



advancedtelevisionssystemscmmittteeinc

## **ATSC-Mobile DTV Standard, Part 4 – Announcement**

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# **ATSC Standard: ATSC Mobile DTV Standard, Part 4 – Announcement**

## **1 SCOPE**

The normative portions of this Part define a standard for announcement of services in an ATSC Mobile DTV (mobile/handheld, or simply M/H) broadcast stream. The Announcement System Specifications define the data formats and delivery mechanisms used to announce the content and services being delivered, or scheduled for delivery, in the M/H broadcast stream.

### **1.1 Organization**

This document is organized as follows:

- **Section 1** – Outlines the scope of this Part and provides a general introduction.
- **Section 2** – Lists references and applicable documents.
- **Section 3** – Provides a definition of terms, acronyms, and abbreviations for this Part.
- **Section 4** – System overview
- **Section 5** – System specifications
- **Section 6** – Data model for the Service Guide
- **Section 7** – Specifications for bootstrapping a Service Guide
- **Section 8** – Specifications for delivering a Service Guide
- **Section 9** – Specifications for updating a Service Guide
- **Annex A** – Global identifiers
- **Annex B** – Genre categories

## **2 REFERENCES**

At the time of publication, the editions indicated below were valid. All standards are subject to revision, and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the documents listed below.

### **2.1 Normative References**

The following documents contain provisions which, through reference in this text, constitute provisions of this Part.

- [1] IEEE/ASTM SI 10-2002, “Use of the International Systems of Units (SI): The Modern Metric System,” Institute of Electrical and Electronics Engineers, New York, N.Y.
- [2] OMA: “Service Guide for Mobile Broadcast Services,” Version 1.0, OMA-TS-BCAST\_Service\_Guide-V1\_0, Open Mobile Alliance, URL: <http://www.openmobilealliance.org>
- [3] W3C: Namespaces in XML 1.0 (Second Edition), W3C Recommendation, 16 August 2006, <http://www.w3.org/TR/2006/REC-xml-names-20060816/>.

- [4] ISO: “Codes for the Representation of Names of Languages Part 1: Alpha-2 Code,” Doc. ISO 639-2/B, 1998, International Standards Organization, Geneva, Switzerland.
- [5] IETF: “Multipurpose Internet Mail Extensions (MIME) Part One,” Doc. RFC 2045, Internet Engineering Task Force, Reston, VA, November 1996.
- [6] IETF: “International Standard Audiovisual Number (ISAN) URN Definition,” Doc. RFC 4246, Internet Engineering Task Force, Reston, VA, February 2006.
- [7] ATSC: “Content Identification and Labeling for ATSC Transport, Revision B,” Doc. A/57B, Advanced Television Systems Committee, Washington D.C., May 2008.
- [8] CEA: “U.S. and Canadian Rating Region Tables (RRT) and Content Advisory Descriptors for Transport of Content Advisory Information Using ATSC Program and System Information Protocol (PSIP),” Doc. ANSI/CEA-766-C, Consumer Electronics Association, Arlington, VA, April 2008.
- [9] OMA: XML Schema “Mobile Broadcast – Service Guide Fragments,” Version 1.0, Open Mobile Alliance™, OMA-SUP-XSD\_bcast\_sg\_fragments-V1\_0, URL: [http://www.openmobilealliance.org/tech/profiles/bcast\\_sg\\_fragments-v1\\_0.xsd](http://www.openmobilealliance.org/tech/profiles/bcast_sg_fragments-v1_0.xsd)
- [10] OMA: XML Schema “Mobile Broadcast – Service Guide Delivery Descriptor,” Version 1.0, Open Mobile Alliance™, OMA-SUP-XSD\_bcast\_sg\_sgdd-V1\_0, URL: [http://www.openmobilealliance.org/tech/profiles/bcast\\_sg\\_sgdd-v1\\_0.xsd](http://www.openmobilealliance.org/tech/profiles/bcast_sg_sgdd-v1_0.xsd)

## 2.2 Informative References

- [11] OMA: “Mobile Broadcast Services,” Version 1.0, Doc. OMA-TS-BCAST\_Services-V1\_0, Open Mobile Alliance, URL: <http://www.openmobilealliance.org/>.
- [12] ATSC: “Program and System Information Protocol for Terrestrial Broadcast and Cable,” Doc. A/65:2009, Advanced Television Systems Committee, Washington D.C., 14 April 2009.
- [13] ATSC: “ATSC Digital Television Standard, Part 2 – RF/Transmission System Characteristics,” Doc. A/53 Part 2:2007, Advanced Television Systems Committee, Washington, D.C., 3 January 2007.
- [14] ATSC: “ATSC Mobile/Handheld Digital Television Standard, Part 1 – Mobile/Handheld Digital Television System,” Doc. A/153 Part 1:2009, Advanced Television Systems Committee, Washington, D.C., 15 October 2009.
- [15] ATSC: “ATSC Mobile/Handheld Digital Television Standard, Part 3 – Service Multiplex and Transport Subsystem Characteristics,” Doc. A/153 Part 3:2009, Advanced Television Systems Committee, Washington, D.C., 15 October 2009.
- [16] IETF “SDP: Session Description Protocol,” Doc. RFC 4566, Internet Engineering Task Force, Reston, VA, July 2006.

## 3 DEFINITION OF TERMS

With respect to definition of terms, abbreviations, and units, the practice of the Institute of Electrical and Electronics Engineers (IEEE) as outlined in the Institute’s published standards [1]



shall be used. Where an abbreviation is not covered by IEEE practice or industry practice differs from IEEE practice, the abbreviation in question is described in Section 3.3 of this document.

### 3.1 Compliance Notation

As used in this document, “shall” denotes a mandatory provision of the standard. “Should” denotes a provision that is recommended but not mandatory. “May” denotes a feature whose presence does not preclude compliance, which may or may not be present at the option of the implementer.

### 3.2 Treatment of Syntactic Elements

This document contains symbolic references to syntactic elements used in the audio, video, and transport coding subsystems. These references are typographically distinguished by the use of a different font (e.g., *restricted*), may contain the underscore character (e.g., *sequence\_end\_code*) and may consist of character strings that are not English words (e.g., *dynrng*).

#### 3.2.1 Reserved Fields

**reserved** — Fields in this document marked “reserved” are not to be assigned by the user, but are available for future use. Receiving devices are expected to disregard reserved fields for which no definition exists that is known to that unit. Each bit in the fields marked “reserved” is to be set to ‘1’ until such time as it is defined and supported.

### 3.3 Acronyms and Abbreviation

The following acronyms and abbreviations are used within this specification.

**ATSC** – Advanced Television Systems Committee

**ISAN** – International Standard Audiovisual Number

**OMA** – Open Mobile Alliance

### 3.4 Terms

The following terms are used within this specification.

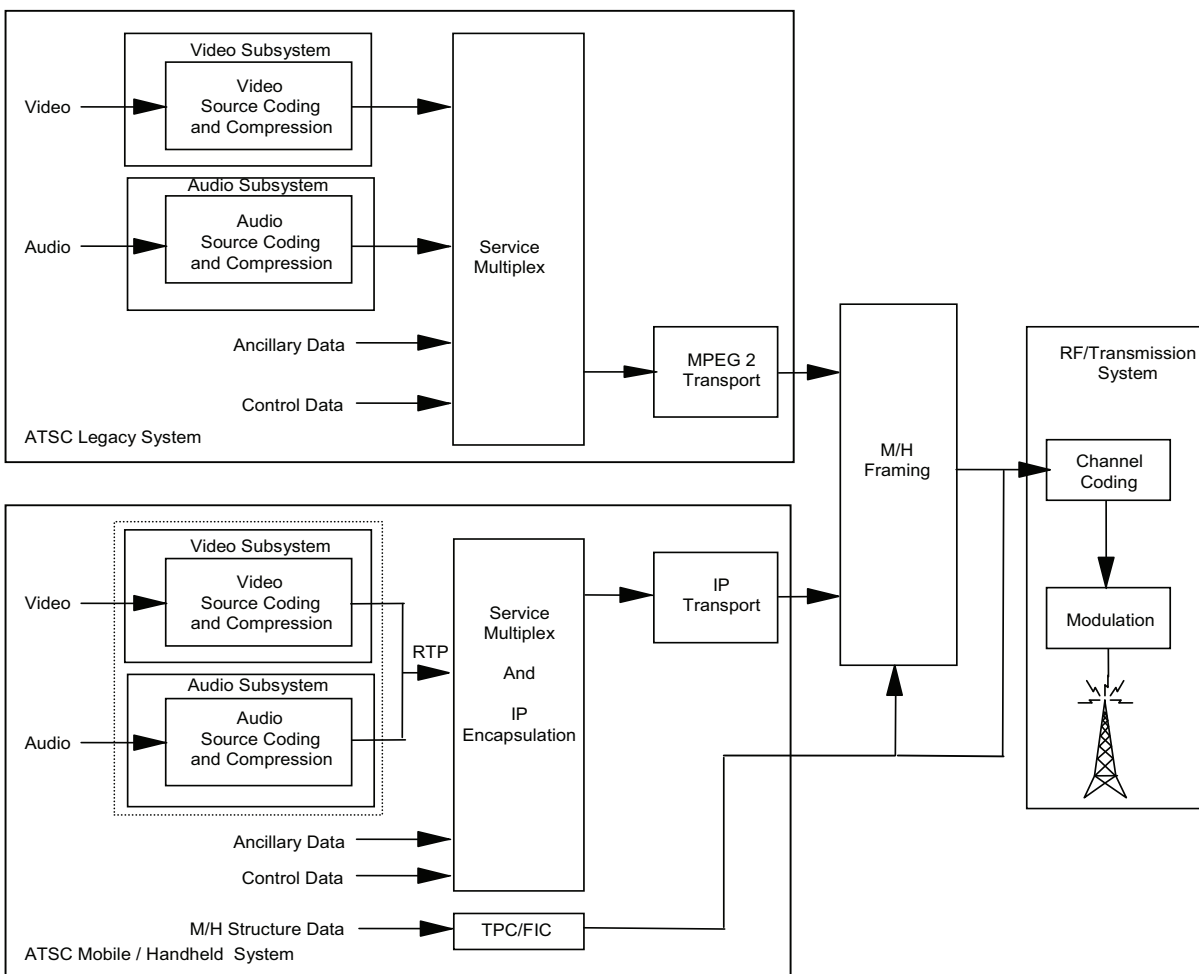
**Broadcast System** – The collection of equipment necessary to transmit signals of a specified nature.

**Local M/H Service** – A Service which appears in one and only one MH Broadcast. Typically this is a Service created by a local broadcaster which will not be transmitted by another broadcast facility other than a repeater.

**M/H Broadcast** – The entire M/H portion of a physical transmission channel.

**Regional M/H Service** – A Service which appears in two or more MH Broadcasts. Typically this is a Service transmitted by more than one broadcast facility.

**Reference Receiver** – A physical embodiment of hardware, operating system, and native applications of the manufacturer’s choice, which collectively constitute a receiver for which specified transmissions are intended.



**Figure 4.1** ATSC broadcast system with TS Main and M/H services.

#### 4 SYSTEM OVERVIEW (INFORMATIVE)

Please see ATSC A/153 Part 1 [14] for an overall description of the M/H system. The ATSC Mobile/Handheld service (M/H) shares the same RF channel as a standard ATSC broadcast service described in ATSC A/53 [13]. M/H is enabled by using a portion of the total available ~19.4 Mbps bandwidth and utilizing delivery over IP transport. The overall ATSC broadcast system including standard (TS Main) and M/H systems is illustrated in Figure 4.1.

In an ATSC-M/H system, the M/H Services available on that system (or another system) are announced via the Announcement subsystem. Services are announced using a Service Guide.

A Service Guide is a special M/H Service that is declared in the Service Signaling subsystem (A/153 Part 3) [15]. An ATSC-M/H receiver determines available Service Guides by reading the Guide Access Table for ATSC-M/H (GAT-MH). This table lists the Service Guides present in the M/H Broadcast, gives information about the service provider for each guide, and gives access information for each guide.

The ATSC-M/H Service Guide is an OMA BCAST Service Guide, with constraints and extensions as specified in this standard.

A Service Guide is delivered using one or more IP streams. The main stream delivers the Announcement Channel, and zero or more streams are used to deliver the guide data. If separate streams are not provided, guide data is carried in the Announcement Channel stream.

## **5 SYSTEM SPECIFICATIONS (NORMATIVE)**

The normative specifications for this Part are detailed here and in other sections as needed.

A Broadcast System may distribute a Service Guide over the ATSC-M/H channel describing services available via the ATSC-M/H system. A Broadcast System may distribute additional services guides, describing services available on that same Broadcast System or on other Broadcast Systems.

### **5.1 Relationship to ATSC-M/H Signaling (M2)**

Where the Service Guide and the M/H Service Signaling Channel [15] contain conflicting metadata, and there exists a defined semantic mapping between the two metadata items, the Service Signaling Channel metadata shall take precedence.

When any metadata element in the M/H Service Signaling Channel is present it shall take precedence over any data present in or absent from the Service Guide. The process to use for matching of metadata terms for which there is not a defined semantic mapping is undefined.

## **6 SERVICE GUIDE DATA MODEL (NORMATIVE)**

This Part defines a Service Guide for ATSC-M/H services based on OMA BCAST Service Guide, as given in reference [2]. This section defines the data model for the Service Guide.

### **6.1 Service Fragment**

Instantiation of the Service fragment shall conform to the XML Schema “Mobile Broadcast – Service Guide Fragments” [9]. Use of the portion of the Service fragment in Table 6.1 shall conform to the specifications in Section 5.1.2.1 of the OMA BCAST Service Guide [2]. Other elements and attributes may be instantiated.

**Table 6.1** Service Fragment

---

Service
<i>id</i>
<i>version</i>
<i>validFrom</i>
<i>validTo</i>
<i>globalServiceID</i>
<i>weight</i>
<i>baseCID</i>
<i>ServiceType</i>
Name
Description
AudioLanguage
<i>languageSDPtag</i>
TextLanguage
<i>languageSDPtag</i>
ParentalRating
<i>ratingSystem</i>
<i>ratingValueName</i>
Genre
Extension
<i>url</i>
<i>Description</i>
PreviewDataReference
<i>idRef</i>
<i>usage</i>
PrivateExt

---

The following constraints apply:

- The *globalServiceID* attribute of the Service element shall be instantiated and the value of the *globalServiceID* attribute shall be a URI of the form specified in Annex B Section B1. Note that the major and minor channel numbers of a service, if applicable, are expressed within this URI.
- For use of Genre, see Section 6.10.2.

The following adaptations and extensions apply:

- For use of ParentalRating, see Section 6.10.3.
- For use of PrivateExt, see Section 6.10.1.

## 6.2 Schedule Fragment

Instantiation of the Schedule fragment shall conform to the XML Schema “Mobile Broadcast – Service Guide Fragments” [9]. Use of the portion of the Schedule fragment in Table 6.2 shall

conform to the specifications in Section 5.1.2.2 of the OMA BCAST Service Guide [2]. Other elements and attributes may be instantiated.

**Table 6.2** Schedule Fragment

---

Schedule
<i>id</i>
<i>version</i>
<i>defaultSchedule</i>
<i>onDemand</i>
<i>validFrom</i>
<i>validTo</i>
ServiceReference
<i>idRef</i>
ContentReference
<i>idRef</i>
<i>contentLocation</i>
PresentationWindow
<i>startTime</i>
<i>endTime</i>
PrivateExt

---

The following constraints apply:

- A Schedule fragment instance shall reference only a single instantiation of a piece of content.
- At most one instance of the PresentationWindow element shall be instantiated as a child of a ContentReference element instance.

The following adaptations and extensions apply:

- For use of PrivateExt, see Section 6.10.1.

### 6.3 Content Fragment

Instantiation of the Content fragment shall conform to the XML Schema “Mobile Broadcast – Service Guide Fragments” [9]. Use of the portion of the Content fragment in Table 6.3 shall conform to the specifications in Section 5.1.2.3 of the OMA BCAST Service Guide [2]. Other elements and attributes may be instantiated.

**Table 6.3** Content Fragment

---

Content
<i>id</i>
<i>version</i>
<i>validFrom</i>
<i>validTo</i>
<i>globalContentID</i>
<i>baseCID</i>
ServiceReference
<i>idRef</i>
<i>weight</i>
Name
Description
StartTime
EndTime
AudioLanguage
<i>languageSDPtag</i>
TextLanguage
<i>languageSDPtag</i>
Length
ParentalRating
<i>ratingSystem</i>
<i>ratingValueName</i>
Genre
Extension
<i>url</i>
<i>Description</i>
PreviewDataReference
<i>idRef</i>
<i>usage</i>
PrivateExt

---

The following constraints apply:

- The *globalContentID* attribute of the Content element shall be instantiated and the value of the *globalContentID* attribute shall be a URI of the form specified in Annex A.2.
- For use of Genre, see Section 6.10.2.

The following adaptations and extensions apply:

- For use of ParentalRating, see Section 6.10.3.
- For use of PrivateExt, see Section 6.10.1.

## 6.4 Access Fragment

Instantiation of the Access fragment shall conform to the XML Schema “Mobile Broadcast – Service Guide Fragments” [9]. Use of the portion of the Access fragment in Table 6.4 shall conform to the specifications in Section 5.1.2.4 of the OMA BCASST Service Guide [2]. Other elements and attributes may be instantiated.

**Table 6.4** Access Fragment

---

Access
<i>id</i>
<i>version</i>
<i>validFrom</i>
<i>validTo</i>
AccessType
BroadcastServiceDelivery
BDSType
Type
Version
SessionDescription
SDP
<i>encoding</i>
SDPRef
<i>uri</i>
<i>idRef</i>
UnicastServiceDelivery
<i>type</i>
AccessServerURL
SessionDescription
SDP
<i>encoding</i>
SDPRef
<i>uri</i>
<i>idRef</i>
KeyManagementSystem
<i>kmsType</i>
<i>protectionType</i>
PermissionIssuerURI
EncryptionType
ServiceReference
<i>idRef</i>
ScheduleReference

**Table 6.4** Access Fragment

---

<i>idRef</i>
TerminalCapabilityRequirements
Video
Complexity
Bitrate
<i>maximum</i>
Resolution
<i>horizontal</i>
<i>vertical</i>
<i>temporal</i>
Audio
Complexity
Bitrate
<i>maximum</i>
DownloadFile
MIMEType
<i>codec</i>
ServiceClass
PrivateExt

---

The following constraints apply:

- The value of the `kmsType` attribute of the `KeyManagementSystem` element shall be 0, indicating the OMA BCASD DRM Profile.
- The values of the `ServiceClass` element defined by this Part are:
  - urn:oma:bcasD:oma\_bsc:fc:1.0 (E.2.2 file carousel service)
  - urn:oma:bcasD:oma\_bsc:st:1.0 (E.2.6 streaming service)
  - urn:oma:bcasD:oma\_bsc:rifc:1.0 (E.2.7 OMA DRM Registration Layer and Rights Management Layer)
- Other values of the `ServiceClass` element may be used, but their use is not defined by this Part.

The following adaptations and extensions apply:

- The value of the `Version` element within `BDSType` shall be “1.0”.
- For use of `PrivateExt`, see Section 6.10.1.

## 6.5 Session Description Fragment

Broadcast Systems shall deliver session description information for services advertised by a Service Guide as specified by Section 5.1.2.5 of OMA BCASD Service Guide [2].

Note that the Session Description fragment takes a different form than the other OMA BCASD fragment types—it is not an XML document fragment but an instance of a Session Description Protocol (SDP) document, as specified by IETF RFC 4566[16].



## 6.6 Purchase Item Fragment

An ATSC-M/H service may optionally utilize Service Provisioning [11] for purchasing of or subscription to content and services. When Service Provisioning is used, the ATSC-M/H emission shall conform to the provisions of this Part.

Instantiation of the PurchaseItem fragment shall conform to the XML Schema “Mobile Broadcast – Service Guide Fragments” [9]. Use of the portion of the PurchaseItem fragment in Table 6.5 shall conform to specifications in Section 5.1.2.6 of the OMA BCAST Service Guide [2], with the adjustments specified in this document. Other elements and attributes may be instantiated.

**Table 6.5** PurchaseItem Fragment

---

PurchaseItem
<i>id</i>
<i>version</i>
<i>validFrom</i>
<i>validTo</i>
<i>globalPurchaseItemID</i>
<i>binaryPurchaseItemID</i>
<i>weight</i>
ServiceReference
<i>idRef</i>
ScheduleReference
<i>idRef</i>
Name
Description
StartTime
EndTime
ParentalRating
<i>ratingSystem</i>
<i>ratingValueName</i>
Extension
<i>url</i>
<i>Description</i>
PrivateExt

---

The following adaptations and extensions apply:

- For Broadcast Systems and the Reference Receiver supporting broadcast-only or mixed-mode operation for the OMA BCAST DRM Profile, the `binaryPurchaseItemID` attribute of the `PurchaseItem` element shall be supported.
- For use of `ParentalRating`, see Section 6.10.4.
- For use of `PrivateExt`, see Section 6.10.1.

## 6.7 Purchase Data Fragment

An ATSC-M/H service may optionally utilize Service Provisioning [11] for purchasing of or subscription to content and services. When Service Provisioning is used, the ATSC-M/H emission shall conform to the provisions of this Part.

Instantiation of the PurchaseData fragment shall conform to the XML Schema “Mobile Broadcast – Service Guide Fragments” [9]. Use of the portion of the PurchaseData fragment in Table 6.6 shall conform to specifications in Section 5.1.2.7 of the OMA BCASST Service Guide [2], with the adjustments specified in this Part. Other elements and attributes may be instantiated.

**Table 6.6** PurchaseData Fragment

---

PurchaseData
<i>id</i>
<i>version</i>
<i>validFrom</i>
<i>validTo</i>
Description
PriceInfo
<i>subscriptionType</i>
MonetaryPrice
<i>currency</i>
SubscriptionPeriod
PurchaseItemReference
<i>idRef</i>
PurchaseChannelReference
<i>idRef</i>
PreviewDataReference
<i>idRef</i>
<i>usage</i>
PrivateExt

---

The following adaptations and extensions apply:

- For use of PrivateExt, see Section 6.10.1.

## 6.8 Purchase Channel Fragment

An ATSC-M/H service may optionally utilize Service Provisioning for purchasing of or subscription to content and services. When Service Provisioning is used, the ATSC-M/H emission shall conform to the provisions of this Part.

Instantiation of the PurchaseChannel fragment shall conform to the XML Schema “Mobile Broadcast – Service Guide Fragments” [9]. Use of the portion of the PurchaseChannel fragment in Table 6.7 shall conform to specifications in Section 5.1.2.8 of the OMA BCASST Service Guide [2], with the adjustments specified in this document. Other elements and attributes may be instantiated.

**Table 6.7** PurchaseChannel Fragment

---

PurchaseChannel
<i>id</i>
<i>version</i>
<i>validFrom</i>
<i>validTo</i>
<i>rightsIssuerURI</i>
PortalURL
<i>supportedService</i>
<i>kmsType</i>
PurchaseURL
<i>kmsType</i>
Name
Description
ContactInfo
PrivateExt

---

The following constraints apply:

- The value of the *kmsType* attribute of the PortalURL element and PurchaseURL element shall be 0, indicating the OMA BCASD DRM Profile.

The following adaptations and extensions apply:

- For Broadcast Systems and the Reference Receivers supporting broadcast-only or mixed-mode operation for the OMA BCASD DRM Profile, the *rightsIssuerURI* attribute of the PurchaseChannel element shall be supported. In this case, Broadcast Systems shall include the attribute in all instances of the PurchaseChannel element and the Reference Receiver shall use this attribute to identify the rights issuer associated with their service.
- For use of PrivateExt, see Section 6.10.1.

## 6.9 Preview Data Fragment

To deliver an image serving as a preview for a content or service, for example, a logo, Broadcast Systems shall instantiate the Preview Data fragment from OMA BCASD Service Guide [2] with the elements and attributes in Table 6.8. Instantiation of the Preview Data fragment shall conform to the XML Schema “Mobile Broadcast – Service Guide Fragments” [9]. Other elements and attributes may be instantiated. Broadcast Systems should provide preview images for services delivered over an ATSC-M/H system.

**Table 6.8** PreviewData Fragment

---

PreviewData
<i>id</i>
<i>version</i>
<i>validFrom</i>
<i>validTo</i>
Picture
PictureURI
MIMEType
AccessReference
<i>idRef</i>
PrivateExt

---

The following constraints apply:

- Preview images shall be delivered in one of the following formats: JPEG, PNG.
- The maximum size of a preview image shall be 416 pixels wide by 240 pixels high.
- The PictureURI element shall be instantiated, and the URI shall either have the ‘http’ scheme or refer to the ‘Content-Location’ attribute of a file in a file delivery session as specified in Section 5.1.2.9 of the OMA BCASST Service Guide [2].
- All instances of the PreviewData fragment shall refer to exactly one Access fragment instance, via the ‘idRef’ attribute of the AccessReference element.
- For use of PrivateExt, see Section 6.10.1.

## 6.10 Common Elements

This section describes the use of some elements common to the various fragment types.

### 6.10.1 PrivateExt

An ATSC-M/H system shall only extend a fragment by including private elements within the PrivateExt element. All such extension elements shall be indicated with an XML namespace. The namespace name shall be a URI conforming to W3C Namespaces in XML [3] and shall include a domain registered to the organization providing the private extension.

### 6.10.2 Genre

The Genre element shall be instantiated to describe the genre category for a service or for content.

The ‘href’ attribute value shall select a particular genre category and be set as follows:

<classificationSchemeURI> “:” <termID>

where <classificationSchemeURI> is <http://www.atsc.org/XMLSchemas/mh/2009/1.0/genre-cs/> and <termID> matches a termID value from the classification schema in Annex B.

The Genre element content shall be an empty string.

### 6.10.3 Parental Advisories (Ratings)

This section establishes the usage of the OMA BCASST Service Guide ParentalRating element to represent the supported content advisory regions in the ATSC content advisory rating system [12].

#### 6.10.3.1 Mapping Common to all Rating Regions

A ParentalRating element may be used to indicate ratings for any or all of the rating dimensions defined in an ATSC RRT (Rating Region Table) for any given rating region, except as constrained below for specific rating regions. Ratings for multiple rating regions may be represented by multiple instances of the ParentalRating element. Multiple instances of the ParentalRating element for the same rating region shall not appear.

When a ParentalRating element is used to represent a content advisory for a program, the ratingSystem attribute shall be present, and its unsignedByte value shall be 11 (which is registered in the OMA BCASST Parental Rating System Registry as the value for the ATSC Content Advisory rating system).

The string value of the ParentalRating element shall be constructed as follows:

- The two leftmost characters of the string shall be decimal digits representing the rating region code.
- This shall be followed by one or more pairs of decimal digits. The leftmost digit on each pair shall represent a rating dimension for the rating region. The rightmost digit shall represent a rating value for the rating dimension.

The absence of a ParentalRating element having ratingSystem attribute value equal to 11 implies the absence of ATSC Content Advisory ratings for all regions. The absence of ratings for a specific region implies the absence of ratings for all of the dimensions in the region. The absence of a rating for a specific dimension is completely equivalent to having a zero-valued rating for such a dimension.

#### 6.10.3.2 Mapping Specific to the U.S. Rating Region (0x01)

When a ParentalRating element is used to represent an ATSC Content Advisory rating for rating region 0x01, only the combinations of dimensions and rating code numbers from a single row of Table 3 of ANSI/CEA-766 [8] shall appear. Moreover, the ratingValueName attribute shall be present, and its string value for each combination of dimensions and rating values shall be the corresponding string for that row as shown in the first column of Table 3 of ANSI/CEA-766 [8], except with any dashes after the first two omitted.

#### 6.10.3.3 Mapping Specific to the Canadian Rating Region (0x02)

When a ParentalRating element is used to represent an ATSC Content Advisory rating for rating region 0x02, the only combinations of dimensions and rating values that shall appear are those from a single row in Table 4 of ANSI/CEA-766 [8]. Moreover, the ratingValueName attribute shall be present, and its string value for each combination of dimensions and rating values shall be the corresponding Symbol shown in Section 5.3 of ANSI/CEA-766 [8].

#### 6.10.3.4 Other Rating Region Mappings

Other rating region table mappings are not currently defined, but code values 0x03 through 0x05 are established in ANSI/CEA-766 [8]. Use of the region table values not defined in ANSI/CEA-766 [8] is not supported.

## **7 SERVICE GUIDE BOOTSTRAP (NORMATIVE)**

This Part defines a Service Guide bootstrap mechanism whereby the Reference Receiver can discover information about the availability, structure and delivery mechanisms of the Service Guide(s) available on an ATSC-M/H system and begin processing the guide(s).

The Service Guide(s) available on an ATSC-M/H system are announced in the Guide Access Table (GAT-MH) of the M/H Service Signaling Channel as specified in Section 6.6 of A/153 Part 3 [15].

A Service Guide available exclusively over the interaction channel may be used with an ATSC-M/H system. However, bootstrapping of such a guide is out of scope of this Part.

## **8 SERVICE GUIDE DELIVERY (NORMATIVE)**

This Part defines the delivery of a Service Guide over both the broadcast channel – an ATSC-M/H Broadcast System – and the interaction channel.

### **8.1 General Delivery Mechanism**

A Broadcast System shall broadcast a file delivery session carrying the Announcement Channel for each Service Guide it distributes, as specified by Section 5.4.1.5.1 of OMA BCAST Service Guide [2]. The file delivery session shall use FLUTE for file transport. The access parameters for the session shall be signaled in the Signaling Layer as described in Section 7 of this Part.

#### **8.1.1 Service Guide Delivery Descriptor**

The Service Guide Delivery Descriptor (SGDD) is an XML document that the Broadcast System uses to describe the structure and declare the content of the Service Guide. The Announcement Channel carries one or more SGDDs. A SGDD advertises the existence of a set of fragments in the Service Guide. Collectively those SGDDs declare the exhaustive list of the fragments in the Service Guide.

Instantiation of the `ServiceGuideDeliveryDescriptor` element by Broadcast Systems shall conform to the XML Schema “Mobile Broadcast – Service Guide Delivery Descriptor” [10]. Use of the portion of the `ServiceGuideDeliveryDescriptor` element in Table 8.1 shall conform to specifications in Section 5.4.1.5.2 of the OMA BCAST Service Guide [2]. Other elements and attributes may be instantiated.

**Table 8.1** Service Guide Delivery Descriptor (SGDD)

---

ServiceGuideDeliveryDescriptor
<i>id</i>
<i>version</i>
BSMList
BSMSelector
<i>id</i>
BSMFilterCode
<i>type</i>
<i>serviceProviderCode</i>
<i>corporateCode</i>
<i>serviceProviderName</i>
nonSmartCardCode
Name
DescriptorEntry
GroupingCriteria
TimeGroupingCriteria
<i>startTime</i>
<i>endTime</i>
BSMSelector
<i>idRef</i>
Transport
<i>ipAddress</i>
<i>port</i>
<i>transmissionSessionID</i>
AlternativeAccessURL
ServiceGuideDeliveryUnit
<i>transportObjectID</i>
<i>contentLocation</i>
Fragment
<i>transportID</i>
<i>id</i>
<i>version</i>
<i>fragmentEncoding</i>
PrivateExt

---

### 8.1.2 Service Guide Delivery Unit

The Service Guide Delivery Unit (SGDU) structure is the transport container for Service Guide fragments. Broadcast Systems and the Reference Receiver shall support the Service Guide

Delivery Unit structure as specified by Section 5.4.1.3 of the OMA BCAST Service Guide [2], with the following constraints:

- The `extension_offset` field of the `UnitHeader` structure shall be zero.
- The Reference Receiver shall not fail to process an SGDU with a non-zero value for `extension_offset` (e.g., by ignoring extensions).

## **8.2 Broadcast Delivery**

For each Service Guide a Broadcast System distributes, delivery shall occur over the ATSC-M/H system as specified by OMA BCAST Service Guide [2].

## **8.3 Interactive Delivery**

In addition to broadcast delivery, Broadcast Systems may deliver all or part of a Service Guide over the interaction channel.

If a Broadcast System intends to make a Service Guide (or portions thereof) available over the interaction channel, it shall advertise the portions of the guide available over the interaction channel by setting an Alternative Access URL in the appropriate SGDD(s) as specified in Section 5.4.1.5.4 of the OMA BCAST Service Guide [2]. The Reference Receiver may use the Alternative Access URL to request delivery of the Service Guide. At the request of the Reference Receiver, the Broadcast System shall deliver the Service Guide over HTTP as specified in Section 5.4.3 of [2].

## **9 SERVICE GUIDE UPDATE (NORMATIVE)**

Broadcast Systems shall convey any changes to a Service Guide as specified in Section 5.5 of OMA BCAST Service Guide [2].



---

# **Annex A:**

## **Global Identifiers (Normative)**

### **A.1 GLOBAL SERVICE IDENTIFIERS**

A globally unique identifier for an ATSC-M/H service shall be constructed as a URI with the following form:

urn:oma:bcast:iauth:atsc:service:<region>:<xsid>:<serviceid>

where

<region> is a two-letter international country code as specified by ISO 639-2 [4]

<xsid> is defined as:

For local services, the decimal encoding of the TSID, as defined in that region,

For regional services (major > 69), “0”.

<serviceid> is defined as <major>.<minor>

<major> is the decimal encoding of the most significant byte of the MH\_service\_ID field defined in A/153 Part 3 [15],

<minor> is the decimal encoding of the least significant byte of the MH\_service\_ID field defined in A/153 Part 3 [15].

Examples:

urn:oma:bcast:iauth:atsc:service:us:1234:5.1

urn:oma:bcast:iauth:atsc:service:us:0:100.200

### **A.2 GLOBAL CONTENT IDENTIFIERS**

A globally unique identifier for content delivered over an ATSC-M/H system shall be constructed as a URI with one of the following forms:

- An International Standard Audiovisual Number (ISAN) (see Section A.2.1)
- An ATSC Content Identifier (see Section A.2.2)

#### **A.2.1 ISAN**

When an ISAN identifier is used as a global content ID, it shall be encoded according to RFC 4246 [6].

#### **A.2.2 ATSC Content Identifier**

When an ATSC Content Identifier is used as a global content ID, it shall be encoded as follows:

urn:oma:bcast:iauth:atsc:content:<region>:<xsidz>:<contentid>:<unique\_for>:<end\_of\_day>

where

<region> is a two-letter international country code as specified by ISO 639-2 [4],

<xsidz> is defined as:

For local services, the decimal encoding of the TSID, as defined in that region, followed by “.”<serviceid> unless the emitting broadcaster can ensure the uniqueness of the global content id without use of <serviceid>.

For regional services (major > 69), <serviceid>.

In both cases, <serviceid> is as defined in Section A1 for the service carrying the content.

<content\_id> is the base64 [5] encoding of the content\_id field defined in Table 4.1 of A/57 [7], considering the content\_id field as a binary string.

<unique\_for> is the decimal encoding of the unique\_for field defined in Table 4.1 of A/57 [7].

<end\_of\_day> is the decimal encoding of the end\_of\_day field defined in Table 4.1 of A/57 [7].

---

## **Annex B:**

# **Genre Categories (Normative)**

GenreCS is a classification schema for genre categories for use with ATSC-M/H. The genre categories are identical to those from Table 6.20 of ATSC PSIP [12].

---

```
<?xml version="1.0" encoding="UTF-8"?>
<ClassificationScheme uri="http://www.atsc.org/XMLSchemas/mh/2009/1.0/genre-cs/">
  <!-- ##### -->
  <!-- GENRE -->
  <!-- Definition: M/H Service/Content Genres -->
  <!-- ##### -->
  <Term termID="32">
    <Name xml:lang="en">Education</Name>
  </Term>
  <Term termID="33">
    <Name xml:lang="en">Entertainment</Name>
  </Term>
  <Term termID="34">
    <Name xml:lang="en">Movie</Name>
  </Term>
  <Term termID="35">
    <Name xml:lang="en">News</Name>
  </Term>
  <Term termID="36">
    <Name xml:lang="en">Religious</Name>
  </Term>
  <Term termID="37">
    <Name xml:lang="en">Sports</Name>
  </Term>
  <Term termID="38">
    <Name xml:lang="en">Other</Name>
  </Term>
  <Term termID="39">
    <Name xml:lang="en">Action</Name>
  </Term>
  <Term termID="40">
    <Name xml:lang="en">Advertisement</Name>
  </Term>
</ClassificationScheme>
```

---

```
</Term>
<Term termID="41">
  <Name xml:lang="en">Animated</Name>
</Term>
<Term termID="42">
  <Name xml:lang="en">Anthology</Name>
</Term>
<Term termID="43">
  <Name xml:lang="en">Automobile</Name>
</Term>
<Term termID="44">
  <Name xml:lang="en">Awards</Name>
</Term>
<Term termID="45">
  <Name xml:lang="en">Baseball</Name>
</Term>
<Term termID="46">
  <Name xml:lang="en">Basketball</Name>
</Term>
<Term termID="47">
  <Name xml:lang="en">Bulletin</Name>
</Term>
<Term termID="48">
  <Name xml:lang="en">Business</Name>
</Term>
<Term termID="49">
  <Name xml:lang="en">Classical</Name>
</Term>
<Term termID="50">
  <Name xml:lang="en">College</Name>
</Term>
<Term termID="51">
  <Name xml:lang="en">Combat</Name>
</Term>
<Term termID="52">
  <Name xml:lang="en">Comedy</Name>
</Term>
<Term termID="53">
  <Name xml:lang="en">Commentary</Name>
```

---

```
</Term>
<Term termID="54">
  <Name xml:lang="en">Concert</Name>
</Term>
<Term termID="55">
  <Name xml:lang="en">Consumer</Name>
</Term>
<Term termID="56">
  <Name xml:lang="en">Contemporary</Name>
</Term>
<Term termID="57">
  <Name xml:lang="en">Crime</Name>
</Term>
<Term termID="58">
  <Name xml:lang="en">Dance</Name>
</Term>
<Term termID="59">
  <Name xml:lang="en">Documentary</Name>
</Term>
<Term termID="60">
  <Name xml:lang="en">Drama</Name>
</Term>
<Term termID="61">
  <Name xml:lang="en">Elementary</Name>
</Term>
<Term termID="62">
  <Name xml:lang="en">Erotica</Name>
</Term>
<Term termID="63">
  <Name xml:lang="en">Exercise</Name>
</Term>
<Term termID="64">
  <Name xml:lang="en">Fantasy</Name>
</Term>
<Term termID="65">
  <Name xml:lang="en">Farm</Name>
</Term>
<Term termID="66">
  <Name xml:lang="en">Fashion</Name>
```

---

```
</Term>
<Term termID="67">
  <Name xml:lang="en">Fiction</Name>
</Term>
<Term termID="68">
  <Name xml:lang="en">Food</Name>
</Term>
<Term termID="69">
  <Name xml:lang="en">Football</Name>
</Term>
<Term termID="70">
  <Name xml:lang="en">Foreign</Name>
</Term>
<Term termID="71">
  <Name xml:lang="en">Fund Raiser</Name>
</Term>
<Term termID="72">
  <Name xml:lang="en">Game/Quiz</Name>
</Term>
<Term termID="73">
  <Name xml:lang="en">Garden</Name>
</Term>
<Term termID="74">
  <Name xml:lang="en">Golf</Name>
</Term>
<Term termID="75">
  <Name xml:lang="en">Government</Name>
</Term>
<Term termID="76">
  <Name xml:lang="en">Health</Name>
</Term>
<Term termID="77">
  <Name xml:lang="en">High School</Name>
</Term>
<Term termID="78">
  <Name xml:lang="en">History</Name>
</Term>
<Term termID="79">
  <Name xml:lang="en">Hobby</Name>
```

---

```
</Term>
<Term termID="80">
  <Name xml:lang="en">Hockey</Name>
</Term>
<Term termID="81">
  <Name xml:lang="en">Home</Name>
</Term>
<Term termID="82">
  <Name xml:lang="en">Horror</Name>
</Term>
<Term termID="83">
  <Name xml:lang="en">Information</Name>
</Term>
<Term termID="84">
  <Name xml:lang="en">Instruction</Name>
</Term>
<Term termID="85">
  <Name xml:lang="en">International</Name>
</Term>
<Term termID="86">
  <Name xml:lang="en">Interview</Name>
</Term>
<Term termID="87">
  <Name xml:lang="en">Language</Name>
</Term>
<Term termID="88">
  <Name xml:lang="en">Legal</Name>
</Term>
<Term termID="89">
  <Name xml:lang="en">Live</Name>
</Term>
<Term termID="90">
  <Name xml:lang="en">Local</Name>
</Term>
<Term termID="91">
  <Name xml:lang="en">Math</Name>
</Term>
<Term termID="92">
  <Name xml:lang="en">Medical</Name>
```

---

```
</Term>
<Term termID="93">
  <Name xml:lang="en">Meeting</Name>
</Term>
<Term termID="94">
  <Name xml:lang="en">Military</Name>
</Term>
<Term termID="95">
  <Name xml:lang="en">Miniseries</Name>
</Term>
<Term termID="96">
  <Name xml:lang="en">Music</Name>
</Term>
<Term termID="97">
  <Name xml:lang="en">Mystery</Name>
</Term>
<Term termID="98">
  <Name xml:lang="en">National</Name>
</Term>
<Term termID="99">
  <Name xml:lang="en">Nature</Name>
</Term>
<Term termID="100">
  <Name xml:lang="en">Police</Name>
</Term>
<Term termID="101">
  <Name xml:lang="en">Politics</Name>
</Term>
<Term termID="102">
  <Name xml:lang="en">Premier</Name>
</Term>
<Term termID="103">
  <Name xml:lang="en">Prerecorded</Name>
</Term>
<Term termID="104">
  <Name xml:lang="en">Product</Name>
</Term>
<Term termID="105">
  <Name xml:lang="en">Professional</Name>
```



---

```
</Term>
<Term termID="106">
  <Name xml:lang="en">Public</Name>
</Term>
<Term termID="107">
  <Name xml:lang="en">Racing</Name>
</Term>
<Term termID="108">
  <Name xml:lang="en">Reading</Name>
</Term>
<Term termID="109">
  <Name xml:lang="en">Repair</Name>
</Term>
<Term termID="110">
  <Name xml:lang="en">Repeat</Name>
</Term>
<Term termID="111">
  <Name xml:lang="en">Review</Name>
</Term>
<Term termID="112">
  <Name xml:lang="en">Romance</Name>
</Term>
<Term termID="113">
  <Name xml:lang="en">Science</Name>
</Term>
<Term termID="114">
  <Name xml:lang="en">Series</Name>
</Term>
<Term termID="115">
  <Name xml:lang="en">Service</Name>
</Term>
<Term termID="116">
  <Name xml:lang="en">Shopping</Name>
</Term>
<Term termID="117">
  <Name xml:lang="en">Soap Opera</Name>
</Term>
<Term termID="118">
  <Name xml:lang="en">Special</Name>
```

---

```
</Term>
<Term termID="119">
  <Name xml:lang="en">Suspense</Name>
</Term>
<Term termID="120">
  <Name xml:lang="en">Talk</Name>
</Term>
<Term termID="121">
  <Name xml:lang="en">Technical</Name>
</Term>
<Term termID="122">
  <Name xml:lang="en">Tennis</Name>
</Term>
<Term termID="123">
  <Name xml:lang="en">Travel</Name>
</Term>
<Term termID="124">
  <Name xml:lang="en">Variety</Name>
</Term>
<Term termID="125">
  <Name xml:lang="en">Video</Name>
</Term>
<Term termID="126">
  <Name xml:lang="en">Weather</Name>
</Term>
<Term termID="127">
  <Name xml:lang="en">Western</Name>
</Term>
<Term termID="128">
  <Name xml:lang="en">Art</Name>
</Term>
<Term termID="129">
  <Name xml:lang="en">Auto Racing</Name>
</Term>
<Term termID="130">
  <Name xml:lang="en">Aviation</Name>
</Term>
<Term termID="131">
  <Name xml:lang="en">Biography</Name>
```

---

```
</Term>
<Term termID="132">
  <Name xml:lang="en">Boating</Name>
</Term>
<Term termID="133">
  <Name xml:lang="en">Bowling</Name>
</Term>
<Term termID="134">
  <Name xml:lang="en">Boxing</Name>
</Term>
<Term termID="135">
  <Name xml:lang="en">Cartoon</Name>
</Term>
<Term termID="136">
  <Name xml:lang="en">Children</Name>
</Term>
<Term termID="137">
  <Name xml:lang="en">Classic Film</Name>
</Term>
<Term termID="138">
  <Name xml:lang="en">Community</Name>
</Term>
<Term termID="139">
  <Name xml:lang="en">Computers</Name>
</Term>
<Term termID="140">
  <Name xml:lang="en">Country Music</Name>
</Term>
<Term termID="141">
  <Name xml:lang="en">Court</Name>
</Term>
<Term termID="142">
  <Name xml:lang="en">Extreme Sports</Name>
</Term>
<Term termID="143">
  <Name xml:lang="en">Family</Name>
</Term>
<Term termID="144">
  <Name xml:lang="en">Financial</Name>
```

---

```
</Term>
<Term termID="145">
  <Name xml:lang="en">Gymnastics</Name>
</Term>
<Term termID="146">
  <Name xml:lang="en">Headlines</Name>
</Term>
<Term termID="147">
  <Name xml:lang="en">Horse Racing</Name>
</Term>
<Term termID="148">
  <Name xml:lang="en">Hunting/Fishing/Outdoors</Name>
</Term>
<Term termID="149">
  <Name xml:lang="en">Independent</Name>
</Term>
<Term termID="150">
  <Name xml:lang="en">Jazz</Name>
</Term>
<Term termID="151">
  <Name xml:lang="en">Magazine</Name>
</Term>
<Term termID="152">
  <Name xml:lang="en">Motorcycle Racing</Name>
</Term>
<Term termID="153">
  <Name xml:lang="en">Music/Film/Books</Name>
</Term>
<Term termID="154">
  <Name xml:lang="en">News-International</Name>
</Term>
<Term termID="155">
  <Name xml:lang="en">News-Local</Name>
</Term>
<Term termID="156">
  <Name xml:lang="en">News-National</Name>
</Term>
<Term termID="157">
  <Name xml:lang="en">News-Regional</Name>
```

---

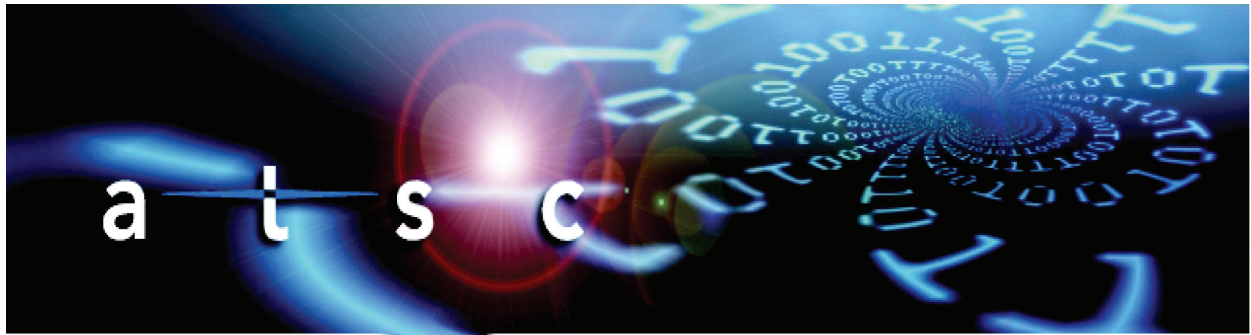
```
</Term>
<Term termID="158">
  <Name xml:lang="en">Olympics</Name>
</Term>
<Term termID="159">
  <Name xml:lang="en">Original</Name>
</Term>
<Term termID="160">
  <Name xml:lang="en">Performing Arts</Name>
</Term>
<Term termID="161">
  <Name xml:lang="en">Pets/Animals</Name>
</Term>
<Term termID="162">
  <Name xml:lang="en">Pop</Name>
</Term>
<Term termID="163">
  <Name xml:lang="en">Rock & Roll</Name>
</Term>
<Term termID="164">
  <Name xml:lang="en">Sci-Fi</Name>
</Term>
<Term termID="165">
  <Name xml:lang="en">Self Improvement</Name>
</Term>
<Term termID="166">
  <Name xml:lang="en">Sitcom</Name>
</Term>
<Term termID="167">
  <Name xml:lang="en">Skating</Name>
</Term>
<Term termID="168">
  <Name xml:lang="en">Skiing</Name>
</Term>
<Term termID="169">
  <Name xml:lang="en">Soccer</Name>
</Term>
<Term termID="170">
  <Name xml:lang="en">Track/Field</Name>
```

---

```
</Term>
<Term termID="171">
  <Name xml:lang="en">True</Name>
</Term>
<Term termID="172">
  <Name xml:lang="en">Volleyball</Name>
</Term>
<Term termID="173">
  <Name xml:lang="en">Wrestling</Name>
</Term>
</ClassificationScheme>
```

---





[advancedtelevisionssystemscmmitteeinc](http://advancedtelevisionssystemscmmitteeinc)

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