

**CableLabs®**  
**SaFI Specifications**

**Service Measurement Summary Interface  
Specification**

**CL-SP-SaFI-SMS-I01-090626**

**ISSUED**

**Notice**

This document is the result of a cooperative effort undertaken at the direction of Cable Television Laboratories, Inc. for the benefit of the cable industry and its customers. This document may contain references to other documents not owned or controlled by CableLabs. Use and understanding of this document may require access to such other documents. Designing, manufacturing, distributing, using, selling, or servicing products, or providing services, based on this document may require intellectual property licenses from third parties for technology referenced in this document.

Neither CableLabs nor any member company is responsible to any party for any liability of any nature whatsoever resulting from or arising out of use or reliance upon this document, or any document referenced herein. This document is furnished on an "AS IS" basis and neither CableLabs nor its members provides any representation or warranty, express or implied, regarding the accuracy, completeness, non-infringement, or fitness for a particular purpose of this document, or any document referenced herein.

© Copyright 2008-2009 Cable Television Laboratories, Inc.  
All rights reserved.

## Document Status Sheet

<b>Document Control Number:</b>	CL-SP-SaFI-SMS-I01-090626			
<b>Document Title:</b>	Service Measurement Summary Interface Specification			
<b>Revision History:</b>	I01 – Released 6/26/09			
<b>Date:</b>	June 26, 2009			
<b>Status:</b>	<del>Work in Progress</del>	Draft	Issued	<del>Closed</del>
<b>Distribution Restrictions:</b>	<del>Author Only</del>	<del>CL/Member</del>	<del>CL/Member/ Vendor</del>	Public

### Key to Document Status Codes:

- Work in Progress** An incomplete document, designed to guide discussion and generate feedback that may include several alternative requirements for consideration.
- Draft** A document in specification format considered largely complete, but lacking review by Members and vendors. Drafts are susceptible to substantial change during the review process.
- Issued** A stable document, which has undergone rigorous member and vendor review and is suitable for product design and development, cross-vendor interoperability, and for certification testing.
- Closed** A static document, reviewed, tested, validated, and closed to further engineering change requests to the specification through CableLabs.

### Trademarks:

CableLabs<sup>®</sup>, DOCSIS<sup>®</sup>, EuroDOCSIS<sup>™</sup>, eDOCSIS<sup>™</sup>, M-CMTS<sup>™</sup>, PacketCable<sup>™</sup>, EuroPacketCable<sup>™</sup>, PCMM<sup>™</sup>, CableHome<sup>®</sup>, CableOffice<sup>™</sup>, OpenCable<sup>™</sup>, OCAP<sup>™</sup>, CableCARD<sup>™</sup>, M-Card<sup>™</sup>, DCAST<sup>™</sup>, tru2way<sup>™</sup>, and Cable PC<sup>™</sup> are trademarks of Cable Television Laboratories, Inc.

## Contents

<b>1</b>	<b>SCOPE</b> .....	<b>1</b>
1.1	Introduction and Purpose.....	1
1.2	Requirements.....	1
<b>2</b>	<b>REFERENCES</b> .....	<b>2</b>
2.1	Normative References.....	2
2.2	Informative References.....	2
2.3	Reference Acquisition.....	2
<b>3</b>	<b>TERMS AND DEFINITIONS</b> .....	<b>3</b>
<b>4</b>	<b>ABBREVIATIONS AND ACRONYMS</b> .....	<b>4</b>
<b>5</b>	<b>OVERVIEW</b> .....	<b>5</b>
5.1	General Context.....	5
5.1.1	<i>Reference Architecture</i> .....	5
5.1.2	<i>Interface Descriptions</i> .....	5
<b>6</b>	<b>SERVICE MEASUREMENT INTERFACE REQUIREMENTS</b> .....	<b>7</b>
6.1	Data Model.....	7
6.1.1	<i>ServiceMeasurementMessageElement</i> .....	7
6.1.2	<i>ServiceMeasurementMessageHeaderGroup</i> .....	7
6.1.3	<i>ServiceMeasurementMessage</i> .....	7
6.1.4	<i>Measurement</i> .....	7
6.1.5	<i>InteractiveResponse</i> .....	8
6.1.6	<i>InteractivePackage</i> .....	8
6.1.7	<i>AdPlacementSummary</i> .....	8
6.1.8	<i>AdPlacementSummaryPackage</i> .....	8
6.1.9	<i>ContentPackageSummary</i> .....	8
6.1.10	<i>ContentPackageType</i> .....	8
6.1.11	<i>AdPlacementSessionData</i> .....	8
6.1.12	<i>AdPlacementSessionDataPackage</i> .....	9
6.1.13	<i>ContentPackageSessionData</i> .....	9
6.1.14	<i>Placement</i> .....	9
6.1.15	<i>Event</i> .....	9
<b>7</b>	<b>SERVICE MEASUREMENT DATA MODEL SCHEMA</b> .....	<b>10</b>
<b>8</b>	<b>SERVICE MEASUREMENT WEB SERVICES DESCRIPTION LANGUAGE</b> .....	<b>11</b>
<b>APPENDIX I</b>	<b>XML EXAMPLE (INFORMATIVE)</b> .....	<b>12</b>
<b>APPENDIX II</b>	<b>HTML REPRESENTATION (INFORMATIVE)</b> .....	<b>13</b>

## Figures

Figure 5–1 - Service Measurement platform.....	5
--	---

This page left blank intentionally.

# 1 SCOPE

## 1.1 Introduction and Purpose

The purpose of this document is to specify a data model and transmission protocol for delivery of service measurement summary information from an MSO system to an external entity.

## 1.2 Requirements

Throughout this document, the words that are used to define the significance of particular requirements are capitalized. These words are:

"SHALL"	This word means that the item is an absolute requirement of this specification.
"SHALL NOT"	This phrase means that the item is an absolute prohibition of this specification.
"SHOULD"	This word means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications should be understood and the case carefully weighed before choosing a different course.
"SHOULD NOT"	This phrase means that there may exist valid reasons in particular circumstances when the listed behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
"MAY"	This word means that this item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because it enhances the product, for example; another vendor may omit the same item.

## 2 REFERENCES

### 2.1 Normative References

In order to claim compliance with this specification, it is necessary to conform to the following standards and other works as indicated, in addition to the other requirements of this specification. Notwithstanding, intellectual property rights may be required to use or implement such normative references.

- [SaFI COM XSD] CL-SP-SaFI-COM-I01.xsd, June 26, 2009, Cable Television Laboratories, Inc.
- [SMS XSD] CL-SP-SaFI-SMS-I01.xsd, June 26, 2009, Cable Television Laboratories, Inc.
- [SMS WSDL] CL-SP-SaFI-SMS-I01.wsdl, June 26, 2009, Cable Television Laboratories, Inc.
- [VOD 1.1] VOD Content Specification Version 1.1, MD-SP-VOD-CONTENT1.1-I05-060831, August 31, 2006, Cable Television Laboratories, Inc.

### 2.2 Informative References

This document uses the following informative references.

- [IAM] Interactive Application Messaging Specification, CL-SP-SaFI-IAM-I01-090626, June 26, 2009, Cable Television Laboratories, Inc.
- [CIP] Campaign Information Package Specification, CL-SP-SaFI-CIP-I01-090626, June 26, 2009, Cable Television Laboratories, Inc.
- [IAF] Interactive Application Fulfillment Summary Interface Specification, CL-SP-SaFI-IAF-I01-090626, June 26, 2009, Cable Television Laboratories, Inc.
- [SMSI EXMPL] CL-SP-SaFI-SMS-I01-example1.xml, June 26, 2009, Cable Television Laboratories, Inc.
- [SMSI HTML] CL-SP-SaFI-SMSI-I01.html, June 26, 2009, Cable Television Laboratories, Inc.

### 2.3 Reference Acquisition

- Cable Television Laboratories, Inc., 858 Coal Creek Circle, Louisville, CO 80027; Phone +1-303-661-9100; Fax +1-303-661-9199; <http://www.cablelabs.com>
- Internet Engineering Task Force (IETF) Secretariat, 46000 Center Oak Plaza, Sterling, VA 20166, Phone +1-571-434-3500, Fax +1-571-434-3535, <http://www.ietf.org>
- W3C, <http://www.w3.org>

### 3 TERMS AND DEFINITIONS

This specification uses the following terms:

<b>Campaign</b>	From an MSO execution perspective, a Campaign provides a set of delivery plans and/or directions for enhancements for one or more MSOs, specific systems within the MSO's footprint, and finally, a set of Programmed Events within the footprint. A Campaign is negotiated, purchased and managed as a single entity via campaign planning and management tools that are not in scope for the MSO interfaces. Within a Programmed Event, one or more enhanced products can be identified for MSO delivery and/or processing.
<b>GeoCode</b>	Geographic Code – GeoCode represents the geographic region which this service measurement message represents. The value in this element may indicate a zipcode, MSO syscode, or other encoded regional identifier.
<b>Service Measurement</b>	Information about the reach and usage of a campaign.
<b>Syscode</b>	An element whose text is a required four-character, pre-defined code that represents a specific zone-level cable plant.

## 4 ABBREVIATIONS AND ACRONYMS

This specification uses the following abbreviations:

**SaFI** Stewardship and Fulfillment Interfaces. A collection of interfaces defined by CableLabs to support advanced services on multiple cable systems

## 5 OVERVIEW

### 5.1 General Context

The service measurement summary interface provides a means for MSOs to export information about the execution of a "campaign." A campaign is typically an advertising campaign, and may include interactive components. Service measurement refers to information about the reach and usage of a campaign, including such things as how many viewers interacted with a particular interactive application.

#### 5.1.1 Reference Architecture

The following diagram illustrates a systems view of the Service Measurement platform. This diagram is derived from work produced by the Advanced Advertising Interfaces team, and represents an advertising-centric view of the platform. The Service Measurement platform will be generalized such that applications unrelated to advertising can use the same platform.

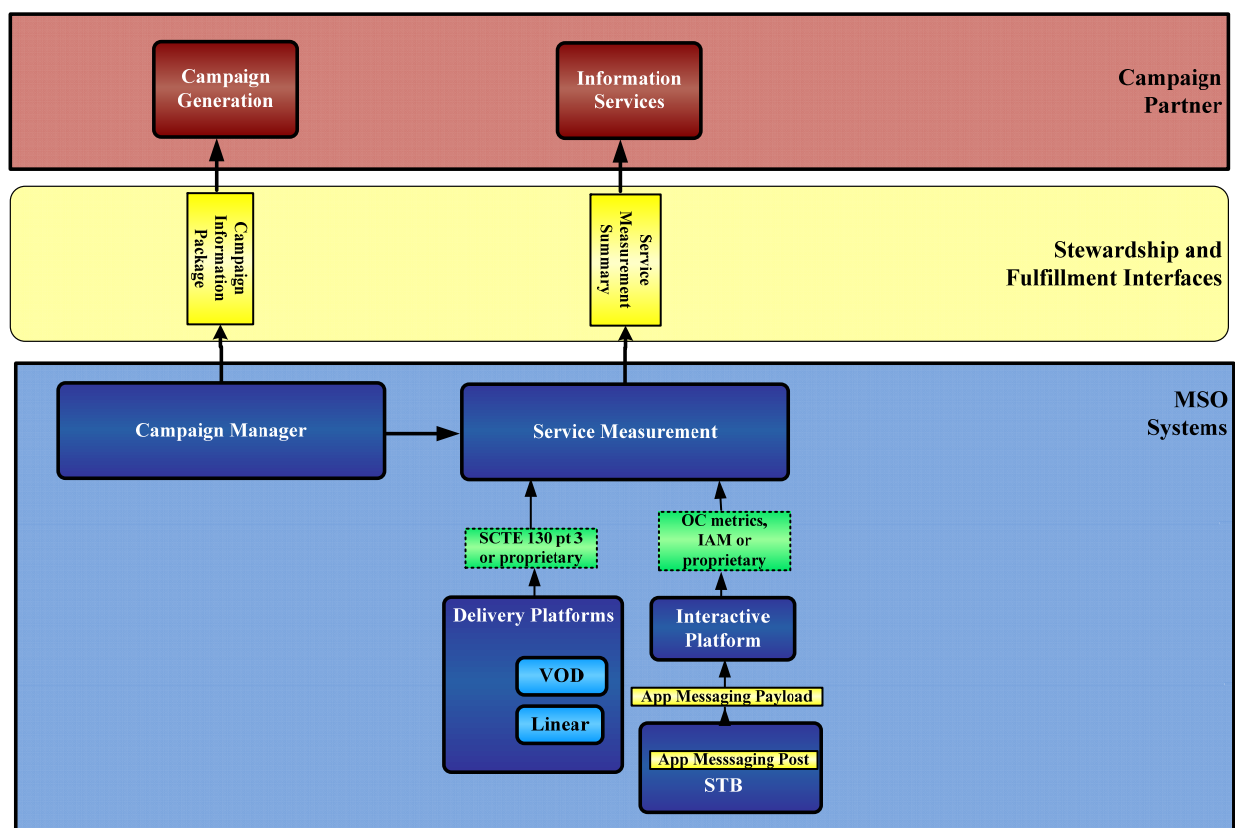


Figure 5-1 - Service Measurement platform

#### 5.1.2 Interface Descriptions

As illustrated above, the Service Measurement architecture is composed of several components.

**Service Measurement Summary Interface.** This document fully defines this interface; including the data model, content format, and transmission protocol supported by both MSO systems and partners.

Feeding an MSO's Service Measurement capability are content delivery and interactive platforms systems. SCTE 130 implementations may generate PlacementStatusNotifications, and interactive systems will generate CableLabs Interactive Application Messages (IAM). Proprietary messaging systems might also be used.

Interactive Application Messaging. This interface defines how an application instantiates a message that includes a vote/poll or RFI response and application instrumentation messages that support Service Metrics. This interface is defined in [IAM].

Note the Campaign Information Package Interface [CIP]. This provides information to MSOs for resolution and routing of Service Measurement data.

## 6 SERVICE MEASUREMENT INTERFACE REQUIREMENTS

This section defines requirements for metrics and the interface between a metrics engine and a cable headend.

### 6.1 Data Model

An XML schema is defined in 7 to fully describe the data that will be transmitted by an MSO and delivered to the partners.

XML files conformant to this data model SHALL be generated by MSO systems and properly received by the partners.

#### 6.1.1 ServiceMeasurementMessage Element

The ServiceMeasurementMessage Element is the highest level container for all Service Measurement communications.

ServiceMeasurementMessage contains the following data units.

- ServiceMeasurementMessageHeaderGroup – Contains data common to the entire message, including schema version number and the time at which the message was sent.
- ServiceMeasurement Element – Contains the geocode for the region represented by this summary, and some number of Measurement Elements.

#### 6.1.2 ServiceMeasurementMessageHeaderGroup

The ServiceMeasurementMessageHeaderGroup contains data common to all Measurement reports.

ServiceMeasurementMessageHeaderGroup contains the following data units.

- MinSchemaVersion (Minimum Schema Version) – Lowest compatible schema/protocol version to be used with a message.
- MessageTime – Reference time used in each message.

#### 6.1.3 ServiceMeasurementMessage

The ServiceMeasurementMessage provides a container for a number of specific measurement items.

ServiceMeasurementMessage contains the following data units.

- GeoCode (Geographic Code) – GeoCode represents the geographic region which this service measurement message represents. The value in this element may indicate a zipcode, MSO syscode, or other encoded regional identifier.
- Measurement – Zero or more measurement objects.

#### 6.1.4 Measurement

Measurement is an abstract element that is extended by all Service Measurement report types, including InteractiveResponse, AdPlacementSummary, and AdPlacementSessionData.

MeasurementType includes two attributes.

- Process – Indicates processing rules. Messages with this attribute set to ‘additive’ are to be added to previously received messages for the same time period, geocode, and campaign identifiers (PEID, EPSID). Messages with this attribute set to ‘overwrite’ are to replace previously received messages.
- Reporting – Indicates whether a message is a partial or incremental data set or is final or completes a set. If this attribute is set to ‘final’, then partner processes can assume that no more messages will be received for the same time period, geocode, and campaign identifiers (PEID, EPSID). If this attribute is set to ‘partial’, then subsequent messages may be received.

### 6.1.5 InteractiveResponse

A Measurement element within a ServiceMeasurementMessage may be of type InteractiveResponseType.

InteractiveResponseType contains the following data units.

- InteractivePackage – Zero or more objects that contain the sum of responses for a given interactive element. Contains aggregated results and associated identifiers.

### 6.1.6 InteractivePackage

An element included in an InteractiveResponse object.

InteractivePackage contains the following data units.

- Result – Contains a Parameters attribute that represents the sum of responses of a given value. For instance, a vote application may present three choices: ‘A’, ‘B’, and ‘C’. the Parameters conveys the number of ‘A’, ‘B’, and ‘C’ responses. Result also contains the TotalInterval attribute. This value indicates the sum of intervals reported by all interactive application instances for this User Interface element. A recipient of this message may divide TotalInterval by the number of interactive applications that were presented to calculate an average ‘dwell’ time for the interactive element.

### 6.1.7 AdPlacementSummary

A Measurement element within a ServiceMeasurementMessage may be of type AdPlacementSummaryType.

AdPlacementSummaryType contains the following data units.

- AdPlacementSummaryPackage – Zero or more objects that contain a sum of ad placements.

### 6.1.8 AdPlacementSummaryPackage

An element included in an ServiceMeasurementMessage object.

AdPlacementSummaryPackage is of type AdPlacementSummaryType, contains the following data units.

- ContentPackageSummary – Indicates the provider and asset IDs for a piece of content, and the content type.
- PEID – Attribute associating this element with a campaign.
- EPSID – Attribute associating this element with a ‘line item’ within a campaign.

### 6.1.9 ContentPackageSummary

An element included in an AdPlacementSummaryPackage object.

ContentPackageSummary is of type ContentPackageSummaryType, extends ContentPackageType, and contains the following data units.

- Event – Of EventType. Indicates the number of placements, placement context, and an event identifier.

### 6.1.10 ContentPackageType

A base type extended by ContentPackageSummary.

ContentPackageType defines the following data units.

- ProviderId – Indicates the ‘provider’ of a content element. See full description in [VOD 1.1].
- AssetId – Indicates a unique content element from a provider. See full description in [VOD 1.1].
- Type – Indicates the type of content.

### 6.1.11 AdPlacementSessionData

A Measurement element within a ServiceMeasurementMessage may be of type AdPlacementSessionDataType.

AdPlacementSessionDataType contains the following data units.

- AdPlacementSessionDataPackage – Zero or more objects that contain session data.

#### **6.1.12 AdPlacementSessionDataPackage**

An element included in an AdPlacementSessionData object.

AdPlacementSessionDataPackage contains the following data units.

- ContentPackageSessionData – Zero or more objects that contain session data.
- PEID – Attribute associating this element with a campaign.
- EPSID – Attribute associating this element with a ‘line item’ within a campaign.

#### **6.1.13 ContentPackageSessionData**

An element included in an AdPlacementSessionDataPackage object.

ContentPackageSessionData extends the ContentPackage type, and includes the following data units.

- SMSessionDataTime – Defines the time range for which ???
- Placement – Zero or more elements that describe a placement.

#### **6.1.14 Placement**

An element included in an ContentPackageSessionData object.

Placement of type PlacementType and includes the following data units.

- Ad – Of type ContentPackageType. Indicates the provider/asset ID of the advertising content, and the content type.
- PlacementTime – A time range during which ???
- PlacementAction – Indicates whether a placement was an insertion or a replacement of existing content.
- TrackingId – ???
- SegmentationElements – Indicates addressability criteria for placement.
- EventID – Indicates ???

#### **6.1.15 Event**

An element included in an AdPlacementSessionDataPackage object.

An Event element is of type EventType and includes the following data units.

- PlacementCount – Indicates the number of placements that occurred.
- PlacementContext – Indicates the number of placements that occurred.
- EventID – an attribute that provides ???

## 7 SERVICE MEASUREMENT DATA MODEL SCHEMA

The formal data definition is found in [SMS XSD].

## **8 SERVICE MEASUREMENT WEB SERVICES DESCRIPTION LANGUAGE**

The formal data definition is found in [SMS WSDL].

## **Appendix I      XML Example (Informative)**

Examples of SMSI data expressions can be found in [SMSI EXMPL].

## **Appendix II      HTML Representation (Informative)**

A browse-able, graphical representation of the SMSI data model can be found in [SMSI HTML].

