



**RSA DTT User Requirement specification**

**for**

**MHEG Programme Guide and Banner applications**

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|--------------|-----------------|
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## Document Control

| Author          | Date            | Version | Changes  |
|-----------------|-----------------|---------|--|
| Aaron Blanchard | 3 August 2012   | 0.1     | Initial  |
| Aaron Blanchard | 14 August 2012  | 0.2     | Internal Suggestions   |
| Aaron Blanchard | 17 August 2012  | 0.3     | Changed Channel List Form<br>Added Time  |
| Rob Sobey       | 20 August 2012  | 0.4     | Feedback   |
| Aaron Blanchard | 21 August 2012  | 0.5     | Channel List Form, removed black background<br>EPG Event Description, removed reference to number of characters displayed<br>Added timeout information for forms, and also channel change banner |
| Rob Sobey       | 12 May 2013     | 0.6     | Add paragraph numbers and change SANS862 reference   |
| Rob Sobey       | 23 May 2013     | 0.7     | Amend various items to closer match product delivered  |
| Rob Sobey       | 23 October 2013 | 1.0     | Amend to support native launch mechanism   |

## References

| Title   | Description                                     |
|---|---|
| ETSI ES 202 184 V2.3.1 (2013-03) MHEG-5 Broadcast Profile | MHEG specification                              |
| <b>UK DTT / T2 documents</b>                              |   |
| DTT Requirement for Interoperability DBook 6.2            | DTG Receiver spec                               |
| DBook6-explained.pdf                                      |   |
| T2L027r2- DTG_Basic_Functional_Tests_DVB-T2.xls           |   |
| Draft D-Book 6.2.1 SI Chapters-xx.pdf                     | DTG D Book 6.2.1                                |
| <b>SA specific documents</b>                              |   |
| MHEG Profile for South Africa Version 2.2                 | SA MHEG Profile                                 |
| SANS862ED2_2012-04-16_DSS_1.pdf                           | Working draft of SANS862 receiver specification |
| DTT User Interface Specification Version 1.0              | SA DTT UI Specification                         |

# 1. Introduction

The STB's that operate on the South African Digital Terrestrial network shall contain two types of software that will provide mandatory software functionality of the STB. The first type of software is the MHEG applications which will be delivered by the FTA broadcasters. The second type of software is the embedded native code implemented by STB manufacturers that supports the STB functionality as well as provides some of the user interface screens. This guideline outlines the basic functional of the MHEG applications that will be broadcast.

These MHEG applications are resident in the STB and are always accessible using the MHEG File System Acceleration. These applications may be updated from time to time at the FTA broadcasters' discretion and therefore the STB manufacturer has no control over these aspects of the STB operation. The minimum set of Launch Application/s and supporting documentation shall be supplied to STB vendors to be incorporated into their STB's prior to manufacture.

The Launch application/s shall include the following key functions and screens:

1. Electronic Programme Guide ("EPG") – which is a full seven day programme guide using EIT based data
2. Now/Next banner – (also known as the channel change banner, or small/large information screens) which provides programme information on the Now channel selected as well as the Next event on that channel
3. Channel List – which provides a list of available channels ( Radio and TV )

This document should be read in conjunction with "SA DTT UI Specification".

## 2. Remote Control

Operation with the remote control for MHEG applications is dependent on which key function group has been registered<sup>1</sup> by the MHEG application.

Additional keys are intercepted by the embedded code and acted upon in accordance with “MHEG-5 Profile for South Africa”. As of Version 2.2 the additional engine events that can be caused by key presses are:

| Name                     | Notes   |
|--------------------------|---|
| InfoKeyFunction          | Info Key press on the remote control          |
| EPGKeyFunction           | EPG Key press on the remote control           |
| InteractivityKeyFunction | Interactivity key press on the remote control |

These engine events are only created when there is an active scene object. This allows the active MHEG application to launch when the keys are pressed.

In the case where there is no active scene object, then an embedded URI is used to access the content stored in the File System Acceleration cache. There are three cases where this may happen:

| Method of access         | URI to be requested   |
|--------------------------|-----------------------|
| Electronic Program Guide | DSM://navigator/epg   |
| Now/Next Banner          | DSM://navigator/info  |
| Channel List             | DSM://navigator/slist |
|                          |                       |

<sup>1</sup> ETSI ES 202 184 V2.2.1 (2011-03) MHEG-5 Broadcast Profile Section 11.6 User Input

## 3. On-screen display requirements

Whilst it is possible to have an MHEG application that can detect if the screen aspect ratio is 16:9 or 4:3, this application has been designed explicitly for a 4:3 screen (as used by the majority of CRT TVs). Using a TV in 16:9 mode (set to full screen) will therefore result in the application display being “stretched”. As in the “SA DTT UI Specification”, the guidelines for design using a safe area shall be adhered to.

Icons will be the following dimensions:

- Square Icons: 30x30
- Rectangular Icons: 47x25

### 3.1 Timing

Assuming the MHEG menu is stored in the accelerated file system, and there is no native display or MHEG application running then the time after a key press to displaying on screen feedback shall be less than 500 milliseconds.

### 3.2 Radio and TV Modes

The STB can be in either Radio or TV mode which is set using the native UI. The following screens will only allow services to be viewed for the mode that is set:

- Channel List
- Now/Next Banner

### 3.3 Screen Timeouts

Unless specified otherwise, after 30 seconds of inactivity, any of the screens defined in this document shall timeout.

## 4. Electronic Program Guide (EPG)

The EPG provides a summary of all of the services for the next week. In addition, the currently selected video service is displayed in the top right quadrant of the screen



### Remote Control Key Usage

| Embedded Code Key Operations |  |
|------------------------------|--|
| Power                        | Places STB into Standby  |
| Mute                         | STB Audio Mute   |
| Vol+                         | STB Audio Volume Up  |
| Vol-                         | STB Audio Volume Down  |
| Menu                         | Exit screen and change menu to "Main Menu"   |
| Exit                         | Exits the screen   |
| All Other                    | No Action  |
| MHEG Key Operations          |  |
| Interactive                  | No Action  |
| EPG                          | Exits the screen   |
| OK                           | Change to the selected service if it is currently being broadcast, otherwise it is in the future so set a reminder |
| Left                         | Move Left on the EPG Grid  |
| Right                        | Move Right on the EPG Grid   |
| Up                           | Move up the EPG Grid   |
| Down                         | Move Down the EPG Grid   |
| Red                          | Move the Grid Left by 24 Hours   |
| Blue                         | Move the Grid Right by 24 Hours  |
| Yellow                       | Move the Grid Down by 5 Services   |
| Green                        | Move the Grid Up by 5 Services   |
| Info                         | Toggle display full extended event information   |



## 4.1 Reminders/Change service

Left/Right/Up/Down navigates around the grid, and if an item is highlighted that is currently being broadcast then “OK View” shall be shown. If the item is in the Future, then “OK Reminder” shall be shown. Pressing OK will either set a reminder for the future or change to the currently highlighted service whilst exiting the EPG.

If the program has a reminder set, an appropriate icon or colouring should be displayed or used with the program name in the grid. An icon should also be displayed in the synopsis area. Only one reminder may be set at any one point in time.

## 4.2 Platform Logo Size

80 x 30 pixels

## 4.3 Event Icons

Should the programme content include any of the following options, a corresponding icon will be displayed:

1. Subtitles Available
2. Audio Description Available
3. Alternative Audio Language Available
4. Interactive Available
5. Dolby Digital Sound
6. High Definition/Standard Definition

## 4.4 Form Speed

To comply with the speed requirements for on screen feedback after a key is pressed, it is acceptable if the section of the EPG grid that is displayed is not populated or fully populated initially. The EPG Grid should appear with the services shown initially and the information updated as it becomes available.

The EPG should be fully populated with 7 days of events as soon as a single, complete datagram has been transmitted (data rate and period determined by broadcast system).

## 4.5 Event Description

The space available is 300 pixels wide by 5 lines high. The first line shall display the programme genre in alternate colour text. If the text cannot fit into the available 4 lines of space, then it shall be truncated and the last 10 characters fade.

## 4.6 Extended Event Information

By pressing Info, the Event Description area shall be extended vertically down the page to the space of 300 pixels wide by 270 pixels high and display the full event description text and Event icons.

## 4.7 Timeout

The EPG shall not timeout. Only by selecting a service, pressing exit or EPG may the user remove this screen.

## 5. Now/Next Banner

This is displayed on Service change, when pressing “Standby” to bring the STB out of standby or when pressing the “info” key on the remote control.



### Remote Control Key Usage

| Embedded Code Key Operations |   |
|------------------------------|---|
| Power                        | Places STB into Standby   |
| Mute                         | STB Audio Mute  |
| Vol+                         | STB Audio Volume Up   |
| Vol-                         | STB Audio Volume Down   |
| EPG                          | Exit screen and change menu to “EPG”  |
| CH+                          | Exit screen and change Service Up   |
| CH-                          | Exit screen and change Service Down   |
| Menu                         | Exit screen and change menu to “Main Menu”  |
| Exit                         | Exits the screen  |
| All Other                    | No Action   |
| MHEG Key Operations          |   |
| Info                         | Change menu to “Large Now/Next Banner”  |
| OK                           | Change to the selected service if it is currently being broadcast, otherwise set a reminder as it is in the future. |
| Right                        | Show program information for next program on same service if available  |
| Left                         | Show program information for current program on same service if available   |
| Up                           | Show program information for Service Up   |
| Down                         | Show program information for Service Down   |

## 5.1 Small Next Banner

This is displayed when the right key is pressed whilst on the Small Now/Next banner.



The small information banner size is 180 pixels high by 580 pixels wide and displays the following information: LCN, Channel Name, Channel Logo, Date, Time, Programme Time, Event Icons, Parental rating, Short event descriptor, Reminder icon

### Remote Control Key Usage

| Embedded Code Key Operations |   |
|------------------------------|---|
| Power                        | Places STB into Standby   |
| Mute                         | Exits the screen and STB Audio Mute   |
| Vol+                         | Exits the screen and STB Audio Volume Up  |
| Vol-                         | Exits the screen and STB Audio Volume Down  |
| EPG                          | Exit screen and change menu to "EPG"  |
| CH+                          | Exit screen and change Service Up   |
| CH-                          | Exit screen and change Service Down   |
| Menu                         | Exit screen and change menu to "Main Menu"  |
| Exit                         | Exits the screen  |
| All Other                    | No Action   |
| MHEG Key Operations          |   |
| Info                         | Change menu to "Large Now/Next Banner"  |
| OK                           | Change to the selected service if it is currently being broadcast, otherwise set a reminder as it is in the future. |
| Right                        | Show program information for next program on same service if available  |
| Left                         | Show program information for previous program on same service if available  |
| Up                           | Show program information for Service Up   |
| Down                         | Show program information for Service Down   |

## 5.2 Large Information Banner

As well as being the large information banner, Now/Next capability is included along with additional programme information.



The large information banner shall display the same information as the small banner except that the extended event information is displayed instead of the short event descriptor.

### Remote Control Key Usage

| Embedded Code Key Operations |   |
|------------------------------|---|
| Power                        | Places STB into Standby   |
| Mute                         | Exits the screen and STB Audio Mute   |
| Vol+                         | Exits the screen and STB Audio Volume Up  |
| Vol-                         | Exits the screen and STB Audio Volume Down  |
| EPG                          | Exit screen and change menu to "EPG"  |
| CH+                          | Exit screen and change Service Up   |
| CH-                          | Exit screen and change Service Down   |
| Menu                         | Exit screen and change menu to "Main Menu"  |
| Exit                         | Exits the screen  |
| All Other                    | No Action   |
| MHEG Key Operations          |   |
| Info                         | Change menu to "Small Now/Next or Next Banner"  |
| OK                           | Change to the selected service if it is currently being broadcast, otherwise set a reminder as it is in the future. |
| Left                         | Show program information for previous program on same service if available  |
| Right                        | Show program information for next program on same service if available  |
| Up                           | Show program information for Service Up   |
| Down                         | Show program information for Service Down   |



### 5.3 Banner Adverts

Adverts may also be included below the Now/Next, Next and Large Information Banners. A CRT TV may crop the bottom of the advert. To avoid this, the advert shall be designed so that any important information is contained within the safe area, anything else may be lost. The actual Banner will also need to be moved upwards to accommodate the extra space required for the advert.

Adverts are to be a height of 92 pixels, with a width to match that of the banner (580 pixels in this example).

### Small Now/Next Banner with Advert



Small Next Banner with Advert



Large Information Banner with Advert



## 5.4 Additional Information (Now/Next Banners)

### 5.4.1 Icons

Depending on the programmes content, the same Event icons as per the EPG shall be shown.

### 5.4.2 Timeouts

A channel banner timeout is defined in the Native UI spec. This timeout shall be used by the MHEG channel banner. This timeout is only applicable after a channel change, and not if the now/next features are being accessed.

## 6. Channel List

Pressing OK when no menus are displayed will open this screen. This will also be entered after either selecting Radio or TV from the Native Main Menu. The channel list shall only list TV and interactive services configured as channels whilst TV mode is set and shall only list Radio services whilst Radio mode is set. The screen shall not timeout and will only be removed by the Exit key.



### *Remote Control Key Usage*

| <b>Embedded Code Key Operations</b> |   |
|-------------------------------------|---|
| Power                               | Places STB into Standby   |
| Mute                                | STB Audio Mute  |
| Vol+                                | STB Audio Volume Up   |
| Vol-                                | STB Audio Volume Down   |
| EPG                                 | No Action   |
| CH+                                 | Exit screen and change Service Up   |
| CH-                                 | Exit screen and change Service Down   |
| Menu                                | Exit screen and change menu to "Main Menu"                                    |
| Exit                                | Exits the screen  |
| All Other                           | No Action   |
| <b>MHEG Key Operations</b>          |   |
| OK                                  | Change to the highlighted service which will then display the Now/Next Banner |
| Up                                  | Move service up, but do not change viewed service                             |
| Down                                | Move service down, but do not change viewed service                           |



## 6.1 Additional Information (Channel List):

The Channel List shall display the logo associated with each service right adjacent to the channel LCN.

**Service Logo Size:**96x36 pixels