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Part 3: Broadcasting system specific recording structure – ISDB

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MULTIMEDIA HOME SERVER SYSTEMS – INTERCHANGEABLE VOLUME/FILE STRUCTURE ADAPTATION FOR BROADCASTING RECEIVERS –

Part 3: Broadcasting system specific recording structure – ISDB

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International Standard IEC 62328-3 has been prepared by IEC technical committee 100: Audio, video and multimedia systems and equipment.

The text of this standard is based on the following documents:

FDIS	Report on voting
100/965/FDIS	100/989/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

IEC 62328 consists of the following parts, under the general title *Multimedia home server systems – Interchangeable volume/file structure adaptation for broadcasting receivers:*

Part 1: General description and architecture

Part 2: General recording structure

Part 3: Broadcasting system specific recording structure – ISDB

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

Broadcast data in a transport stream can contain multiple associated objects. When that data is distributed on interchangeable storage media, for example, optical disks, the associated objects should be synchronized. Open distribution of the media requires that the data be adapted to a standardized volume and file structure, which should conform to the existing basic volume and file structure.

MULTIMEDIA HOME SERVER SYSTEMS – INTERCHANGEABLE VOLUME/FILE STRUCTURE ADAPTATION FOR BROADCASTING RECEIVERS –

Part 3: Broadcasting system specific recording structure – ISDB

1 Scope

This part of IEC 62328 defines the volume and file structure required for interchanging multimedia data of a home server/broadcasting receiver, which consists of an AV stream with multiple associated objects.

This part of IEC 62328 specifies the broadcasting system specific recording structure for ISDB.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62328-2, *Multimedia home server systems – Interchangeable volume/file structure adaptation for broadcasting receivers – Part 2: General recording structure*

ISO/IEC 646, *Information technology – ISO 7-bit coded character set for information interchange*

ISO/IEC 10646-1, *Information technology – Universal Multiple-Octet Coded Character Set (UCS) – Part 1: Architecture and Basic Multilingual Plane*

ISO/IEC 13818-1:2000, *Information technology – Generic coding of moving pictures and associated audio information: Systems*

ISO/IEC 13818-2:2000, *Information technology – Generic coding of moving pictures and associated audio information: Video*

ISO/IEC 13818-6:1998, *Information technology – Generic coding of moving pictures and associated audio information – Par t6: Extensions for DSM-CC*

ISO/IEC 13818-7:2003, *Information technology – Generic coding of moving pictures and associated audio information – Part 7: Advanced Audio Coding (AAC)*

ISO/IEC 11172-2:1993, *Information technology – Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s – Part 2: Video*

ISO 8859 (all parts), *Information technology – 8-bit single-byte coded graphic character sets*

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1
action
duration from start to end defined by a user or equipment

3.2
AV stream
recorded data in the MainTS stream file of PROGxxxx.PIF in this specification or the general meaning as multiplexed digital audio and video

3.3
component
elementary stream contained in a TV programme

3.4
event
set of video and/or audio stream data and/or related objects, which together form a broadcasting service in the duration defined by a broadcaster

3.5
partial TS
TS derived from broadcasting TS by modifying PSI/SI and/or removing one or more elementary streams

3.6
programme
recorded TV programme compliant with this specification

3.7
programme reference
PGR
pointer which references all or a part of AV stream in a programme

3.8
programme reference group
PGRG
set of programme references or a set of programme reference groups

3.9
transport stream
TS
system stream for broadcasting defined in ISO/IEC 13818-1

3.10
TV programme
logical unit of TV broadcasting (event in digital TV service)

3.11
TVRS partial TS
partial TS recording format, which complies with this specification

4 Abbreviations

For the purposes of this document, the following abbreviations apply.

ARIB	Association of radio industries and businesses
ATSC	Advanced television systems committee
BP	Byte position within a file, starting with zero
BAT	Bouquet association table
BIT	Broadcaster information table
CBC	Cipher block chaining
CCI	Copy control information
DSM-CC	Digital storage media command and control
DTCP	Digital transmission content protection
DVB	Digital video broadcasting
D-VHS	Data video home system
EIT	Event information table
ES	Elementary stream
IRV	International reference version
ISDB	Integrated services digital broadcasting
MPEG	Moving picture experts group
NIT	Network information table
PAT	Programme association table
PCR	Programme clock reference
PES	Packetized elementary stream
PGR	Programme reference
PGRG	Programme reference group
PID	Packet identifier
PMT	Program map table
PSI	Programme specific information
RBP	Relative byte position within a file, starting with zero
RP	Recording packet
LSB	Least significant bit
SDT	Service information table
SI	Service information
STB	Set top box
TS	Transport stream
TU	Time unit
TVRS	TV recording format specific

5 Notation

5.1 Numerical values

5.1.1 Decimal notation

A decimal number is represented as decimal digits 0 to 9.

5.1.2 Hexadecimal notation

A hexadecimal number is represented as hexadecimal digits 0 to 9 and A to F prefixed by the symbol “0x”.

5.1.3 Binary notation

A binary number is represented as binary digits 0 to 1 suffixed by the symbol “b”.

5.1.4 Bit string

A bslbf shall be recorded as a bit string, left bit first.

5.1.5 Unsigned numerical value

A uimsbf shall be an unsigned integer, most significant bit first.

5.1.6 Remainder polynomial coefficients

A rpchof shall be the remainder polynomial coefficients, highest order first.

6 General

6.1 Character set field in Dstring[n]

A Dstring[n] is a field where a string can be recorded. The character string field size shall be equal to n. The character set of the string is defined in the character set field. The structure of the Dstring[n] is described in Table 1.

Table 1 – Structure Dstring[n]

RBP	Length in bytes	Field name	Contents
0	1	Character set	uimsbf
1	3	Reserved	bslbf
4	2	Character string field size	uimsbf
6	2	Length of character string	uimsbf
8	n	Character strings	bslbf

6.1.1 Character set

The format of the character set is described in Table 2.

Table 2 – Interpretation of character set

Value	Character set
0x00	Reserved
0x01	ISO/IEC 10646-1 (Unicode)
0x02-0x0F	Reserved
0x10	ISO/IEC 646 IRV(ASCII)
0x11	ISO 8859-1
0x12	ISO 8859-2
0x13	ISO 8859-3
0x14	ISO 8859-4
0x15	ISO 8859-5
0x16	ISO 8859-6
0x17	ISO 8859-7
0x18	ISO 8859-8
0x19	ISO 8859-9
0x1A	ISO 8859-10
0x1B	ISO 8859-11
0x1C	Reserved
0x1D	ISO 8859-13
0x1E	ISO 8859-14
0x1F	ISO 8859-15
0x20	ISO 8859-16
0x21-0x7F	Reserved
0x80	Japanese character set defined in ARIB B24, Volume 1, Part 2, Chapter 7, Section 7.1
0x81	Japanese character set defined in JIS X0208 (shift JIS)
0x82	Japanese character set defined in ARIB B24, Volume 2, Chapter 4, Section 4.1.1 (EUC-JP)
0x83-0xFF	Reserved

7 File and directory

7.1 TYPE1 each PGR specific area in structure PGR

The structure of TYPE1 PGRSA is described in Table 3.

Table 3 – Structure of TYPE1 PGRSA

RBP	Length in bytes	Field name	Contents
0	1	PGR specific area TYPE	uimsbf
1	1	Flag	FL1
2	2	Reserved	bslbf
4	8	Event start time	GTS
12	4	Duration	Duration
16	2	Network ID	uimsbf
18	2	Service ID	uimsbf
20	12	Reserved	bslbf

7.1.1 Flag

The structure of FL1 is described in Table 4.

Table 4 – Structure of FL1

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
Reserved				E/A	CCI		ECRYT

7.1.1.1 CCI (bit2-1)[bslbf]

If the value of PI_TYPE field in the program general information is equal to 0x01, which means ISDB specific type, the value of DRCD bits in the copy control field in the TYPE1 component information shall be copied.

7.2 Structure MDE (meta data dntry) in MetaDataTable stream file

Table 5 – Structure of MDE

RBP	Length in bytes	Field name	Contents
0	1	MDE TYPE	uimsbf
1	1	Version	VER
2	2	Length of MDE structure (=n)	uimsbf
4	n	MDE TYPE specific area	

7.2.1 MDE TYPE

This field represents the MDE TYPE specific area. The interpretation of MDE TYPE is described in Table 6.

Table 6 – MDE TYPE interpretation

MDE TYPE	Interpretation
0x0	Shall mean that the following MDE TYPE specific field has no meaning
0x1	Shall mean that the MDE TYPE is a TYPE 1
0x2-0xFF	Reserved

7.2.2 TYPE 1 MDE TYPE specific area (Version1.0)

The TYPE 1 MDE TYPE specific area is defined in Table 7. TYPE 1 MDE is defined for storing metadata of the Japanese digital broadcast services.

Table 7 – Structure of TYPE 1 MDE

RBP	Length in bytes	Field name	Contents
0	1	MDE TYPE	uimsbf
1	1	Version	VER
2	2	Length of MDE structure	uimsbf
4	4	PGR ID	uimsbf
8	1	Flag	FLMDE
9	1	User ID type	uimsbf

10	2	Network_ID	uimsbf
12	2	Service_ID	uimsbf
14	8	Start_Time	GTS
22	88	Title	Dstring[80]
110	48	Series_name	Dstring[40]
158	2	Episode_number	uimbf
160	2	Last episode number	uimbf
162	1	Genre (1)	uimbf
163	1	Genre (2)	uimbf
164	1	Genre (3)	uimbf
165	1	Reserved	bslbf
166	28	Keyword(1)	Dstring[20]
194	28	Keyword(2)	Dstring[20]
222	28	Keyword(3)	Dstring[20]
250	28	Keyword(4)	Dstring[20]
278	28	Keyword(5)	Dstring[20]
306	2	User ID	uimsbf

7.2.2.1 MDE TYPE

This field shall be set to 0x01.

7.2.2.2 Version

This field shall be set to 0x10. This means Version 1.0.

7.2.2.3 Length of MDE structure

This field shall be set to 308.

7.2.2.4 PGR ID

The PGR ID corresponding to the following metadata shall be stored in this field.

7.2.2.5 Flag

The structure of FLMDE is described in Table 8.

Table 8 – Structure of FLMDE

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
Reserved	E/A	VNOK			VNOG		VS

7.2.2.5.1 Reserved (bit7)

These bits are reserved for future use and shall be 0b.

7.2.2.5.2 E/A (bit6) [bslbf]

If the unit of the programme is based on one event, the E/A bit shall be set to 1b. If the unit of the programme is based on one action, the E/A bit shall be set to 0b. If the programme is stored in the TVRS directory, the value of this field shall be copied from the E/A bit in the flag in the programme general information described in IEC 62328-2.

7.2.2.5.3 VNOK (bit5-3) [uimsbf]

The VNOK bits represents the number of valid keyword fields followed in this field.

7.2.2.5.4 VNOG (bit2-1) [uimsbf]

The VNOG bits represents the number of valid genre fields followed in this field.

7.2.2.5.5 VS (bit0) [bslbf]

If the VS bit is set to 1b, the following series name field, episode number field, last episode number field and series ID shall be valid. If the VS bit is 0b, those fields may be invalid.

7.2.2.6 User ID type

This field describes the type of user ID field. The interpretation of the user ID type is described in Table 9.

Table 9 – User ID type Interpretation

PI_ TYPE	Interpretation
0x0	Shall mean that the user ID field is invalid
0x1-0xBF	Reserved
0xC0-0xFE	Shall mean that the user ID Type is vender-specific type
0xFF	Reserved

7.2.2.7 Network ID

The Network ID may be stored. If the programme identification type of broadcasting TV programme information is 0x01 or 0x80, which means ISDB specific type or D-VHS specific type, the value of this field shall be copied from the transport stream ID field in TYPE1 broadcasting TV programme information.

7.2.2.8 Service ID

The service ID may be stored. If the programme identification type of broadcasting TV programme information is 0x01 or 0x80, which means ISDB specific type or D-VHS specific type, the value of this field shall be copied from the service ID field in TYPE1 broadcasting TV programme information.

7.2.2.9 Start time

The programme start time may be stored. If the programme identification type of broadcasting TV programme information is 0x01 or 0x80, which means ISDB specific type or D-VHS specific type, the value of this field shall be converted from the value of the event start time field in the TYPE 1 broadcasting TV programme information.

NOTE The timestamp format of this field is different from that of the broadcasting TV programme information. The conversion of the timestamp is needed.

7.2.2.10 Title

The title of the programme may be stored. If the programme identification type of broadcasting TV programme information is 0x01 or 0x80, which means ISDB specific type or D-VHS specific type, the value of this field may be copied from the event_name_char field in the short_event_descriptor in broadcasting TV programme information.

7.2.2.11 Series_name

If the VS bit of the flag field is 1b, the series name of the programme shall be stored. Otherwise, this field shall be ignored. If the programme identification type of broadcasting TV programme information is 0x01 or 0x80, which means ISDB specific type or D-VHS specific type, the value of this field may be copied from series_name_char field in series_descriptor in the broadcasting TV programme information.

7.2.2.12 Episode_number

If the VS bit of the flag field is 1b, the episode number of the programme shall be stored. Otherwise, this field shall be ignored. If the VS bit is 1b and the value of this field is 0x0000, this means that the episode number is undefined. If the programme identification type of the broadcasting TV programme information is 0x01 or 0x80, which means ISDB specific type or D-VHS specific type, the value of this field may be copied from the episode_number field in the series_descriptor in the broadcasting TV programme information.

7.2.2.13 Last_episode_number

If the VS bit of the flag field is 1b, the last episode number of the programme shall be stored. Otherwise, this field shall be ignored. If the VS bit is 1b and the value of this field is 0x0000, this means that the last episode number is undefined. If the programme identification type of the broadcasting TV programme information is 0x01 or 0x80, which means ISDB specific type or D-VHS specific type, the value of this field may be copied from the last_episode_number field in the series_descriptor in the broadcasting TV programme information.

7.2.2.14 Genre (1)

If the VNOG in the flag field is greater than, or equal to, one, the genre of the programme shall be stored in this field. Otherwise, this field shall be ignored. If the programme identification type of broadcasting TV programme information is 0x01, which means ISDB specific type, the most significant 4 bits correspond to the content_nibble_level_1 field in the content_descriptor and the least significant 4 bits correspond to the content_nibble_level_2 field in the content_descriptor. The value of this field may be copied from the content_nibble_level_1 and content_nibble_level_2 field in the content_descriptor in the broadcasting TV programme information.

7.2.2.15 Genre (2)

If the VNOG in the flag field is greater than, or equal to, two, the genre of the programme shall be stored in this field. Otherwise, this field shall be ignored. If the programme identification type of broadcasting TV programme information is 0x01, which means ISDB specific type, the most significant 4 bits correspond to the content_nibble_level_1 field in the content_descriptor and the least significant 4 bits correspond to the content_nibble_level_2 field in the content_descriptor. The value of this field may be copied from the content_nibble_level_1 and content_nibble_level_2 field in the content_descriptor in the broadcasting TV programme information.

7.2.2.16 Genre (3)

If the VNOG in the flag field is equal to three, the genre of the programme shall be stored in this field. Otherwise, this field shall be ignored. The most significant 4 bits correspond to the content_nibble_level_1 field in the content_descriptor and the least significant 4 bits correspond to the content_nibble_level_2 field in the content_descriptor. If the programme identification type of broadcasting TV programme information is 0x01, which means ISDB specific type, the value of this field may be copied from the content_nibble_level_1 and content_nibble_level_2 field in the content_descriptor in the broadcasting TV programme information.

7.2.2.17 Reserved

This field shall be reserved for future standardization and all bytes shall be set to 0x00.

7.2.2.18 Keyword (1)

If the VNOC in the flag field is greater than, or equal to, one, a keyword shall be stored in this field. Otherwise, this field shall be ignored. If the programme identification type of broadcasting TV programme information is 0x01, which means ISDB specific type, the value of this field may be extracted from the text_char field in the extended_event_descriptor in the broadcasting TV programme information.

7.2.2.19 Keyword (2)

If the VNOC in the flag field is greater than, or equal to, two, a keyword shall be stored in this field. Otherwise, this field shall be ignored. If the programme identification type of broadcasting TV programme information is 0x01, which means ISDB specific type, the value of this field may be extracted from the text_char field in the extended_event_descriptor in the broadcasting TV programme information.

7.2.2.20 Keyword (3)

If the VNOC in the flag field is greater than, or equal to, three, a keyword shall be stored in this field. Otherwise, this field shall be ignored. If the programme identification type of broadcasting TV programme information is 0x01, which means ISDB specific type, the value of this field may be extracted from the text_char field in the extended_event_descriptor in the broadcasting TV programme information.

7.2.2.21 Keyword (4)

If the VNOC in the flag field is greater than, or equal to, four, a keyword shall be stored in this field. Otherwise, this field shall be ignored. If the programme identification type of the broadcasting TV programme information is 0x01, which means ISDB specific type, the value of this field may be extracted from the text_char field in the extended_event_descriptor in the broadcasting TV programme information.

7.2.2.22 Keyword (5)

If the VNOC in the flag field is grater than, or equal to, five, a keyword shall be stored in this field. Otherwise, this field shall be ignored. If the programme identification type of the broadcasting TV programme information is 0x01, which means ISDB specific type, the value of this field may be extracted from the text_char field in the extended_event_descriptor in the broadcasting TV programme information.

7.2.2.23 User ID

If the value of the user ID type field is not 0x00, the user ID of the user by which the programme is recorded shall be stored. The value 0xFFFF means the user is undefined.

7.3 Program information in PROGxxxx.PIF file

Information that is related to a TV programme and is often referred by users is stored in programme information. Programme information consists of four kinds of information shown Figure 1.

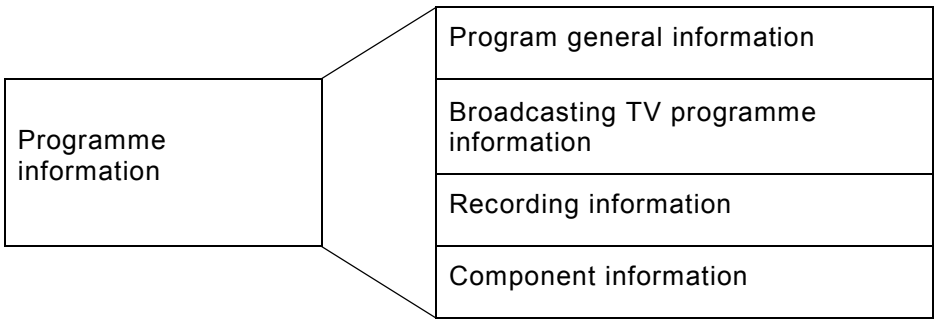


Figure 1 – Structure of programme information

7.3.1 Programme general information in programme information

The structure of programme general information is described in Table 10.

Table 10 – Structure of programme general information

RBP	Length in bytes	Field name	Contents
0	4	Programme information length	uimsbf
4	1	Programme identification type	uimsbf
5	1	Recorded stream type	uimsbf
6	1	Service type	uimsbf
7	1	Flag	FLPGI
8	136	Stream recorded location	Dstring[128]
144	4	Broadcasting TV programme information start address	uimsbf
148	4	Recording information start address	uimsbf
152	4	Component information start address	uimsbf

7.3.1.1 Programme identification type (PI_TYPE)

This field describes the type of programme. The programme identification type defines the type of recorded AV stream and is described in Table 11.

Table 11 – Programme identification type interpretation

PI_ TYPE	Interpretation
0x0	Shall mean that the following PI_TYPE specific field has no meaning
0x1	Shall mean that the PI_TYPE is the ISDB specific type for Japanese digital TV
0x2-0x7F	Reserved
0x80	Shall mean that the PI_TYPE is the D-VHS specific type for analogue TV
0x81-0xBF	Reserved
0xC0-0xFE	Shall mean that the PI_TYPE is vendor-specific type
0xFF	Reserved

If the PI_TYPE is 0x1, the format of the recorded AV stream complies with the partial TS format for Japanese digital TV. The abstract of the format is described in Clause B.1. If the PI_TYPE is 0x80, the format of the recorded AV stream complies with the partial TS format defined in the D-VHS MPEG transport stream specification and the D-VHS MPEG transport stream service information specification.

7.3.1.2 Service type

This field describes the service type of the broadcasting TV programme. The value of this field may be copied from the service_type field of the corresponding broadcaster in the service_list_descriptor. If the PI_TYPE is 0x80, the value of this field shall be 0x00.

Table 12 – Service type interpretation

Service type	Interpretation
0x00	Shall mean that the service type has no meaning
0x01	Shall mean that the service type is the digital TV service
0x02	Shall mean that the service type is the digital audio service
0x03 – 0xBF	Reserved
0xC0	Shall mean that the service type is the data service
0xC1-0xFF	Reserved

7.3.2 Broadcasting TV programme information (BTVPI)

The structure of BTVPI is described in Table 13.

Table 13 – Structure of broadcasting TV programme information

RBP	Length in bytes	Field name	Contents
0	1	BTVPI TYPE	uimsbf
1	3	Length of broadcasting TV programme information	uimsbf
4		BTVPI TYPE specific field	uimsbf

7.3.2.1 BTVPI TYPE

This field represents the type of the BTVPI TYPE, the interpretation of which is described in Table 14.

Table 14 – BTVPI TYPE interpretation

BTVPI TYPE	Interpretation
0x0	Shall mean that the following BTVPI TYPE specific field has no meaning
0x1	Shall mean that the broadcasting TV programme information is of TYPE 1
0x2-0xFF	Reserved

7.3.2.2 TYPE 1 broadcasting TV programme information

TYPE 1 broadcasting TV programme information is described in Table 15. If the value of the PI_TYPE field in the programme general information is equal to 0x01, which means ISDB specific type, or 0x80, which means D-VHS specific type, the TYPE 1 broadcasting TV programme information shall be used.

Table 15 – Structure of TYPE1 broadcasting TV programme information

RBP	Length in bytes	Field name	Contents
0	1	BTVPI TYPE	uimsbf
1	3	Length of broadcasting TV programme information	uimsbf
4	2	Original network ID	uimsbf
6	2	Transport stream ID	uimsbf
8	2	Service ID	uimsbf
10	2	Event ID	uimsbf
12	5	Event start time	bslbf
17	3	Duration	uimsbf
20	N	Descriptors	descriptors

7.3.2.2.1 BTVPI TYPE

BTVPI TYPE shall be 1.

7.3.2.2.2 Length of broadcasting TV programme information

This field describes the length of the broadcasting TV programme information in bytes.

7.3.2.2.3 Original network ID

In the case of the ISDB specific type (PI_TYPE = 0x1), if the E/A bit of the flag field in programme general information is 1b, which means the unit of the programme is based on one event, this field describes the value of the original_network_id of the programme. If the E/A bit of the flag field in the programme general information is 0b, the value of this field may be 0xFFFF, which means this field is undefined. The value of this field may be copied from the original_network_id field in NIT.

In the case of D-VHS specific type (PI_TYPE = 0x80), the value of this field shall be 0xFFFF.

7.3.2.2.4 Transport stream ID

In the case of the ISDB specific type (PI_TYPE = 0x1), if the E/A bit of the flag field in programme general information is 1b, which means the unit of the programme is based on one event, this field describes the value of the transport_stream_id of the programme. If the E/A bit of the flag field in programme general information is 0b, the value of this field may be 0xFFFF, which means this field is undefined. The value of this field may be copied from the transport_stream_id field in PAT.

In the case of the D-VHS specific type (PI_TYPE = 0x80), the value of this field shall be 0xFFFF.

NOTE In the ISDB forma,t Network_ID information is a part of transport_stream _ID information.

7.3.2.2.5 Service ID

In the case of the ISDB specific type (PI_TYPE = 0x1), if the E/A bit of the flag field in programme general information is 1b, which means the unit of the programme is based on one event, this field describes the value of the service_id of the programme. If the E/A bit of the flag field in programme general information is 0b, the value of this field may be 0xFFFF, which means this field is undefined. The value of this field may be copied from the program_number field in PAT.

In the case of the D-VHS specific type (PI_TYPE = 0x80), the channel number from which the programme is recorded may be recorded.

7.3.2.2.6 Event ID

In the case of the ISDB specific type (PI_TYPE = 0x1), if the E/A bit of the flag field in programme general information is 1b, which means the unit of the programme is based on one event, this field describes the value of the event_id of the programme. If the E/A bit of the flag field in programme general information is 0b, the value of this field may be 0xFFFF, which means this field is undefined. The value of this field may be copied from the event_id field in EIT.

In the case of the D-VHS specific type (PI_TYPE = 0x80), the value of this field shall be 0xFFFF.

7.3.2.2.7 Reserved

This field shall be reserved for future standardization and all bytes shall be set to 0x00.

7.3.2.2.8 Event start time

This field describes the start time of the recorded TV programme.

In the case of the ISDB specific type (PI_TYPE = 0x1), the format of this field is as follows. This 40-bit field contains a start time of the event in Japanese standard time (JST) and modified Julian date (MJD). This field is coded as 16 bits giving the 16 LSBs of MJD followed by 24 bits coded as 6 digits in the 4-bit binary coded decimal (BCD). If the start time is undefined, all the bits of the field are set to 1b.

In the case of the ISDB specific type (PI_TYPE = 0x1), if the E/A bit of the flag field in programme general information is 1b, which means the unit of the programme is based on one event, the start time corresponding to the recorded TV programme shall be described. If the E/A bit of the flag field in programme general information is 0b, the recording start time may be described. The value of this field may be copied from the start_time field of the corresponding event in EIT. The structure of EIT is described in B.2.2.

In the case of the D-VHS specific type (PI_TYPE = 0x80), the format of this field is as follows. This 40-bit field contains a start time of the event in universal time coordinated (UTC) and modified Julian date (MJD). This field is coded as 16 bits giving the 16 LSBs of MJD followed by 24 bits coded as 6 digits in the 4-bit binary coded decimal (BCD). For instance, October 13th, 1993, 12:45:00 is coded as “0xC079124500”. If the start time is undefined, all bits of the field are set to 1b.

In the case of the D-VHS specific type (PI_TYPE = 0x80), the recording start time may be described.

7.3.2.2.9 Duration

This field describes the duration of the event.

The format of this field is as follows: a 24-bit field containing the duration of the event in hours, minutes and seconds. This field is coded as 6 digits in the 4-bit binary coded decimal (BCD). For instance, 01:45:30 is coded as “0x014530”. If the duration is undefined, all bits of the field are set to 1b.

In the case of the ISDB specific type (PI_TYPE = 1), if the E/A bit of the flag field in programme general information is 1b, which means the unit of the programme is based on one event, the duration corresponding to the recorded TV programme shall be described. If the E/A bit of the flag field in programme general information is 0b, the recording start time may be described. The value of this field may be copied from the duration field of the corresponding event in EIT. The structure of EIT is described in B.2.2.

In the case of the D-VHS specific type (PI_TYPE = 0x80), the recorded duration of the programme may be described.

7.3.2.2.10 Descriptors

7.3.2.2.10.1 Descriptors in the case of ISDB specific type (PI_TYPE = 0x1)

In the case of the ISDB specific type (PI_TYPE = 0x1), the order of the descriptors stored in the descriptor field is not specified. The following descriptors shall be included if these descriptors exist in broadcasting TS:

- short_event_descriptor;
- digital_copy_control_descriptor

The following descriptors may be included:

- parental_rating_descriptor;
- service_list_descriptor;
- extended_event_descriptor;
- series_descriptor;
- content_descriptor.

7.3.2.2.10.2 Descriptors in the case of D-VHS specific type (PI_TYPE = 0x80)

In the case of the D-VHS specific type (PI_TYPE = 0x80), the order of the descriptors stored in the descriptor field shall be specified. The structure of the descriptors is described in Table 16.

Table 16 – Structure of descriptors in case of D-VHS specific type

RBP	Length in bytes	Field name	Contents
0	6	DTCP_Descriptor	descriptor
6	a	Short_Event_Descriptor	descriptor
6+a	b	Content_Descriptor	descriptor
6+a+b		Other_Descriptors	descriptors

The DTCP_Descriptor is mandatory for copy control information. The Short_Event_Descriptor is mandatory for the title. The character set used in the descriptor shall be the same as the ISDB specific type (PI_TYPE = 0x1). The Content_Descriptor is mandatory for the genre. Other descriptors may be described after the Content_Descriptor.

7.3.3 Component information (COMPI)

The structure of COMPI is described in Table 17.

Table 17 – Structure of component information

RBP	Length in bytes	Field name	Contents
0	1	COMPI TYPE	uimsbf
1	3	Length of component information	uimsbf
4		COMPI TYPE specific field	

7.3.3.1 COMPI TYPE

This field represents the type of the COMPI TYPE. The interpretation of the COMPI TYPE is described in Table 18.

Table 18 – COMPI TYPE interpretation

COMPI TYPE	Interpretation
0x0	Shall mean that the following COMPI TYPE specific field has no meaning
0x1	Shall mean that the component information is a TYPE1
0x2	Shall mean that the component information is a TYPE2
0x3-0xFF	Reserved

7.3.3.2 Length of component information

This field describes the length of the component information in bytes. The value of this field depends on the COMPI TYPE.

7.3.3.3 COMPI TYPE specific field

The structure of this field depends on the COMPI TYPE and its structure.

7.3.3.4 TYPE 1 component information

TYPE1 component information is defined in Figure 2. If the value of the PI_TYPE field in programme general information is equal to 0x01, which means ISDB specific type, TYPE1 component information shall be used.

TYPE1 component information describes the information of elementary streams in the TVRS partial TS. Component information has the structure identifying a group of elementary streams and the structure identifying elementary streams. Basically, this information is created by combining PSI/SI in PMT, PAT, EIT, NIT, BAT, BIT, SDT, and so on.

NOTE BIT is defined only in ISDB.

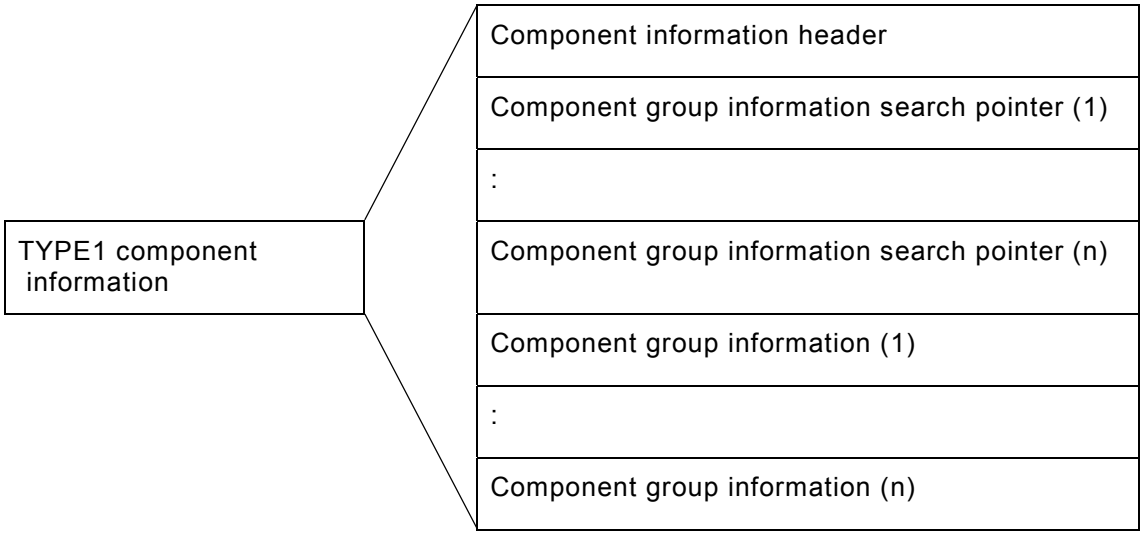


Figure 2 – Structure of TYPE1 component information

7.3.3.5 Component information header in TYPE1 component information

The structure of TYPE1 component information is described in Table 19.

Table 19 – Structure of component information header

RBP	Length in bytes	Field name	Contents
0	1	COMPI TYPE	uimsbf
1	3	Length of component information	uimsbf
4	1	Containing flag	CFL
5	1	Copy controls	CC
6	2	PCR PID	bslbf
8	4	Parental rate	PR
12	7	Reserved	bslbf
19	1	Number of component group information search pointer	uimsbf

7.3.3.5.1 COMPI TYPE

The COMPI TYPE shall be 0x01.

7.3.3.5.2 Length of component information

This field describes the length of TYPE1 component information in bytes.

7.3.3.5.3 Containing flag (CFL)

The structure of the containing flag is described in Table 20.

Table 20 – Structure of CFL

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
MVM			ADM		Reserved		

7.3.3.5.3.1 MVM (bit7-5)

MVM is short for “Multi_View_Mode”. If the component_group_descriptor exists in the broadcasting TS and the component_group_type is 000b and the TVRS partial TS remains the structure of the group of components, this field shall be 000b. If the TVRS partial TS does not have the structure of the group of components as Multi View, this field shall be 111b.

7.3.3.5.3.2 ADM (bit4-3)

ADM is short for “Additional_Data_Mode”. If a recorded TS has an ES of additional data, this field shall be 01b. If the TVRS partial TS does not have an ES of additional data, this field shall be 00b.

NOTE Additional data may be caption data.

7.3.3.5.3.3 Reserved (bit2-0)

These bits are reserved for future use and shall be 0b.

7.3.3.5.4 Copy controls(CC)

The structureu of CC is described in Table 21.

Table 21 – Structure of CC

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
DRCD		MR	CC	CCT		APSCD	

7.3.3.5.4.1 DRCD (bit7-6)

If the digital_copy_control_descriptor in the PMT 1st loop exists, the value of the digital_recording_control_data field shall be copied. If the digital_copy_control_descriptor in the PMT 1st loop does not exist, this value shall be 00b. The structure of the digital_copy_control_descriptor is described in 0.

7.3.3.5.4.2 MR (bit5)

If the digital_copy_control_descriptor in the PMT 1st loop exists, the value of the maximum_bit_rate_flag field shall be copied. If the digital_copy_control_descriptor in PMT 1st loop does not exist, this value shall be 0b. The structure of the digital_copy_control_descriptor is described in 0.

7.3.3.5.4.3 CC (bit4)

If the digital_copy_control_descriptor in the PMT 1st loop exists, the value of the component_control_flag field shall be copied. If the digital_copy_control_descriptor in the PMT 1st loop does not exist, this value shall be 0b. The structure of the digital_copy_control_descriptor is described in 0.

7.3.3.5.4.4 CCT (bit3-2)

If the digital_copy_control_descriptor in the PMT 1st loop exists, the value of the most significant two bits of the user_defined field in the digital_copy_control_descriptor, which correspond to the copy_control_type field, shall be copied. If the digital_copy_control_descriptor in the PMT 1st loop does not exist, this value shall be 00b. The structure of the digital_copy_control_descriptor is described in 0.

7.3.3.5.4.5 APSCD (bit1-0)

If the digital_copy_control_descriptor in the PMT 1st loop exists, the value of the least significant two bits of the user_defined field in the digital_copy_control_descriptor, which correspond to the APS_control_data field or the reserved_future_use field, shall be copied. If the digital_copy_control_descriptor in the PMT 1st loop does not exist, this value shall be 00b. The structure of the digital_copy_control_descriptor is described in 0.

7.3.3.5.5 PCR PID

This field describes the PID of PCR. If the value of this field is 0xFFFF, this field shall be ignored.

7.3.3.5.6 Parental rate (PR)

The structure of PR is described in Table 22.

Table 22 – Structure of PR

RBP	Length in bytes	Field name	Contents
0	3	Country code	bslbf
3	1	Parental rate	uimsbf

7.3.3.5.6.1 Country code

When the conditional_access_descriptor exists in the PMT 1st loop in the broadcasting TS, this field shall be filled with 0x000000. When the parental_rating_descriptor exists in the EIT in the broadcasting TS, this field shall be equal to the country_code of the descriptor. If there are no conditional_access_descriptor and no parental_rating_descriptor in broadcasting TS, this field shall be filled with 0x000000.

7.3.3.5.6.2 Parental rate

When the conditional_access_descriptor exists in the PMT 1st loop in the broadcasting TS, this parental rate shall be equal to the first byte of the private_data_byte field in the descriptor. When the parental_rating_descriptor exists in the EIT in the broadcasting TS, this field shall be equal to the country_code and rating. If there are no conditional_access_descriptor and no parental_rating_descriptor in the broadcasting TS, this field shall be 0x00.

7.3.3.5.7 Reserved

This field shall be reserved for future standardization and all bytes shall be set to 0x00.

7.3.3.5.8 Number of component group information search pointer

This field describes the number of the component group information search pointer following this field.

7.3.3.6 Component group information search pointer in TYPE1 component information

The structure of the CGISP described in Table 23.

Table 23 – Structure of the component group information search pointer

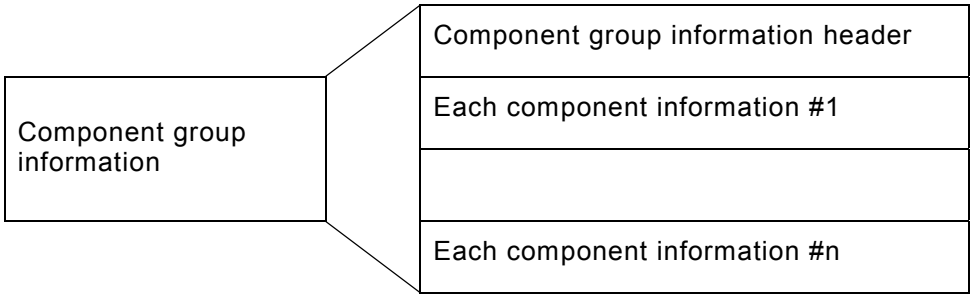
RBP	Length in bytes	Field name	Contents
0	4	Component group information start address	uimsbf

7.3.3.6.1 Component group information start address

The component group information start address describes the start address of the corresponding component group information from the top of the TYPE1 component information in bytes.

7.3.3.7 Component group information in TYPE1 component information

The component group is a unit composed of one or more components. In the Multi_View TV service, there may be plural component groups in the broadcasting TS. The structure of the component group information is described in Figure 3.



IEC 1144/05

Figure 3 – Structure of component group information

7.3.3.7.1 Component group information header in component group information

The structure of the component group information header is described in Table 24.

Table 24 – Structure of component group information header

RBP	Length in bytes	Field name	Contents
0	1	Component_Group_Id	uimsbf
1	1	Reserved	bslbf
2	24	Text	Dstring[16]
26	1	Reserved	bslbf
27	1	Number of each component information	uimsbf

7.3.3.7.1.1 Component_Group_Id

If MVM bits in the containing flag of the component information header is 000b (Multi_View_TV_Service), the least significant 4 bits of this field is the same as that of the component_group_id in the component_group_descriptor in the broadcasting TS. If MVM bits in the containing flag of the component information header are 111b (not Multi_View_TV_Service), only one component group shall be present and its component_group_id shall be 0x00.

7.3.3.7.1.2 Reserved

This field shall be reserved for future standardization and all bytes shall be set to 0x00.

7.3.3.7.1.3 Text

The character set field in Dstring[16] structure shall be 0x80. The length of the character string field may be the value of the text_length field in the component_group_descriptor. The content of this field may be the same as that of the text_char field in the component_group_descriptor.

7.3.3.7.1.4 Reserved

This field shall be reserved for future standardization and all bytes shall be set to 0x00.

7.3.3.7.1.5 Number of each component information

This field describes the number of each component information following this field.

7.3.3.7.2 Each component information

Each component information describes the stream type and the stream type dependent data. The structure of component information is described in Table 25.

Table 25 – Structure of component Information

RBP	Length in bytes	Field name	Contents
0	1	Stream type	uimsbf
1	1	Component tag	bslbf
2	2	PID	bslbf
4	1	Component info flag	CIFL
5	1	Copy controls	CC
6	2	Reserved	uimsbf
8	52	Stream type dependent data	bslbf

7.3.3.7.2.1 Stream type

The stream type is defined in Table 26.

Table 26 – Stream type interpretation

Stream_Type	Stream	Following Data
0x01	ISO/IEC 11172Video(MPEG1 VIDEO)	VIDEO MODE
0x02	ISO/IEC 13818-2 (MPEG2 VIDEO)	VIDEO MODE
0x06	ISO/IEC 13818-1 (MPEG2 SYSTEMS) PES packets containing private data	ADDITIONAL DATA MODE
0x0D	ISO/IEC 13818-6	DATA MODE
0x0F	ISO/IEC 13818-7 (MPEG2 AAC)	AUDIO MODE
Any other value	Reserved	Not defined

7.3.3.7.2.2 Component_Tag

This field describes the component_tag value of the stream_identifier_descriptor in the PMT 2nd loop corresponding to the elementary stream.

7.3.3.7.2.3 PID

This field describes the elementary_PID value in the PMT 2nd loop corresponding to the elementary stream. If the value of this field is 0xFFFF, this field shall be ignored.

7.3.3.7.2.4 Component_Info_Flag (CIFL)

The structure of CIFL is described in Table 27.

Table 27 – Structure of CIFL

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
Reserved							CIF

7.3.3.7.2.4.1 Reserved (bit7-1)

These bits are reserved for future use and shall be 0b.

7.3.3.7.2.4.2 CIF (bit0)

If the PID for the component_tag described above has changed in the recorded stream, this flag may be set to 1b. When playing back this stream, the player may face the discontinuity point in the elementary stream pointed by the PID described above. Otherwise, this flag shall be 0b.

NOTE As described in ISDB standards, the decoder is strongly recommended to keep on decoding the stream identified component_tag value.

7.3.3.7.2.5 Copy controls (CC)

The structure of CC is described in Table 28.

Table 28 – Structure of CC

bit7 bit6	bit5	bit4	bit3 bit2	bit1 bit0
DRCD	MR	CC	CCT	APSCD

7.3.3.7.2.5.1 DRCD (bit7-6)

If the digital_copy_control_descriptor in PMT 2nd loop corresponding to the elementary stream exists, the value of the digital_recording_control_data field shall be copied. If the digital_copy_control_descriptor in the PMT 1st loop does not exist, this value shall be 00b. The structure of the digital_copy_control_descriptor is described in 0.

7.3.3.7.2.5.2 MR (bit5)

If the digital_copy_control_descriptor in the PMT 2nd loop corresponding to the elementary stream exists, the value of the maximum_bit_rate_flag field shall be copied. If the digital_copy_control_descriptor in the PMT 1st loop does not exist, this value shall be 0b. The structure of the digital_copy_control_descriptor is described in 0.

7.3.3.7.2.5.3 CC (bit4)

If the digital_copy_control_descriptor in the PMT 2nd loop corresponding to the elementary stream exists, the value of the component_control_flag field shall be copied. If the digital_copy_control_descriptor in the PMT 1st loop does not exist, this value shall be 0b. The structure of the digital_copy_control_descriptor is described in 0.

7.3.3.7.2.5.4 CCT (bit3-2)

If the digital_copy_control_descriptor in the PMT 2nd loop corresponding to the elementary stream exists, the value of the most significant two bits of the user_defined field in the digital_copy_control_descriptor, which correspond to the copy_control_type field, shall be copied. If the digital_copy_control_descriptor in the PMT 1st loop does not exist, this value shall be 00b. The structure of the digital_copy_control_descriptor is described in 0.

7.3.3.7.2.5.5 APSCD (bit1-0)

If the digital_copy_control_descriptor in the PMT 2nd loop corresponding to the elementary stream exists, the value of the least significant two bits of the user_defined field in the digital_copy_control_descriptor, which correspond to the APS_control_data field or the reserved_future_use field, shall be copied. If the digital_copy_control_descriptor in the PMT 1st loop does not exist, this value shall be 00b. The structure of the digital_copy_control_descriptor is described in 0.

7.3.3.7.2.6 Reserved

This field shall be reserved for future standardization and all bytes shall be set to 0x00.

7.3.3.7.2.7 Structure of stream type dependent data

Four kinds of stream type dependant data structure are described.

7.3.3.7.2.7.1 VIDEO MODE

If the value of the stream type field in each component information is 0x01 or 0x02, the VIDEO MODE shall be applied. The structure of the stream type dependent data is described in Table 29.

Table 29 – Structure of stream type dependant data (VIDEO MODE)

RBP	Length in bytes	Field name	Contents
0	1	Component type	uimsbf
1	1	Reserved	bslbf
2	24	Text	Dstring[16]
26	26	Reserved	bslbf

7.3.3.7.2.7.1.1 Component type

The value of this field may be copied from the component type field in the component_descriptor.

7.3.3.7.2.7.1.2 Reserved

This field shall be reserved for future standardization and all bytes shall be set to 0x00.

7.3.3.7.2.7.1.3 Text

The character set field in the Dstring[] structure shall be 0x80. The length of the character string field may be the value of the text_length field in the component_descriptor. The content of this field may be the same as that of the text_char field in the component_descriptor.

7.3.3.7.2.7.1.4 Reserved

This field shall be reserved for future standardization and all bytes shall be set to 0x00.

7.3.3.7.2.7.2 AUDIO MODE

If the value of the stream type field in each component information is 0x0F, the AUDIO MODE shall be applied. The structure of the stream type dependent data is described in Table 30.

Table 30 – Structure of stream type dependant data (AUDIO MODE)

RBP	Length in bytes	Field Name	Contents
0	1	Component type	uimsbf
1	1	ES information	ESI
2	3	Lang code 1	bslbf
5	3	Lang code 2	bslbf
8	41	Text	Dstring[33]
49	3	Reserved	bslbf

7.3.3.7.2.7.2.1 Component type

The value of this field may be copied from the component type field in the audio_component_descriptor.

7.3.3.7.2.7.2.2 ES information (ESI)

The structure of ESI is described in Table 31.

Table 31 – Structure of ESI

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
ESMLF	MCF	QI[1..0]		SR[2..0]			reserved

7.3.3.7.2.7.2.2.1 ESMLF (bit7) [bslbf]

“ESMLF” is short for “ES_multi_lingual_flag”. This flag may be copied from the ES_multi_lingual_flag in the audio_component_descriptor.

7.3.3.7.2.7.2.2.2 MCF (bit6) [bslbf]

“MCF” is short for “Main_Component_flag”. This flag may be copied from the main_component_flag in the audio_component_descriptor.

7.3.3.7.2.7.2.2.3 QI (bit5-4) [bslbf]

“QI” is short for “quality_indicator”. This flag may be copied from the quality_indicator field in the audio_component_descriptor.

7.3.3.7.2.7.2.2.4 SR(bit3-1) [bslbf]

"SR" is short for "sampling_rate". This flag may be copied from the sampling_rate field in the audio_component_descriptor.

7.3.3.7.2.7.2.2.5 Reserved (bit0)

This bit is reserved for the future use and shall be 0b.

7.3.3.7.2.7.2.3 Lang code 1

The value of this field may be copied from the ISO_639_language_code field in the audio_component_descriptor.

7.3.3.7.2.7.2.4 Lang code 2

The value of this field may be copied from the ISO_639_language_code_2 field in the audio_component_descriptor.

7.3.3.7.2.7.2.5 Text

The character set field in the Dstring[] structure shall be 0x80. The length of the character string field may be the value of the text_length field in the audio_component_descriptor. The content of this field may be the same as that of the text_char field in the audio_component_descriptor.

7.3.3.7.2.7.2.6 Reserved

This field shall be reserved for future standardization and all bytes shall be set to 0x00.

7.3.3.7.2.7.3 DATA MODE

If the value of the stream type field in each component information is 0x0D, the DATA MODE described in Table 32 shall be applied.

Table 32 – Structure of stream type dependant data (DATA MODE)

RBP	Length in bytes	Field name	Contents
0	52	Reserved	bslbf

7.3.3.7.2.7.3.1 Reserved

This field shall be reserved for future standardization and all bytes shall be set to 0x00.

7.3.3.7.2.7.4 ADDITIONAL DATA

If the value of the stream type field in each component information is 0x06, the ADDITIONAL DATA described in Table 33 shall be applied.

Table 33 – Structure of stream type dependant data (ADDITIONAL DATA)

RBP	Length in bytes	Field name	Contents
0	52	Reserved	bslbf

7.3.3.7.2.7.4.1 Reserved

This field shall be reserved for future standardization and all bytes shall be set to 0x00.

7.3.3.8 TYPE 2 component information

TYPE2 component information is defined below. If the value of the PI_TYPE field in the programme general information is equal to 0x80, which means the D-VHS specific type, TYPE2 components information shall be used.

The structure of TYPE2 component information is described in Table 34.

Table 34 – Structure of TYPE2 component information

RBP	Length in bytes	Field name	Contents
0	1	COMPI TYPE	uimsbf
1	3	Length of component information	uimsbf
4	2	PCR PID	bslbf
6	2	VIDEO PID	bslbf
8	2	AUDIO PID	bslbf
10	6	Reserved	bslbf

7.3.3.8.1 COMPI TYPE

COMPI TYPE shall be 0x02.

7.3.3.8.2 Length of component information

This field describes the length of TYPE2 component information. The value shall be 16.

7.3.3.8.3 PCR PID

This field describes the PID of PCR. If the value of this field is 0xFFFF, this field shall be ignored.

7.3.3.8.4 VIDEO PID

This field describes the PID of video. If the value of this field is 0xFFFF, this field shall be ignored.

7.3.3.8.5 AUDIO PID

This field describes the PID of audio. If plural audio streams exist, the PID of the main audio stream is stored. If the value of this field is 0xFFFF, this field shall be ignored.

7.3.3.8.5.1 Reserved

This field shall be reserved for future standardization and all bytes shall be set to 0x00.

Annex A
(informative)

Partial TS format

A.1 Partial TS format for Japanese digital TV

The partial TS format for digital broadcasting in Japan is defined in ARIB STD-B10, ARIB STD-B21, ARIB TR-B14, ARIB TR-B15. All the documents are written in Japanese. A summary of these is given in Tables A.1 and A.2.

A.1.1 PSI/SI tables in partial TS

Table A.1 – PSI/SI tables

Tables	Description
PAT (programme association table)	PAT gives the correspondence between a programme number (service id) and the PID PMT
PMT (programme map table)	PMT provides the mapping between a programme number (service id) and the programme elements that comprise it
DIT(discontinuity information table)	DIT shows the point where the service information may not continue in the partial TS
SIT (selection information table)	SIT contains the service information selected from the broadcasting stream

Table A.2 – PID and table ID mapping for PSI/SI

Table	PID	Table ID
PAT	0x0000	0x00
PMT	Specified by PAT	0x02
DIT	0x001E	0x7E
SIT	0x001F	0x8F

A.1.2 Table syntax

A.1.2.1 Programme association table

The program association table provides the correspondence between a program_number (service_id) and the PID value of the transport stream packets, which carry the programme definition. Details are described in ISO/IEC 13818-1.

Table A.3 – Programme association section

Syntax	No. of bits	Mnemonic
program_association_section() {		
table_id	**8**	**uimsbf**
section_syntax_indicator	**1**	**bslbf**
'0'	**1**	**bslbf**
reserved	**2**	**bslbf**
section_length	**12**	**uimsbf**
transport_stream_id	**16**	**uimsbf**
reserved	**2**	**bslbf**
version_number	**5**	**uimsbf**
current_next_indicator	**1**	**bslbf**
section_number	**8**	**uimsbf**
last_section_number	**8**	**uimsbf**
for (i=0; i<N;i++) {		
program_number	**16**	**uimsbf**
reserved	**3**	**bslbf**
if(program_number == '0') {		
network_PID	**13**	**uimsbf**
}		
else {		
program_map_PID	**13**	**uimsbf**
}		
}		
CRC_32	**32**	**rpchof**
}		

A.1.2.2 Programme map table

The programme map table provides the mappings between the programme numbers and the programme elements that comprise them. The PMT is the complete collection of all programme definitions for a transport stream. Details are described in ISO/IEC 13818-1.

Table A.4 – Programme map section

Syntax	No. of bits	Mnemonic
TS_program_map_section() {		
table_id	**8**	**uimsbf**
section_syntax_indicator	**1**	**bslbf**
'0'	**1**	**bslbf**
reserved	**2**	**bslbf**
section_length	**12**	**uimsbf**
program_number	**16**	**uimsbf**
reserved	**2**	**bslbf**
version_number	**5**	**uimsbf**
current_next_indicator	**1**	**bslbf**
section_number	**8**	**uimsbf**
last_section_number	**8**	**uimsbf**
reserved	**3**	**bslbf**
PCR_PID	**13**	**uimsbf**
reserved	**4**	**bslbf**
program_info_length	**12**	**uimsbf**
for (i=0; i<N; i++) {		
descriptor()		
}		
for (i=0;i<N1;i++) {		
stream_type	**8**	**uimsbf**
reserved	**3**	**bslbf**

	elementary_PID	**13**	**uimsnf**
	reserved	**4**	**bslbf**
	ES_info_length	**12**	**uimsbf**
	for (i=0; i<N2; i++) {		
	descriptor()		
	}		
}			
	CRC_32	**32**	**rpchof**
}			

Table A.5 – Descriptors in PMT in partial TS

Descriptor	Tag	Condition	Position
Conditional access descriptor	0x09	Never	--
Content availability descriptor	0xDE	Needed if included in broadcasting TS	1st loop
Stuffing descriptor	0x42	Optional	1st and 2nd loop
Stream identifier descriptor	0x52	Recommended	2nd loop
Hierarchical transmission descriptor	0xC0	Optional	2nd loop
Digital copy control descriptor	0xC1	Needed if included in broadcasting TS	1st and 2nd loop
Target region descriptor	0xC6	Optional	1st and 2nd loop
Video decode control descriptor	0xC8	Needed if included in broadcasting TS	2nd loop
Emergency information descriptor	0xFC	Optional	1st loop
Data component descriptor	0xFD	Needed if included in broadcasting TS	2nd loop

A.1.2.3 Discontinuity information table

DIT shows the point where service information may not continue in partial TS. Details are described in EN 300 486 DVB, 7.1.1.

Table A.6 – Discontinuity information section

Syntax	No. of bits	Mnemonic
discontinuity_information_section() {		
table_id	**8**	**uimsbf**
section_syntax_indicator	**1**	**bslbf**
'0'	**1**	**bslbf**
reserved	**2**	**bslbf**
section_length	**12**	**uimsbf**
transition_flab	**1**	**uimsbf**
reserved_future_use	**7**	**bslbf**
}		

A.1.2.4 Selection information table

SIT contains service information selected from the broadcasting stream. Details are described in ETS 300 486, 7.1.2.

Table A.7 – Selection information section

Syntax	No. of bits	Mnemonic
selection_information_section() {		
table_id	**8**	**uimsbf**
section_syntax_indicator	**1**	**bslbf**
'0'	**1**	**bslbf**
reserved	**2**	**bslbf**
section_length	**12**	**uimsbf**
reserved_future_use	**16**	**bslbf**
reserved	**2**	**bslbf**
version_number	**5**	**uimsbf**
current_next_indicator	**1**	**bsflf**
section_number	**8**	**uimsbf**
last_section_number	**8**	**uimsbf**
reserved_future_use	**4**	**bslbf**
transmission_info_loop_length	**12**	**uimsbf**
for (i=0; i<N; i++) {		
descriptor()		
}		
for (i=0; i<N; i++) {		
service_id	**16**	**uimsbf**
reserved_future_use	**1**	**bslbf**
running_status	**3**	**bslbf**
service_loop_length	**12**	**uimsbf**
for (j=0; j<M; j++) {		
descriptor()		
}		
}		
CRC_32	**32**	**rpchof**
}		

Table A.8 – Descriptors in SIT

Descriptor	Tag	Condition	Position
Stuffing descriptor	0x42	Optional	1st and 2nd
Service descriptor	0x48	Optional	2nd loop
Short event descriptor	0x4D	Optional (*1)	2nd loop
Extended event descriptor	0x4E	Optional	2nd loop
Component descriptor	0x50	Optional (*1)	2nd loop
Content descriptor	0x54	Optional	2nd loop
Parental rating descriptor	0x55	Optional	2nd loop
Partial transport stream descriptor	0x63	Needed	1st loop
Broadcast ID descriptor	0x85	Needed if included in broadcasting TS	2nd loop
Network identification descriptor	0xC2	Needed	1st loop
Partial TS time descriptor	0xC3	Optional (*1)	1st and 2nd
Audio component descriptor	0xC4	Optional (*1)	2nd loop
Hyperlink descriptor	0xC5	Optional	2nd loop
Data content descriptor	0xC7	Needed if included in broadcasting TS	2nd loop
TS information descriptor	0xCD	Optional (*1)	1st loop
Extended broadcaster descriptor	0xCE	Needed if included in broadcasting TS	2nd loop
Series descriptor	0xD5	Optional	2nd loop
Event group descriptor	0xD6	Optional	2nd loop
Broadcaster name descriptor	0xD8	Optional	2nd loop
Component group descriptor	0xD9	Optional	2nd loop
*1: usually inserted			

Annex B
(informative)

Japanese digital TV specific information

B.1 Referred descriptors in Japanese digital TV

The semantic definition of fields and the rules for the use of descriptors in Japanese digital TV is specified in ARIB STD-B10, ARIB STD-B21, ARIB TR-B14 and ARIB TR-B15. All the documents are written in Japanese. The structure of the descriptors referred to in this specification and in Annex B is described here. The tag values of the descriptors are described in Table B.1.

Table B.1 – Tag values of descriptors

Descriptor	Tag value
Conditional access descriptor	0x09
Service list descriptor	0x41
Stuffing descriptor	0x42
Service descriptor	0x48
Short event descriptor	0x4D
Extended event descriptor	0x4E
Component descriptor	0x50
Stream identifier descriptor	0x52
Content descriptor	0x54
Parental rating descriptor	0x55
Partial transport stream descriptor	0x63
Broadcast id descriptor	0x85
Hierarchical transmission descriptor	0xC0
Digital copy control descriptor	0xC1
Network identification descriptor	0xC2
Partial TS time descriptor	0xC3
Audio component descriptor	0xC4
Hyperlink descriptor	0xC5
Target region descriptor	0xC6
Data content descriptor	0xC7
Video decode control descriptor	0xC8
TS information descriptor	0xCD
Extended broadcaster descriptor	0xCE
Series descriptor	0xD5
Event group descriptor	0xD6
Broadcaster name descriptor	0xD8
Component group descriptor	0xD9
Content availability descriptor	0xDE
Emergency information descriptor	0xFC
Data component descriptor	0xFD

B.1.1 Conditional access descriptor

The structure of the conditional access descriptor is described in Table B.2.

Table B.2 – Structure of CA descriptor

Syntax	Bits	Identifier
conditional_access_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
CA_system_ID	16	uimsbf
reserved	3	bslbf
CA_PID	13	uimsbf
for (i = 0; i < N; i++) {		
private_data_byte	8	uimsbf
}		
}		

B.1.2 Service list descriptor

The structure of the service list descriptor is described in Table B.3.

Table B.3 – Structure of service list descriptor

Syntax	Bits	Identifier
service_list_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
for (i = 0; i < N; i++) {		
service_id	16	uimsbf
service_type	8	uimsbf
}		
}		

B.1.3 Stuffing descriptor

The structure of the stuffing descriptor is described in Table B.4.

Table B.4 – Structure of stuffing descriptor

Syntax	Bits	Identifier
stuffing_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
for (i = 0; i < N; i++) {		
stuffing_byte	8	bslbf
}		
}		

B.1.4 Service descriptor

The structure of the service descriptor is described in Table B.5.

Table B.5 – Structure of service descriptor

Syntax	Bits	Identifier
service_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
service_type	8	uimsbf
service_provider_name_length	8	uimsbf
for (i = 0; i < N; i++) {		
char	8	uimsbf
}		
service_name_length	8	uimsbf
for (i = 0; i < N; i++) {		
char	8	uimsbf
}		
}		

B.1.5 Short event descriptor

The structure of the short event descriptor is described in Table B.6.

Table B.6 – Structure of short event descriptor

Syntax	Bits	Identifier
short_event_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
ISO_639_language_code	24	bslbf
event_name_length	8	uimsbf
for (i = 0; i < event_name_length; i++) {		
event_name_char	8	uimsbf
}		
text_length	8	uimsbf
for (i = 0; i < text_length; i++) {		
text_char	8	uimsbf
}		
}		

B.1.6 Extended event descriptor

The structure of the extended event descriptor is described in Table B.7.

Table B.7 – Structure of extended event descriptor

Syntax	Bits	Identifier
extended_event_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
descriptor_number	4	uimsbf
last_descriptor_number	4	uimsbf
ISO_639_language_code	24	bslbf
length_of_items	8	uimsbf
for (i = 0; i < N; i++) {		
item_description_length	8	uimsbf
for (j = 0; j < N; j++) {		
item_description_char	8	uimsbf
}		
item_length	8	uimsbf
for (j = 0; j < N; j++) {		
item_char	8	uimsbf
}		
}		
text_length	8	uimsbf
for (i = 0; i < N; i++) {		
text_char	8	uimsbf
}		
}		

B.1.7 Component descriptor

The structure of the component descriptor is described in Table B.8.

Table B.8 – Structure of component descriptor

Syntax	Bits	Identifier
component_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
reserved_future_use	4	bslbf
stream_content	4	uimsbf
component_type	8	uimsbf
component_tag	8	uimsbf
ISO_639_language_code	24	bslbf
for (i = 0; i < N; i++) {		
text_char	8	uimsbf
}		
}		

B.1.8 Stream identifier descriptor

The structure of the stream identifier descriptor is described in Table B.9.

Table B.9 – Structure of stream identifier descriptor

Syntax	Bits	Identifier
stream_identifier_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
component_tag	8	uimsbf
}		

B.1.9 Content descriptor

The structure of the content descriptor is described in Table B.10.

Table B.10 – Structure of content descriptor

Syntax	Bits	Identifier
content_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
for (i = 0; i < N; i++) {		
content_nibble_level_1	4	uimsbf
content_nibble_level_2	4	uimsbf
user_nibble	4	uimsbf
user_nibble	4	uimsbf
}		
}		

B.1.10 Parental rating descriptor

The structure of the parental rating descriptor is described in Table B.11.

Table B.11 – Structure of parental rating descriptor

Syntax	Bits	Identifier
parental_rating_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
for (i = 0; i< N; i++) {		
country_code	24	bslbf
rating	8	uimsbf
}		
}		

B.1.11 Partial transport stream descriptor

The structure of the partial transport stream descriptor is described in Table B.12.

Table B.12 – Structure of partial transport stream descriptor

Syntax	Bits	Identifier
partial_transport_stream_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
reserved_future_use	2	bslbf
peak_rate	22	uimsbf
reserved_future_use	2	bslbf
minimum_overall_smoothing_rate	22	uimsbf
reserved_future_use	2	bslbf
maximum_overall_smoothing_buffer	14	uimsbf
}		

B.1.12 Broadcast id descriptor

The structure of the broadcast id descriptor is described in Table B.13.

Table B.13 – Structure of broadcast id descriptor

Syntax	Bits	Identifier
broadcast_id_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
original_network_id	16	uimsbf
transport_stream_id	16	uimsbf
event_id	16	uimsbf
broadcaster_id	8	uimsbf
}		

B.1.13 Hierarchical transmission descriptor

The structure of the hierarchical transmission descriptor is described in Table B.14.

Table B.14 – Structure of hierarchical transmission descriptor

Syntax	Bits	Identifier
hierarchical_transmission_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
reserved_future_use	7	bslbf
quality_level	1	bslbf
reserved_future_use	3	bslbf
reference_PID	13	uimsbf
}		

B.1.14 Digital copy control descriptor

The structure of the digital copy control descriptor is described in Table B.15.

Table B.15 – Structure of digital copy control descriptor

Syntax	Bits	Identifier
digital_copy_control_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
digital_recording_control_data	2	bslbf
maximum_bit_rate_flag	1	bslbf
component_control_flag	1	bslbf
user_defined	4	bslbf
if (maximum_bit_rate_flag == 1) {		
maximum_bit_rate	8	uimsbf
}		
if (component_control_flag == 1) {		
component_control_length	8	uimsbf
for (j = 0; j < N; j++) {		
component_tag	8	uimsbf
digital_recording_control_data	2	bslbf
maximum_bitrate_flag	1	bslbf
reserved_future_use	1	bslbf
user_defined	4	bslbf
if (maximum_bitrate_flag == 1) {		
maximum_bitrate	8	uimsbf
}		
}		
}		
}		
Syntax	**Bits**	**Identifier**
user_defined{		
copy_control_type	2	bslbf
if (copy_control_type == 01 || copy_control_type == 11) {		
APS_control_data	2	bslbf
}		
else{		
reserved_future_use	2	bslbf
}		
}		

B.1.15 Network identification descriptor

The structure of the network identification descriptor is described in Table B.16.

Table B.16 – Structure of network identification descriptor

Syntax	Bits	Identifier
network_identification_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
country_code	24	bslbf
media_type	16	bslbf
network_id	16	bslbf
for (i = 0; i < N; i++) {		
private_data	8	bslbf
}		
}		

B.1.16 Partial TS time descriptor

The structure of the partial TS time descriptor is described in Table B.17.

Table B.17 – Structure of partial TS time descriptor

Syntax	Bits	Identifier
partialTS_time_descriptor(){		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
event_version_number	8	uimsbf
event_start_time	40	bslbf
duration	24	uimsbf
offset	24	bslbf
reserved	5	bslbf
offset_flag	1	bslbf
other_descriptor_status	1	bslbf
JST_time_flag	1	bslbf
if (JST_time_flag == 1) {		
JST_time	40	bslbf
}		
}		

B.1.17 Audio component descriptor

The structure of the audio component descriptor is described in Table B.18.

Table B.18 – Structure of audio component descriptor

Syntax	Bits	Identifier
audio_component_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
reserved_future_use	4	bslbf
stream_content	4	uimsbf
component_type	8	uimsbf
component_tag	8	uimsbf
stream_type	8	uimsbf
simulcast_group_tag	8	bslbf
ES_multi_lingual_flag	1	bslbf
main_component_flag	1	bslbf
quality_indicator	2	bslbf
sampling_rate	3	uimsbf
reserved	1	bslbf
ISO_639_language_code	24	bslbf
if (ES_multi_lingual_flag == 1) {		
ISO_639_language_code_2	24	bslbf
}		
for (i = 0; i < N; i++) {		
text_char	8	uimsbf
}		
}		

B.1.18 Hyperlink descriptor

The structure of the hyperlink descriptor is described in Table B.19.

Table B.19 – Structure of hyperlink descriptor

Syntax	Bits	Identifier
hyperlink_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
hyper_linkage_type	8	uimsbf
link_destination_type	8	uimsbf
selector_length	8	uimsbf
for (i = 0; i < selector_length; i++) {		
selector_byte	8	uimsbf
}		

for (i = 0; i < N; i++) {
  private_data
}
}
	8	uimsbf

B.1.19 Target region descriptor

The structure of the target region descriptor is described in Table B.20.

Table B.20 – Structure of target region descriptor

Syntax	Bits	Identifier
target_region_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
region_spec_type	8	uimsbf
target_region_spec()		
}		

B.1.20 Data content descriptor

The structure of the data content descriptor is described in Table B.21.

Table B.21 – Structure of data content descriptor

Syntax	Bits	Identifier
data_content_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
data_component_id	16	uimsbf
entry_component	8	uimsbf
selector_length	8	uimsbf
for (i = 0; i < N; i++) {		
selector_byte	8	uimsbf
}		
num_of_component_ref	8	uimsbf
for (i = 0; i < num_of_component_ref; i++) {		
component_ref	8	uimsbf
}		
ISO_639_language_code	24	bslbf
text_length	8	uimsbf
for (i = 0; i < N; i++) {		
text_char	8	uimsbf
}		
}		

B.1.21 Video decode control descriptor

The structure of the video decode control descriptor is described in Table B.22.

Table B.22 – Structure of video decode control descriptor

Syntax	Bits	Identifier
video_decode_control_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
still_picture_flag	1	bslbf
sequence_end_code_flag	1	bslbf
video_encode_format	4	bslbf
reserved_future_use	2	bslbf
}		

B.1.22 TS information descriptor

The structure of the TS information descriptor is described in Table B.23.

Table B.23 – Structure of TS information descriptor

Syntax	Bits	Identifier
ts_information_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
remote_control_key_id	8	uimsbf
length_of_ts_name	6	uimsbf
transmission_type_count	2	uimsbf
for (i = 0; i < length_of_ts_name; i++) {		
ts_name_char	8	uimsbf
}		
for (j = 0; j < transmission_type_count; j++) {		
transmission_type_info	8	bslbf
num_of_service	8	uimsbf
for (k = 0; k < num_of_service; k++) {		
service_id	16	uimsbf
}		
}		
for (l = 0; l < N; l++) {		
reserved_future_use	8	bslbf
}		
}		

B.1.23 Extended broadcaster descriptor

The structure of the extended broadcaster descriptor is given in Table B.24.

Table B.24 – Structure of extended broadcaster descriptor

Syntax	Bits	Identifier
extended_broadcaster_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
broadcaster_type	4	uimsbf
reserved_future_use	4	bslbf
if (broadcastor_type == 0x1) {		
terrestrial_broadcaster_id	16	uimsbf
number_of_affiliation_id_loop	4	uimsbf
number_of_broadcaster_id_loop	4	uimsbf
for (i = 0; i < N1; i++) {		
affiliation_id	8	uimsbf
}		
for (j = 0; j < N2; j++) {		
original_network_id	16	uimsbf
broadcaster_id	8	uimsbf
}		
for (k = 0; k < N3; k++) {		
private_data_byte	8	bslbf
}		
}		
else if (broadcaster_type == 0x2) {		
terrestrial_sound_broadcaster_id	16	uimsbf
number_of_sound_broadcaster_affiliation_id_loop	4	uimsbf
number_of_broadcaster_id_loop	4	uimsbf
for (i = 0; i < N1; i++) {		
sound_broadcaster_affiliation_id	8	uimsbf
}		
fori (j = 0; j < N2; j++) {		
original_network_id	16	uimsbf
broadcaster_id	8	uimsbf
}		

for (k = 0; k < N3; k++) {		
private_data_byte	8	bslbf
}		
}		
else {		
for (i = 0; i < N; i++) {		
reserved_future_use	8	bslbf
}		
}		
}		

B.1.24 Series descriptor

The structure of the series descriptor is described in Table B.25.

Table B.25 – Structure of series descriptor

Syntax	Bits	Identifier
series_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
series_id	16	uimsbf
repeat_label	4	uimsbf
program_pattern	3	uimsbf
expire_date_valid_flag	1	uimsbf
expire_date	16	uimsbf
episode_number	12	uimsbf
last_episode_number	12	uimsbf
for (i = 0; i < N; i++) {		
series_name_char	8	uimsbf
}		
}		

B.1.25 Event group descriptor

The structure of the event group descriptor is given in Table B.26.

Table B.26 – Structure of event group descriptor

Syntax	Bits	Identifier
event_group_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
group_type	4	uimsbf
event_count	4	uimsbf
for (i = 0; i < event_count; i++) {		
service_id	16	uimsbf
event_id	16	uimsbf
}		
for (i = 0; i < N; i++) {		
private_data_byte	8	uimsbf
}		
}		

B.1.26 Broadcaster name descriptor

The structure of the broadcaster name descriptor is described in Table B.27.

Table B.27 – Structure of broadcaster name descriptor

Syntax	Bits	Identifier
broadcaster_name_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
for (i = 0; i < N; i++) {		
char	8	uimsbf
}		
}		

B.1.27 Component group descriptor

The structure of the component group descriptor is described in Table B.28.

Table B.28 – Structure of component group descriptor

Syntax	Bits	Identifier
component_group_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
component_group_type	3	uimsbf
total_bit_rate_flag	1	uimsbf
num_of_group	4	uimsbf
for (i = 0; i < num_of_group; i++) {		
component_group_id	4	uimsbf
num_of_CA_unit	4	uimsbf
for (i = 0; i < num_of_CA_unit; i++) {		
CA_unit_id	4	uimsbf
num_of_component	4	uimsbf
for (i = 0; i < num_of_component; i++) {		
component_tag	8	uimsbf
}		
}		
if (total_bi t_rate_flag == 1) {		
total_bit_rate	8	uimsbf
}		
text_length	8	uimsbf
for (i = 0; i < text_length; i++) {		
text_char	8	uimsbf
}		
}		
}		

B.1.28 Content availability descriptor

The structure of the content availability descriptor is described in Table B.29.

Table B.29 – Structure of content availability descriptor

Syntax	Bits	Identifier
content_availability_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
reserved_future_use	2	bslbf
image_constraint_token	1	bslbf
retention_mode	1	bslbf
retention_state	3	bslbf
encryption_mode	1	bslbf
for (i = 0; i < N; i++) {		
reserved_future_use	8	uimsbf
}		
}		

B.1.29 Emergency information descriptor

The structure of the emergency information descriptor is described in Table B.30.

Table B.30 – Structure of emergency information descriptor

Syntax	Bits	Identifier
emergency_information_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
service_id_loop {		
service_id	16	uimsbf
start_end_flag	1	bslbf
signal_level	1	bslbf
reserved_future_use	6	bslbf
area_code_length	8	uimsbf
area_code_loop {		
area_code	12	bslbf
reserved_future_use	4	bslbf
}		
}		
}		

B.1.30 Data component descriptor

The structure of the data component descriptor is described in Table B.31.

Table B.31 – Structure of data component descriptor

Syntax	Bits	Identifier
data_component_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
data_component_id	16	uimsbf
for (i = 0; i < N; i++) {		
additional_data_component_info	8	uimsbf
}		
}		

B.2 Referred tables in Japanese digital TV

The semantic definition of fields and the rules for the use of tables in Japanese digital TV is specified in ARIB STD-B10, ARIB STD-B21, ARIB TR-B14 and ARIB TR-B15. All the documents are written in Japanese. The structure of referred tables in this specification is described here.

B.2.1 Network information table (NIT)

The structure of the network information table is described in Table B.32.

Table B.32 – Structure of NIT

Syntax	Bits	Identifier
Network_information_section () {		
table_id	8	uimsbf
section_syntax_indicator	1	bslbf
reserved_future_use	1	bslbf
reserved	2	bslbf
section_length	12	uimsbf
network_id	16	uimsbf
reserved	2	bslbf
version_number	5	uimsbf
current_next_indicator	1	bslbf

section_number	8	uimsbf
last_section_number	8	uimsbf
reserved_future_use	4	bslbf
network_descriptors_length	12	uimsbf
for (i = 0;i< N;i++) {		
descriptor()		
}		
reserved for future use	4	bslbf
transport_stream_loop_length	12	uimsbf
for (i = 0;i< N;i++) {		
transport_stream_id	16	uimsbf
original_network_id	16	uimsbf
Reserved_future_use	4	bslbf
transport_descriptors_length	12	uimsbf
for (j = 0;j< M;j++) {		
Descriptor()		
}		
}		
CRC_32	32	rpchof
}		

B.2.2 Event information table (EIT)

The structure of the event information table is described in Table B.33.

Table B.33 – Structure of EIT

Syntax	Bits	Identifier
Event_information_section () {		
table_id	8	uimsbf
section_syntax_indicator	1	bslbf
reserved_future_use	1	bslbf
reserved	2	bslbf
section_length	12	uimsbf
service_id	16	uimsbf
reserved	2	bslbf
version_number	5	uimsbf
current_next_indicator	1	bslbf
section_number	8	uimsbf
last_section_number	8	uimsbf
transport_stream_id	16	uimsbf
original_network_id	16	uimsbf
segment_last_section_number	8	uimsbf
last_table_id	8	uimsbf
for (i = 0;i< N;i++) {		
event_id	16	uimsbf
start_time	40	bslbf
duration	24	uimsbf
running_status	3	uimsbf
free_CA_mode	1	bslbf
descriptors_loop_length	12	uimsbf
for (i = 0;i< M;i++) {		
Descriptor()		
}		
}		
CRC_32	32	rpchof
}		

Annex C
(informative)

D-VHS specific information

C.1 Referred descriptors in D-VHS format

The semantic definition of the field of descriptors in the D-VHS format is specified in the D-VHS MPEG transport stream service information specification. The structure of the descriptors in this specification is described here. The tag values of the descriptors are described in Table C.1.

Table C.1 – Tag values of descriptors

Descriptor	Tag value
DTCP_descriptor	0x88
Short event descriptor	0x4D
Content descriptor	0x54

C.1.1 DTCP descriptor

The structure of the DTCP descriptor is given in Table C.2.

Table C.2 – Structure of DTCP descriptor

Syntax	Bits	Identifier
DTCP_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
CA_system_ID	16	uimsbf
for (i = 0; i < descriptor_length-2; i++) {		
private_data_byte	8	bslbf
}		
}		

Syntax	Bits	Identifier
private_data_byte {		
reserved	5	bslbf
EPN	1	bslbf
DTCP_CCI	2	bslbf
reserved	5	bslbf
Image_Constraint_Token	1	bslbf
APS	2	bslbf
}		

C.1.2 Short event descriptor

The structure of this descriptor is described in Table B.6.

C.1.3 Content descriptor

The structure of this descriptor is described in Table B.10.

Annex D
(normative)

Coexistence with domestic services of individual countries

Many countries might digitize their TV broadcast services and also offer the new service such as one expecting STB (broadcast receiver) with the storage feature. The directories given in Table D.1 are reserved for the domestic services of individual countries.

Table D.1 – Reserved directories

Country	Reserved directory
Japan	RT_JPNBC

Bibliography

The following documents have served as references in the preparation of this standard.

ARIB STD-B10, Service Information for Digital Broadcasting System (Japanese)

ARIB STD-B21, Digital Receiver for Digital Satellite Broadcasting Services using Broadcasting Satellites (Japanese)

ARIB STD-B24, Data Coding and Transmission Specification for Digital Broadcasting

ARIB TR-B14, Operational Guidelines for Digital Terrestrial Television Broadcasting (Japanese)

ARIB TR-B15, Operational Guidelines for Digital Satellite Broadcasting (Japanese)

EN 300 468 DVB: Specification for Service Information (SI) in DVB systems, 1998

EIA/CEA-775.2, Service selection information for digital storage media interoperability, 2000

D-VHS MPEG Transport Stream Service Information Specification Ver1.0, 2001
<http://www.vhs-std.com/english/right_dvhs_gl_e.htm>

D-VHS MPEG Transport Stream Specification Ver1.0, 2001
<http://www.vhs-std.com/english/right_dvhs_gl_e.htm>

JIS X0208 (Shift JIS):1997 7-bit and 8-bit double byte coded KANJI sets for information interchange

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thesis ❑
manufacturing ❑
other.....

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not at all ❑
nearly ❑
fairly well ❑
exactly ❑

Q6 If you ticked NOT AT ALL in Question 5 the reason is: *(tick all that apply)*

standard is out of date ❑
standard is incomplete ❑
standard is too academic ❑
standard is too superficial ❑
title is misleading ❑
I made the wrong choice ❑
other .....

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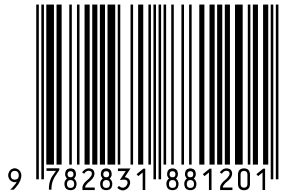

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