



***Society of Cable  
Telecommunications  
Engineers***

---

**ENGINEERING COMMITTEE  
Digital Video Subcommittee**

---

**AMERICAN NATIONAL STANDARD**

**ANSI/SCTE 35 2014**

**Digital Program Insertion Cueing Message for Cable**

## NOTICE

The Society of Cable Telecommunications Engineers (SCTE) Standards are intended to serve the public interest by providing specifications, test methods and procedures that promote uniformity of product, interchangeability and ultimately the long term reliability of broadband communications facilities. These documents shall not in any way preclude any member or non-member of SCTE from manufacturing or selling products not conforming to such documents, nor shall the existence of such standards preclude their voluntary use by those other than SCTE members, whether used domestically or internationally.

SCTE assumes no obligations or liability whatsoever to any party who may adopt the Standards. Such adopting party assumes all risks associated with adoption of these Standards, and accepts full responsibility for any damage and/or claims arising from the adoption of such Standards.

Attention is called to the possibility that implementation of this standard may require the use of subject matter covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. SCTE shall not be responsible for identifying patents for which a license may be required or for conducting inquiries into the legal validity or scope of those patents that are brought to its attention.

Patent holders who believe that they hold patents which are essential to the implementation of this standard have been requested to provide information about those patents and any related licensing terms and conditions. Any such declarations made before or after publication of this document are available on the SCTE web site at <http://www.scte.org>.

All Rights Reserved

© Society of Cable Telecommunications Engineers, Inc. 2014  
140 Philips Road  
Exton, PA 19341

## Contents

<b>1</b>	<b>Scope</b> .....	<b>6</b>
<b>2</b>	<b>References</b> .....	<b>6</b>
<b>2.1</b>	<b>Normative references</b> .....	<b>6</b>
<b>2.2</b>	<b>Informative References</b> .....	<b>7</b>
<b>3</b>	<b>Definition of terms</b> .....	<b>8</b>
<b>4</b>	<b>Abbreviations</b> .....	<b>11</b>
<b>5</b>	<b>Introduction</b> .....	<b>12</b>
<b>5.1</b>	<b>Splice points (Informative)</b> .....	<b>12</b>
<b>5.2</b>	<b>Program Splice Points (Informative)</b> .....	<b>12</b>
<b>5.3</b>	<b>Splice events (Informative)</b> .....	<b>13</b>
<b>5.4</b>	<b>Content Storage Considerations (Informative)</b> .....	<b>13</b>
<b>5.5</b>	<b>PID selection</b> .....	<b>14</b>
5.5.1	PID Selection (Normative) .....	14
5.5.2	PID Selection (Informative).....	14
<b>5.6</b>	<b>Message flow (Informative)</b> .....	<b>15</b>
<b>6</b>	<b>Notational Conventions</b> .....	<b>16</b>
<b>6.1</b>	<b>Normative XML Schema</b> .....	<b>16</b>
<b>6.2</b>	<b>Unknown/Unrecognized/Unsupported XML Elements and Attributes</b> .....	<b>16</b>
<b>6.3</b>	<b>Element Order</b> .....	<b>16</b>
<b>6.4</b>	<b><u>Binary Representation in XML</u></b> .....	<b>17</b>
<b>7</b>	<b>PMT Descriptors</b> .....	<b>18</b>
<b>7.1</b>	<b>Registration Descriptor</b> .....	<b>18</b>
7.1.1	Semantic definition of fields in Registration Descriptor .....	18
<b>7.2</b>	<b>Cue Identifier Descriptor</b> .....	<b>19</b>
7.2.1	Semantic definition of fields in Cue Identifier Descriptor.....	19
7.2.2	Description of cue_stream_type usage .....	19
<b>7.3</b>	<b>Stream Identifier Descriptor</b> .....	<b>20</b>
7.3.1	Semantic definition of fields in Stream Identifier Descriptor.....	20
<b>8</b>	<b>Splice Information Table</b> .....	<b>21</b>
<b>8.1</b>	<b>Overview</b> .....	<b>21</b>
8.1.1	Time Base Discontinuities .....	22
<b>8.2</b>	<b>Splice Info Section</b> .....	<b>23</b>

8.2.1 Semantic definition of fields in splice_info_section() .....	25
<b>8.3 Splice Commands.....</b>	<b>28</b>
8.3.1 splice_null() .....	28
8.3.2 splice_schedule().....	29
8.3.3 splice_insert().....	33
8.3.4 time_signal() .....	36
8.3.5 bandwidth_reservation() .....	37
8.3.6 private_command() .....	38
<b>8.4 Time.....</b>	<b>39</b>
8.4.1 splice_time() .....	39
8.4.2 break_duration().....	40
<b>8.5 Constraints.....</b>	<b>41</b>
8.5.1 Constraints on splice_info_section().....	41
8.5.2 Constraints on the interpretation of time .....	42
<b>9 Splice Descriptors.....</b>	<b>43</b>
<b>9.1 Overview .....</b>	<b>43</b>
<b>9.2 Splice Descriptor .....</b>	<b>44</b>
9.2.1 Semantic definition of fields in splice_descriptor().....	45
<b>9.3 Specific Splice Descriptors .....</b>	<b>46</b>
9.3.1 avail_descriptor() .....	46
9.3.2 DTMF_descriptor().....	47
9.3.3 segmentation_descriptor().....	49
9.3.4 time_descriptor().....	61
<b>10 Encryption .....</b>	<b>63</b>
<b>10.1 Overview .....</b>	<b>63</b>
<b>10.2 Fixed Key Encryption.....</b>	<b>63</b>
<b>10.3 Encryption Algorithms.....</b>	<b>64</b>
10.3.1 DES – ECB mode .....	64
10.3.2 DES – CBC mode .....	64
10.3.3 Triple DES EDE3 – ECB mode.....	64
10.3.4 User Private Algorithms .....	65
<b>11 SCTE 35 XML Elements and Types.....</b>	<b>66</b>
<b>11.1 Ext Element .....</b>	<b>66</b>
<b>11.2 PTSType.....</b>	<b>66</b>

## List Of Tables

Table 7-1. registration_descriptor() .....	18
Table 7-2. cue_identifier_descriptor() .....	19
Table 7-3. cue_stream_type Values .....	19
Table 7-4. stream_identifier_descriptor() .....	20
Table 8-1. splice_info_section() .....	23
Table 8-2. splice_command_type Values .....	27
Table 8-3. splice_null() .....	28
Table 8-4. splice_schedule() .....	29
Table 8-5. splice_insert() .....	33
Table 8-6. time_signal() .....	37
Table 8-7. bandwidth_reservation() .....	37
Table 8-8. private_command() .....	38
Table 8-9. splice_time() .....	39
Table 8-10. break_duration() .....	40
Table 9-1. Splice Descriptor Tags .....	44
Table 9-2. splice_descriptor() .....	44
Table 9-3. avail_descriptor() .....	46
Table 9-4. DTMF_descriptor() .....	47
Table 9-5. segmentation_descriptor() .....	49
Table 9-6. device_restrictions .....	53
Table 9-7. segmentation_upid_type .....	54
Table 9-8. segmentation_type_id .....	55
Table 9-9. MPU( ) .....	57
Table 9-10. MID( ) .....	58
Table 10-1. Encryption Algorithm .....	64

## List Of Figures

Figure 6-1. SignalGroup .....	17
Figure 8-1. SpliceInfoSection .....	24
Figure 8-2. SpliceNull.....	28
Figure 8-3. SpliceSchedule .....	30
Figure 8-4. SpliceInsert.....	34
Figure 8-5. TimeSignal .....	37
Figure 8-6. BandwidthReservation .....	38
Figure 8-7. PrivateCommand.....	38
Figure 8-8. SpliceTime .....	39
Figure 8-9. BreakDuration .....	40
Figure 9-1. SpliceDescriptorType.....	45
Figure 9-2. AvailDescriptor .....	46
Figure 9-3. DTMFDescriptor.....	47
Figure 9-4. SegmentationDescriptorType.....	50
Figure 11-1. Ext Element.....	66

# Digital Program Insertion Cueing Message for Cable

## 1 Scope

This standard supports frame accurate signaling of events in MPEG-2 transport streams along with associated descriptive data. This standard supports the splicing of MPEG-2 transport streams for the purpose of Digital Program Insertion, which includes advertisement insertion and insertion of other content types. An in-stream messaging mechanism is defined to signal splicing and insertion opportunities and it is not intended to ensure seamless splicing. As such, this recommendation does not specify the splicing method used or constraints applied to the streams being spliced, nor does it address constraints placed on splicing devices.

A fully compliant MPEG-2 transport stream (either Multi Program Transport Stream or Single Program Transport Stream) is assumed. No further constraints beyond the inclusion of the defined cueing messages are placed upon the stream.

This standard specifies a technique for carrying notification of upcoming Splice Points and other timing information in the transport stream. A splice information table is defined for notifying downstream devices of splice events, such as a network break or return from a network break. The splice information table, which pertains to a given program, is carried in one or more PID(s) referred to by that program's Program Map Table (PMT). In this way, splice event notification can pass through most transport stream remultiplexers without need for special processing.

## 2 References

### 2.1 Normative references

The following documents contain provisions, which, through reference in this text constitute provisions of the standard. At the time of Subcommittee approval, the editions indicated were valid. All standards are subject to revision; and while parties to any agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the documents listed below, they are reminded that newer editions of those documents may not be compatible with the referenced version.

[ISO 15706-2]	ISO 15706-2:2007 – Information and Documentation - International Standard Audiovisual Number (V-ISAN) – Part 2: Version Identifier
[MPEG Systems]	ITU-T Recommendation H.222.0 / ISO/IEC 13818-1 (2013), Information Technology ---- Generic Coding of Moving Pictures and Associated Audio Information: Systems
[CLADI1-1]	MD-SP-VOD-CONTENTv1.1- C01-120803 – CableLabs Video-on-Demand Content Specification 1.1
[SMPTE 330M]	SMPTE 330M-2004 – SMPTE Standard for Television - Unique Material Identifier
[FIPS 46-3]	FIPS PUB 46-3, 1999 October 25, Data Encryption Standard
[FIPS 81]	FIPS PUB 81, 1980 December 2, DES Modes of Operation