Enabler Test Specification for BCAST 1.0

Candidate Version 1.0 – 25 Sep 2007

Open Mobile Alliance

OMA-ETS-BCAST_CON_Client-V1_0-20070925-C

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1. Scope

This document describes test cases for "Mobile Broadcast Services" according to Open Mobile Alliance™, OMA-TS-BCAST_Services-V1_0, http://www.openmobilealliance.org/.

The test cases are split in two categories, conformance and interoperability test cases.

The conformance test cases are aimed to verify the adherence to normative requirements described in the technical specifications.

The interoperability test cases are aimed to verify that implementations of the specifications work satisfactory.

2. References

2.1 Normative References

[BCAST10 –MBMS Adaptation]	"Broadcast Distribution System Adaptation – 3GPP/MBMS", Open Mobile Alliance™, OMA-TS-BCAST_MBMS_Adaptation-V1_0, http://www.openmobilealliance.org/
[BCAST10 – Distribution]	"File and Stream Distribution for Mobile Broadcast Services ", Open Mobile Alliance™, OMA-TS-BCAST_Distribution-V1_0, http://www.openmobilealliance.org/
[BCAST10 –ESG]	"Service Guide for Mobile Broadcast Services", Open Mobile Alliance™, OMA-TS-BCAST_Service_Guide-V1_0-20070529-C.pdf, http://www.openmobilealliance.org
[BCAST10 -Services]	"Mobile Broadcast Services", Open Mobile Alliance™, OMA-TS-BCAST_Services-V1_0, http://www.openmobilealliance.org/
[BCAST10–BCMCS Adaptation]	"Broadcast Distribution System Adaptation – 3GPP2/BCMCS", Open Mobile Alliance™, OMA-TS-BCAST_BCMCS_Adaptation-V1_0, http://www.openmobilealliance.org/
[BCAST10–DVB-H-IPDC–Adaptation]	"Broadcast Distribution System Adaptation – IPDC over DVB-H", Open Mobile Alliance™, OMA-TS-BCAST_DVB_Adaptation-V1_0, http://www.openmobilealliance.org/
[BCAST10-ERELD]	"Enabler Release Definition for Mobile Broadcast Services", Open Mobile Alliance™, OMA-ERELD-BCAST-V1_0, http://www.openmobilealliance.org/
[BCAST10-ETR]	"Enabler Test Requirements for Mobile Broadcast Services" Open Mobile Alliance™, OMA-ETR-BCAST-V1_0, http://www.openmobilealliance.org/
[BCAST10–ServContProt]	"Service and Content Protection for Mobile Broadcast Services", Open Mobile Alliance™, OMA-TS-BCAST_SvcCntProtection-V1_0, http://www.openmobilealliance.org/
[DRM20-Broadcast-Extensions]	"OMA DRM v2.0 Extensions for Broadcast Support", Open Mobile Alliance™, OMA-TS-DRM-XBS-V1_0, http://www.openmobilealliance.org/
[DRM-v2.0]	"DRM Specification V2.0", Open Mobile Alliance™, OMA-DRM-DRM-V2_0, http://www.openmobilealliance.org/
[IOPPROC]	"OMA Interoperability Policy and Process", Version 1.5, Open Mobile Alliance™, OMA-ORG-IOP_Process-V1_5, URL:http://www.openmobilealliance.org/
[OMA DM]	"Enabler Release Definition for OMA Device Management v1.2", OMA-ERELD-DM-V1_2_0
[RFC2119]	"Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997, URL:http://www.ietf.org/rfc/rfc2119.txt

2.2 Informative References

[BCAST10-Architecture]	"Mobile Broadcast Services Architecture", Open Mobile Alliance™, OMA-AD- BCAST-V1_0, http://www.openmobilealliance.org/
[OMADICT]	"Dictionary for OMA Specifications", Open Mobile Alliance™,. OMA-Dictionary, URL:http://www.openmobilealliance.org/

3. Terminology and Conventions

3.1 Conventions

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

All sections and appendixes, except “Scope”, are normative, unless they are explicitly indicated to be informative.

The following numbering scheme is used:

xxx-y.z-con-number where:

xxx	Name of enabler, e.g. MMS or Browsing
y.z	Version of enabler release, e.g. 1.2 or 1.2.1
’con’	Indicating this test is a conformance test case
number	Leap number for the test case

and

xxx-y.z-int-number where:

xxx	Name of enabler, e.g. MMS or Browsing
y.z	Version of enabler release, e.g. 1.2 or 1.2.1
’int’	Indicating this test is a interoperability test case
number	Leap number for the test case

3.2 Definitions

Broadcast Roaming Broadcast Roaming is the ability of a user to receive broadcast services from a Mobile Broadcast Service Provider different from the Home Mobile Broadcast Service Provider with which the user has a contractual relationship.

Broadcast Service A Broadcast Service is a “content package” suitable for simultaneous distribution to many recipients (potentially) without knowing the recipient. Either each receiver has similar receiving devices or the content package includes information, which allows the client to process the content according to his current conditions.

Examples of Broadcast Services are:

- pure Broadcast Services:
  - mobile TV
  - mobile newspaper
  - mobile file downloading (clips, games, SW upgrades, other applications, applications)
- combined broadcast/interactive Broadcast Services
  - mobile TV for filedownloading with voting
  - betting Broadcast Services
  - auction Broadcast Services
  - trading Broadcast Services

Broadcast Service Area The geographical or logical area in which a Broadcast Service is distributed.

Purchase Item A purchase item groups one or multiple services or pieces of content that an end-user can purchase or subscribe to as a whole. [BCAST10-ESG].

Rights Issuer An entity that issues Rights Objects to OMA DRM Conformant Devices. [DRMDRM-v2.0]

Rights Object	A collection of Permissions, Constraints, and other attributes which define under what circumstances access is granted to, and what usages are defined for, DRM Content. All OMA DRM Conformant Devices must adhere to the Rights Object associated with DRM Content. [DRMDRM-v2.0]
Test-Fest	Multi-lateral interoperability testing event
User ID	A unique ID that can be used to identify the user in both the Home Service Provider and Visited Service Provider BCAST service area. An example is the 3GPP/3GPP2 IMSI (International Mobile Subscriber Identity) as specified in 3GPP TS 23.003 and 3GPP2 C.S0005 (for the case the Broadcast Service Provider is a cellular mobile operator).

3.3 Abbreviations

ATSC	Advanced Television Systems Committee
BCMCS	Broadcast/Multicast Services
BDS	Broadcast Distribution System
BDS-SD	BDS Service Distribution
BSA	BCAST Service Application
BSD/A	BCAST Service Distribution and Adaptation
BSI-C	BCAST Service Interaction - Client Component
BSI-G	BCAST Service Interaction - Generic Component
BSM	BCAST Subscription Management
BSP	Broadcast Service Provisioning
BSP-C	BCAST Service Provisioning - Client Component
BSP-M	BCAST Service Provisioning - Management Component
CC	Content Creation
Cell ID	Mobile network cell identification
CID	Content Identification
CODEC	Compressor/Decompressor
CP	Content Protection
DRM RO	Digital Rights Management Rights Object
DT	Date Time
DVB-H	Digital Video Broadcasting – Handhelds
DVB-T	Digital Video Broadcasting – Terrestrial
FA	File Application Component
FD	File Delivery Component
FD-C	File Delivery - Client Component
FLUTE	File Delivery over Unidirectional Transport
IMS	IP Multimedia Subsystem
IN	Interaction Network

IP	Internet Protocol
IPSec	IP Security
ISMACryp	ISMA Encryption and Authentication specification
MBMS	Multimedia Broadcast/Multicast Service
MMS	Multi-media Messaging
MPEG2-TS	Motion Pictures Expert Group 2 – Transport Stream
MPEG-4	Motion Pictures Expert Group 4
MSISDN	Mobile Subscriber ISDN number
NT	Notification Function
NTC	Notification Client Component
NTDA	Notification Distribution
NTE	Notification Event Component
NTG	Notification Generation Component
OCSP	Online Certificate Status Protocol
OMA	Open Mobile Alliance
OMA BCAST	OMA Digital Mobile Broadcast enabler
OMA DM	OMA Device Management enabler
OMA DRM	OMA Digital Rights Management enabler
OMA LOC	OMA Location enabler
PEAK	Program Encryption/Authentication Key
RI	Rights Issuer
RO	Rights Object
ROAP	Rights Object Acquisition Protocol
RTCP	RTP Control Protocol
RTP	Real-time Transport Protocol
SA	Stream Application Component
SD	Stream Delivery Component
SD-C	Stream Delivery Client Component
SDP	Session Description Protocol
SEAK	Subscription Encryption/Authentication Key
SG	Service Guide
SGA	Service Guide Adaptation
SGAS	Service Guide Application Source
SG-C	Service Guide Client Component

SGCCS	Service Guide Content Creation Source
SGD	Service Guide Distribution
SG-G	Service Guide Generation
SG-G/D/A	The entity of Service Guide Generation, Distribution and Adaptation components
SGSS	Service Guide Subscription Source
SI	Service Interaction
SMS	Short Message Service
SP	Service Protection
SRTP	Secure Real-time Transport Protocol
TP-C	Terminal Provisioning Client component
TP-M	Terminal Provisioning Management component
UDP	User Datagram Protocol
URI	Universal Resource Identified
VLR	Visitor Location Register
XML	Extensible Markup Language

4. Introduction

The purpose of this document is to provide client conformance test cases for "Mobile Broadcast Services version 1.0".

BCAST is a complex enabler which requires tests for conformance and interoperability in a client/server scenario with different access networks.

Some features in the BCAST enabler may optionally be implemented in mobile devices. The tests associated with these optional features are marked as [Optional] in the test specification.

Terminals that support ESG delivery using both Broadcast and Interaction Channel are required to run all applicable test cases using both ESG delivery methods.

5. BCAST Conformance Test Cases

5.1 Client Conformance Test Cases

5.1.1 Service Provisioning

5.1.1.1 Service guide discovery via broadcast channel

Test Case Id	BCAST-1.0-PROV-conf-101
Test Object	BCAST Terminal
Test Case Description	with a terminal broadcast bearer established and configured to use the fixed service guide entry point when the terminal receives a service guide announcement referring to a service guide containing one service, content, access, and schedule fragment then the terminal presents the service and content name to the user.
Specification Reference	[BCAST10 –ESG] Section 5.1.2.1, 5.1.2.2, 5.1.2.3, 5.1.2.4, 5.4.2.1, 6.1.1
SCR Reference	**Primary:** BCAST-SG-C-010 (M), BCAST-SG-C-011 (M) **Secondary:** BCAST-SG-C-002 (M), BCAST-SG-C-004 (O), BCAST-SG-C-008 (M) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	
Preconditions	Service guide cache of terminal.is erased. Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test case uses the following SG fragment instantiations found in the Appendix: • Service fragment with Name=”TvChannel” • Content fragment for service fragment with Name=”Programme1” , and StartTime and EndTime elements indicating values after the time of test • Schedule fragment for content fragment with same values for startTime and endTime in the presentationWindow element • Access fragment for schedule fragment Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery.
Test Procedure	• Set up the test tool to produce BCAST service guide announcement and delivery using broadcast channel. • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG on the terminal

Pass-Criteria	The following should be visible to the terminal user • There is a service “TvChannel” associated with program “Programme1” as well as start and end time values (There is a “TvChannel” that contains “Programme1” scheduled from startTime to endTime)

5.1.1.2 Service guide discovery via interaction channel (optional)

Test Case Id	BCAST-1.0-PROV-conf-102
Test Object	BCAST Terminal
Test Case Description	with a terminal interaction bearer established and configured to use a fixed service guide entry point when the terminal requests and receives a service guide announcement referring to a service guide containing one service, content, access, and schedule fragment then the terminal presents the service and content name to the user.
Specification Reference	[BCAST10 –ESG] Section 5.1.2.1, 5.1.2.2, 5.1.2.3, 5.1.2.4,, 5.4.3, 6.1.2, 6.2
SCR Reference	**Primary**: BCAST-SG-C-010 (M), BCAST-SG-C-012 (O) **Secondary:** BCAST-SG-C-002 (M), BCAST-SG-C-004 (O), BCAST-SG-C-008 (M) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	
Preconditions	Erase service guide cache of terminal. Configure terminal to listen to BCAST service guide announcements and delivery on the interaction channel Configure access point information for service guide entry point in test tool This test case uses the following SG fragment instantiations found in the Appendix: • Service fragment with Name=”TvChannel” • Content fragment with Name=”Programme1” , and StartTime and EndTime elements indicating values after the time of test • Schedule fragment for content fragment with same values for startTime and endTime in the presentationWindow element • Access fragment for schedule fragment Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery.
Test Procedure	• Set up the test tool to produce BCAST service guide announcement and delivery using interaction channel. • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide (optional). • Browse the SG on the terminal.
Pass-Criteria	The following should be visible to the terminal user • There is a service “TvChannel” associated with a program “Programme1” as well as start and end time values (There is a “TvChannel” that contains “Programme1” scheduled from startTime to endTime)

5.1.2 Service Guide

5.1.2.1 Service Guide update via broadcast channel (same fragment id, higher version number)

Test Case Id	BCAST-1.0-ESG-conf-101
Test Object	BCAST Terminal
Test Case Description	with a terminal having received a Service Guide and listening to the broadcast Service Guide Delivery Channel. when the terminal receives Service Guide update containing a content fragment with same id and higher version then the terminal presents the information of the updated Service Guide
Specification Reference	[BCAST10 –ESG] Section 5.4.2.1.2, 5.5 3rd bullet item
SCR Reference	**Primary:** BCAST-SG-C-013 (M) **Secondary:** BCAST-SG-C-002 (M), BCAST-SG-C-010 (M), BCAST-SG-C-011 (M) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	
Preconditions	Service guide cache of terminal is erased Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test case uses the following SG fragment instantiations found in the Appendix: Initial service guide: • Service fragment with Name=”TvChannel” • Content fragment with version = “1” and Name = “Programme1” , and StartTime and EndTime elements indicating values after the time of test • Schedule fragment for “Programme1” content fragment with same values for startTime and endTime in the presentationWindow element • Access fragment “Programme1” schedule fragment Updated service guide: • Service fragment with Name=”TvChannel” • Content fragment with version = “2” and Name = “Programme1-version2” , and StartTime and EndTime elements indicating values after the time of test • Schedule fragment for “Programme1-version2” content fragment with same values for startTime and endTime in the presentationWindow element • Access fragment for “Programme1-version2” schedule fragment Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery.

Test Procedure	• Set up the test tool to produce initial BCAST service guide announcement and delivery using broadcast channel. • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG on the terminal • Set up the test tool to produce updated BCAST service guide announcement and delivery using broadcast channel. • Request from BCAST application on terminal to update the service guide (optional). • Browse the SG on the terminal
Pass-Criteria	The following should be visible to the end user after the initial delivery of the SG • There is a service "TvChannel" associated with a program "Programme1" as well as start and end time values (There is a "TvChannel" that contains "Programme1" scheduled from startTime to endTime) The following should be visible to the end user after the delivery of the update of the SG • There is a service "TvChannel" associated with a program "Programme1-version2" as well as start and end time values (There is a "TvChannel" that contains "Programme1-version2" scheduled from startTime to endTime)

5.1.2.2 Service Guide update via broadcast channel (same fragment id, lower version number)

Test Case Id	BCAST-1.0-ESG-conf-101
Test Object	BCAST Terminal
Test Case Description	with a terminal having received a Service Guide and listening to the broadcast Service Guide Delivery Channel. when the terminal receives Service Guide update containing a content fragment with same id and lower version then the terminal does not present the information of the updated Service Guide
Specification Reference	[BCAST10 –ESG] Section 5.4.2.1.2, 5.5 4th bullet item
SCR Reference	**Primary:** BCAST-SG-C-013 (M) **Secondary:** BCAST-SG-C-002 (M), BCAST-SG-C-010 (M), BCAST-SG-C-011 (M) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	
Preconditions	Service guide cache of terminal is erased Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test case uses the following SG fragment instantiations found in the Appendix: Initial service guide: • Service fragment with Name=”TvChannel” • Content fragment with version = “2” and Name = “Programme1-version2” , and StartTime and EndTime elements indicating values after the time of test • Schedule fragment for “Programme1-version2” content fragment with same values for startTime and endTime in the presentationWindow element • Access fragment for “Programme1-version2” schedule fragment Updated service guide: • Service fragment with Name=”TvChannel” • Content fragment with version = “1” and Name = “Programme1” , and StartTime and EndTime elements indicating values after the time of test • Schedule fragment for “Programme1” content fragment with same values for startTime and endTime in the presentationWindow element • Access fragment for “Programme1” schedule fragment Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery

Test Procedure	• Set up the test tool to produce initial BCAST service guide announcement and delivery using broadcast channel. • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG on the terminal • Set up the test tool to produce updated BCAST service guide announcement and delivery using broadcast channel. • Request from BCAST application on terminal to update the service guide (optional). • Browse the SG on the terminal
Pass-Criteria	The following should be visible to the end user after the initial delivery of the SG • There is a service called “TvChannel” associated with program “Programme1-version2” as well as start and end time values (There is a “TvChannel” that contains “Programme1-version2” scheduled from startTime to endTime) The following should be visible to the end user after the delivery of the updated SG • There is a service called “TvChannel associated with program “Programme1-version2” as well as start and end time values (There is a “TvChannel” that contains “Programme1-version2” scheduled from startTime to endTime)).

5.1.2.3 Service Guide Update with additional fragments via broadcast channel

Test Case Id	BCAST-1.0-ESG-conf-102
Test Object	BCAST Terminal
Test Case Description	with a terminal having received a Service Guide and listening to the broadcast Service Guide Delivery Channel. when the terminal receives an updated Service Guide containing an additional content fragment then the terminal presents the information of the updated Service Guide
Specification Reference	[BCAST10 –ESG] Section 5.4.2.1.1, 5.5 1st bullet item
SCR Reference	**Primary:** BCAST-SG-C-013 (M) **Secondary:** BCAST-SG-C-002 (M), BCAST-SG-C-004 (O), BCAST-SG-C-010 (M), BCAST-SG-C-011 (M) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	

Preconditions	Service guide cache of terminal is erased Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test case uses the following SG fragment instantiations found in the Appendix: Initial service guide: • Service fragment with Name=”TvChannel” • Content fragment with Name=”Programme1” , and StartTime and EndTime elements indicating values after the time of test • Schedule fragment for content fragment with same values for startTime and endTime in the presentationWindow element • Access fragment for schedule fragment with BroadcastServiceDelivery element and reference to “Programme1” session description fragment • Session description fragment for “Programme1” Updated service guide: • Service fragment with Name=”TvChannel” • Content fragment with Name=”Programme1” , and StartTime and EndTime elements indicating values after the time of test • Schedule fragment for “Programme1” content fragment with same values for startTime and endTime in the presentationWindow element • Access fragment for "Programme1” schedule fragment with BroadcastServiceDelivery element and a reference to “Programme1” session description fragment • Session description fragment for "Programme1” • Content fragment with Name=”Programme2” , and different StartTime and EndTime elements indicating values after the time of test • Schedule fragment for “Programme2” content fragment with same different values for startTime and endTime in the presentationWindow element • Access fragment for "Programme2” schedule fragment with BroadcastServiceDelivery element and reference to “Programme2” session description fragment • Session description fragment for "Programme2” Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery.

Test Procedure	• Set up the test tool to produce initial BCAST service guide announcement and delivery using broadcast channel. • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG on the terminal • Set up the test tool to produce updated BCAST service guide announcement and delivery using broadcast channel. • Request from BCAST application on terminal to update the service guide (optional) • Browse the SG on the terminal
Pass-Criteria	The following should be visible to the end user after the initial delivery of the SG • There is a service "TvChannel" associated with a program "Programme1" as well as start and end time values (There is a "TvChannel" that contains "Programme1" scheduled from startTime to endTime) The following should be visible to the end user after the delivery of the updated SG • There is a service "TvChannel" associated with programs "Programme1" and "Programme1" as well as different start and end time values (There is a "TvChannel" that contains "Programme1" and "Programme2" scheduled from different startTime to endTimes)

5.1.2.4 GZIP compression of Service Guide Delivery Unit on broadcast channel

Test Case Id	BCAST-1.0-ESG-conf-103
Test Object	BCAST Terminal
Test Case Description	with a terminal listening to the broadcast Service Guide Delivery Channel. when the terminal receives a GZIP compressed Service Guide then the terminal presents the information of the Service Guide
Specification Reference	[BCAST10 –ESG] Section 5.4.1.4.
SCR Reference	**Primary:** BCAST-SG-C-009 (M) **Secondary:** BCAST-SG-C-002 (M), BCAST-SG-C-004 (O), BCAST-SG-C-010 (M), BCAST-SG-C-011 (M) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	
Preconditions	Service guide cache of terminal is erased Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test cases uses the following SG fragment instantiations found in the Appendix: • Service fragment with Name=”TvChannel” • Content fragment with Name=”Programme1” • Schedule fragment for content fragment • Access fragment for schedule fragment All fragments are packaged in one SGDU, which is GZIP compressed. Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery.
Test Procedure	• Set up the test tool to produce BCAST service guide announcement and delivery using broadcast channel. • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG on the terminal
Pass-Criteria	The following should be visible to the end user • There is a service “TvChannel” associated with programme “Programme1” (There is a “TvChannel” that contains “Programme1”)

5.1.2.5 Service provisioning with Content hierarchy

Test Case Id	BCAST-1.0-ESG-conf-104
Test Object	BCAST Terminal
Test Case Description	with a terminal listening to the Service Guide Delivery Channel and for a data stream on the broadcast channel when the terminal receives an Service Guide containing service fragments with two content fragments that follow each other in time then the terminal presents the information of the Service Guide and is able to receive the data stream correctly
Specification Reference	[BCAST10 –ESG] Section 5.1.2.1, 5.1.2.2, 5.1.2.3, 5.1.2.4, 5.1.2.5.1, 5.4.2.1, 6.1.1
SCR Reference	**Primary:** BCAST-SG-C-002 (M) **Secondary:** BCAST-SG-C-004 (O), BCAST-SG-C-010 (M), BCAST-SG-C-011 (M) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	

Preconditions	Service guide cache of terminal.is erased. Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test case uses the following SG fragment instantiations found in the Appendix: • Service fragment with Name=”TvChannel” • Content fragment for service fragment with Name=”Programme1” with StartTime and EndTime elements indicating values within test execution time that result in a play time of five minutes • Schedule fragment for content fragment ”Programme1” with same values for startTime and endTime in the presentationWindow element • Access fragment for "Programme1” schedule fragment with BroadcastServiceDelivery element and a reference to “Programme1” session description fragment • Session description fragment for "Programme1” • Content fragment for service fragment with Name=”Programme2” with StartTime and EndTime elements indicating values within test execution time but after the ones of “Programme1” • Schedule fragment for content fragment ”Programme2” with same values for startTime and endTime in the presentationWindow element • Access fragment for "Programme2” schedule fragment with BroadcastServiceDelivery element and a reference to “Programme2” session description fragment • Session description fragment for "Programme2” Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery.
Test Procedure	• Set up the test tool to produce initial BCAST service guide announcement and delivery using broadcast channel. • Setup the test tool to stream audio and video for “Programme1” and “Programme2” via the broadcast channel • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG on the terminal • Access “TvChannel” on terminal
Pass-Criteria	The following should be visible to the end user after the delivery of the SG • There is a service “TvChannel” associated with a program “Programme1” followed five minutes later by a program “Programme2” (There is a “TvChannel” that contains “Programme1” scheduled five minutes prior to “Progamme2”) • Terminal shows “Programme1” for five minutes which is followed by “Programme2”

5.1.2.6 Service guide with Preview Data via broadcast channel

Test Case Id	BCAST-1.0-ESG-conf-105
Test Object	BCAST Terminal
Test Case Description	with a terminal listening to the broadcast Service Guide Delivery Channel. when the terminal receives a Service Guide containing a service and preview data fragments indicating a picture reference and alternative text then the terminal presents the service and the picture or the alternative text
Specification Reference	[BCAST10 –ESG] Section 5.1.2.9
SCR Reference	**Primary:** BCAST-SG-C-005 (M) **Secondary:** BCAST-SG-C-002 (M), BCAST-SG-C-004 (O), BCAST-SG-C-010 (M), BCAST-SG-C-011 (M) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	
Preconditions	Service guide cache of terminal is erased Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test cases uses the following SG fragment instantiations and files found in the Appendix: • Service fragment with Name=”TvChannel” • PreviewData fragment for service fragment with PictureUri and AlternativeText element set to ”TV Channel icon” • Access fragment for previewData fragment with reference to session description fragment • Session description fragment with parameters for broadcast file delivery session Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery. • Image file “TvChannelIcon.jpg”
Test Procedure	• Set up the test tool to produce BCAST service guide announcement and delivery using broadcast channel. • Setup the test tool to deliver the image file "TvChannelIcon.jpg" using a file delivery session as described by SDP. • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG on the terminal

Pass-Criteria	• Terminal associates and displays either the icon “TvChannelIcon.jpg”.or alternative text “TV Channel icon“ with the service “TvChannel”

5.1.2.7 Service Guide with dual audio streams via broadcast channel

Test Case Id	BCAST-1.0-ESG-conf-106
Test Object	BCAST Terminal
Test Case Description	with a terminal listening to the broadcast Service Guide Delivery Channel. when the terminal receives Service Guide containing one content fragment associated with two access fragments pointing to different audio streams then the terminal presents the information of the Service Guide and is capable of associating the content with both access fragments.
Specification Reference	[BCAST10 –ESG] Section 5.5.1, 6.1.1, 7.2.1 Appendix C.3 (informative)
SCR Reference	**Primary:** N/A **Secondary:** BCAST-SG-C-002 (M), BCAST-SG-C-004 (O), BCAST-SG-C-010 (M), BCAST-SG-C-011 (M) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	
Preconditions	Service guide cache of terminal is erased Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test cases uses the following SG fragment instantiations and files found in the Appendix: • Service fragment with Name=”TvChannel” • Content fragment with Name=”Programme” • Schedule fragment for content fragment • Access fragment for schedule fragment with BroadcastServiceDelivery element and a reference to the ”Programme_eng” session description fragment • Session Description fragment containing SDP for “Programme_eng” (audio language is English) • Second schedule fragment for content fragment • Access fragment for second schedule fragment with BroadcastServiceDelivery element and a reference to the "Programme_ger” session description fragment • Session Description fragment containing SDP for “Programme_ger” (audio language is German) • Terminal provides means for the user in selecting the audio language. Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery

Test Procedure	• Set up the test tool to produce BCAST service guide announcement and delivery using broadcast channel. • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG in the terminal • Setup the test tool to stream video, English audio, and German audio via the broadcast channel as defined by the SDP fragments • Select English as the audio language for "Programme" • Start viewing "Programme" • Select German as the audio language for "Programme" • Continue viewing "Programme"
Pass-Criteria	The following should be visible and audible to the end user after the delivery of the SG • There is a service "TvChannel" associated with a programme "Programme". • "Programme" can be viewed by the end user with English as the audio language. • "Programme" can be viewed by the end user with German as the audio language.

5.1.2.8 Service guide with purchase information

Test Case Id	BCAST-1.0-ESG-conf-107
Test Object	BCAST Terminal
Test Case Description	with a terminal listening to the broadcast Service Guide Delivery Channel. when the terminal receives Service Guide containing purchase item, purchase channel and purchase data fragments then the terminal presents the information of the Service Guide
Specification Reference	[BCAST10 –ESG] Section 5.1.2.6, 5.1.2.7, 5.1.2.8, 5.5.1, 6.1.1 [BCAST10–Services]
SCR Reference	**Primary:** N/A **Secondary:** BCAST-SG-C-002 (M), BCAST-SG-C-004 (O), BCAST-SG-C-010 (M), BCAST-SG-C-011 (M) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	
Preconditions	Service guide cache of terminal is erased Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test cases uses the following SG fragment instantiations found in the Appendix: • Service fragment with Name=”PayTvChannel” • Content fragment with Name=”Programme”, and StartTime and EndTime elements indicating values after the time of test • Schedule fragment for content fragment with same values for startTime and endTime in the presentationWindow element • Access fragment for schedule fragement with BroadcastServiceDelivery, KeyManagement, and EncryptionType elements and a reference to the session description fragment • Session Description fragment containing SDP for "Programme” • PurchaseItem fragment for service fragment • PurchaseData fragment for purchaseItem fragment with PriceInfo and Description “Discount” elements • PurchaseChannel fragment for purchaseItem fragment with PurchaseURL pointing to a subscription site Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery.

Test Procedure	• Set up the test tool to produce BCAST service guide announcement and delivery using broadcast channel. • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG in the terminal
Pass-Criteria	The following should be visible on terminal to the end user after the delivery of the SG • The service "PayTvChannel" is displayed with "Programme" schedule from start to end time, available as "Discount" purchase, and price information

5.1.3 File and Stream Distribution

5.1.3.1 File Distribution over Broadcast channel

5.1.3.1.1 Support of ALC protocol and delivery of meta-data in the Service Guide

Test Case Id	BCAST-1.0-DIST-conf-101
Test Object	BCAST Client
Test Case Description	To test if the terminal supports correctly ALC and the interpretation of the file description information on the Service Guide
Specification Reference	[BCAST10-Distribution] Section 5.2
SCR Reference	**Primary:** BCAST-FD-C-001 (M) **Secondary:** BCAST-FD-C-002 (M), BCAST-FD-C-003 (M), BCAST-FD-C-005 (M), BCAST-FD-C-008 (M), BCAST-FD-C-011(M), BCAST-FD-C-012 (M), BCAST-FD-C-013(O).
Tool	BCAST conformance test tool
Test code	
Preconditions	Set up the Service Guide delivery to use • Broadcast channel or • Interactive channel The file 1 is available on the broadcast channel This test cases uses the following SG fragment instantiations found in the Appendix: Service fragment with id="service/file" Content fragment with id="content/file1" Access fragment with id="access/file1" Note: All the fragments are associated with the same Service fragment. The Access fragment describes the file delivery session, to be done through the broadcast channel File is GZIP encoded

Test Procedure	• Update the SG in the terminal using the test tool as the source • Browse the SG in the terminal and select the file 1 to download • Wait for the file download Note: file1 can be a jpg picture
Pass-Criteria	The following things should be visible to the end user • There is a service “FILE1” that contains a file “File1” • The file is successfully downloaded to the terminal Note: To verify the file was correctly downloaded the picture should be correctly displayed

5.1.3.1.2 Support of in-band delivery of meta-data and FLUTE (optional)

Test Case Id	BCAST-1.0-DIST-conf-102
Test Object	BCAST Client
Test Case Description	with a terminal having received Service Guide information related to a file ready for download via broadcast channel using FLUTE. when the terminal downloads file via broadcast channel then the terminal receives file and is able to display it
Specification Reference	[BCAST10-Distribution] Section 5.2.6, 5.1.2.5.3.1
SCR Reference	**Primary:** BCAST-FD-C-010 (M) **Secondary:** BCAST-FD-C-001 (M), BCAST-FD-C-002 (M), BCAST-FD-C-003 (M), BCAST-FD-C-005 (M), BCAST-FD-C-008 (M), BCAST-FD-C-012 (M) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	
Preconditions	Set up the test tool for Service Guide delivery to provide file delivery information for "File2". "File2" is available on the broadcast channel. This test cases uses the following SG fragment instantiations found in the Appendix: Service fragment with Name=”FILE” Content fragment with Name=”File2” Schedule fragment Access fragment with BroadcastServiceDelivery element containing SessionDescription for a FLUTE session indicating FEC encoding 0 (Compact No-Code FEC) and not containing FileDescription. Note: All the fragments are associated with the same Service fragment. IPv4 is used File is GZIP encoded
Test Procedure	• Setup the test tool to distribute file “File2” via the broadcast channel • Set up the terminal to receive BCAST service guide announcements • Browse the SG in the terminal and select the "File2" to download • Wait for the file download Note: "File2" can be a jpg picture

Pass-Criteria	The following should be visible to the end user • There is a service "FILE" associated with file "File2" • The file is successfully downloaded to the terminal. Note: To verify the file was correctly downloaded the picture should be correctly displayed.

5.1.3.2 Support the delivery using HTTP over the Interaction Channel

Test Case Id	BCAST-1.0-DIST-conf-103
Test Object	BCAST Client
Test Case Description	To test if the terminal supports correctly the delivery of a file using http over the interaction channel
Specification Reference	[BCAST10-Distribution] Section 5.2
SCR Reference	**Primary:** BCAST-FD-C-019 (O) **Secondary:** BCAST-FD-C-016 (O), BCAST-FD-C-017 (O), BCAST-FD-C-020 (O), BCAST-FD-C-021 (O), BCAST-FD-C-022 (O)
Tool	BCAST conformance test tool
Test code	
Preconditions	Set up the Service Guide delivery to use • Broadcast channel or • Interactive channel This test cases uses the following SG fragment instantiations found in the Appendix: Service fragment with id="service/file3" Content fragment with id="content/file3" Schedule fragment with id="schedule/file3" Access fragment with id="access/file3" Note: All the fragments are associated with the same Service fragment. The access fragment refers a valid URI and correctly states that the transport type is http File is GZIP encoded
Test Procedure	• Update the SG in the terminal using the test tool as the source • Browse the SG in the terminal and select the file 3 to download • Wait for the file download Note: file3 can be a jpg picture
Pass-Criteria	The following things should be visible to the end user • There is a service "FILE3" that contains a file "File3" • The file is successfully downloaded to the terminal Note: To verify the file was correctly downloaded the picture should be correctly displayed

5.1.3.3 Support of FEC RAPTOR

Test Case Id	BCAST-1.0-DIST-conf-104
Test Object	BCAST Client
Test Case Description	The purpose of this test is to check that the terminal is able to handle the FEC encoding ID 1 scheme
Specification Reference	[BCAST10-Distribution] - Section 5.2.2
SCR Reference	**Primary:** BCAST-FD-C-009 (O) **Secondary:** BCAST-FD-C-001 (M), BCAST-FD-C-002 (M), BCAST-FD-C-003 (M), BCAST-FD-C-005 (M), BCAST-FD-C-007 (M), BCAST-FD-C-010 (M), BCAST-FD-C-012 (M).
Tool	BCAST conformance test tool
Test code	
Preconditions	Set up the Service Guide delivery to use • Broadcast channel or • Interactive channel This test cases uses the following SG fragment instantiations found in the Appendix: Service fragment with id=”service/file4” Content fragment with id=”content/file4” Schedule fragment with id=”schedule/file4” Access fragment with id=”access/file4” Note: All the fragments are associated with the same Service fragment. The access fragment refers a valid Flute Session Descriptor File is GZIP encoded The Forward Correction Error used is the FEC RAPTOR scheme
Test Procedure	• Update the SG in the terminal using the test tool as the source • Browse the SG in the terminal and select the file4 to download • Wait for the file download Note: file 4 can be a jpg picture
Pass-Criteria	The following things should be visible to the end user • There is a service “FILE4” that contains a file “File4” • The file is successfully downloaded to the terminal Note: To verify the file was correctly downloaded the picture should be correctly displayed

5.1.3.4 File Versioning handling

Test Case Id	BCAST-1.0-DIST-conf-105
Test Object	BCAST Client
Test Case Description	The purpose of this test is to check that the terminal correctly takes in account the FDT Instance ID and the Content Fragment version number

Specification Reference	[BCAST10-Distribution] - Section 5.2.4
SCR Reference	**Primary:** N/A **Secondary:** BCAST-FD-C-001 (M), BCAST-FD-C-002 (M), BCAST-FD-C-003 (M), BCAST-FD-C-005 (M), BCAST-FD-C-010 (M)
Tool	BCAST conformance test tool
Test code	
Preconditions	Set up the Service Guide delivery to use • Broadcast channel or • Interactive channel This test cases uses the following SG fragment instantiations found in the Appendix: Service fragment with id=”service/file2” Content fragment with id=”content/file2” Schedule fragment with id=”schedule/file2” Access fragment with id=”access/file2” Note: All the fragments are associated with the same Service fragment. The access fragment refers a valid Flute File Descriptor There is available another valid Flute File Descriptor with an higher version
Test Procedure	• Update the SG in the terminal using the test tool as the source • Browse the SG in the terminal and select the file 2 to download • The file is downloaded • The user browse again the SG and selects again the file and the file descriptor in the mean time is replaced with the one with the higher version • The file is again downloaded Note: file 2 can be a jpg picture
Pass-Criteria	The following things should be visible to the end user • There is a service “FILE2” that contains a file “File2” • The file is successfully downloaded to the terminal • The file is successfully downloaded for the second time Note: To confirm the download of the second version can be used another file completely different from the fist one. To verify the file was correctly downloaded the picture should be correctly displayed

5.1.3.5 Support of the post-delivery repair of files

Test Case Id	BCAST-1.0-DIST-conf-106
Test Object	BCAST Client
Test Case Description	The purpose of this test is to check that the terminal correctly performs a file repair
Specification Reference	[BCAST10-Distribution] - Section 5.3.3

SCR Reference	**Primary:** BCAST-FD-C-014 (O) **Secondary:** BCAST-FD-C-001 (M), BCAST-FD-C-002 (M), BCAST-FD-C-003 (M), BCAST-FD-C-005 (M), BCAST-FD-C-010, BCAST-FD-C-015 (O), BCAST-FD-C-025 (O)
Tool	BCAST conformance test tool
Test code	
Preconditions	Set up the Service Guide delivery to use • Broadcast channel or • Interactive channel This test cases uses the following SG fragment instantiations found in the Appendix: Service fragment with id=”service/file2” Content fragment with id=”content/file2” Schedule fragment with id=”schedule/file2” Access fragment with id=”access/file2” Note: All the fragments are associated with the same Service fragment. The access fragment refers a valid Flute File Descriptor and a valid Associated Delivery Procedure with the relevant file repair information A repair server is available
Test Procedure	• Update the SG in the terminal using the test tool as the source • Browse the SG in the terminal and select the file 2 to download • The file is downloaded but some file fragments are not send on purpose • Wait for the file repair procedure Note: file 2 can be a jpg picture
Pass-Criteria	The following things should be visible to the end user • There is a service “FILE2” that contains a file “File2” • The file is incompletely downloaded to the terminal • The terminal enters the repair procedure and the file is successfully downloaded for the second time Note: To verify the file was correctly downloaded the picture should be correctly displayed

5.1.3.6 Support of reception report

Test Case Id	BCAST-1.0-DIST-conf-107
Test Object	BCAST Client
Test Case Description	The purpose of this test is to check that the terminal correctly reports the reception of a successful download
Specification Reference	[BCAST10-Distribution] - Section 5.3.2
SCR Reference	**Primary:** BCAST-FD-C-013 (O) **Secondary:** BCAST-FD-C-001 (M), BCAST-FD-C-002 (M), BCAST-FD-C-003 (M), BCAST-FD-C-005 (M), BCAST-FD-C-010, BCAST-FD-C-015 (O), BCAST-FD-C-025 (O)
Tool	BCAST conformance test tool

Test code	
Preconditions	Set up the Service Guide delivery to use • Broadcast channel or • Interactive channel This test cases uses the following SG fragment instantiations found in the Appendix: Service fragment with id=”service/file2” Content fragment with id=”content/file2” Schedule fragment with id=”schedule/file2” Access fragment with id=”access/file2” Note: All the fragments are associated with the same Service fragment. The access fragment refers a valid Flute File Descriptor and a valid Associated Delivery Procedure with the postReceptionReport element and the report type to StaR and the samplePercentage to 100 There is a reception report server available
Test Procedure	• Update the SG in the terminal using the test tool as the source • Browse the SG in the terminal and select the file 2 to download • The file is downloaded successfully Note: file 2 can be a jpg picture
Pass-Criteria	The following things should be visible to the end user • There is a service “FILE2” that contains a file “File2” • The file is successfully downloaded • The terminal reports the successful download of the file Note: To verify the file was correctly downloaded the picture should be correctly displayed

5.1.3.7 Support of Flute Session Setup and Control with RTSP

Test Case Id	BCAST-1.0-DIST-conf-108
Test Object	BCAST Client
Test Case Description	The purpose of this test is to check that the terminal correctly reports the SDP handling and control with RTSP
Specification Reference	[BCAST10-Distribution] - Section 5.5.1.1
SCR Reference	**Primary:** BCAST-FD-C-018 (O) **Secondary:** BCAST-FD-C-016 (O), BCAST-FD-C-017 (O), BCAST-FD-C-021 (O), BCAST-FD-C-022 (O).
Tool	BCAST conformance test tool
Test code	

Preconditions	Set up the Service Guide delivery to use • Broadcast channel or • Interactive channel This test cases uses the following SG fragment instantiations found in the Appendix: Service fragment with id=”service/file5” Content fragment with id=”content/file5” Schedule fragment with id=”schedule/file5” Access fragment with id=”access/file5” Note: All the fragments are associated with the same Service fragment. The access fragment refers a valid Flute File Descriptor with a valid control URI
Test Procedure	• Update the SG in the terminal using the test tool as the source • Browse the SG in the terminal and select the file 5 to download • The user request the file to play • The user request the playing of the file to pause after the rendering has started • The user resumes the rendering of the file by requesting the file to play • The user give up on rendering the file Note: file 5 must be a video or music file, 3gpp and mp3 file types are recommended
Pass-Criteria	The following things should be visible to the end user • There is a service “FILE5” that contains a file “File5” • When the user request to play the file, the transmission stars followed by a rendering of the file • The rendering of the file is correctly paused on request • The rendering of the file is correctly resumed on user request • The rendering of the file is correctly stopped on user request and the transmission ceased.

5.1.3.8 Support of RTP for stream distribution over the broadcast channel

Test Case Id	BCAST-1.0-DIST-conf-109
Test Object	BCAST Client
Test Case Description	The purpose of this test is to check that the terminal correctly supports RTP as a transport protocol for streaming distribution over the broadcast channel
Specification Reference	[BCAST10-Distribution] - Section 6.2
SCR Reference	**Primary:** BCAST-SD-C-001 (M) **Secondary:** BCAST-SD-C-002 (M), BCAST-SD-C-003 (M), BCAST-SD-C-004 (M), BCAST-SD-C-006 (M) MBMS: BCAST-SD-C-007 (O) BCMCS: BCAST-SD-C-008 (O) DVB-H: BCAST-SD-C-009 (O)
Tool	BCAST conformance test tool
Test code	

Preconditions	Set up the Service Guide delivery to use • Broadcast channel or • Interactive channel This test cases uses the following SG fragment instantiations found in the Appendix: Service fragment with id="service/stream1" Content fragment with id="content/stream1" Schedule fragment with id="schedule/stream1" Access fragment with id="access/stream1" Note: All the fragments are associated with the same Service fragment. The access fragment refers a valid SDP Session Descriptor The SDP points a stream available on broadcast channel The SDP has the RTCP receiver reports turned off
Test Procedure	• Update the SG in the terminal using the test tool as the source • Browse the SG in the terminal and select the stream 1 to render • The stream starts to be correctly rendered • The server sends the RTCP packets (sender reports) Note: stream 1 must be a video or music file, 3gpp and mp3 file types are recommended
Pass-Criteria	The following things should be visible to the end user • There is a service "STREAM1" that contains a service "Stream1" • The rendering of the stream starts correctly

5.1.3.9 Support of RTP for stream distribution over the interaction channel using SDP

Test Case Id	BCAST-1.0-DIST-conf-110
Test Object	BCAST Client
Test Case Description	The purpose of this test is to check that the terminal correctly supports RTP as a transport protocol for streaming distribution over the interaction channel
Specification Reference	[BCAST10-Distribution] - Section 6.3
SCR Reference	**Primary:** N/A **Secondary:** BCAST-SD-C-004 (M), BCAST-SD-C-014 (O), BCAST-SD-C-016 (O), BCAST-SD-C-017 (O). MBMS: BCAST-SD-C-007 (O) BCMCS: BCAST-SD-C-008 (O) DVB-H: BCAST-SD-C-009 (O)
Tool	BCAST conformance test tool
Test code	

Preconditions	Set up the Service Guide delivery to use • Broadcast channel or • Interactive channel This test cases uses the following SG fragment instantiations found in the Appendix: Service fragment with id=”service/stream2” Content fragment with id=”content/stream2” Schedule fragment with id=”schedule/stream2” Access fragment with id=”access/stream2” Note: All the fragments are associated with the same Service fragment. The access fragment refers a valid SDP Session Descriptor The SDP points a stream available on interactive channel The SDP has the RTCP receiver reports turned off
Test Procedure	• Update the SG in the terminal using the test tool as the source • Browse the SG in the terminal and select the stream 2 to render • The stream starts to be correctly rendered • The server sends the RTCP packets (sender reports) Note: stream 2 must be a video or music stream, 3gpp and mp3 file types are recommended
Pass-Criteria	The following things should be visible to the end user • There is a service “STREAM2” that contains a service “Stream2” • The rendering of the stream starts correctly • The terminal does not send RCTP packets (receiver reports)

5.1.3.10 Support of RTP for stream distribution over the interaction channel using HTTP with out-of-band signalling

Test Case Id	BCAST-1.0-DIST-conf-111
Test Object	BCAST Client
Test Case Description	The purpose of this test is to check that the terminal correctly supports RTP as a transport protocol for streaming distribution over the interaction
Specification Reference	[BCAST10-Distribution] - Section 6.3
SCR Reference	**Primary:** N/A **Secondary:** BCAST-SD-C-004 (M), BCAST-SD-C-014 (O), BCAST-SD-C-016 (O), BCAST-SD-C-017 (O). MBMS: BCAST-SD-C-007 (O) BCMCS: BCAST-SD-C-008 (O) DVB-H: BCAST-SD-C-009 (O)
Tool	BCAST conformance test tool
Test code	

Preconditions	Set up the Service Guide delivery to use • Broadcast channel or • Interactive channel This test cases uses the following SG fragment instantiations found in the Appendix: Service fragment with id="service/stream3" Content fragment with id="content/stream3" Schedule fragment with id="schedule/stream3" Access fragment with id="access/stream3" Note: All the fragments are associated with the same Service fragment. The access fragment has all the description information for the streaming session The media type of stream 3 doesn't have a corresponding RTP definition
Test Procedure	• Update the SG in the terminal using the test tool as the source • Browse the SG in the terminal and select the stream 3 to render • The stream starts to be correctly rendered Note: stream 3 must be a video or music file, 3gpp and mp3 file types are recommended
Pass-Criteria	The following things should be visible to the end user • There is a service "STREAM3" that contains a service "Stream3" • The rendering of the stream starts correctly

5.1.3.11 Support of streaming associated procedure

Test Case Id	BCAST-1.0-DIST-conf-112
Test Object	BCAST Client
Test Case Description	The purpose of this test is to check that the terminal correctly supports the streaming associated procedure
Specification Reference	[BCAST10-Distribution] - Section 6.8.1
SCR Reference	**Primary:** BCAST-SD-C-013 (O) **Secondary:** BCAST-SD-C-014 (O)
Tool	BCAST conformance test tool
Test code	

Preconditions	Set up the Service Guide delivery to use • Broadcast channel or • Interactive channel This test cases uses the following SG fragment instantiations found in the Appendix: Service fragment with id="service/stream4" Content fragment with id="content/stream4" Schedule fragment with id="schedule/stream4" Access fragment with id="access/stream4" Note: All the fragments are associated with the same Service fragment. The access fragment refers a valid SDP Session Descriptor and a URI for an streaming associated procedure description The streaming associated procedure description is valid and requests a fixed duration based measurements
Test Procedure	• Update the SG in the terminal using the test tool as the source • Browse the SG in the terminal and select the stream 4 to render • The stream starts to be correctly rendered • The server receives the correct streaming reception reports at the requested time Note: stream 4 must be a video or music file, 3gpp and mp3 file types are recommended
Pass-Criteria	The following things should be visible to the end user • There is a service "STREAM2" that contains a service "Stream2" • The rendering of the stream starts correctly • The terminal does not send RCTP packets (receiver reports)

5.1.4 Service Interaction

5.1.4.1 Service guide with XHTML interactivity document via broadcast channel (optional)

Test Case Id	BCAST-1.0-INTER-conf-101
Test Object	BCAST Terminal
Test Case Description	with a terminal listening to the broadcast Service Guide Delivery Channel. when the terminal receives Service Guide containing interactivity data for XHTML interactivity then terminal starts an application with XHTML data
Specification Reference	[BCAST10-Services] Section 5.3.6, 5.3.6.1.2, 5.3.6.1.5.
SCR Reference	**Primary:** BCAST-SERVICES-C-013 (O) **Secondary:** BCAST-SG-C-003 (O), BCAST-SERVICES-C-019 (O), BCAST-SERVICES-C-022 (M) See also Appendix D.1

Tool	BCAST conformance test tool
Test code	
Preconditions	Service guide cache of terminal is erased Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool Set up the test tool for Service Guide delivery to provide stream delivery information for "Programmme1". Configure terminal to start a, e.g., browser, application with XHTML interactivity data This test cases uses the following SG fragment instantiations found in the Appendix: • Service fragment with Name=”TvChannel” • Content fragment with Name=”Programme1” • InteractivityData fragment for content fragment with interactivityType set to “vote-xhtml” • Schedule fragment for interactivity data fragment • Access fragment for schedule fragment and referencing the session description fragment • SDP for file delivery session of interactivity media document and XHTML file Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery. • XHTML file “Vote.xhtml” • InteractivityMediaDocument with MediaObject Set element pointing to XHTML file
Test Procedure	• Set up the test tool to produce initial BCAST service guide announcement and delivery using broadcast channel. • Setup the test tool to deliver the interactivity media document and xhtml file "Vote.xhtml" using a file delivery session as described by SDP. • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG on the terminal • Select “TvChannel” and interactivity “vote-xhtml”
Pass-Criteria	The following should be visible to the end user after the delivery of the SG • The terminal should associate the service ”TvChannel” with “Programme1” and interactivity “vote-xhtml” • The application presents the XHTML content to end user

5.1.4.2 Service guide with SMS interactivity document via broadcast channel (optional)

Test Case Id	BCAST-1.0-INTER-conf-102
Test Object	BCAST Terminal
Test Case Description	with a terminal listening to the Service Guide Delivery Channel. when the terminal receives Service Guide containing interactivity data for SMS interactivity then the terminal sends an SMS
Specification Reference	[BCAST10-Services] Section 5.3.6, 5.3.6.1.6.
SCR Reference	**Primary:** BCAST-SERVICES-C-014 (O) **Secondary:** BCAST-SG-C-003 (O), BCAST-SERVICES-C-019 (O), BCAST-SERVICES-C-022 (M) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	
Preconditions	Service guide cache of terminal is erased Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test cases uses the following SG fragment instantiations found in the Appendix: • Service fragment with Name="TvChannel" • Content fragment with Name="Programme1" for service fragment • InteractivityData fragment for content fragment with interactivityType set to "vote-sms" • Schedule fragment for interactivity data fragment • Access fragment for schedule fragment and referencing session description fragment • SDP for file delivery session of interactivity media document Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery. • InteractivityMediaDocument with SMSTemplate SelectChoice set to "a", "b", and "c" and smsURI pointing to a test tool URI

Test Procedure	• Set up the test tool to produce initial BCAST service guide announcement and delivery using broadcast channel. • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG on the terminal • Select “TvChannel” and interactivity “vote-sms” on the terminal • Select choice “b” on terminal.
Pass-Criteria	The following should be visible to the end user after the delivery of the SG • The terminal should associate the service ”TvChannel” with “Programme1” and interactivity “vote-sms” • The terminal displays ”a”, “b”, and “c” as available choices . The following should be observable for the test tool • The test tool receives an SMS from the terminal with the for choice ”b”

5.1.4.3 Service guide with MMS interactivity document via broadcast channel (optional)

Test Case Id	BCAST-1.0-INTER-conf-103
Test Object	BCAST Terminal
Test Case Description	with a terminal listening to the Service Guide Delivery Channel. when the terminal receives Service Guide containing interactivity data for MMS interactivity then the terminal sends an MMS
Specification Reference	[BCAST10-Services] Section 5.3.6, 5.3.6.1.7.
SCR Reference	**Primary:** BCAST-SERVICES-C-015 (O) **Secondary:** BCAST-SG-C-003 (O), BCAST-SERVICES-C-019 (O), BCAST-SERVICES-C-022 (M) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	

Preconditions	Service guide cache of terminal is erased Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test cases uses the following SG fragment instantiations found in the Appendix: • Service fragment with Name=”TvChannel” • Content fragment with Name=”Programme1” Content fragment with Name=”Programme1” for service fragment • InteractivityData fragment for content fragment with interactivityType set to “vote-mms” • Schedule fragment for interactivity data fragment • Access fragment for schedule fragment and referencing the session description fragment • SDP for file delivery session of interactivity media document and MMS files Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery. • Image file “ChoiceA.jpg” • Image file “ChoiceB.jpg” • MMS file • InteractivityMediaDocument with MediaObject Set element pointing to MMS files
Test Procedure	• Set up the test tool to produce initial BCAST service guide announcement and delivery using broadcast channel. • Setup the test tool to deliver the interactivity media document, MMS file, and images using a file delivery session as described by SDP. • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG in the terminal • Access "Interactivity_URL_MMS" to retrieve the InteractivityMediaDocuments • Interact with application to generate response and deliver response in an MMS.
Pass-Criteria	The following should be visible to the end user after the delivery of the SG • Select “TvChannel” and interactivity “vote-mms” on the terminal • Select image “ChoiceA” on terminal. The following should be observable for the test tool • The test tool receives an MMS from the terminal formatted correctly according to the MMS Template and it contains ”ChoiceA” of the user.

5.1.5 Content Protection

5.1.5.1 Service protection with IPSec via broadcast channel (optional)

Test Case Id	BCAST-1.0-ContProt-conf-101
Test Object	BCAST Terminal
Test Case Description	with a terminal having received a service guide containing a service with purchase information on the Service Guide Delivery Channel and listening for an IPsec encrypted data stream on the broadcast channel when the terminal subscribes to that service on the interactive channel using a Service Request/Response message exchange then the terminal is able to receive, decrypt, and display the data stream correctly.
Specification Reference	[BCAST10–ServContProt] Section 6.8.1, 9.1.
SCR Reference	**Primary:** BCAST-ContentLayer-C-008 (O) **Secondary:** BCAST-SPCP-C-002 (O), BCAST-SDP-C-014 (O) DRM profile: BCAST-TerminalCapability-C-004 (O), BCAST-SPCP-C-006 (O), BCAST-STKM -C-011 (O), BCAST-LTKM_DRM-C-013 (O), BCAST-CP_RTP_DRM-C-019 (O) Smartcard profile: BCAST-TerminalCapability-C-003 (O), BCAST-SPCP-C-005 (O), BCAST-STKM -C-010 (O), BCAST-LTKM-SC-C-015 (O), BCAST-CP_RTP_SC-C-021 (O), BCAST-SAC-C-028 (O) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	

Preconditions	Service guide cache of terminal is erased Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test cases uses the following SG fragment instantiations found in the Appendix: • Service fragment with Name=”PayTvChannel ” • Content fragment with Name=”Programme”, and StartTime and EndTime elements indicating values within the time of test • Schedule fragment for content fragment with same values for startTime and endTime in the presentationWindow element • Access fragment for schedule fragment with KeyManagmentSystem, EncryptionType set to IPsec, and a reference to the Session Description fragment • Session Description fragment containing SDP for "Programme” and the service protection information for IPSec • PurchaseItem fragment for service fragment with Description “IPsec” element • PurchaseData fragment for purchaseItem fragment with PriceInfo and Description “Discount” elements • PurchaseChannel fragment for purchaseItem fragment with PurchaseURL pointing to a subscription site Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery.
Test Procedure	• Set up the test tool to produce BCAST service guide announcement and delivery using broadcast channel. • Setup the test tool to stream via IPSec encrypted audio and video for “Programme” as well as key stream on broadcast channel • Setup the SEK delivery to the terminal either via DRM 2.0 ROAP (DRM) or authentication and push delivery (Smartcard) • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG in the terminal • Setup the test tool to authenticate and accept subscription request for the Service “PayTvChannel” from the terminal via interactive channel • Purchase “TvChannel” on terminal • Access ”TvChannel” on terminal

Pass-Criteria	The following should be visible to the end user after the delivery of the SG • The service "PayTvChannel" is displayed with "Programme" schedule from start to end time, available as "Discount" purchase, and price information. • "Programme" can be viewed by the end user. The following should be observable for the test tool • The test tool receives HTTP request from the end user to subscribe to service "TvChannel".

5.1.5.2 Service protection with SRTP via broadcast channel (optional)

Test Case Id	BCAST-1.0-ContProt-conf-102
Test Object	BCAST Terminal
Test Case Description	with a terminal having received a service guide containing a service with purchase information on the Service Guide Delivery Channel and listening for an SRTP encrypted data stream on the broadcast channel when the terminal subscribes to that service on the interactive channel Service Request/Response message exchange then the terminal is able to receive, decrypt, and display the data stream correctly
Specification Reference	[BCAST10–ServContProt] Section 6.8.1, 9.2.
SCR Reference	**Primary:** BCAST-ContentLayer-C-007 (O) **Secondary:** BCAST-SPCP-C-002 (O), BCAST-SDP-C-014 (O), BCAST-SRTPsignal-C-030 (O) DRM profile: BCAST-TerminalCapability-C-004 (O), BCAST-SPCP-C-006 (O), BCAST-STKM -C-011 (O), BCAST-LTKM_DRM-C-013 (O), BCAST-CP_RTP_DRM-C-019 (O) Smartcard profile: BCAST-TerminalCapability-C-003 (O), BCAST-SPCP-C-005 (O), BCAST-STKM -C-010 (O), BCAST-LTKM-SC-C-015 (O), BCAST-CP_RTP_SC-C-021 (O), BCAST-SAC-C-028 (O) See also Appendix D.1
Tool	BCAST conformance test tool
Test code	

Preconditions	Service guide cache of terminal is erased Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test cases uses the following SG fragment instantiations found in the Appendix: • Service fragment with Name=”PayTvChannel ” • Content fragment with Name=”Programme”, and StartTime and EndTime elements indicating values within the time of test • Schedule fragment for content fragment with same values for startTime and endTime in the presentationWindow element • Access fragment for schedule fragment with KeyManagmentSystem, EncryptionType set to SRTP, and a reference to the Session Description fragment • Session Description fragment containing SDP for "Programme” and the service protection information for SRTP • PurchaseItem fragment for service fragment with Description “SRTP” element • PurchaseData fragment for purchaseItem fragment with PriceInfo and Description “Discount” elements • PurchaseChannel fragment for purchaseItem fragment with PurchaseURL pointing to a subscription site Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery..
Test Procedure	• Set up the test tool to produce BCAST service guide announcement and delivery using broadcast channel. • Setup the test tool to stream via SRTP encrypted audio and video for “Programme” as well as key stream on broadcast channel • Setup the SEK delivery to the terminal either via DRM 2.0 ROAP (DRM) or authentication and push delivery (Smartcard) • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG in the terminal • Setup the test tool to authenticate and accept subscription request for the Service “PayTvChannel” from the terminal via interactive channel • Purchase “TvChannel” on terminal • Access ”TvChannel” on terminal

Pass-Criteria	The following should be visible to the end user after the delivery of the SG • The service "PayTvChannel" is displayed with "Programme" schedule from start to end time, available as "Discount" purchase, and price information. • "Programme" can be viewed by the end user. The following should be observable for the test tool • The test tool receives HTTP request from the end user to subscribe to service "TvChannel".

5.1.5.3 Service protection with ISMACrypt via broadcast channel (optional)

Test Case Id	BCAST-1.0-ContProt-conf-103
Test Object	BCAST Terminal
Test Case Description	with a terminal having received a service guide containing a service with purchase information on the Service Guide Delivery Channel and listening for an ISMACrypt encrypted data stream on the broadcast channel when the terminal subscribes to that service on the interactive channel Service Request/Response message exchange then the terminal is able to receive, decrypt, and display the data stream correctly
Specification Reference	[BCAST10–ServContProt] Section 6.8.1, 9.3.
SCR Reference	**Primary:** BCAST-ContentLayer-C-009 (O) **Secondary:** BCAST-SPCP-C-002 (O), BCAST-SDP-C-014 (O), BCAST-CP_Form-C-023 (O) DRM profile: BCAST-TerminalCapability-C-004 (O), BCAST-SPCP-C-006 (O), BCAST-STKM -C-011 (O), BCAST-LTKM_DRM-C-013 (O), BCAST-CP_RTP_DRM-C-019 (O) Smartcard profile: BCAST-TerminalCapability-C-003 (O), BCAST-SPCP-C-005 (O), BCAST-STKM -C-010 (O), BCAST-LTKM-SC-C-015 (O), BCAST-CP_RTP_SC-C-021 (O), BCAST-SAC-C-028 (O). See also Appendix D.1
Tool	BCAST conformance test tool
Test code	

Preconditions	Service guide cache of terminal is erased Terminal is configured to listen to BCAST service guide announcements and delivery on the broadcast channel Access point information for service guide entry point is configured in test tool This test cases uses the following SG fragment instantiations found in the Appendix: • Service fragment with Name=”PayTvChannel ” • Content fragment with Name=”Programme”, and StartTime and EndTime elements indicating values within the time of test • Schedule fragment for content fragment with same values for startTime and endTime in the presentationWindow element • Access fragment for schedule fragment with KeyManagmentSystem, EncryptionType set to ISMACrypt, and a reference to the Session Description fragment • Session Description fragment containing SDP for "Programme” and the service protection information for ISMACrypt • PurchaseItem fragment for service fragment with Description “ISMACrypt” element • PurchaseData fragment for purchaseItem fragment with PriceInfo and Description “Discount” elements • PurchaseChannel fragment for purchaseItem fragment with PurchaseURL pointing to a subscription site Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery.
Test Procedure	• Set up the test tool to produce BCAST service guide announcement and delivery using broadcast channel. • Setup the test tool to stream via ISMACrypt encrypted audio and video for “Programme” as well as key stream on broadcast channel • Setup the SEK delivery to the terminal either via DRM 2.0 ROAP (DRM) or authentication and push delivery (Smartcard) • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide (optional) • Browse the SG in the terminal • Setup the test tool to authenticate and accept subscription request for the Service “PayTvChannel” from the terminal via interactive channel • Purchase “TvChannel” on terminal • Access ”TvChannel” on terminal

Pass-Criteria	The following should be visible to the end user after the delivery of the SG • The service "PayTvChannel" is displayed with "Programme" schedule from start to end time, available as "Discount" purchase, and price information. • "Programme" can be viewed by the end user. The following should be observable for the test tool • The test tool receives HTTP request from the end user to subscribe to service "TvChannel".

5.1.6 Terminal Provisioning

5.1.6.1 Receiving terminal provisioning messages using TP-7

Test Case Id	BCAST-1.0-TermProv-conf-101
Test Object	BCAST Client
Test Case Description	The purpose of this test is to check that the terminal correctly receives provisioning messages using TP-7 over the interactive channel.
Specification Reference	[BCAST10-Services] Section 5.2
SCR Reference	**Primary:** BCAST-SERVICES-C-011 (O) **Secondary:** BCAST-SERVICES-C-012 (O)
Tool	BCAST conformance test tool
Test code	
Preconditions	
Test Procedure	
Pass-Criteria	

5.1.6.2 Update terminal provisioning messages using TP-7

Test Case Id	BCAST-1.0-TermProv-conf-102
Test Object	BCAST Client
Test Case Description	The purpose of this test is to check that the terminal correctly receives an update of an provisioning messages using TP-7 over the interactive channel.
Specification Reference	[BCAST10-Ser vices] Section 5.2
SCR Reference	**Primary:** BCAST-SERVICES-C-012 (O) **Secondary:** BCAST-SERVICES-C-011 (O)
Tool	BCAST conformance test tool
Test code	
Preconditions	
Test Procedure	
Pass-Criteria	

5.1.6.3 Declaring Terminal Provisioning as a Service within Service Guide

Test Case Id	BCAST-1.0-PROV-conf-102
Test Object	BCAST Client
Test Case Description	The purpose of this test is to check that the terminal declares the Terminal Provisioning as a Service within Service Guide correctly and the fragments are correctly send to the tool and checked.
Specification Reference	[BCAST10-Services] Section 5.2.2.1
SCR Reference	

Tool	BCAST conformance test tool
Test code	
Preconditions	
Test Procedure	
Pass-Criteria	

5.1.6.4 Declaring Terminal Provisioning as an Access of a Service within Service Guide

Test Case Id	BCAST-1.0-TermProv-conf-103
Test Object	BCAST Client
Test Case Description	The purpose of this test is to check that the terminal declares the Terminal Provisioning as an access of a Service within Service Guide correctly and the fragments are correctly send to the tool and checked.
Specification Reference	[BCAST10-Services] Section 5.2.1.1
SCR Reference	BCAST-G-T-008
Tool	BCAST conformance test tool
Test code	
Preconditions	
Test Procedure	

5.1.7 Mobility and Roaming

5.1.8 IPDC over DVB-H Adaptation

5.1.9 3GPP MBMS Adaptation

5.1.10 3GPP2 BCMCS Adaptation

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version –or- No previous version within OMA

A.2 Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
Draft Version OMA-ETS-BCAST_CON_Client-V1.0	24 Jan 2007	all	First Daft ETS that has been uploaded to the PD areas as basis for new test cases
	12 Mar 2007	All	Input IOP-BRO 2007-0022 included.
	21 Mar 2007	4	Introduction part updated.
	24th Apr 2007	5.2.x, 5.1.2.1, 5.1.2.2	Server test cases removed, Following CRs included: 2007-0076, 2007-0061.
	20th Jun 2007	All	SCR and specification references added. Test case numbering added. Appendix D added. Following CRs included: OMA-IOP-BRO-2007-0083-CR_TP5, OMA-IOP-BRO-2007-0059R01-CR_Client_Distribution_TC
	01 Aug 2007	All	SCR references updated.
	21 Aug 2007	All	Updates of ETSI Phase1 feedback
	24 Aug 2007	All	IOP WG agreed. Applying ETS template. Preparation for TP candidate approval as doc# OMA-TP-2007-0346-INP_ETS_BCAST_CON_V1_0_for_Candidate_Approval
Candidate Version OMA-ETS-BCAST_CON_Client-V1.0	25 Sep 2007	n/a	Status changed to Candidate (TP R&A from 2007-09-12 to 2007-09-25) TP# OMA-TP-2007-0346-INP_ETS_BCAST_CON_V1_0_for_Candidate_Approval

Appendix B. Structure of the test Service Guide

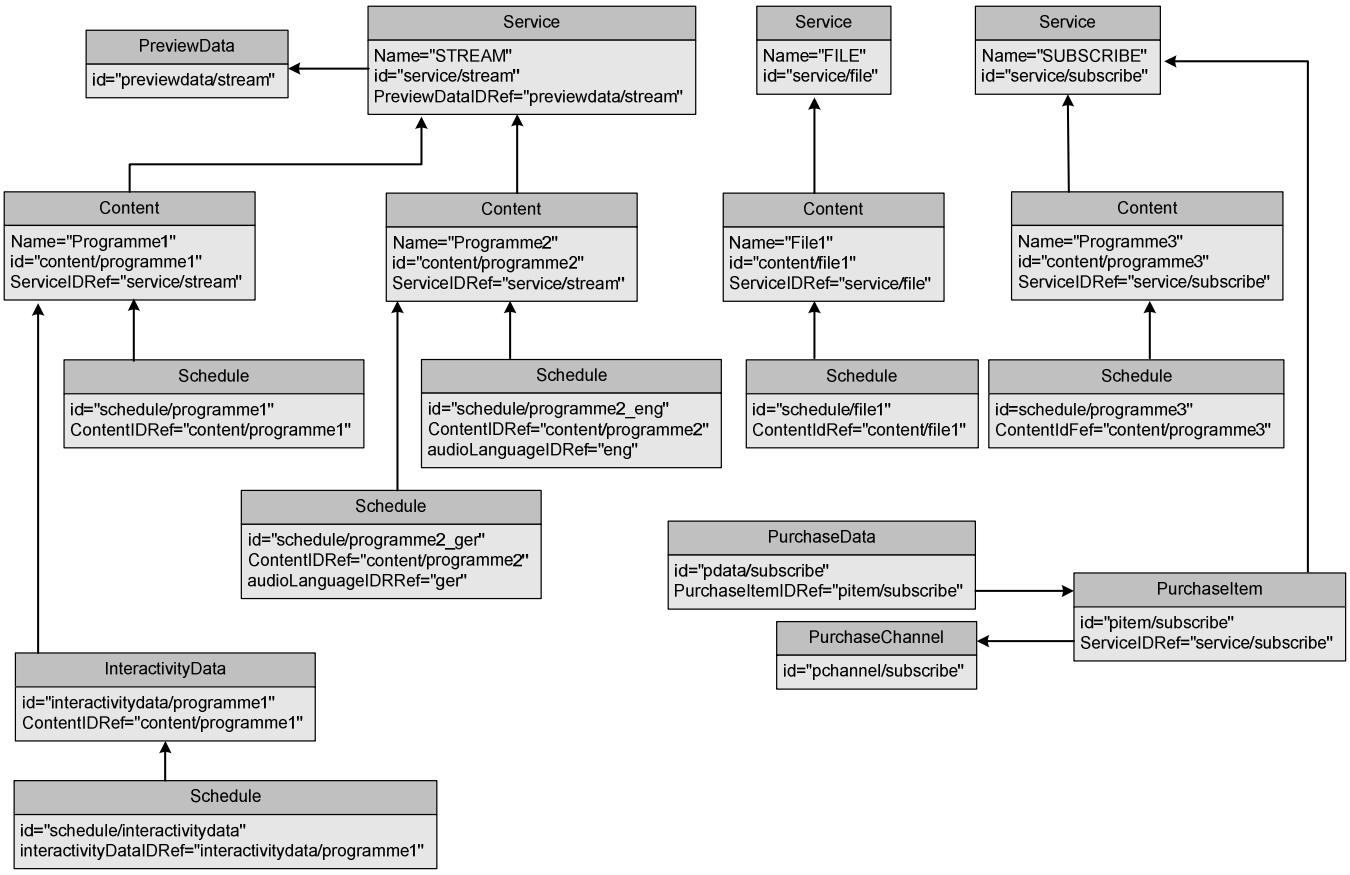

Figure 1: Structure of the Service Guide

Appendix C. Service Guide fragments

Table 1: Fragment xxx

Appendix D. Adaptation Test Coverage (Informative)

D.1 Conformance test coverage for Adaptation SCR's

Test Case id	Adaptation SCR Coverage		
	MBMS	DVB-H	BCMS
5.1.1.1	N/A	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	
5.1.1.2	BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-013 BCAST-MBMS-C-014 BCAST-MBMS-C-018	N/A	
5.1.2.1	BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	
5.1.2.2	BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	
5.1.2.3	BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	
5.1.2.4	BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	
5.1.2.5	BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-006 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-021	
5.1.2.6	BCAST-MBMS-C-002	BCAST-DVBIPDC-C-001	

	BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	
5.1.2.7	BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-006 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-021	
5.1.2.8	BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-006 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-021	
5.1.3.1	BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-016 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-006 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-020 BCAST-DVBIPDC-C-021	
5.1.4.1	BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-016 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-005 BCAST-DVBIPDC-C-006 BCAST-DVBIPDC-C-007 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-021	
5.1.4.2	BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-016 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-005 BCAST-DVBIPDC-C-006 BCAST-DVBIPDC-C-007 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-021	

5.1.4.3	BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-016 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-005 BCAST-DVBIPDC-C-006 BCAST-DVBIPDC-C-007 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-021	
5.1.5.1	BCAST-MBMS-C-002 BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-018 BCAST-MBMS-C-023	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-006 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-013 BCAST-DVBIPDC-C-014 BCAST-DVBIPDC-C-015 BCAST-DVBIPDC-C-016 BCAST-DVBIPDC-C-018 BCAST-DVBIPDC-C-021	
5.1.5.2	BCAST-MBMS-C-002 BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-018 BCAST-MBMS-C-021 BCAST-MBMS-C-022	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-006 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-013 BCAST-DVBIPDC-C-014 BCAST-DVBIPDC-C-015 BCAST-DVBIPDC-C-016 BCAST-DVBIPDC-C-017 BCAST-DVBIPDC-C-021	
5.1.5.3	BCAST-MBMS-C-002 BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-010 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-018 BCAST-MBMS-C-024	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-006 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-013 BCAST-DVBIPDC-C-014 BCAST-DVBIPDC-C-015 BCAST-DVBIPDC-C-016 BCAST-DVBIPDC-C-019 BCAST-DVBIPDC-C-021	
5.1.6.1	BCAST-MBMS-C-004 BCAST-MBMS-C-007 BCAST-MBMS-C-010 BCAST-MBMS-C-016	BCAST-DVBIPDC-C-008	

	BCAST-MBMS-C-018		
5.1.6.2	BCAST-MBMS-C-004 BCAST-MBMS-C-007 BCAST-MBMS-C-010 BCAST-MBMS-C-016 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-008	
5.1.6.3	BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-007 BCAST-MBMS-C-010 BCAST-MBMS-C-012 BCAST-MBMS-C-016 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-008 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	
5.1.6.4	BCAST-MBMS-C-004 BCAST-MBMS-C-006 BCAST-MBMS-C-007 BCAST-MBMS-C-010 BCAST-MBMS-C-012 BCAST-MBMS-C-016 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-003 BCAST-DVBIPDC-C-004 BCAST-DVBIPDC-C-008 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	