Enabler Test Specification for BCAST 1.0

Candidate Version 1.0 – 17 Nov 2008

Open Mobile Alliance

OMA-ETS-BCAST_CON_Client-V1_0-20081117-C

Contents

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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, URL:http://www.openmobilealliance.org/
[BCAST10 – Distribution]	"File and Stream Distribution for Mobile Broadcast Services ", Version 1.0, Open Mobile Alliance™, OMA-TS-BCAST_Distribution-V1_0, URL:http://www.openmobilealliance.org/
[BCAST10 –ESG]	"Service Guide for Mobile Broadcast Services", Version 1.0, Open Mobile Alliance™, OMA-TS-BCAST_Service_Guide-V1_0, URL:http://www.openmobilealliance.org
[BCAST10 -Services]	"Mobile Broadcast Services", Open Mobile Alliance™, Version 1.0, OMA-TS-BCAST_Services-V1_0, URL:http://www.openmobilealliance.org/
[BCAST10–BCMCS Adaptation]	"Broadcast Distribution System Adaptation – 3GPP2/BCMCS", Version 1.0, Open Mobile Alliance™, OMA-TS-BCAST_BCMCS_Adaptation-V1_0, URL:http://www.openmobilealliance.org/
[BCAST10–DVB-H-IPDC–Adaptation]	"Broadcast Distribution System Adaptation – IPDC over DVB-H", Version 1.0, Open Mobile Alliance™, OMA-TS-BCAST_DVB_Adaptation-V1_0, URL:http://www.openmobilealliance.org/
[BCAST10-ERELD]	"Enabler Release Definition for Mobile Broadcast Services", Version 1.0, Open Mobile Alliance™, OMA-ERELD-BCAST-V1_0, URL:http://www.openmobilealliance.org/
[BCAST10-ETR]	"Enabler Test Requirements for Mobile Broadcast Services" Version 1.0, Open Mobile Alliance™, OMA-ETR-BCAST-V1_0, URL:http://www.openmobilealliance.org/
[BCAST10–ServContProt]	"Service and Content Protection for Mobile Broadcast Services", Version 1.0, Open Mobile Alliance™, OMA-TS-BCAST_SvcCntProtection-V1_0, URL:http://www.openmobilealliance.org/
[BCAST10-ATS]	"Abstract Test Suite for Mobile Broadcast Services", Version 1.0, Open Mobile Alliance™, OMA-ETS-BCAST_ATS-V1_0, URL:http://www.openmobilealliance.org/
[DRM20-Broadcast-Extensions]	"OMA DRM v2.0 Extensions for Broadcast Support", Version 1.0, Open Mobile Alliance™, OMA-TS-DRM-XBS-V1_0, URL:http://www.openmobilealliance.org/
[DRM-v2.0]	"DRM Specification V2.0", Open Mobile Alliance™, Version 2.0, OMA-DRM-DRM-V2_0, URL:http://www.openmobilealliance.org/
[IOPPROC]	"OMA Interoperability Policy and Process", Version 1.6, Open Mobile Alliance™, OMA-ORG-IOP_Process-V1_6, URL:http://www.openmobilealliance.org/
[OMA DM]	"Enabler Release Definition for OMA Device Management", Version 1.2, Open Mobile Alliance™, OMA-ERELD-DM-V1_2, URL:http://www.openmobilealliance.org/
[RFC2119]	"Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997, URL:http://www.ietf.org/rfc/rfc2119.txt
[3GPP 34.108 v7]	"Common test environments for User Equipment (UE); Conformance testing", 3rd Generation Partnership Project; Technical Specification Group Radio Access Network; 3GPP TS 34.108, URL:http://www.3gpp.org/

2.2 Informative References

[BCAST10-Architecture]	"Mobile Broadcast Services Architecture", Version 1.0, Open Mobile Alliance™, OMA-AD-BCAST-V1_0, URL:http://www.openmobilealliance.org/

[OMADICT] "Dictionary for OMA Specifications", Version 2.7, Open Mobile Alliance™. OMA-ORG-Dictionary-V2_7, , 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 file downloading 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. CLIENT Conformance Test Cases

5.1 Service Guide

5.1.1 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 Purpose	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 C.1
Tool	BCAST conformance test tool
Test code	[BCAST10-ATS] TC_BCAST_ESG_CONF_101

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

Test Case Id	BCAST-1.0-ESG-conf-102
Test Object	BCAST Terminal
Test Purpose	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 C.1
Tool	BCAST conformance test tool
Test code	[BCAST10-ATS] TC_BCAST_ESG_CONF_102
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: 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)).

5.1.3 Service Guide Update with additional fragments via broadcast channel

Test Case Id	BCAST-1.0-ESG-conf-103
Test Object	BCAST Terminal
Test Purpose	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 C.1
Tool	BCAST conformance test tool
Test code	[BCAST10-ATS] TC_BCAST_ESG_CONF_103

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: 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 "Programme2" as well as different start and end time values (There is a "TvChannel" that contains "Programme1" and "Programme2" scheduled from different startTime to endTimes)

5.1.4 GZIP compression of Service Guide Delivery Unit on broadcast channel

Test Case Id	BCAST-1.0-ESG-conf-104
Test Object	BCAST Terminal
Test Purpose	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 C.1
Tool	BCAST conformance test tool
Test code	[BCAST10-ATS] TC_BCAST_ESG_CONF_104

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: • 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”)

5.1.5 Service provisioning with Content hierarchy

Test Case Id	BCAST-1.0-ESG-conf-105
Test Object	BCAST Terminal
Test Purpose	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 C.1
Tool	BCAST conformance test tool
Test code	[BCAST10-ATS] TC_BCAST_ESG_CONF_105

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: • 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 three 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 The used video codec is: • H.264 (AVC)
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 three minutes later by a program “Programme2” (There is a “TvChannel” that contains “Programme1” scheduled three minutes prior to “Progamme2”) • Terminal shows “Programme1” for three minutes which is followed by “Programme2”

5.1.6 Service guide with Preview Data via broadcast channel

Test Case Id	BCAST-1.0-ESG-conf-106
Test Object	BCAST Terminal
Test Purpose	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 C.1
Tool	BCAST conformance test tool
Test code	[BCAST10-ATS] TC_BCAST_ESG_CONF_106
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 Preview icon is delivered using a FLUTE file delivery session. This test cases uses the following SG fragment instantiations and files: • 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 • Image file “TvChannelIcon.jpg” Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery. Set the FLUTE session to contain an FDT-instance with 'File'-element, where 'Content-Location= "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”

5.1.7 Service Guide with dual audio streams via broadcast channel

Test Case Id	BCAST-1.0-ESG-conf-107
Test Object	BCAST Terminal
Test Purpose	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 C.1
Tool	BCAST conformance test tool
Test code	[BCAST10-ATS] TC_BCAST_ESG_CONF_107
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: • 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.

5.1.8 Service Guide update via interaction channel (same fragment id, higher version number)

Test Case Id	BCAST-1.0-ESG-conf-108
Test Object	BCAST Terminal
Test Purpose	with a terminal having requested and received a Service Guide over the interactive 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-014 (O). **Secondary:** BCAST-SG-C-001 (O), BCAST-SG-C-002 (M), BCAST-SG-C-010 (M), BCAST-SG-C-012 (O) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
Preconditions	Service guide cache of terminal is erased Terminal is configured to request BCAST service guide delivery on the interactive channel Access point information for service guide entry point is configured in test tool This test case uses the following SG fragment instantiations: 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 enable initial BCAST service guide delivery using interactive channel • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide • Browse the SG on the terminal • Set up the test tool to make an updated BCAST service guide available to the terminal over the interactive channel • Request from BCAST application on terminal to update the service guide • 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)

5.1.9 Service Guide update via interaction channel (same fragment id, lower version number)

Test Case Id	BCAST-1.0-ESG-conf-109
Test Object	BCAST Terminal
Test Purpose	with a terminal having requested and received a Service Guide over the interactive 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-014 (O). **Secondary:** BCAST-SG-C-001 (O), BCAST-SG-C-002 (M), BCAST-SG-C-010 (M), BCAST-SG-C-012 (O) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
Preconditions	Service guide cache of terminal is erased Terminal is configured to request BCAST service guide delivery on the interactive channel Access point information for service guide entry point is configured in test tool This test case uses the following SG fragment instantiations: 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 enable initial BCAST service guide delivery using interactive channel. • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide • Browse the SG on the terminal • Set up the test tool to make an updated BCAST service guide available to the terminal using the interactive channel. • Request from BCAST application on terminal to update the service guide • 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)).

5.1.10 Service Guide Update with additional fragments via interaction channel

Test Case Id	BCAST-1.0-ESG-conf-110
Test Object	BCAST Terminal
Test Purpose	with a terminal having requested and received a Service Guide over the interactive 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-014 (O). **Secondary:** BCAST-SG-C-001 (O), BCAST-SG-C-002 (M), BCAST-SG-C-004 (O), BCAST-SG-C-010 (M), BCAST-SG-C-012 (O) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None

Preconditions	Service guide cache of terminal is erased Terminal is configured to request BCAST service guide delivery on the interactive channel Access point information for service guide entry point is configured in test tool This test case uses the following SG fragment instantiations: 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 enable initial BCAST service guide delivery using interactive channel. • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide • Browse the SG on the terminal • Set up the test tool to make an updated BCAST service guide available to the terminal using an inateractive channel. • Request from BCAST application on terminal to update the service guide • 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 “Programme2” as well as different start and end time values (There is a “TvChannel” that contains “Programme1” and “Programme2” scheduled from different startTime to endTimes)

5.1.11 GZIP compression of Service Guide Delivery Unit on interaction channel

Test Case Id	BCAST-1.0-ESG-conf-111
Test Object	BCAST Terminal
Test Purpose	with a terminal having requested and received a Service Guide over the interactive 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-001 (O), BCAST-SG-C-002 (M), BCAST-SG-C-004 (O), BCAST-SG-C-010 (M), BCAST-SG-C-012 (O) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
Preconditions	Service guide cache of terminal is erased Terminal is configured to request BCAST service guide delivery on the interactive channel Access point information for service guide entry point is configured in test tool This test cases uses the following SG fragment instantiations: • 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 enable BCAST service guide delivery using interactive channel. • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide • 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”)

5.1.12 Service provisioning with Content hierarchy via interaction channel

Test Case Id	BCAST-1.0-ESG-conf-112
Test Object	BCAST Terminal
Test Purpose	with a terminal requests Service Guide delivery over the interactive channel when the terminal receives the 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-001 (O), BCAST-SG-C-004 (O), BCAST-SG-C-010 (M), BCAST-SG-C-012 (O) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
Preconditions	Service guide cache of terminal is erased. Terminal is configured to request BCAST service guide delivery on the interactive channel Access point information for service guide entry point is configured in test tool This test case uses the following SG fragment instantiations: • 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 three 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 enable initial BCAST service guide delivery using interactive channel. • Setup the test tool to stream audio and video for "Programme1" using a point to point channel and "Programme2" using a broadcast channel • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide • 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 three minutes later by a program "Programme2" (There is a "TvChannel" that contains "Programme1" scheduled three minutes prior to "Progamme2") • Terminal shows "Programme1" for three minutes which is followed by "Programme2"

5.1.13 Service guide with Preview Data via interaction channel

Test Case Id	BCAST-1.0-ESG-conf-113
Test Object	BCAST Terminal
Test Purpose	with a terminal requesting a Service Guide Delivery over the interactive 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-006 (O) **Secondary:** BCAST-SG-C-001 (O), BCAST-SG-C-002 (M), BCAST-SG-C-004 (O), BCAST-SG-C-010 (M), BCAST-SG-C-012 (O) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
Preconditions	Service guide cache of terminal is erased Terminal is configured to request BCAST service guide delivery on the interactive 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: • 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 interactive file delivery session • Image file “TvChannelIcon.jpg” 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 enable BCAST service guide delivery using interactive 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 • 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”

5.1.14 Service Guide with dual audio streams via interaction channel

Test Case Id	BCAST-1.0-ESG-conf-114
Test Object	BCAST Terminal
Test Purpose	with a terminal requesting a Service Guide Delivery over the interactive 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-001 (O), BCAST-SG-C-002 (M), BCAST-SG-C-004 (O), BCAST-SG-C-010 (M), BCAST-SG-C-012 (O) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
Preconditions	Service guide cache of terminal is erased Terminal is configured to request BCAST service guide delivery on the interactive 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: • 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 enable BCAST service guide delivery using interactive channel. • Activate the BCAST application of the terminal • Request from BCAST application on terminal to get the service guide • 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.

5.1.15 Service Guide discovery via broadcast channel

Test Case Id	BCAST-1.0-PROV-conf-101
Test Object	BCAST Terminal
Test Purpose	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 C.1
Tool	BCAST conformance test tool
Test code	[BCAST10-ATS] TC_BCAST_PROV_CONF_101

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: • 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)

5.1.16 Service Guide discovery via interaction channel (optional)

Test Case Id	BCAST-1.0-PROV-conf-102
Test Object	BCAST Terminal
Test Purpose	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 C.1
Tool	BCAST conformance test tool
Test code	[BCAST10-ATS] TC_BCAST_PROV_CONF_102

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: • 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)

5.2 File and Stream Distribution

5.2.1 File Distribution over Broadcast channel

5.2.1.1 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 Purpose	with a terminal having received Service Guide information related to a file ready for download via broadcast channel using ALC. 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, 5.1.2.5.3.2
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	None
Preconditions	Set up the test tool for Service Guide delivery to provide file delivery information for "File1". "File1" is available on the broadcast channel. This test cases uses the following SG fragment instantiations: Service fragment with Name=”FILE” Content fragment with Name=”File1” Schedule fragment with contentLocation set to URI for “name-of-the-file1”. Access fragment with with BroadcastServiceDelivery element containing • SessionDescription for an ALC session indicating FEC encoding 0 (Compact No-Code FEC) and • FileDescription with attributes Content-Location= "name-of-the-file1" and TOI="1". Transport Object with TOI=”1”. 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 “File1” via the broadcast channel • Set up the terminal to receive BCAST service guide announcements • Browse the SG in the terminal and select the "File1" to download • Wait for the file download Note: "File1" can be a jpg picture

Pass-Criteria	The following should be visible to the end user • There is a service “FILE” associated with file “File1” • The file is successfully downloaded to the terminal Note: To verify the file was correctly downloaded the picture should be correctly displayed.

5.2.1.2 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 Purpose	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 C.1
Tool	BCAST conformance test tool
Test code	[BCAST10-ATS] TC_BCAST_DIST_CONF_102
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: Service fragment with Name=”FILE” Content fragment with Name=”File2” Schedule fragment with contentLocation set to URI for “name-of-the-file1”. Access fragment with BroadcastServiceDelivery element containing SessionDescription for a FLUTE session indicating FEC encoding 0 (Compact No-Code FEC) and not containing FileDescription. Transport Object with TOI=”1”. Set the FLUTE session to contain an FDT-Instance with one File-element having attributes Content-Location="name-of-the-file1" and TOI="1" 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.

5.2.2 Support the delivery using HTTP over the Interaction Channel (optional)

Test Case Id	BCAST-1.0-DIST-conf-103
Test Object	BCAST Client
Test Purpose	with a terminal having received Service Guide information related to a file ready for download using http over the interaction channel. when the terminal downloads file via interaction channel then the terminal receives file and is able to display it
Specification Reference	[BCAST10-Distribution] Section 5.5.2, 8
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) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
Preconditions	Set up the test tool for Service Guide delivery to provide file delivery information for "File3". "File3" is available on the interaction channel. This test cases uses the following SG fragment instantiations: Service fragment with Name=”FILE” Content fragment with Name=”File3” Schedule fragment with contentLocation set to access URI for “File3” Access fragment with UnicastServiceDelivery element containing type set to 0 (HTTP) Note: All the fragments are associated with the same Service fragment. IPv4 is used File is GZIP encoded

Test Procedure	• Set up the terminal to receive BCAST service guide announcements • Browse the SG in the terminal and select the file 3 to download • Setup the test tool to distribute file “File3” via the interaction channel on request from the terminal • Wait for the file download Note: "File3" can be a jpg picture
Pass-Criteria	The following should be visible to the end user • There is a service “FILE” associated with file “File3” • The file is successfully downloaded to the terminal Note: To verify the file was correctly downloaded the picture should be correctly displayed.

5.2.3 Support of FEC RAPTOR (optional)

Test Case Id	BCAST-1.0-DIST-conf-104
Test Object	BCAST Client
Test Purpose	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 using FEC encoding ID 1 scheme then the terminal receives file and is able to display it
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). See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None

Preconditions	Set up the test tool for Service Guide delivery to provide file delivery information for "File4". "File4" is available on the broadcast channel. This test cases uses the following SG fragment instantiations: Service fragment with Name=”FILE” Content fragment with Name=”File4”# Schedule fragment with contentLocation set to URI for “name-of-the-file1”. Access fragment with BroadcastServiceDelivery element containing SessionDescription for a FLUTE session indicating FEC encoding 1 (FEC Raptor scheme) and not containing FileDescription. Transport Object with TOI=”1”. Set the FLUTE session to contain an FDT-Instance with one File-element having attributes Content-Location="name-of-the-file1" and TOI="1" Note: All the fragments are associated with the same Service fragment. IPv4 is File is GZIP encoded
Test Procedure	• Setup the test tool to distribute file “File4” via the broadcast channel • Set up the terminal to receive BCAST service guide announcements • Browse the SG in the terminal and select the "File4" to download • Wait for the file download Note: "File4" can be a jpg picture
Pass-Criteria	The following should be visible to the end user • There is a service “FILE” associated with file “File4” • The file is successfully downloaded to the terminal Note: To verify the file was correctly downloaded the picture should be correctly displayed.

5.2.4 File Versioning handling (optional)

Test Case Id	BCAST-1.0-DIST-conf-105
Test Object	BCAST Client
Test Purpose	with a terminal having received Service Guide information related to a file ready for download via broadcast channel using FLUTE. and having downloaded the file a first time when the terminal receives updated Service Guide information it downloads the file again via broadcast channel then the terminal receives file and is able to display it
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) See also Appendix C.1

Tool	BCAST conformance test tool
Test code	None
Preconditions	Set up the test tool for Service Guide delivery to provide file delivery information for "File2". "File2" is available on the broadcast channel. Initial service guide is used. This test cases uses the following SG fragment instantiations: Initial service guide: Service fragment with Name=”FILE” Content fragment with version = “1” and Name=”File2” Schedule fragment with contentLocation set to URI for “name-of-the-file1”. Access fragment with BroadcastServiceDelivery element containing SessionDescription for a FLUTE session and not containing FileDescription. Transport Object with TOI=”1”. Set the FLUTE session to contain an FDT-Instance with one File-element having attributes Content-Location="name-of-the-file1" and TOI="1" Updated service guide: Service fragment with Name=”FILE” Content fragment with version = “2” and Name=”File2” Schedule fragment with contentLocation set to URI for “name-of-the-file1”. Access fragment with BroadcastServiceDelivery element containing SessionDescription for a FLUTE session and not containing FileDescription. Transport Object with TOI=”1”. Set the FLUTE session to contain an FDT-Instance with one File-element having attributes Content-Location="name-of-the-file1" and TOI="1" Note: All the fragments are associated with the same Service fragment. IPv4 is used
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 • The file is downloaded • Set up the test tool for Service Guide delivery to provide file delivery information for "File2". "File2" is available on the broadcast channel. Updated service guide is used. • Set up the terminal to receive BCAST service guide announcements again • Browse the SG in the terminal and select the "File2" to download again • The file is again downloaded Note: "File2" can be a jpg picture
Pass-Criteria	The following should be visible to the end user • There is a service “FILE2” associated with file “File2” • The file is successfully downloaded to the terminal for a first time • The file is successfully downloaded for the second time Note: To confirm the download of the second version another file completely different from the first one can be used. To verify the file was correctly downloaded the pictures should be correctly displayed

5.2.5 Support of the post-delivery repair of files

Test Case Id	BCAST-1.0-DIST-conf-106
Test Object	BCAST Client
Test Purpose	with a terminal having received Service Guide information related to a file ready for download via broadcast channel using FLUTE when the terminal receives file and determines it to be corrupted then the terminal performs the file repair
Specification Reference	[BCAST10-Distribution] - Section 5.2, 5.3.3, 8, 9
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) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
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: Service fragment with Name=”FILE” Content fragment with Name=”File2” Schedule fragment with contentLocation set to URI for “name-of-the-file1”. Access fragment with BroadcastServiceDelivery element containing SessionDescription for a FLUTE session and not containing FileDescription. The SessionDescription element contains a ADPRef/idRef referencing an Associated Delivery Procedure Associated Delivery Procedure indicates postFileRepair and references one File Repair Server Transport Object with TOI=”1”. Set the FLUTE session to contain an FDT-Instance with one File-element having attributes Content-Location="name-of-the-file1" and TOI="1" Note: All the fragments are associated with the same Service fragment. IPv4 is used
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 • Terminal receives corrupted file • Terminal sends File Repair message (HTTP GET request) to File Repair Server • Test tool sends File Repair Response (HTTP 200 OK) • The requested (previously corrupted) file fragments are downloaded 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” • After the repair procedure the file is successfully downloaded to the for the second time Note: To verify the file was correctly downloaded the picture should be correctly displayed.

5.2.6 Support of reception report (optional)

Test Case Id	BCAST-1.0-DIST-conf-107
Test Object	BCAST Client
Test Purpose	with a terminal having received Service Guide information related to a file ready for download via broadcast channel using FLUTE and the Associated Procedure Description requested a reception report when the terminal receives file then the terminal sends Reception Report
Specification Reference	[BCAST10-Distribution] - Section 5.2, 5.3.2, 8, 9
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) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
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: Service fragment with Name=”FILE” Content fragment with Name=”File2” Schedule fragment with contentLocation set to URI for “name-of-the-file1”. Access fragment with BroadcastServiceDelivery element containing SessionDescription for a FLUTE session and not containing FileDescription. The SessionDescription element contains a ADPRef/idRef referencing an Associated Delivery Procedure Transport Object with TOI=”1”. Set the FLUTE session to contain an FDT-Instance with one File-element having attributes Content-Location="name-of-the-file1" and TOI="1" Associated Delivery Procedure indicates postReceptionReport with reportType set to " StaR " and samplePercentage set to "100" Note: All the fragments are associated with the same Service fragment. IPv4 is used

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 • The file is downloaded successfully • Terminal sends Reception Report message (HTTP POST) to FD • Test tool sends Reception Report Response (HTTP 200 OK) 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 The following should be observable for the test tool • Reception Report message is received Note: To verify the file was correctly downloaded the picture should be correctly displayed.

5.2.7 Support of Flute Session Setup and Control with RTSP (optional)

Test Case Id	BCAST-1.0-DIST-conf-108
Test Object	BCAST Client
Test Purpose	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, 8
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). See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None

Preconditions	Set up the test tool for Service Guide delivery to provide file delivery information for "File5". "File5" is available on the interaction channel. This test cases uses the following SG fragment instantiations: Service fragment with Name=”FILE” Content fragment with Name=”File5” Schedule fragment with contentLocation set to URI for “name-of-the-file1”. Access fragment with UnicastServiceDelivery element with type set to 6 (FLUTE over Unicast) and containing AccessServerURL pointing to an RTSP access server. Transport Object with TOI=”1”. Set the FLUTE session to contain an FDT-Instance with one File-element having attributes Content-Location="name-of-the-file1" and TOI="1" Note: All the fragments are associated with the same Service fragment. IPv4 is used
Test Procedure	• Setup the test tool to distribute file “File5” via the interaction channel • Set up the terminal to receive BCAST service guide announcements • Browse the SG in the terminal and select the "File5" • The terminal establishes the FLUTE session by using the RTSP SETUP method • The terminal requests initiation of file download by using the RTSP PLAY method • The terminal requests resumption of file download by using the RTSP PLAY method • The terminal requests the stop of file download by using the RTSP TEARDOWN method after the complete file has been received Note: "File5" can be a jpg picture IPv4 is used
Pass-Criteria	The following should be visible to the end user • There is a service “FILE” associated with file “File5” • There is a service “FILE” associated with file “File5” • When the user requests to initiation of file download, the transmission starts • When the user requests to suspension of file download, the transmission pauses • When the user requests to resumption of file download, the transmission resumes • The file is successfully downloaded The following should be observable for the test tool • RTSP SETUP is received • RTSP PLAY is received • RTSP PLAY is received • RTSP TEARDOWN is received Note: To verify the file was correctly downloaded the picture should be correctly displayed.

5.2.8 Support of RTP for stream distribution over the broadcast channel

Test Case Id	BCAST-1.0-DIST-conf-109
Test Object	BCAST Client
Test Purpose	with a terminal having received Service Guide information related to a programme ready for streaming via broadcast channel. when the terminal receives programme via broadcast channel then the terminal is able to display programme
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) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
Preconditions	Set up the test tool for Service Guide delivery to provide stream delivery information for "Programme1". "Programme1" is available on the broadcast channel. This test cases uses the following SG fragment instantiations: Service fragment with Name=”STREAM” Content fragment with Name=”Programme1” Access fragment for access to "Programme1” with BroadcastServiceDelivery element and a reference to the Session Description fragment (SessionDescriptor/SDPRef) and specification of an appropriate set of codecs Session Description fragment containing SDP for "Programme1” Note: All the fragments are associated with the same Service fragment. IPv4 is used
Test Procedure	• Setup the test tool to distribute file “Programme1” via the broadcast channel • Set up the terminal to receive BCAST service guide announcements • Browse the SG in the terminal and select the "Programme1" to render • The stream starts to be correctly rendered Note: "Programme1" must be a video or music file, 3gp and mp3 file types are recommended
Pass-Criteria	The following should be visible to the end user • There is a service “STREAM” associated with programme "Programme1" • “Programme1” can be viewed by the end user.

5.2.9 Support of RTP for stream distribution over the interaction channel using SDP (optional)

Test Case Id	BCAST-1.0-DIST-conf-110
Test Object	BCAST Client
Test Purpose	with a terminal having received Service Guide information related to a programme ready for streaming via interaction channel. when the terminal requests and receives programme via interaction channel using SDP then the terminal is able to display programme
Specification Reference	[BCAST10-Distribution] - Section 6.5
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) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
Preconditions	Set up the test tool for Service Guide delivery to provide stream delivery information for "Programme2". "Programme2" is available on the interaction channel. This test cases uses the following SG fragment instantiations: Service fragment with Name=”STREAM” Content fragment with Name=”Programme2” Access fragment for access to "Programme2” with UnicastServiceDelivery element with type set to 3 (Generic RTSP to initialize RTP delivery), containing AccessServerURL pointing to an RTSP access server and a containing SessionDescriptor/SDPRef referencing the Session Description fragment with specification of an appropriate set of codecs. Session Description fragment containing SDP for "Programme2” Note: All the fragments are associated with the same Service fragment. IPv4 is used
Test Procedure	• Setup the test tool to distribute file “Programme2” via the interaction channel • Set up the terminal to receive BCAST service guide announcements • Browse the SG in the terminal and select the “Programme2” to render, i.e. the terminal sets up and starts an RTSP session • The stream starts to be correctly rendered Note: “Programme2” must be a video or music stream which is supported by RTP, mp3 file types are recommended

Pass-Criteria	The following should be visible to the end user • There is a service "STREAM" associated with programme "Programme2" • "Programme2" can be viewed by the end user.

5.2.10 Support of RTP for stream distribution over the interaction channel using HTTP to get the stream description from the Access Fragment (optional)

Test Case Id	BCAST-1.0-DIST-conf-111
Test Object	BCAST Client
Test Purpose	With a terminal having received Service Guide information related to a programme ready for streaming via interaction channel. When the terminal requests it receivesthe programme streaming description embedded on the Access Fragment via interaction channel using HTTP then the terminal is able to display programme
Specification Reference	[BCAST10-Distribution] - Section 6.5
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) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
Preconditions	Set up the test tool for Service Guide delivery to provide stream delivery information for "Programme3". "Programme3" is available on the interaction channel. This test case uses the following SG fragment instantiations: Service fragment with Name="STREAM" Content fragment with Name="Programme3" Access fragment for access to "Programme3" with UnicastServiceDelivery element with type set to 3 or 4 or 5, containing AccessServerURL pointing to an RTSP access server and containing the field SDP with an inline Session Descriptor of the Programme stream on the SDP format embedded in a CDATA section or based 64-encoded and the SDP encoding field set accordingly Note: All the fragments are associated with the same Service fragment. IPv4 is used

Test Procedure	• Setup the test tool to distribute file “Programme3” via the interaction channel • Set up the terminal to receive BCAST service guide announcements • Browse the SG in the terminal and select the “Programme3” to render • The stream starts to be correctly rendered Note: “Programme3” must be a video or music file which is supported by RTP, 3gp file types are recommended
Pass-Criteria	The following should be visible to the end user • There is a service “STREAM” associated with programme “Programme3” • “Programme3” can be viewed by the end user.

5.2.11 Support of streaming associated procedure (optional)

Test Case Id	BCAST-1.0-DIST-conf-112
Test Object	BCAST Client
Test Purpose	with a terminal having received Service Guide information related to a programme ready for streaming via broadcast channel and the Associated Procedure Description requested a stream reception report. when the terminal receives programme via broadcast channel then the terminal sends Stream Reception Report
Specification Reference	[BCAST10-Distribution] - Section 6.3.1, 6.3.2
SCR Reference	**Primary:** BCAST-SD-C-013 (O) **Secondary:** BCAST-SD-C-014 (O) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
Preconditions	Set up the test tool for Service Guide delivery to provide stream delivery information for "Programme4". "Programme4" is available on the broadcast channel. This test cases uses the following SG fragment instantiations: Service fragment with Name=”STREAM” Content fragment with Name=” Programme4” Access fragment for access to "Programme4” with BroadcastServiceDelivery element and a reference to the Session Description fragment (SessionDescriptor/SDPRef). The SessionDescription element contains a ADPRef/idRef referencing a StreamingAssociatedProcedure element Session Description fragment containing SDP for "Programme4” StreamingAssociatedProcedure containing a FixedDurationMeasurement element indicating start and end time of measurement Note: All the fragments are associated with the same Service fragment. IPv4 is used

Test Procedure	• Setup the test tool to distribute file "Programme4" via the broadcast channel • Set up the terminal to receive BCAST service guide announcements • Browse the SG in the terminal and select the "Programme4" to render • The stream starts to be correctly rendered • Terminal sends Stream Reception Report message (HTTP POST) to SD Note: "Programme4" must be a video or music file, 3gp and mp3 file types are recommended
Pass-Criteria	The following should be visible to the end user • There is a service "STREAM" associated with programme "Programme4" • "Programme4" can be viewed by the end user. The following should be observable for the test tool • Stream Reception Report is received

5.3 Service Interaction

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

Test Case Id	BCAST-1.0-INTER-conf-101
Test Object	BCAST Terminal
Test Purpose	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 C.1
Tool	BCAST conformance test tool
Test code	[BCAST10-ATS] TC_BCAST_INTER_CONF_101

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: • 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 Set the FLUTE session to transport the InteractivityMediaDocument "iamd1.xml" with TOI=”1” and the file 'Vote.xhtml' with TOI=”2”. Set the FLUTE session to contain an FDT-Instance with two 'File'-elements; • one with attributes 'Content-Location="iamd1.xml"', 'Content-Type= "application/vnd.oma.bcast.imd+xml"' and 'TOI="1"' • and another with attributes 'Content-Location="Vote.xhtml"', 'Content-Type="text/html"' and 'TOI="2"'. 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

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

Test Case Id	BCAST-1.0-INTER-conf-102
Test Object	BCAST Terminal
Test Purpose	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 C.1
Tool	BCAST conformance test tool
Test code	[BCAST10-ATS] TC_BCAST_INTER_CONF_102
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: • 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 Set the FLUTE session to transport the InteractivityMediaDocument "iamd1.xml" with TOI=”1”. Set the FLUTE session to contain an FDT-Instance with a 'File'-element having attributes 'Content-Location="iamd1.xml"', 'Content-Type="application/vnd.oma.bcast.imd+xml"' and 'TOI="1"'. 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”

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

Test Case Id	BCAST-1.0-INTER-conf-103
Test Object	BCAST Terminal
Test Purpose	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 C.1
Tool	BCAST conformance test tool
Test code	[BCAST10-ATS] TC_BCAST_INTER_CONF_103

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: • 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 • InteractivityMediaDocument with MediaObject Set element pointing to the MMS Message Template. Set the FLUTE session to transport • InteractivityMediaDocument "iamd1.xml" with TOI=”1” • MMS Message Template “mmstemplate.gz” with TOI=”2”. Set the FLUTE session to contain an FDT-Instance with two 'File'-elements; • one with attributes Content-Location="iamd1.xml", Content-Type="application/vnd.oma.bcast.imd+xml" and 'TOI="1"' and • another with attributes Content-Location="mmstemplate.gz", Content-Type="text/html" and TOI="2". Note: All the fragments are associated with the same Service fragment and are sent in the same service guide delivery. The MMS Message Template contains the following files concatenated in one GZIP: • Message Template Definition • MMS Presentation Part • Image file “ChoiceA.jpg” • Image file “ChoiceB.jpg” • Text file “Instructions.txt”
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.

5.4 Terminal Provisioning

5.5 Mobility and Roaming

5.5.1 Availability of Roaming and Showing SG of visited service provider (optional)

Test Case Id	BCAST-1.0-MORO-conf-101
Test Object	BCAST Terminal
Test Case Description	After terminal receives SGDD(s) from announced session in visited service provider network, terminal acknowledges roaming by matching BSMFiltercode. Terminal requests RoamingRule and shows service guide of visited service provider.
Specification Reference	[BCAST10 –Services] Section 5.7, 5.7.1
SCR Reference	**Primary:** BCAST-SERVICES-C-025 (O) and BCAST-SERVICES-C-026 (O) **Secondary:** BCAST-SG-C-002 (M), BCAST-SG-C-004 (O), BCAST-SG-C-008 (M), BCAST-SG-C-010 (M), and BCAST-SG-C-011 (M)
Tool	BCAST conformance test tool
Test code	None
Preconditions	Terminal is configured to listen to BCAST service guide announcements session on the broadcast channel Terminal is provisioned with the following values: • <X>/BSMFilterCode/Value == 'Home_BSM' • <X>/BSMFilterCode/Type == '2' • <X>/BSMFilterCode/IsHomeBSM == 'true' • The other leaf node may have value but may skip them in this use case. Announced SGDD from visited service provider has the following value: • 'id' of 'BSMSelector' element == 'visitedSP.com/service1' • 'type' of 'BSMFilterCode' under "BSMSelector' == '2' • 'nonSmartcardCode' of 'BSMFilterCode' under 'BSMSelector' == 'Visited_BSM' • The other elements and attributes may have value. RomaingRuleRequest message have the following value: • 'UserID' == 'User_A' and 'type' of 'UserID' == '0' • 'nonSmartcardCode' of 'HomeBSMFilterCode' == 'Home_BSM' • 'BSMSelectorId' == 'visitedSP.com/service1' RoamingRuleResponse message have the following value: • 'id' of 'BSMSelectorId' == 'visitedSP.com/service1' • 'allowAll' of 'RoamingRuleType' == 'true'

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 • Setup the test tool to deliver SGDD • Receive SGDD by terminal • Acknowledge no matching BSMFilterCode between SGDD and terminal • Send RoamingRuleRequest message by terminal • Receive RoamingRuleRespone message by terminal • Receive service guide of visited service provider using SGDD • Browse service guide of visited service provider
Pass-Criteria	Service Guide of visited service provider should be visible to the user.

5.6 IPDC over DVB-H Adaptation

5.7 3GPP MBMS Adaptation

5.8 3GPP2 BCMCS Adaptation

5.9 Service provisioning and encryption

5.9.1 Smartcard profile and SRTP encryption (optional)

Note: Test cases BCAST-1.0-ServProt -101a, BCAST-1.0-ServProt -101b, BCAST-1.0-ServProt-101c, BCAST-1.0-ServProt-101d, BCAST-1.0-ServProt-101e, BCAST-1.0-ServProt-101f, BCAST-1.0-ServProt-101g are expected to be executed on one test run. One TTCN-3 script can be used to implement all of these.

5.9.1.1 Registration

Test Case Id	BCAST-1.0-ServProt-conf-101a
Test Object	BCAST Terminal
Test Case Description	When the BCAST Client is started in the terminal that initiates the MBMS User Service Registration procedure.
Specification Reference	[BCAST10-Services] Section 5.1.6.7
SCR Reference	Primary: N/A Secondary: N/A
Tool	BCAST conformance test tool
Test code	None
Preconditions	The service guide cache of the terminal is erased. The value for the ServiceID field (valid concatenation of a GlobalPurchaseItemID and a PurchaseDataReference) is known by the Terminal. UICC contains Key management function: GBA_U and (MBMS or BCAST) key management . UICC contains credentials and algorithms according to 34.108 [3GPP 34.108 v7] chapter 8a UICC SQN value is always constant There is a Service Guide available. For the Service Guide instantiation details see 5.9.1.3 **Purchasing information**. Can be tested at the same time as: 5.9.1.3 – Purchasing information

Test Procedure	1. Activate the BCAST application on the terminal. 2. Terminal initiates the MBMS User Service Registration procedure with User Service ID "oma-bcast-allservices" and establishes an IP connection with the BSM. o a. The Terminal sends an initial HTTP POST (Registration indication) without authentication header. o b. Test tool replies with HTTP 401 Unauthorized response with Digest challenge: RAND||AUTN (See Note1). o c. Terminal uses MRK and B-TID derived from the valid bootstrapping session (B-TID as username and Ks_ext_NAF (SRK) as password) and re-rends the POST request but this time with the authentication header (Note2). 3. The test tool replies with HTTP 200 OK. Note1: The use of test data proposed by the [3GPP TS 35.207-700 (Implementer's Test Data)] and [3GPP TS 35.208-700 (Design Conformance Test Data)] could facilitate the computing of valid data and to verify the return values. o Note2: In case there is no valid bootstrapping context, the terminal runs bootstrapping first as described in 5.9.1.2 **GBA-U Bootstrapping USIM**).
Pass-Criteria	o 2a. The terminal sends the Registration indication o 2c. The second POST request is properly formatted and contains the authentication header.

5.9.1.2 GBA-U Bootstrapping USIM

Test Case Id	BCAST-1.0-ServProt-conf-101b
Test Object	BCAST Terminal
Test Case Description	When the terminal needs to do authentication and there is no existing bootstrapping context that initiates the bootstrapping flow.
Specification Reference	[BCAST10–ServContProt] Section 6.5.1
SCR Reference	Primary: N/A Secondary: BCAST-SERVICES-C-007(O)
Tool	BCAST conformance test tool
Test code	None

Preconditions	No bootstrapping context exists between the terminal and the test tool. All existing credentials are marked as invalid. o The value for the ServiceID field (valid concatenation of a GlobalPurchaseItemID and a PurchaseDataReference) is known by the Terminal. o UICC contains Key management function: GBA_U and MBMS or BCAST key management . UICC contains credentials and algorithms according to 34.108 [3GPP 34.108 v7] chapter 8 UICC SQN value is always constant. BSF address is set up in the terminal Can be tested at the same time as: 5.9.1.1 – Registration
Test Procedure	1. Terminal retrieves from the Service Guide the permissionIssuerURI, and extracts from it the FQDN of the BSM. 2. Terminal detects that a bootstrapping procedure is needed (no valid SRK available). 3. The Terminal runs the bootstrapping procedure a. The Terminal sends an initial GET request (HTTP request) containing the private user identity (IMPI found in the USIM derived from IMSI as specified in [3GPP TS 23.003]). b. Test tool replies with HTTP 401 Unauthorized response with Digest challenge: RAND||AUTN (See Note1). c. RAND and AUTN are used by USIM to generate RES authentication challenge response (SQN is in sync). Terminal sends this response back to the test tool in Authorization header of GET (HTTP request). d. Test tool generates B-TID from the IMPI and sends a 200OK message including the B-TID and the Key lifetime of the key Ks back to the terminal e. The terminal stores B-TID and key lifetime in the USIM EF_{GBABP} file f. The terminal sends the NAF_ID received in step 1 (FQDN and UA security protocol Identifier), to the USIM and receives the returned Ks_ext_NAF At this time the test tool and the USIM share the bootstrap Key material Ks_int_NAF associated with B-TID.
Pass-Criteria	4a. The terminal sends a POST request with the appropriate IMPI. 4c. RES corresponds to the XRES in the test tool.

5.9.1.3 Purchasing information

Test Case Id	BCAST-1.0-ServProt-conf-101c
Test Object	BCAST Terminal

Test Case Description	When the terminal receives Service Guide containing purchase item, purchase channel and purchase data fragments then the terminal presents the information on the Service Guide
Specification Reference	[BCAST10 –ESG] Section 5.1.2.6, 5.1.2.7, 5.1.2.8 [BCAST10–ServContProt] Section 6.10.1, 6.10.1.2, 10.1.1
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), BCAST-SDP-C-014 (O), BCAST-SRTPsignal-C-030 (O)
Tool	BCAST conformance test tool
Test code	None
Preconditions	Set up the test tool to produce BCAST service guide announcement and delivery using broadcast channel. 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 the test tool. This test cases uses the following SG fragment instantiations: • 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 as 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 the SRTP encrypted service. • PurchaseItem fragment for service fragment with Description “Purchasable SRTPencrypted service” element. • PurchaseData fragment for purchaseItem fragment with PriceInfo and Description “Discount price available” 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. Continuation of / Can be tested at the same time as: 5.9.1.1– Registration
Test Procedure	1. Request from BCAST application on terminal to get the service guide (if not done automatically). 2. Browse the SG in the terminal

Pass-Criteria	○ 2. The service "PayTvChannel" is displayed with "Programme" schedule from start to end time and price information

5.9.1.4 Purchasing Service

Test Case Id	BCAST-1.0-ServProt-conf-101d
Test Object	BCAST Terminal
Test Case Description	When the user purchases an encrypted service then the terminal initiates the Service Request.
Specification Reference	[BCAST10 –ESG] Section 5.1.5.2, 5.1.5.2.1, 5.1.5.2.2 [BCAST10–ServContProt] Section 6.6
SCR Reference	Primary: BCAST-SERVICES-C-006(O), BCAST-SERVICES-C-007(O), BCAST-SERVICES-C-008(O), BCAST-KeyManagement-C-016 (O) Secondary: BCAST-SPCP-C-001 (O), BCAST-TerminalCapability-C-003 (O), BCAST-SPCP-C-005 (O), BCAST-SDP-C-014 (O), BCAST-SRTPsignal-C-030 (O)
Tool	BCAST conformance test tool
Test code	None
Preconditions	State: The test tool and the USIM share the bootstrap Key material Ks_int_NAF associated with B-TID. Continuation of / Can be tested at the same time as: 5.9.1.3 – Purchasing information Prerequisite for this test: 5.9.1.1 – Registration 5.9.1.3 – Purchasing information
Test Procedure	1. Purchase "PayTvChannel" on terminal. 2. Terminal initiates subscription procedure for the service "PayTvChannel" ○ a. The Terminal sends an initial HTTP POST (Service Request) without authentication header. ○ b. Test tool replies with HTTP 401 Unauthorized response with Digest challenge: RAND||AUTN. ○ c. Terminal uses MRK and B-TID derived from the valid bootstrapping session (B-TID as username and Ks_ext_NAF (SRK) as password) and re-rends the POST request but this time with the authentication header. 3. The test tool replies with Service Responce.
Pass-Criteria	○ 2a. The terminal sends Service Request for the service "PayTvChannel". ○ 2c. The second POST request is properly formatted and contains the authentication header.

5.9.1.5 Pull LTKM delivery

Test Case Id	BCAST-1.0-ServProt-conf-101e
Test Object	BCAST Terminal
Test Case Description	Test that an LTKM request and delivery can be correctly performed by the terminal.
Specification Reference	[BCAST10–ServContProt] Section 6.6
SCR Reference	Primary: BCAST-LTKM_SC-C-015 (O)
Tool	BCAST conformance test tool
Test code	None
Preconditions	▪ Bootstrapping context exists between conformance test tool (server) and the terminal. ▪ The terminal knows the IP address and port on which the STKM stream and the SRTP encrypted video and audio streams are being broadcasted. ▪ LTKM contains the following fields: o Key domainID= MCC1|| MNC1 o SEK/PEK ID = 0x03 0001 o EXT BCAST payload and security_policy_extension = 0x04 o KV: TSlow= 0x00; TShigh= 0x0F. Continuation of / Can be tested at the same time as: 0 – Purchasing Service Prerequisite for this test: 0 – Purchasing Service
Test Procedure	1. The test tool pushes an LTKM over UDP to the terminal and asks for a verification message with v-bit set to ‘1’.
Pass-Criteria	1. The verification message was sent by the terminal and is correctly formatted.

5.9.1.6 STKM delivery and usage

Test Case Id	BCAST-1.0-ServProt-conf-101f
Test Object	BCAST Terminal
Test Case Description	Test that a valid STKM stream is processed by the terminal.
Specification Reference	[BCAST10–ServContProt] Section 6.7
SCR Reference	Primary: BCAST-STKM_SC-C-10 (O)
Tool	BCAST conformance test tool

Test code	None
Preconditions	▪ The test tool is set up to stream encrypted audio and video for "Programme" as well as STKM stream on the broadcast channel. ▪ A bootstrapping context exists between conformance test tool (server) and terminal. ▪ An LTKM containing the SEK being used to protect the current TEKs has already been sent to the terminal. LTKM contains the following fields: o Key domainID= MCC1|| MNC1 o SEK/PEK ID = 0x03 0001 o EXT BCAST payload and security_policy_extension = 0x04 o KV: TSlow= 0x00; TShigh= 0x0F. ▪ The terminal knows the IP address and port on which the STKM stream and SRTP stream are being broadcast. Continuation of / Can be tested at the same time as: 5.9.1.5 – Pull LTKM delivery Prerequisite for this test: 5.9.1.5 – Pull LTKM delivery
Test Procedure	1. The terminal receives continuous STKMs stream for the service with the Key domain ID= MCC1|| MNC1. TEK ID of STKM is incremented for each TEK renewal with a cryptoperiod of 10s Within a crypto period TEK ID is not changed (STKM sent every second; i.e 10 times within the crypto period) but TS changes for each STKM within the crypto period. TS starts with 0x00 00 00 01 and TEK_ID with 0x00 01. If this requires too much processing on the server side, it is also possible to test without TS change during the crypto period but with for example an increment of 10 for each cryptoperiod.
Pass-Criteria	1. Video is displayed by the terminal for a time period of 20s. If the video is displayed during 15*10=150s, this means that TEK ID field is used for the checking of KV of SEK/PEK, instead of TS, which is an error.

5.9.1.7 Deregistration

Test Case Id	BCAST-1.0-ServProt-conf-101g
Test Object	BCAST Terminal
Test Case Description	Test that a deregistration flow can be processed by the terminal.
Specification Reference	[BCAST10-Services] Section 5.1.6.9
SCR Reference	Primary: N/A Secondary: N/A
Tool	BCAST conformance test tool
Test code	None

Preconditions	A bootstrapping context exists between a conformance test tool (server) and terminal. Continuation of / Can be tested at the same time as: 5.9.1.1 – Registration Prerequisite for this test: 5.9.1.1 – Registration
Test Procedure	1. The BCAST Client is terminated or suspended on the terminal (MBMS) or the timeout has expired after the registration (DVB-H). This should prompt a deregistration flow. 2. Terminal initiates the MBMS User Service Deregistration procedure. o a. The Terminal sends an initial HTTP POST (Deregistration indication) without authentication header. o b. Test tool replies with HTTP 401 Unauthorized response with Digest challenge: RAND||AUTN (See Note1). o c. Terminal uses MRK and B-TID derived from the valid bootstrapping session (B-TID as username and Ks_ext_NAF (SRK) as password) and re-rends the POST request but this time with the authentication header. 3. The test tool replies with HTTP 200 OK.
Pass-Criteria	o 2a. The terminal sends the Deregistration indication o 2c. The second POST request is properly formatted and contains the authentication header.

5.9.1.8 Smartcard-based Parental control support

Test Case Id	BCAST-1.0-ServProt--101h
Test Object	BCAST Terminal
Test Case Description	Test that a valid STKM stream with parental control access criteria is processed by the terminal.
Specification Reference	[BCAST10–ServContProt] Section 6.7.3.10.1
SCR Reference	Primary: BCAST-SC_ParentalControl-C-033 (O)
Tool	BCAST conformance test tool
Test code	None

Preconditions	▪ The test tool is set up to stream encrypted audio and video for "Programme" as well as STKM stream on the broadcast channel. ▪ A bootstrapping context exists between conformance test tool (server) and terminal. ▪ An LTKM containing the SEK being used to protect the current TEKs has already been sent to the terminal. LTKM contains the following fields: o Key domainID= MCC1|| MNC1 o SEK/PEK ID = 0x03 0001 o EXT BCAST payload and security_policy_extension = 0x04 o KV: TSlow= 0x0100; TShigh= 0x015F. ▪ The terminal knows the IP address and port on which the STKM stream and SRTP stream are being broadcast. ▪ In the smartcard the setting of the Level_granted is 0x0B and rating-type 0x00 with a PINCODE value: 020579 Continuation of / Can be tested at the same time as: 5.9.1.5 – Pull LTKM delivery Prerequisite for this test: 5.9.1.5 – Pull LTKM delivery
Test Procedure	2. The terminal receives continuous STKMs stream for the service with the Key domain ID= MCC1|| MNC1. The STKM stream contains parental control access criteria with different rating-values as follows: ▪ From TS= 0100 to TS= 0105 : rating_value is 0x04 ▪ From TS = 0106 to TS = 011F: rating_value is 0x0F TS increasing by one for each crypto-period (10s)
Pass-Criteria	1. The video is displayed during 50s 2. Then a message to the user is sent for the verification of PIN: verify PIN 3. Pin code is correctly entered (value of PINCODE 020579) and then 4. Video is displayed again

5.9.2 Smartcard Profile and IPSec encryption (optional)

5.9.2.1 Registration

Test Case Id	BCAST-1.0-ServProt-conf-111a
Test Object	BCAST Terminal
Test Case Description	When the BCAST Client is started in the terminal that initiates the MBMS User Service Registration procedure.
Specification Reference	[BCAST10-Services] Section 5.1.6.7
SCR Reference	Primary: N/A Secondary: N/A
Tool	BCAST conformance test tool
Test code	None

Preconditions	The service guide cache of the terminal is erased. The value for the ServiceID field (valid concatenation of a GlobalPurchaseItemID and a PurchaseDataReference) is known by the Terminal. UICC contains Key management function: GBA_U and (MBMS or BCAST) key management . UICC contains credentials and algorithms according to 34.108 [3GPP 34.108 v7] chapter 8 UICC SQN value is always constant There is a Service Guide available. For the Service Guide instantiation details see 5.9.2.3 **Purchasing information**. Can be tested at the same time as: 5.9.2.3 – Purchasing information
Test Procedure	4. Activate the BCAST application on the terminal. 5. Terminal initiates the MBMS User Service Registration procedure with User Service ID "oma-bcast-allservices" and establishes an IP connection with the BSM. o a. The Terminal sends an initial HTTP POST (Registration indication) without authentication header. o b. Test tool replies with HTTP 401 Unauthorized response with Digest challenge: RAND||AUTN (See Note1). o c. Terminal uses MRK and B-TID derived from the valid bootstrapping session (B-TID as username and Ks_ext_NAF (SRK) as password) and re-rends the POST request but this time with the authentication header (Note2). 6. The test tool replies with HTTP 200 OK. Note1: The use of test data proposed by the [3GPP TS 35.207-700 (Implementer's Test Data)] and [3GPP TS 35.208-700 (Design Conformance Test Data)] could facilitate the computing of valid data and to verify the return values. o Note2: In case there is no valid bootstrapping context, the terminal runs bootstrapping first as described in 5.9.2.2 **GBA-U Bootstrapping USIM**).
Pass-Criteria	o 2a. The terminal sends the Registration indication o 2c. The second POST request is properly formatted and contains the authentication header.

5.9.2.2 GBA-U Bootstrapping USIM

Test Case Id	BCAST-1.0-ServProt-conf-111b
Test Object	BCAST Terminal
Test Case Description	When the terminal needs to do authentication and there is no existing bootstrapping context that initiates the bootstrapping flow.

Specification Reference	[BCAST10–ServContProt] Section 6.5.1
SCR Reference	Primary: N/A Secondary: BCAST-SERVICES-C-007(O)
Tool	BCAST conformance test tool
Test code	None
Preconditions	No bootstrapping context exists between the terminal and the test tool. All existing credentials are marked as invalid. The value for the ServiceID field (valid concatenation of a GlobalPurchaseItemID and a PurchaseDataReference) is known by the Terminal. UICC contains Key management function: GBA_U and (MBMS or BCAST) key management . UICC contains credentials and algorithms according to 34.108 [3GPP 34.108 v7] chapter 8 UICC SQN value is always constant. BSF address is set up in the terminal. Can be tested at the same time as: 5.9.2.1 – Registration
Test Procedure	4. Terminal retrieves from the Service Guide the permissionIssuerURI, and extracts from it the FQDN of the BSM. 5. Terminal detects that a bootstrapping procedure is needed (no valid SRK available). 6. The Terminal runs the bootstrapping procedure a. The Terminal sends an initial GET request (HTTP request) containing the private user identity (IMPI found in the USIM derived from IMSI as specified in [3GPP TS 23.003]). b. Test tool replies with HTTP 401 Unauthorized response with Digest challenge: RAND||AUTN (See Note1). c. RAND and AUTN are used by USIM to generate RES authentication challenge response (SQN is in sync). Terminal sends this response back to the test tool in Authorization header of GET (HTTP) request. d. Test tool generates B-TID from the IMPI and sends a 200OK message including the B-TID and the Key lifetime of the key Ks back to the terminal e. The terminal stores B-TID and key lifetime in the USIM EF_{GBABP} file f. The terminal sends the NAF_ID received in step 1 (FQDN and UA security protocol Identifier), to the USIM and receives the returned Ks_ext_NAF At this time the test tool and the USIM share the bootstrap Key material Ks_int_NAF associated with B-TID.
Pass-Criteria	3a. The terminal sends a POST request with the appropriate IMPI. 3c. RES corresponds to the XRES in the test tool.

5.9.2.3 Purchasing Information

Test Case Id	BCAST-1.0-ServProt-conf-111c
Test Object	BCAST Terminal
Test Case Description	When the terminal receives Service Guide containing purchase item, purchase channel and purchase data fragments then the terminal presents the information on the Service Guide
Specification Reference	[BCAST10 –ESG] Section 5.1.2.6, 5.1.2.7, 5.1.2.8 [BCAST10–ServContProt] Section 6.10.1, 6.10.1.2, 10.1.1
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), BCAST-SDP-C-014 (O)
Tool	BCAST conformance test tool
Test code	None
Preconditions	Set up the test tool to produce BCAST service guide announcement and delivery using broadcast channel. 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 the test tool. This test cases uses the following SG fragment instantiations: • 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 as 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 the IPSec encrypted service. • PurchaseItem fragment for service fragment with Description “Purchasable IPSec encrypted service” element. • PurchaseData fragment for purchaseItem fragment with PriceInfo and Description “Discount price available” 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. Continuation of / Can be tested at the same time as: 5.9.2.1 – Registration

Test Procedure	1. Request from BCAST application on terminal to get the service guide (if not done automatically). 2. Browse the SG in the terminal
Pass-Criteria	2. The service "PayTvChannel" is displayed with "Programme" schedule from start to end time and price information

5.9.2.4 Purchasing Service

Test Case Id	BCAST-1.0-ServProt-conf-111d
Test Object	BCAST Terminal
Test Case Description	When the user purchases an encrypted service then the terminal initiates the Service Request.
Specification Reference	[BCAST10 –ESG] Section 5.1.5.2, 5.1.5.2.1, 5.1.5.2.2 [BCAST10–ServContProt] Section 6.6
SCR Reference	Primary: BCAST-SERVICES-C-006(O), BCAST-SERVICES-C-007(O), BCAST-SERVICES-C-008(O), BCAST-KeyManagement-C-016 (O) Secondary: BCAST-SERVPROT-C-001 (O), BCAST-TerminalCapability-C-003 (O), BCAST-SERVPROT-C-005 (O), BCAST-SDP-C-014 (O)
Tool	BCAST conformance test tool
Test code	None
Preconditions	State: The test tool and the USIM share the bootstrap Key material Ks_int_NAF associated with B-TID. Continuation of / Can be tested at the same time as: 5.9.2.3 – Purchasing information Prerequisite for this test: 5.9.2.1 – Registration 5.9.2.3 – Purchasing information
Test Procedure	4. Purchase "PayTvChannel" on terminal. 5. Terminal initiates subscription procedure for the service "PayTvChannel" a. The Terminal sends an initial HTTP GET (Service Request) without authentication header. b. Test tool replies with HTTP 401 Unauthorized response with Digest challenge: RAND||AUTN. c. Terminal uses MRK and B-TID derived from the valid bootstrapping session (B-TID as username and Ks_ext_NAF (SRK) as password) and re-rends the GET (HTTP) request but this time with the authentication header. 6. The test tool replies with Service Responce.

Pass-Criteria	2a. The terminal sends Service Request for the service "PayTvChannel". 2c. The second POST request is properly formatted and contains the authentication header.

5.9.2.5 Pull LTKM delivery

Test Case Id	BCAST-1.0-ServProt-conf-111e
Test Object	BCAST Terminal
Test Case Description	Test that an LTKM request and delivery can be correctly performed by the terminal.
Specification Reference	[BCAST10–ServContProt] Section 6.6
SCR Reference	Primary: BCAST-LTKM_SC-C-015 (O)
Tool	BCAST conformance test tool
Test code	None
Preconditions	▪ Bootstrapping context exists between conformance test tool (server) and the terminal. ▪ The terminal knows the IP address and port on which the STKM stream and the IPSec encrypted video and audio streams are being broadcasted. ▪ LTKM contains the following fields: o Key domainID= MCC1|| MNC1 o SEK/PEK ID = 0x03 0001 o EXT BCAST payload and security_policy_extension = 0x04 o KV: TSlow= 0x00; TShigh= 0x0F. Continuation of / Can be tested at the same time as: 5.9.2.4 – Purchasing Service Prerequisite for this test: 5.9.2.4 – Purchasing Service
Test Procedure	1. The test tool pushes an LTKM over UDP to the terminal and asks for a verification message with v-bit set to '1'.
Pass-Criteria	1. The verification message was sent by the terminal and is correctly formatted.

5.9.2.6 STKM delivery and usage

Test Case Id	BCAST-1.0-ServProt-conf-111f
Test Object	BCAST Terminal
Test Case Description	Test that a valid STKM stream is processed by the terminal.

Specification Reference	[BCAST10–ServContProt] Section 6.7
SCR Reference	Primary: BCAST-STKM_SC-C-10 (O)
Tool	BCAST conformance test tool
Test code	None
Preconditions	▪ The test tool is set up to stream encrypted audio and video for "Programme" as well as STKM stream on the broadcast channel. ▪ A bootstrapping context exists between conformance test tool (server) and terminal. ▪ An LTKM containing the SEK being used to protect the current TEKs has already been sent to the terminal. LTKM contains the following fields: o Key domainID= MCC1|| MNC1 o SEK/PEK ID = 0x03 0001 o EXT BCAST payload and security_policy_extension = 0x04 o KV: TSlow= 0x00; TShigh= 0x0F. ▪ The terminal knows the IP address and port on which the STKM stream and IPSec stream are being broadcast. Continuation of / Can be tested at the same time as: 5.9.3.5 – Pull LTKM delivery Prerequisite for this test: 5.9.3.5 – Pull LTKM delivery
Test Procedure	1. The terminal receives continuous STKMs stream for the service with the Key domain ID= MCC1|| MNC1. TEK ID of STKM is incremented for each TEK renewal with a cryptoperiod of 10s. Within a crypto period TEK ID is not changed (STKM sent every second; i.e 10 times within the crypto period) but TS changes for each STKM within the crypto period. TS starts with 0x00 00 00 01 and TEK_ID with 0x00 01. If this requires too much processing on the server side, it is also possible to test without TS change during the crypto period but with for example an increment of 10 for each cryptoperiod
Pass-Criteria	1. Video is displayed by the terminal for a time period of 20s. If the video is displayed during 15*10=150s, this means that TEK ID field is used for the checking of KV of SEK/PEK, instead of TS, which is an error.

5.9.2.7 Deregistration

Test Case Id	BCAST-1.0-ServProt-conf-111g
Test Object	BCAST Terminal
Test Case Description	Test that a deregistration flow can be processed by the terminal.
Specification Reference	[BCAST10-Services] Section 5.1.6.9

SCR Reference	Primary: N/A Secondary: N/A
Tool	BCAST conformance test tool
Test code	None
Preconditions	A bootstrapping context exists between a conformance test tool (server) and terminal. Continuation of / Can be tested at the same time as: 5.9.2.1 – Registration Prerequisite for this test: 5.9.2.1 – Registration
Test Procedure	1. The BCAST Client is terminated or suspended on the terminal (MBMS) or the timeout has expired after the registration (DVB-H). This should prompt a deregistration flow. 2. Terminal initiates the MBMS User Service Deregistration procedure. o a. The Terminal sends an initial HTTP POST (Deregistration indication) without authentication header. o b. Test tool replies with HTTP 401 Unauthorized response with Digest challenge: RAND||AUTN (See Note1). o c. Terminal uses MRK and B-TID derived from the valid bootstrapping session (B-TID as username and Ks_ext_NAF (SRK) as password) and re-rends the POST request but this time with the authentication header. 3. The test tool replies with HTTP 200 OK.
Pass-Criteria	2a. The terminal sends the Deregistration indication 2c. The second POST request is properly formatted and contains the authentication header.

5.9.2.8 Smartcard-based Parental control support

Test Case Id	BCAST-1.0-ServProt--111h
Test Object	BCAST Terminal
Test Case Description	Test that a valid STKM stream with parental control access criteria is processed by the terminal.
Specification Reference	[BCAST10–ServContProt] Section 6.7.3.10.1
SCR Reference	Primary: BCAST-SC_ParentalControl-C-033 (O)
Tool	BCAST conformance test tool
Test code	None

Preconditions	▪ The test tool is set up to stream encrypted audio and video for "Programme" as well as STKM stream on the broadcast channel. ▪ A bootstrapping context exists between conformance test tool (server) and terminal. ▪ An LTKM containing the SEK being used to protect the current TEKs has already been sent to the terminal. LTKM contains the following fields: o Key domainID= MCC1|| MNC1 o SEK/PEK ID = 0x03 0001 o EXT BCAST payload and security_policy_extension = 0x04 o KV: TSlow= 0x0100; TShigh= 0x015F. ▪ The terminal knows the IP address and port on which the STKM stream and IPSec stream are being broadcast. ▪ In the smartcard the setting of the Level_granted is 0x0B and rating-type 0x00 with a PINCODE value: 020579 Continuation of / Can be tested at the same time as: 5.9.1.5 – Pull LTKM delivery Prerequisite for this test: 5.9.1.5 – Pull LTKM delivery
Test Procedure	3. The terminal receives continuous STKMs stream for the service with the Key domain ID= MCC1|| MNC1. The STKM stream contains parental control access criteria with different rating-values as follows: ▪ From TS= 0100 to TS= 0105 : rating_value is 0x04 ▪ From TS = 0106 to TS = 011F: rating_value is 0x0F TS increasing by one for each crypto-period (10s)
Pass-Criteria	1. The video is displayed during 50s 2. Then a message to the user is sent for the verification of PIN: verify PIN 3. Pin code is correctly entered (value of PINCODE 020579) and then 4. Video is displayed again

5.9.3 Smartcard Profile and Ismacryp encryption (optional)

5.9.3.1 Registration

Test Case Id	BCAST-1.0-ServProt-conf-121a
Test Object	BCAST Terminal
Test Case Description	When the BCAST Client is started in the terminal that initiates the MBMS User Service Registration procedure.
Specification Reference	[BCAST10-Services] Section 5.1.6.7
SCR Reference	Primary: N/A Secondary: N/A
Tool	BCAST conformance test tool
Test code	None

Preconditions	The service guide cache of the terminal is erased. The value for the ServiceID field (valid concatenation of a GlobalPurchaseItemID and a PurchaseDataReference) is known by the Terminal. UICC contains Key management function: GBA_U and (MBMS or BCAST) key management . UICC contains credentials and algorithms according to 34.108 [3GPP 34.108 v7] chapter 8 UICC SQN value is always constant. There is a Service Guide available. For the Service Guide instantiation details see 5.9.3.3 **Purchasing information**. Can be tested at the same time as: 5.9.3.3 – Purchasing information
Test Procedure	1. Activate the BCAST application on the terminal. 2. Terminal initiates the MBMS User Service Registration procedure with User Service ID "oma-bcast-allservices" and establishes an IP connection with the BSM. a. The Terminal sends an initial HTTP POST (Registration indication) without authentication header. b. Test tool replies with HTTP 401 Unauthorized response with Digest challenge: RAND||AUTN (See Note1). c. Terminal uses MRK and B-TID derived from the valid bootstrapping session (B-TID as username and Ks_ext_NAF (SRK) as password) and re-rends the POST request but this time with the authentication header (Note2). 3. The test tool replies with HTTP 200 OK. Note1: The use of test data proposed by the [3GPP TS 35.207-700 (Implementer's Test Data)] and [3GPP TS 35.208-700 (Design Conformance Test Data)] could facilitate the computing of valid data and to verify the return values. Note2: In case there is no valid bootstrapping context, the terminal runs bootstrapping first as described in 5.9.3.2 **GBA-U Bootstrapping USIM**).
Pass-Criteria	2a. The terminal sends the Registration indication 2c. The second POST request is properly formatted and contains the authentication header.

5.9.3.2 GBA-U Bootstrapping USIM

Test Case Id	BCAST-1.0-ServProt-conf-121b
Test Object	BCAST Terminal
Test Case Description	When the terminal needs to do authentication and there is no existing bootstrapping context that initiates the bootstrapping flow.
Specification Reference	[BCAST10–ServContProt] Section 6.5.1

SCR Reference	Primary: N/A Secondary: BCAST-SERVICES-C-007(O)
Tool	BCAST conformance test tool
Test code	None
Preconditions	No bootstrapping context exists between the terminal and the test tool. All existing credentials are marked as invalid. The value for the ServiceID field (valid concatenation of a GlobalPurchaseItemID and a PurchaseDataReference) is known by the Terminal. UICC contains Key management function: GBA_U and (MBMS or BCAST) key management . UICC contains credentials and algorithms according to 34.108 [3GPP 34.108 v7] chapter 8 UICC SQN value is UICC SQN value is always constant. BSF address is set up in the terminal. Can be tested at the same time as: 5.9.3.1 – Registration
Test Procedure	1. Terminal retrieves from the Service Guide the permissionIssuerURI, and extracts from it the FQDN of the BSM. 2. Terminal detects that a bootstrapping procedure is needed (no valid SRK available). 3. The Terminal runs the bootstrapping procedure a. The Terminal sends an initial POST request (HTTP request) containing the private user identity (IMPI found in the USIM derived from IMSI as specified in [3GPP TS 23.003]). b. Test tool replies with HTTP 401 Unauthorized response with Digest challenge: RAND||AUTN (See Note1). c. RAND and AUTN are used by USIM to generate RES authentication challenge response (SQN is in sync). Terminal sends this response back to the test tool in Authorization header of POST request. d. Test tool generates B-TID from the IMPI and sends a 200OK message including the B-TID and the Key lifetime of the key Ks back to the terminal e. The terminal stores B-TID and key lifetime in the USIM EF_{GBABP} file f. The terminal sends the NAF_ID received in step 1 (FQDN and UA security protocol Identifier), to the USIM and receives the returned Ks_ext_NAF At this time the test tool and the USIM share the bootstrap Key material Ks_int_NAF associated with B-TID.
Pass-Criteria	3a. The terminal sends a POST request with the appropriate IMPI. 3c. RES corresponds to the XRES in the test tool.

5.9.3.3 Purchasing Information

Test Case Id	BCAST-1.0-ServProt-conf-121c
Test Object	BCAST Terminal
Test Case Description	When the terminal receives Service Guide containing purchase item, purchase channel and purchase data fragments then the terminal presents the information on the Service Guide
Specification Reference	[BCAST10 –ESG] Section 5.1.2.6, 5.1.2.7, 5.1.2.8 [BCAST10–ServContProt] Section 6.10.1, 6.10.1.2, 10.1.1
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), BCAST-SDP-C-014 (O)
Tool	BCAST conformance test tool
Test code	None
Preconditions	Set up the test tool to produce BCAST service guide announcement and delivery using broadcast channel. 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 the test tool. This test cases uses the following SG fragment instantiations: • 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 as in the presentationWindow element. • Access fragment for schedule fragment with KeyManagmentSystem, EncryptionType set to ISMACryp, and a reference to the Session Description fragment. • Session Description fragment containing SDP for "Programme” and the service protection information for the ISMACryp encrypted service. • PurchaseItem fragment for service fragment with Description “Purchasable ISMACryp encrypted service” element. • PurchaseData fragment for purchaseItem fragment with PriceInfo and Description “Discount price available” 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. Continuation of / Can be tested at the same time as: 5.9.3.1 – Registration

Test Procedure	1. Request from BCAST application on terminal to get the service guide (if not done automatically). 2. Browse the SG in the terminal
Pass-Criteria	2. The service "PayTvChannel" is displayed with "Programme" schedule from start to end time and price information

5.9.3.4 Purchasing Service

Test Case Id	BCAST-1.0-ServProt-conf-121d
Test Object	BCAST Terminal
Test Case Description	When the user purchases an encrypted service then the terminal initiates the Service Request.
Specification Reference	[BCAST10 –ESG] Section 5.1.5.2, 5.1.5.2.1, 5.1.5.2.2 [BCAST10–ServContProt] Section 6.6
SCR Reference	Primary: BCAST-SERVICES-C-006(O), BCAST-SERVICES-C-007(O), BCAST-SERVICES-C-008(O), BCAST-KeyManagement-C-016 (O) Secondary: BCAST-SERVPROT-C-001 (O), BCAST-TerminalCapability-C-003 (O), BCAST-SERVPROT-C-005 (O), BCAST-SDP-C-014 (O)
Tool	BCAST conformance test tool
Test code	None
Preconditions	State: The test tool and the USIM share the bootstrap Key material Ks_int_NAF associated with B-TID. Continuation of / Can be tested at the same time as: 5.9.3.3 – Purchasing information Prerequisite for this test: 5.9.3.1 – Registration 5.9.3.3 – Purchasing information
Test Procedure	1. Purchase "PayTvChannel" on terminal. 2. Terminal initiates subscription procedure for the service "PayTvChannel" o a. The Terminal sends an initial HTTP POST (Service Request) without authentication header. o b. Test tool replies with HTTP 401 Unauthorized response with Digest challenge: RAND||AUTN. o c. Terminal uses MRK and B-TID derived from the valid bootstrapping session (B-TID as username and Ks_ext_NAF (SRK) as password) and re-rends the POST request but this time with the authentication header. 3. The test tool replies with Service Responce.

Pass-Criteria	2a. The terminal sends Service Request for the service "PayTvChannel". 2c. The second POST request is properly formatted and contains the authentication header.

5.9.3.5 Pull LTKM delivery

Test Case Id	BCAST-1.0-ServProt-conf-121e
Test Object	BCAST Terminal
Test Case Description	Test that an LTKM request and delivery can be correctly performed by the terminal.
Specification Reference	[BCAST10–ServContProt] Section 6.6
SCR Reference	Primary: BCAST-LTKM_SC-C-015 (O)
Tool	BCAST conformance test tool
Test code	None
Preconditions	▪ Bootstrapping context exists between conformance test tool (server) and the terminal. ▪ The terminal knows the IP address and port on which the STKM stream and the ISMACryp encrypted video and audio streams are being broadcasted. ▪ LTKM contains the following fields: o Key domainID= MCC1|| MNC1 o SEK/PEK ID = 0x03 0001 o EXT BCAST payload and security_policy_extension = 0x04 o KV: TSlow= 0x00; TShigh= 0x0F. Continuation of / Can be tested at the same time as: 5.9.3.4 – Purchasing Service Prerequisite for this test: 5.9.3.4 – Purchasing Service
Test Procedure	1. The test tool pushes an LTKM over UDP to the terminal and asks for a verification message with v-bit set to '1'.
Pass-Criteria	1. The verification message was sent by the terminal and is correctly formatted.

5.9.3.6 STKM delivery and usage

Test Case Id	BCAST-1.0-ServProt-conf-121f
Test Object	BCAST Terminal
Test Case Description	Test that a valid STKM stream is processed by the terminal.

Specification Reference	[BCAST10–ServContProt] Section 6.7
SCR Reference	Primary: BCAST-STKM_SC-C-10 (O)
Tool	BCAST conformance test tool
Test code	None
Preconditions	▪ The test tool is set up to stream encrypted audio and video for "Programme" as well as STKM stream on the broadcast channel. ▪ A bootstrapping context exists between conformance test tool (server) and terminal. ▪ An LTKM containing the SEK being used to protect the current TEKs has already been sent to the terminal. LTKM contains the following fields: o Key domainID= MCC1|| MNC1 o SEK/PEK ID = 0x03 0001 o EXT BCAST payload and security_policy_extension = 0x04 o KV: TSlow= 0x00; TShigh= 0x0F. ▪ The terminal knows the IP address and port on which the STKM stream and ISMACryp stream are being broadcast. Continuation of / Can be tested at the same time as: 5.9.3.5 – Pull LTKM delivery Prerequisite for this test: 5.9.3.5 – Pull LTKM delivery
Test Procedure	1. The terminal receives continuous STKMs stream for the service with the Key domain ID= MCC1|| MNC1. TEK ID of STKM is incremented for each TEK renewal with a cryptoperiod of 10s. Within a crypto period TEK ID is not changed (STKM sent every second; i.e 10 times within the crypto period) but TS changes for each STKM within the crypto period. TS starts with 0x00 00 00 01 and TEK_ID with 0x00 01. If this requires too much processing on the server side, it is also possible to test without TS change during the crypto period but with for example an increment of 10 for each cryptoperiod
Pass-Criteria	1. Video is displayed by the terminal for a time period of 20s. If the video is displayed during 15*10=150s, this means that TEK ID field is used for the checking of KV of SEK/PEK, instead of TS, which is an error.

5.9.3.7 Deregistration

Test Case Id	BCAST-1.0-ServProt-conf-121g
Test Object	BCAST Terminal
Test Case Description	Test that a deregistration flow can be processed by the terminal.
Specification Reference	[BCAST10-Services] Section 5.1.6.9

SCR Reference	Primary: N/A Secondary: N/A
Tool	BCAST conformance test tool
Test code	None
Preconditions	A bootstrapping context exists between a conformance test tool (server) and terminal. Continuation of / Can be tested at the same time as: 5.9.3.1 – Registration Prerequisite for this test: 5.9.3.1 – Registration
Test Procedure	1. The BCAST Client is terminated or suspended on the terminal (MBMS) or the timeout has expired after the registration (DVB-H). This should prompt a deregistration flow. 2. Terminal initiates the MBMS User Service Deregistration procedure. a. The Terminal sends an initial HTTP POST (Deregistration indication) without authentication header. b. Test tool replies with HTTP 401 Unauthorized response with Digest challenge: RAND||AUTN (See Note1). c. Terminal uses MRK and B-TID derived from the valid bootstrapping session (B-TID as username and Ks_ext_NAF (SRK) as password) and re-rends the POST request but this time with the authentication header. 3. The test tool replies with HTTP 200 OK.
Pass-Criteria	2a. The terminal sends the Deregistration indication 2c. The second POST request is properly formatted and contains the authentication header.

5.9.3.8 Smartcard-based Parental control support

Test Case Id	BCAST-1.0-ServProt--121h
Test Object	BCAST Terminal
Test Case Description	Test that a valid STKM stream with parental control access criteria is processed by the terminal.
Specification Reference	[BCAST10–ServContProt] Section 6.7.3.10.1
SCR Reference	Primary: BCAST-SC_ParentalControl-C-033 (O)
Tool	BCAST conformance test tool
Test code	None

Preconditions	▪ The test tool is set up to stream encrypted audio and video for "Programme" as well as STKM stream on the broadcast channel. ▪ A bootstrapping context exists between conformance test tool (server) and terminal. ▪ An LTKM containing the SEK being used to protect the current TEKs has already been sent to the terminal. LTKM contains the following fields: o Key domainID= MCC1|| MNC1 o SEK/PEK ID = 0x03 0001 o EXT BCAST payload and security_policy_extension = 0x04 o KV: TSlow= 0x0100; TShigh= 0x015F. ▪ The terminal knows the IP address and port on which the STKM stream and ISMACrypt stream are being broadcast. ▪ In the smartcard the setting of the Level_granted is 0x0B and rating-type 0x00 with a PINCODE value: 020579 Continuation of / Can be tested at the same time as: 5.9.1.5 – Pull LTKM delivery Prerequisite for this test: 5.9.1.5 – Pull LTKM delivery
Test Procedure	4. The terminal receives continuous STKMs stream for the service with the Key domain ID= MCC1|| MNC1. The STKM stream contains parental control access criteria with different rating-values as follows: ▪ From TS= 0100 to TS= 0105 : rating_value is 0x04 ▪ From TS = 0106 to TS = 011F: rating_value is 0x0F TS increasing by one for each crypto-period (10s)
Pass-Criteria	1. The video is displayed during 50s 2. Then a message to the user is sent for the verification of PIN: verify PIN 3. Pin code is correctly entered (value of PINCODE 020579) and then 4. Video is displayed again

5.9.4 DRM Profile and IPSec encryption via broadcast channel (optional)

Test Case Id	BCAST-1.0-ServProt-conf-201
Test Object	BCAST Terminal
Test Purpose	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) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None
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: • 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 via DRM 2.0 ROAP (DRM) • 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".

5.9.5 DRM Profile and SRTP encryption via broadcast channel (optional)

Test Case Id	BCAST-1.0-ServProt-conf-211
Test Object	BCAST Terminal
Test Purpose	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) See also Appendix C.1
Tool	BCAST conformance test tool

Test code	None
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: • 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 via DRM 2.0 ROAP (DRM) • 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".

5.9.6 DRM Profile and ISMACryp encryption via broadcast channel (optional)

Test Case Id	BCAST-1.0-ServProt-conf-221
Test Object	BCAST Terminal
Test Purpose	with a terminal having received a service guide containing a service with purchase information on the Service Guide Delivery Channel and listening for an ISMACryp 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) See also Appendix C.1
Tool	BCAST conformance test tool
Test code	None

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: • 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 ISMACryp, and a reference to the Session Description fragment • Session Description fragment containing SDP for "Programme” and the service protection information for ISMACryp • PurchaseItem fragment for service fragment with Description “ISMACryp” 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 ISMACryp encrypted audio and video for “Programme” as well as key stream on broadcast channel • Setup the SEK delivery to the terminal via DRM 2.0 ROAP (DRM) • 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".

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: OMA-IOP-BRO-2007-0076, OMA-IOP-BRO-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, OMA-IOP-BRO-2007-0059R01
	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
Draft Versions OMA-ETS-BCAST_CON_Client-V1.0	01 Oct 2007	5.1.2, 5.13, 5.1.4	Incorporated CRs: OMA-IOP-BRO-2007-0135 OMA-IOP-BRO-2007-0136 OMA-IOP-BRO-2007-0140 OMA-IOP-BRO-2007-0192 OMA-IOP-BRO-2007-0193 OMA-IOP-BRO-2007-0194 OMA-IOP-BRO-2007-0195 OMA-IOP-BRO-2007-0196 OMA-IOP-BRO-2007-0197 OMA-IOP-BRO-2007-0198 OMA-IOP-BRO-2007-0199 OMA-IOP-BRO-2007-0200R01 OMA-IOP-BRO-2007-0201 OMA-IOP-BRO-2007-0202 OMA-IOP-BRO-2007-0203 OMA-IOP-BRO-2007-0204 OMA-IOP-BRO-2007-0205R02 OMA-IOP-BRO-2007-0206 OMA-IOP-BRO-2007-0207 OMA-IOP-BRO-2007-0208 OMA-IOP-BRO-2007-0215 OMA-IOP-BRO-2007-0216 OMA-IOP-BRO-2007-0217 OMA-IOP-BRO-2007-0218 OMA-IOP-BRO-2007-0219

			OMA-IOP-BRO-2007-0220 OMA-IOP-BRO-2007-0221 OMA-IOP-BRO-2007-0222 OMA-IOP-BRO-2007-0223 OMA-IOP-BRO-2007-0224 OMA-IOP-BRO-2007-0225 OMA-IOP-BRO-2007-0227R01 OMA-IOP-BRO-2007-0230R01 OMA-IOP-BRO-2007-0231R01
	04 Oct 2007	n/a	Correction of the status of the doc. (C -> D)
	12 Dec 2007	5.1.11	OMA-IOP-BRO-2007-0248R02
Draft Versions OMA-ETS-BCAST_CON_Client-V1.0	31 Jan 2008	All	Incorporated CRs: OMA-IOP-BRO-2008-0002R01
	13 Mar 2008	All	Incorporated CRs: OMA-IOP-BRO-2008-0050R01 OMA-IOP-BRO-2008-0051 OMA-IOP-BRO-2007-0289R02 Editorial updates
Candidate Version OMA-ETS-BCAST_CON_Client-V1.0	21 Apr 2008	n/a	Status changed to Candidate TP# OMA-TP-2008-0075R02-INP_BCAST_CON_Client_1.0_ETS_for_Candidate_reapproval
Draft Versions OMA-ETS-BCAST_CON_Client-V1.0	22 Apr 2008	5.10.2.	Incorporated CRs: OMA-IOP-BRO-2008-0067 OMA-IOP-BRO-2008-0083R01 OMA-IOP-BRO-2008-0079 OMA-IOP-BRO-2008-0081 OMA-IOP-BRO-2008-0085
	19 May 2008	5.9.1.8, 5.9.2.8, 5.9.3.8	Incorporated CR: OMA-IOP-BRO-2008-0069R03
	30 May 2008	5.2.10	Incorporated CR: OMA-IOP-BRO-2008-0095
Candidate Version OMA-ETS-BCAST_CON_Client-V1.0	17 Jun 2008	n/a	Status changed to Candidate TP# OMA-TP-2008-0211R01-INP_BCAST_1.0_CON_ETS_for_Candidate_re_approval
Draft Versions OMA-ETS-BCAST_CON_Client-V1.0	25 Jun 2008	5.2.10	Incorporated CR: OMA-IOP-BRO-2008-0102R01
Candidate Version OMA-ETS-BCAST_CON_Client-V1.0	07 Jul 2008	n/a	Status changed to Candidate TP# http://www.openmobilealliance.org/ftp/TP/ID/08/OMA-TP-2008-0274-INP_BCAST_1.0_CON_ETS_for_notification.zip
Draft Versions OMA-ETS-BCAST_CON_Client-V1.0	07 Nov 2008	5.5.1	Incorporated CR: OMA-IOP-BRO-2008-0179
Candidate Version OMA-ETS-BCAST_CON_Client-V1.0	17 Nov 2008	n/a	Status changed to Candidate TP# OMA-TP-2008-0451-INP_BCAST_1.0_CON_Client_ETS_for_notification

Appendix B. Structure of the test Service Guide

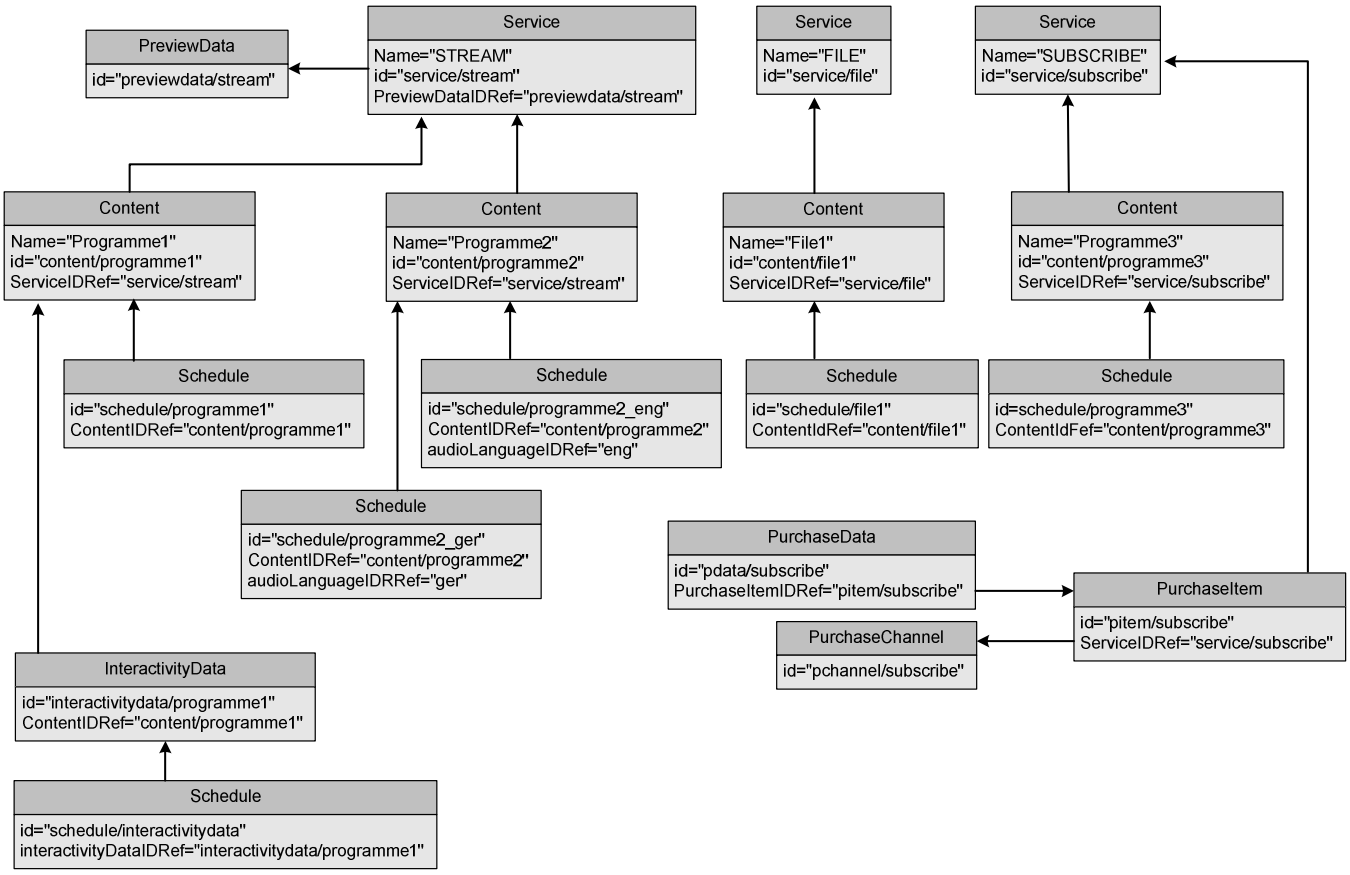

Figure 1: Structure of the Service Guide

Appendix C. Adaptation Test Coverage (Informative)

C.1 Conformance test coverage for Adaptation SCR's

Test Case id	Adaptation SCR Coverage		
	MBMS	DVB-H	BCMS
5.1.1	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-013 BCAST-MBMS-C-014 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	
5.1.2	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-010 BCAST-MBMS-C-014 BCAST-MBMS-C-018		
5.2.1	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-013 BCAST-MBMS-C-014 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	
5.2.2	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-013 BCAST-MBMS-C-014 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	
5.2.3	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-013 BCAST-MBMS-C-014 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	
5.2.4	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-013 BCAST-MBMS-C-014 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	
5.2.5	BCAST-MBMS-C-002 BCAST-MBMS-C-003 BCAST-MBMS-C-004	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-006	

	BCAST-MBMS-C-005 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-013 BCAST-MBMS-C-014 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-021	
5.2.6	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-013 BCAST-MBMS-C-014 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	
5.2.7	BCAST-MBMS-C-002 BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-013 BCAST-MBMS-C-014 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-006 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-021	
5.2.8	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-010 BCAST-MBMS-C-014 BCAST-MBMS-C-018		
5.2.9	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-010 BCAST-MBMS-C-014 BCAST-MBMS-C-018		
5.2.10	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-010 BCAST-MBMS-C-014 BCAST-MBMS-C-018		
5.2.11	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-010 BCAST-MBMS-C-014 BCAST-MBMS-C-018		
5.2.12	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-010 BCAST-MBMS-C-014 BCAST-MBMS-C-018		
5.2.13	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005		

	BCAST-MBMS-C-010 BCAST-MBMS-C-014 BCAST-MBMS-C-018		
5.2.14	BCAST-MBMS-C-002 BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-010 BCAST-MBMS-C-014 BCAST-MBMS-C-018		
5.3.1.1	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 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	
5.3.1.2	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 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	
5.3.2	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 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	
5.3.3	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-016 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 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	
5.3.4	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 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	
5.3.5	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-011	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-006 BCAST-DVBIPDC-C-009	

	BCAST-MBMS-C-012 BCAST-MBMS-C-017 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-020 BCAST-DVBIPDC-C-021	
5.3.6	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-017 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 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	
5.3.7	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-011 BCAST-MBMS-C-012 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 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	
5.3.8	BCAST-MBMS-C-002 BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-012 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 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	
5.3.9	BCAST-MBMS-C-002 BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-012 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 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	
5.3.10	BCAST-MBMS-C-002 BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-012 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 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	
5.3.11	BCAST-MBMS-C-002 BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-012 BCAST-MBMS-C-017 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 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	
5.4.1	BCAST-MBMS-C-003	BCAST-DVBIPDC-C-001	

	BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-005 BCAST-DVBIPDC-C-007 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012	
5.4.2	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-005 BCAST-DVBIPDC-C-007 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012	
5.4.3	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-005 BCAST-DVBIPDC-C-007 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-011 BCAST-DVBIPDC-C-012	
5.10.1.1	BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015	
5.10.1.2	BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015	
5.10.1.3	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-011 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015	
5.10.1.4	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015 BCAST-DVBIPDC-C-016 BCAST-DVBIPDC-C-017	
5.10.1.5	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015 BCAST-DVBIPDC-C-016 BCAST-DVBIPDC-C-017	
5.10.1.6	BCAST-MBMS-C-003 BCAST-MBMS-C-004	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002	

	BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020 BCAST-MBMS-C-022	BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015 BCAST-DVBIPDC-C-016 BCAST-DVBIPDC-C-017	
5.10.1.7	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015	
5.10.2.1	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015	
5.10.2.2	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015	
5.10.2.3	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015	
5.10.2.4	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015 BCAST-DVBIPDC-C-016 BCAST-DVBIPDC-C-018	
5.10.2.5	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015 BCAST-DVBIPDC-C-016 BCAST-DVBIPDC-C-018	
5.10.2.6	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020 BCAST-MBMS-C-023	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015 BCAST-DVBIPDC-C-016 BCAST-DVBIPDC-C-018	
5.10.2.7	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012	

	BCAST-MBMS-C-020	BCAST-DVBIPDC-C-015	
5.10.3.1	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015	
5.10.3.2	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015	
5.10.3.3	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015	
5.10.3.4	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015 BCAST-DVBIPDC-C-016 BCAST-DVBIPDC-C-019	
5.10.3.5	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015 BCAST-DVBIPDC-C-016 BCAST-DVBIPDC-C-019	
5.10.3.6	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020 BCAST-MBMS-C-024	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015 BCAST-DVBIPDC-C-016 BCAST-DVBIPDC-C-019	
5.10.3.7	BCAST-MBMS-C-003 BCAST-MBMS-C-004 BCAST-MBMS-C-005 BCAST-MBMS-C-006 BCAST-MBMS-C-018 BCAST-MBMS-C-020	BCAST-DVBIPDC-C-001 BCAST-DVBIPDC-C-002 BCAST-DVBIPDC-C-009 BCAST-DVBIPDC-C-010 BCAST-DVBIPDC-C-012 BCAST-DVBIPDC-C-015	
5.10.4		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-016 BCAST-DVBIPDC-C-018 BCAST-DVBIPDC-C-021	
5.10.5		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-016 BCAST-DVBIPDC-C-017 BCAST-DVBIPDC-C-021	
5.10.6		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-016 BCAST-DVBIPDC-C-019 BCAST-DVBIPDC-C-021	

Appendix D. Test Algorithm and Parameters (Normative)

D.1 Default algorithm

The algorithm used for authentication on the Test UICC SHALL be the XOR test algorithm described in [TS 34.108 v7] section 8.1.2.

D.2 Default parameter

The values in the following table shall be used as default parameter on Test SIM card and in Test Code.

Name	Description	Type	Value
AuthAMF	Authentication Management Field (16 bits).	bitstring (16)	'0000000000000000'B
AuthK	Authentication Key (128 bits)	bitstring (128)	‘00000000000000001000000100000001100000100000001010000001100000011100001000000010010000010100000010110000011000000110100001110000011’B
AuthN	Length of Extended value min 31, max 127 ([3GPP 34.108v7] cl. 8.1.2)	integer	31
AuthRAND	Authentication / Random challenge (128 bits)	bitstring (128)	‘01010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101’B
AuthSQN	Sequence number	bitstring(48)	'000000000000000000000000000000000000000000000000'B