Electronic Programme Guide</td>
</tr>
<tr>
<td>EIT</td>
<td>Event Information Table</td>
</tr>
<tr>
<td>FTA</td>
<td>Free to Air</td>
</tr>
<tr>
<td>HDCP</td>
<td>High-Bandwidth Digital Content Protection</td>
</tr>
<tr>
<td>HDMI</td>
<td>High-Definition Multimedia Interface</td>
</tr>
<tr>
<td>HDTV</td>
<td>High Definition Television</td>
</tr>
<tr>
<td>IRD</td>
<td>Integrated Receiver Decoder</td>
</tr>
<tr>
<td>IDTVs</td>
<td>Integrated Digital Televisions</td>
</tr>
<tr>
<td>May</td>
<td>Indicates an event or provision which is permitted, but not mandatory</td>
</tr>
<tr>
<td>MPEG</td>
<td>Moving Pictures Expert Group</td>
</tr>
<tr>
<td>Must</td>
<td>Indicates that a third party must comply to ensure correct operation (present tense) Indicates an existing provision</td>
</tr>
<tr>
<td>OSD</td>
<td>Onscreen Display</td>
</tr>
<tr>
<td>(Opt)</td>
<td>Optional</td>
</tr>
<tr>
<td>(Req)</td>
<td>Requirement</td>
</tr>
<tr>
<td>RF</td>
<td>Radio Frequency</td>
</tr>
<tr>
<td>SD</td>
<td>Standard Definition</td>
</tr>
<tr>
<td>SDTV</td>
<td>Standard Definition Television</td>
</tr>
<tr>
<td>SI</td>
<td>Service Information</td>
</tr>
<tr>
<td>S/PDIF</td>
<td>Sony/Philips Digital Interface</td>
</tr>
</tbody>
</table>
STB Set-Top-Box, which is equivalent to a digital Terrestrial receiver
Shall Indicates a mandatory provision
Should Indicates a desirable, but not mandatory, provision
(TS) Transport Stream: A data structure defined in ISO/IEC 13818-1
UHF Ultra-High Frequency
Will Indicates an assumption about existing states or future events

2. References

[1] ETSI TS 102 796 V1.1.1 (2010-06) Hybrid Broadcast Broadband TV

3. Overview

This document states the Malaysian HbbTV requirements for a compliant receiver for the Malaysian Digital Broadcast market.

4. Requirement

4.1 Baseline Requirement

The receiver shall fully implement all the mandatory requirements outlined in [1] and [2].

4.2 Optional Requirements

The following features outlined in [1] shall be optional for the Malaysian Profile.

1. PVR Extensions
2. CI+ Extensions
3. Download Extensions
4. RTSP Extensions
4.3 Extensions

The receiver shall support the features listed in this section as outlined in [2].

4.3.1 Adaptive Streaming


4.3.2 Media Encryption and File Format


4.3.3 OIPF DAE Profile

The receiver shall support all items profiled in Annex A of [2].

4.4 Recording

The following rules shall be followed when a recording is made.

1. Broadcast application shall not be recorded.
2. Background application (Live Application) shall be closed and exited before playback is started.
3. HbbTV Broadband content shall not be recorded.

4.5 Digital Rights Management

The receiver shall implement Marlin Simple Secure Streaming (MS3) as outlined in [8]. This includes the requirement to comply with the robustness rules set out by the vendor of the DRM.

DRM protected content shall use ISO BMFF [7] and Common Encryption [6].
Acknowledgements

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