# PROPOSED SMPTE STANDARD

for Television — Format for Transmission of DV Compressed Video, Audio and Data Over a Serial Data Transport Interface

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# 1 Scope

This standard specifies the data structure and the transmission format of DV compressed video, audio, and data over a serial data transport interface (SDTI [SMPTE 305.2M]). The standard is a combination of video, audio, subcode, and control data optimized for the connection between DV-compliant VCRs and disk systems. It ensures high-speed data stream transfer up to five times faster than real time. The video, audio, and subcode data comply with IEC 61834-2 for both 525/60 and 625/50 systems. The bit stream consists of 77-byte DIF data blocks, which are common to other DV based signals. The DIF blocks are mapped onto SDTI using a frame-bounded algorithm preserving ease of manipulating the video and audio data.

The layers of signal processing and related standards are shown in figure 1.

NOTE – For descriptions of the SDTI, refer to SMPTE 305.2M, and for descriptions of video, audio, and subcode data, refer to IEC 61834-2. The standard corresponds to data type  $[241_h]$  registered as DVCAM- 1 in SMPTE 305.2M.

# 2 Normative references

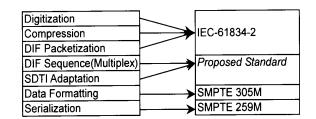
The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

SMPTE 305.2M-2000, Television — Serial Data Transport Interface (SDTI)

IEC 61834-2 (1998-08), Recording — Helical-Scan Digital Video Cassette Recording System Using 6,35 mm Magnetic Tape for Consumer Use (525-60, 625-50, 1125-60 and 1250-50 Systems) — Part 2: SD Format for 525-60 and 625-50 Systems

# 3 SDTI header data

The SDTI header data as specified in SMPTE 305.2M shall contain the parameters shown in table 1, and shall be repeated on every line. The SDTI header data structure is as shown in figure 2.



## Figure 1 – Signal processing layers and related standards

Parameters	Length	Value
ADF	3 words	[000 <sub>h</sub> ] [3FF <sub>h</sub> ] [3FF <sub>h</sub> ]
DD	1 word	[140 <sub>h</sub> ]
SDID	1 word	[101 <sub>h</sub> ]
DC	1 word	[22E <sub>h</sub> ]
Line number	2 words	_
Line number CRC	2 words	—
Code	4 bits	[1 <sub>h</sub> ]
AAI	4 bits	—
Destination address	16 words	_
Source address	16 words	_
Block type	1 word	[1C1 <sub>h</sub> ]
CRC flag	1 word	[101 <sub>h</sub> ]
Data extension flag	1 word	[200 <sub>h</sub> ]
Reserved data	4 words	[200 <sub>h</sub> ] [200 <sub>h</sub> ] [200 <sub>h</sub> ] [200 <sub>h</sub> ]
Header CRC	2 words	_
CS	1 word	_

#### Table 1 – Header data packet

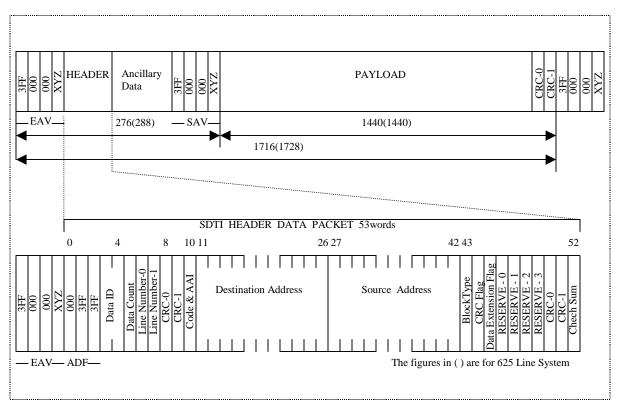


Figure 2 – SDTI header data structure

# 4 Data structure

The following clause describes the basic data structure and the system parameters of the bit stream. The data structure of the SDTI payload is shown in figure 3. The data block consists of a control data block and five vertical data slots, in which one compressed video stream shall be contained. The empty space and reserved area shall be set to  $200_h$  as default value.

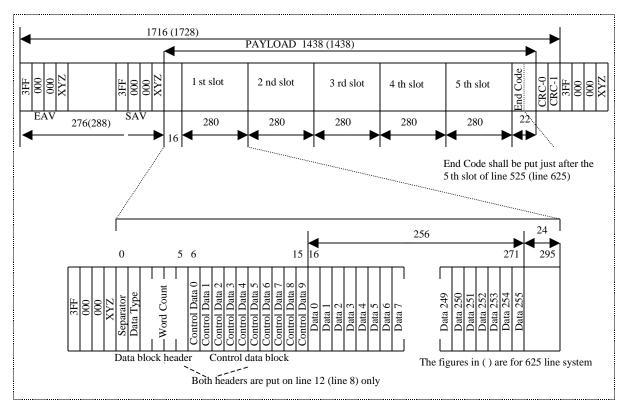


Figure 3 – Data structure

## 4.1 Data block

The control data block and the DIF data shall be contained in B0 (LSB) through B7 (8 bits). B8 shall be a reserved data bit for future expansion, which is normally set to zero. B9 shall be the complement of B8.

#### 4.2 Data block header

The data block header, as specified in SMPTE 305.2M, shall contain the parameters shown in table 2. The data block header shall exist on line 12 for the 525/60 system or line 8 for the 625/50 system (refer to figures 7 and 10). The empty space for the Data block header and control data block on lines other than line 12 (line 8) shall be set to  $200_{\rm h}$ .

Table 2 – D	ata block	header
-------------	-----------	--------

Parameters	Length	Value
Separator	1 word	[309 <sub>h</sub> ]
Data type	1 word	[241 <sub>h</sub> ]
Wordcount	4 words	[B4720 <sub>h</sub> ] (525/60 system)
		[D8F50 <sub>h</sub> ] (625/50 system)

## 4.3 Control data block

A control data block shall be inserted immediately after the data block header. The control data block shall consist of 10 words (see figure 3), and the bits are allocated as shown in table 3. The control data block has some areas of commonality with the header section specified in IEC 61834-2, and also provides specific data required for data transfer between storage devices.

Byte 1: Indicates the data type (secondary).

Byte 2: Indicates the transfer conditions (transfer speed, locked/unlocked, audio and video validity).

Bytes 3-10: Common information to IEC 61834-2.

Byte 1       Secondary data type         Byte 2       0       0       VIDEO       AUDIO       LOCK       TRANSFER MODE         Byte 3       V       V       A       A       AP3       AP2       AP1         Byte 3       V       V       A       A       AP3       AP2       AP1         Byte 4       FF       FS       V REC       BCSYS       DISP         Byte 5       A-1       A-1       A-1       A-1         Byte 6       A-1 REC       A-1 REC       A-1 REC       A-1 REC       A-1         Byte 6       A-1 REC       A-1 REC       A-1 REC       A-1 REC       A-1         Byte 7       DRF       SMP       QU       QU         Byte 8       LF       CHN       PA       AUDIO MODE         Byte 8       LF       CHN       PA       AUDIO MODE         Byte 8       LF       CHN       PA       AUDIO MODE         Byte 9       A-2 REC       A-2 REC       A-2 REC       A-2 REC         Byte 9       ST       END       MODE       EF       SMP       QU         Byte 10       DRF       SPEED       A-2       A-2       S		MSB							LSB
Byte 2       (RESERVE)       INVALID       INVALID       LOCk       TRANSFER MODE         Byte 3       V       V       A       A       AP3       AP2       AP1         Byte 4       FF       FS       V REC MODE       BCSYS       DISP         Byte 5       A-1       A-1       A-1       A-1         Byte 6       A-1 REC       A-1 REC       A-1 REC       A-1       A-1         Byte 6       A-1 REC       A-1 REC       A-1 REC       A-1       A-1         Byte 7       DRF       SMP       QU       QU       Byte 8       LF       CHN       PA       AUDIO MODE         Byte 8       LF       CHN       PA       A-1       A-1       A-1         Byte 7       DRF       SPEED       SPEED       A-2       A-2       A-2         Byte 8       LF       CHN       PA       AUDIO MODE       A-2       A-2         Byte 9       ST       END       MODE       EF       SMP       QU         Byte 9       ST       END       MODE       EF       SMP       QU         Byte 10       DRF       SPEED       SPEED       SPEED       NOTES       1	Byte 1				Secondary	data type			
Byte 350/60STYPE50/60STYPEAP3AP2AP1Byte 4FFFSV REC MODEBCSYSDISPByte 5A-1A-1A-1A-1Byte 6A-1 REC STA-1 RECA-1 RECA-1 A-1Byte 6STENDMODEEFByte 7A-1 DRFA-2A-2Byte 8A-2 	Byte 2	•		-		LOCK	TR	ANSFER MO	DE
Byte 4       FF       FS       MODE       BCSYS       DISP         Byte 5       A-1       A-1       A-1       A-1       A-1         Byte 5       LF       CHN       PA       AUDIO MODE         Byte 6       A-1 REC       A-1 REC       A-1 REC       A-1         Byte 7       A-1       END       MODE       EF       SMP       QU         Byte 7       A-1       END       MODE       EF       SMP       QU         Byte 7       A-1       END       MODE       EF       SMP       QU         Byte 8       A-2       A-2       A-2       A-2       A-2         Byte 8       LF       CHN       PA       AUDIO MODE       A-2         Byte 9       A-2 REC       A-2 REC       A-2       A-2       A-2         Byte 9       ST       END       MODE       EF       SMP       QU         Byte 10       A-2       END       MODE       SPEED       A-2       SPEED         NOTES       I       A-1 REC MODE of the AAUX source control pack is other than 111.       0 when REC MODE of the AAUX source control pack is other than 111.       2         2       A-2 REC MODE of the AAUX source control p	Byte 3	•	v			AP3	AP2	AP1	APT
Byte 5       LF       CHN       PA       AUDIO MODE         Byte 6       A-1 REC ST       A-1 REC END       A-1 REC MODE       A-1 EF       A-1 SMP       A-1 QU         Byte 7       A-1 DRF       A-1 DRF       A-2 CHN       A-2 PA       A-2 A-2 A-2       A-2 A-2 A-2         Byte 8       A-2 LF       CHN       PA       AUDIO MODE         Byte 9       A-2 REC ST       A-2 REC END       A-2 REC MODE       A-2 REC SMP       A-2 QU         Byte 9       A-2 REC ST       A-2 REC END       A-2 REC MODE       A-2 EF       A-2 SPEED       A-2 A-2 A-2         Byte 10       A-2 DRF       A-2 SPEED       A-2 SPEED       A-2 SPEED       A-2 A-2 SPEED         NOTES       1       A-1 REC MODE: 1 when REC MODE of the AAUX source control pack is 111 (invalid recording); 0 when REC MODE of the AAUX source control pack is other than 111.       2         2       A-2 REC MODE: 1 when REC MODE of the AAUX source control pack is 111 (invalid recording);	Byte 4	FF	FS		BCS	SYS		DISP	
Byte 6       ST       END       MODE       EF       SMP       QU         Byte 7       A-1       A-1       SPEED       A-1         Byte 7       DRF       SPEED       A-2       A-2         Byte 8       A-2       A-2       A-2       A-2         Byte 9       A-2 REC       A-2 REC       A-2 REC       A-2 REC       A-2         Byte 9       A-2 REC       A-2 REC       A-2 REC       A-2       A-2         Byte 9       ST       END       MODE       EF       SMP       QU         Byte 10       A-2       DRF       SPEED       A-2       SPEED       A-2         NOTES       1       A-1 REC MODE: 1 when REC MODE of the AAUX source control pack is 111 (invalid recording); 0 when REC MODE of the AAUX source control pack is other than 111.       2       A-2 REC MODE: 1 when REC MODE of the AAUX source control pack is 111 (invalid recording);	Byte 5			-					
Byte 7       DRF       SPEED         Byte 8       LF       A-2       A-2       A-2         Byte 9       A-2 REC       A-2 REC       A-2 REC       A-2 REC       A-2 REC         Byte 9       ST       END       MODE       EF       SMP       QU         Byte 10       A-2       A-2       A-2       A-2       A-2         Byte 10       A-2       SPEED       A-2       A-2       A-2         NOTES       I       A-1 REC MODE:       1 when REC MODE of the AAUX source control pack is 111 (invalid recording); 0 when REC MODE of the AAUX source control pack is other than 111.       2         2       A-2 REC MODE:       1 when REC MODE of the AAUX source control pack is 111 (invalid recording);       0         2       A-2 REC MODE:       1 when REC MODE of the AAUX source control pack is 111 (invalid recording);       0	Byte 6				C A-1 A-1 A-1				
Byte 8       LF       CHN       PA       AUDIO MODE         Byte 9       A-2 REC       A-2 REC       A-2 REC       A-2 REC       A-2 REC       A-2         Byte 9       ST       END       MODE       EF       SMP       QU         Byte 10       A-2       A-2       A-2       A-2       A-2         NOTES       I       A-1 REC MODE:       1 when REC MODE of the AAUX source control pack is 111 (invalid recording); 0 when REC MODE of the AAUX source control pack is other than 111.       2         2       A-2 REC MODE:       1 when REC MODE of the AAUX source control pack is 111 (invalid recording);       0	Byte 7 A-1 A-1								
Byte 9       ST       END       MODE       EF       SMP       QU         Byte 10       A-2 DRF       A-2 SPEED       A-2 SPEED       A-2 SPEED         NOTES       1       A-1 REC MODE: 1 when REC MODE of the AAUX source control pack is 111 (invalid recording); 0 when REC MODE of the AAUX source control pack is other than 111.         2       A-2 REC MODE: 1 when REC MODE of the AAUX source control pack is 111 (invalid recording);	Byte 8     A-2     A-2     A-2     A-2       Byte 9     A-2 REC     A-2 REC     A-2 REC     A-2 REC       Byte 9     A-2 REC     A-2 REC     A-2 REC     A-2 REC       Byte 9     ST     END     MODE     EF     SMP								
Byte 10       DRF       SPEED         NOTES       1       A-1 REC MODE: 1 when REC MODE of the AAUX source control pack is 111 (invalid recording); 0 when REC MODE of the AAUX source control pack is other than 111.       2         2       A-2 REC MODE: 1 when REC MODE of the AAUX source control pack is 111 (invalid recording);	Bute 0         A-2 REC         A-2 REC         A-2 REC         A-2         A-2								
<ol> <li>A-1 REC MODE: 1 when REC MODE of the AAUX source control pack is 111 (invalid recording); 0 when REC MODE of the AAUX source control pack is other than 111.</li> <li>A-2 REC MODE: 1 when REC MODE of the AAUX source control pack is 111 (invalid recording);</li> </ol>	Byte 10								
0 when REC MODE of the AAUX source control pack is other than 111. 2 A-2 REC MODE: 1 when REC MODE of the AAUX source control pack is 111 (invalid recording);				of the AALIX		nock is 111 (	involid record	in a)	
	T A-T REC							ing);	
	2 A-2 REC							ing);	
3 V REC MODE: 1 when REC MODE of the VAUX source control pack is 11 (invalid recording); 0 when REC MODE of the VAUX source control pack is other than 11.	3 V REC M							ng);	
4 V STYPE, A STYPE, AP3, AP2, AP1, and APT are set to 0, which is the value for SD DV as specified in IEC 6	4 V STYPE	, A STYPE, AP	3, AP2, AP1,	and APT are s	set to 0, which	is the value for	or SD DV as s	specified in IE	C 61834.
5 A-1 QU and A-2 QU are 2-bit values and set to the values of QU (quantization) in the AAUX source packs specified 61834. Although IEC 61834 defines QU to have 3 bits, the actual specified values in IEC 61834 are within LSB bits, thus the 2 LSB bits can be used.	IEC 6183	4. Although IEC	61834 define	es QU to have					

## Table 3 – Control data block structure

## 4.3.1 Secondary data type

The control data block and the data slots are preceded with a secondary data type (1 word), with which the entire data block is defined. The initial code shall be set to all zero, and the receiver shall attempt to decode the data as soon as the desired secondary data type (i.e., "0000 0001") is detected.

<u>Value</u>	<b>Description</b>
0000 0000	Initial code
0000 0001 0000 0010	Data block as defined
	Reserved
1111 1111	

#### 4.3.2 Transfer mode

The transfer mode specifies the desired transfer speed of the compressed video stream. The following transfer speed can be selected:

Value	<b>Description</b>
000	Reserved
001	Normal speed (1X)
010	2X speed
011	3X speed
100	4X speed
101	5X speed
110	Reserved
111	Reserved

#### 4.3.3 LOCK

LOCK indicates whether the VCR is being servo locked or not during the data transfer.

Value	<b>Description</b>
0	VCR servo unlocked
1	VCR servo locked

#### 4.3.4 AUDIO INVALID

AUDIO INVALID indicates the validity of the audio data. When the AUDIO INVALID flag is active (1), the receiver shall not attempt to decode the audio data.

Value	<b>Description</b>
0	Audio data valid
1	Audio data invalid

#### 4.3.5 VIDEO INVALID

VIDEO INVALID indicates the validity of the video data. When the VIDEO INVALID flag is active (1), the receiver shall not attempt to decode the video data.

Value	<b>Description</b>
0	Video data valid
1	Video data invalid

#### 4.3.6 Common parameters

Other parameters contained in bytes 3 to 10 are common information to the international standard (IEC 61834).

#### 4.4 Data slot

Each data slot consists of 280 words, and shall start from the word number address shown below. The data shall be contained in the first 256 bytes, and the last 24 bytes are reserved for future extensions. At normal speed (1X), only slot 1 shall be used. As the speed is increased (2X, 3X, 4X and 5X), the other slots shall be progressively filled with data.

Word address	<u>Number</u>
Slot 1	16
Slot 2	296
Slot 3	576
Slot 4	856
Slot 5	1136

#### 4.5 Endcode

The endcode as specified in SMPTE 305.2M shall be present at the word number address 1416 on line 525 for the 525/60 system, or line 625 for the 625/50 system.

Parameters	Length	Value
Endcode	1 word	[30A <sub>h</sub> ]

## **5** Transmission Format

The following clause describes the overall transmission format and the detailed data structure of the compressed video stream.

## 5.1 Digital interface format (DIF)

The data structure of the video, audio, and subcode in the DIF blocks shall be as specified in IEC 61834-2. However, the 3-byte ID shall not be carried over the interface (see figures 4, 5, and 6). The DIF blocks shall be mapped onto the data slots using a frame-bounded algorithm, which is different in sequence from the one specified in IEC 61834-2.

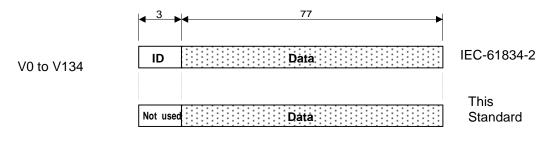


Figure 4 – Data in the video section

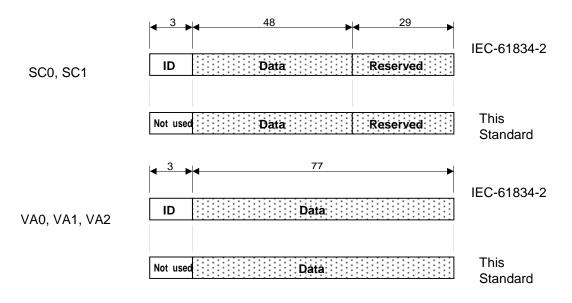


Figure 5 – Data in the SC/VAUX section

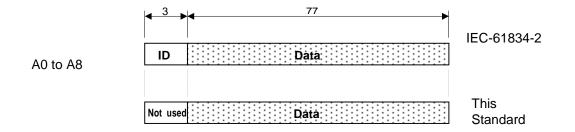


Figure 6 – Data in the Audio/AAUX section

#### 5.2 525/60 system

The data block shall be transmitted from line 12 through line 525, provided that valid data shall not exist on lines 9–11 and 272–274 for the 525/60 system as shown in figure 7. The areas in lines 247–271 and 510–8 are reserved for future extensions.

#### 5.2.1 Video sections

The video sections are contained in lines 12-223 and 275-486 (see figure 8):

(n, V0) - (n, V134); n = 0 to 9

#### 5.2.2 SC/VAUX sections

The SC/VAUX sections are contained in lines 224-231 and 487-494 (see figure 9):

(n, SC0), (n, SC1), n, VA0), (n, VA1), (n, VA2); n = 0 to 9

#### 5.2.3 Audio/AAUX sections

The audio/AAUX sections are contained in lines 232–246 and 495–509 (see figure 9):

(n, A0) - (n, A8); n = 0 to 9

#### 5.3 625/50 system

The data block shall be transmitted from line 8 through line 625, provided that valid data shall not exist on lines 5–7 and 318–320 for the 625/50 system as shown in figure 10. The areas in lines 289–317 and 602–4 are reserved for future extensions.

#### 5.3.1 Video sections

The video sections are contained in lines 8–261 and 321–574 (see figure 11):

(n, V0) -- (n, V134); n = 0 to 11

#### 5.3.2 SC/VAUX sections

The SC/VAUX sections are contained in lines 262–271 and 575–584 (see figure 12):

(n, SC0), (n, SC1), (n, VA0), (n, VA1), (n, VA2); n = 0 to 11

#### 5.3.3 Audio/AAUX sections

The audio/AAUX sections are contained in lines 272-288 and 585-601 (see figure 12):

(n, A0) - (n, A8); n = 0 to 11

	Data block	Reserved	Reserved	Reserved	Reserved	Reserved	
	header (6words)			Data=200h			
SDTI HEADER	Control Data block (10words)	Compressed Video Data1 450X80 =36000 Words (141 Lines) Compressed Video Data2-1 225X80=18000 W (71 Lines) SC/VAUX 25X80=2000 (8 Lines) Audio/AAUX 45X80=3600 (15 Lines)	Compressed Video Data1 450X80 =36000 Words (141 Lines) Compressed Video Data2-1 225X80=18000 W (71 Lines) SC/VAUX 25X80=2000 (8 Lines) Audio/AAUX 45X80=3600 (15 Lines)	Compressed Video Data1 450X80 =36000 Words (141 Lines) Compressed Video Data2-1 225X80=18000 W (71 Lines) SC/VAUX 25X80=2000 (8 Lines) Audio/AAUX 45X80=3600 (15 Lines)	Compressed Video Data1 450X80 =36000 Words (141 Lines) Compressed Video Data2-1 225X80=18000 W (71 Lines) SC/VAUX 25X80=2000 (8 Lines) Audio/AAUX 45X80=3600 (15 Lines)	Compressed Video Data1 450X80 =36000 Words (141 Lines) Compressed Video Data2-1 225X80=18000 W (71 Lines) SC/VAUX 25X80=2000 (8 Lines) Audio/AAUX 45X80=3600 (15 Lines)	R E S E R V E D
		(15 Lines) Reserved	-				
				Data=200h			
		Compressed Video Data2-2 225X80=18000 W (71 Lines)	R E S				
		Compressed Video Data3 450X80 =36000 Words (141 Lines)	E R V E D				
		SC/VAUX 25X80=2000 (8 Lines)					
		Audio/AAUX 45X80=3600 (15 Lines)					
		Reserved	Reserved	Reserved	Reserved	Reserved	

Figure 7 – Transmission format for 525/60 system

			280		
•			256		•
(0, V	0)	(0	D, V1)	(0, V2)	(0, V3)
(0, V3)	,	(0, V4)	<u>, , , , , , , , , , , , , , , , , , , </u>	(0, V5)	(0, V6)
(0, V6)		(0, V7)		(0, V8)	(0, V9)
(0, V131)		(0, V132	2)	(0, V133)	(0, V134)
(0, V134)		(0, v132 (1, V0)		(1, V1)	(1, V2)
(1, V2)	(1, V3		(1, V4		(1, V2) (1, V5)
	(1, 1	·)	(1, 1	/	(1, 00)
(1, V130)	(1, V1:	31)	(1, V132		(1, V133)
	(1, V134)		(2, V0)		2, V1)
(2, V2)	)	(	2, V3)	(2, V4)	(2, V5)
(2, V13)	0)	(2,	V131)	(2, V132)	(2, V133)
(2, V133)		(2, V134)		(3, V0)	(3, V1)
(3, V1)		(3, V2)		(3, V3)	(3, V4)
3, V39)	(3, V40)		(3, V41)	()	V42)
(3, V39) (3, V4:		/2	(3, V41) , V44)	Invalid Data	
(3, V4			, V46)	(3, V47)	(3, V48)
(0, 1 )			, • •••	(0, 1)	
(3, V131)		(3, V132)		3, V133)	(3, V134)
	(4, V0	)	(4, V1		(4, V2)
			(4, V4)	(4	, V5)
	(4, V3)				
4, V2)			(4, V132)	(4,	V133)
(3, V134) (4, V2) (4, V130] (4, V13	(4, V131)		(4, V132) Invali	(4, d Data(176words)	V133)
4, V2} (4, V130] (4, V13 (5, V13) (5, V3)	(4, V131) (4)	(5, <b>V4</b> )		d Data(176words) (5, V2) (5, V5)	) [(5, <b>V3</b> ) [(5, <b>V6</b> )
(4, V2) (4, V130) (4, V13 (5,	(4, V131) (4)		Invali	d Data(176words) (5, V2)	) [(5, <b>V3</b> )
(4, V2) (4, V130) (4, V13 (5, V13) (5, V3) (5, V131)	(4, V131) (4) V0)	(5, V4) (5, V7) (5, V132)	5 , V1)	d Data(176words) (5, V2) (5, V5) (5, V8) (5, V133)	)(5, V3) (5, V6) (5, V9) (5, V134)
4, V2] (4, V130] (4, V13 (5, V3) (5, V6) (5, V131) (5, V134)	(4, V131) 14) V0)	(5, V4) (5, V7) (5, V132) (6, V0)	5 , V1)	d Data(176words) (5, V2) (5, V5) (5, V8) (5, V133) (6, V1)	)(5, V3) (5, V6) (5, V134) (6, V2)
4, V2} (4, V130] (4, V13 (5, V13 (5, V3) (5, V6) (5, V131)	(4, V131) 34) V0)	(5, V4) (5, V7) (5, V132)	5 , V1)	d Data(176words) (5, V2) (5, V5) (5, V8) (5, V133) (6, V1)	)(5, V3) (5, V6) (5, V9) (5, V134)
4, V2} (4, V130] (4, V13 (5, V3) (5, V6) (5, V131) (5, V134) (6, V2)	(4, V131) 34) V0)	(5, V4) (5, V7) (5, V132) (6, V0)	5 , V1)	d Data(176words) (5, V2) (5, V5) (5, V8) (5, V133) (6, V1) 4)	)(5, V3) (5, V6) (5, V134) (6, V2)
4, V2} (4, V130] (4, V13 (5, V3) (5, V6) (5, V131) (5, V134) (6, V2)	(4, V131) (4) V0) (6, V86)	(5, V4) (5, V7) (5, V132) (6, V0)	5 , V1) 5 , V1) (6, V4 (6, V87)	d Data(176words) (5, V2) (5, V5) (5, V8) (5, V133) (6, V1) 4)	) [(5, V3) [ (5, V6) (5, V9) [ (5, V134) (6, V2) (6, V5)
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Figure 8 – Video sections for 525/60 system

l		2				
(0, SC	;0)		SC1)		, VA0)	[(0, VA1)
(0, VA1)		(0, VA2)		(1, SC0)		(1, SC1)
(1, SC1)		, VA0)		VA1)		(1, VA2)
(1, VA2)	(2, SC0)	·····	(2, SC1	)		VA0)
	(2, VA1)	(0.)(4	(2, VA2)		(3, SC	
(3, SC1	)	(3, VA	.0)		3, VA1)	(3, VA2)
(3, VA2)	<u> </u>	(4, SC0)		(4, SC1)		(4, VA0)
(4, VA0)		, VA1)		, <b>VA2</b> )	Inval	id Data(48words)
(0, A0	<u>"</u>	(0, /	A1)		(0, A2)	(0, A3)
(0, A3)		(0, A4)		(0, A5)		(0, A6)
(0, A6)		0, A7)		(0, A8)		(1, A0)
(1, A0)	(1, A1)		(1, A2)			, A3)
(1, A3)	(1, A4)		(1, A5)		(1, A6)	
(1, A7	<u> </u>	(1, A	(8)		2, A0)	(2, A1)
(2, A1)		(2, A2)		(2, A3)		(2, A4)
(2, A4)		2, A5)		(2, A6)		(2, A7)
(2, A7)	(2, A8)		(3, A0)	)		3, A1)
(3, A1)	(3, A2)		(3, A3)		(3, A4	
(3, A5)	L	(3, A	(6)		, <b>A</b> 7)	(3, A8)
(3, A8)		(4, A0)		(4, A1)		(4, A2)
(4, A2)		(4, A3)		(4, A4)		(4, A5)
(4, A5)						
(4, A8)]	(4, A6)	Inval	(4, A7) id Data(240word 280		(4	, A8)
	(4, A0)		id Data(240word		(4	, A8)
(4, A8)		2	id Data(240word 280 56	s)		, A8) 
(4, A8)		2: (5, \$	id Data(240word 280 56	s) (5,	(4. VA0)	, A8) ►
(4, A8)	0)	25 (5, S (5, VA2)	id Data(240word 280 56 SC1)	s) (5, (6, SC0)		](5, VA1) ] (6, SC1)
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(4, A8) (5, SC (5, VA1) (6, SC1) (6, VA2)	:0)	25 (5, S (5, VA2)	id Data(240word 280 56 56 56 56 56 56 56 56 56 56 (7, SC1)	s) (5, (6, SC0) VA1)	VA0)	(5, VA1)   (6, SC1) (6, VA2) VA0)
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(4, A8) (5, SC (5, VA1) (6, SC1) (6, VA2) (7, VA0] (8, SC1 (8, VA2) (9, VA0) (9, VA0) (5, A3)	:0)     (6, (7, SC0) (7, VA1) )     (9, ))	2: (5, S (5, VA2) , VA0) (8, VA (9, SC0) VA1) (5, A4)	id Data(240word 280 56 56 56 (7, SC1 (7, SC1 (7, SC1 (7, SC1 (7, SC1 (7, SC1 (7, SC1) (9, A1) (9, A1)	s) (5, (6, SC0) VA1) ) (8 (9, SC1) (7 (5, A5)	VA0) (7, (8, SC 3, VA1) Invali	(5, VA1)   (6, SC1) (6, VA2) VA0) 20)   (9, VA0) d Data(48words)   (5, A3)   (5, A6)
(4, A8) (5, SC (5, VA1) (6, SC1) (6, VA2) (7, VA0] (8, SC1 (8, VA2) (9, VA0) (5, A3) (5, A6)	:0)     (6, (7, SC0) (7, VA1) )     (9, ))     (5	2: (5, S (5, VA2) , VA0) (8, VA (9, SC0) VA1) (5, A	id Data(240word 280 56 56 56 (7, SC1 (7, SC1 (7, VA2) 0) 1 (9, A1) (0)	s) (5, (6, SC0) VA1) ) (8 (9, SC1) (VA2) (	VA0) (7, (8, SC 3, VA1) [Invali (5, A2)	(5, VA1)   (6, SC1) (6, VA2) VA0) 20)   (9, VA0) d Data(48words)   (5, A3)   (5, A6) (6, A0)
(4, A8) (5, SC (5, VA1) (6, SC1) (6, VA2) (7, VA0] (8, SC1 (8, VA2) (9, VA0) (5, A3) (5, A6) (6, A0)	:0) (6, A1)	2: (5, S (5, VA2) , VA0) (8, VA (9, SC0) VA1) (5, A4)	280 56 56 56 56 (7, SC1 (7, SC1) (7, SC1 (7, SC1) (7, SC1 (7, SC1) (7, SC1	s) (5, (6, SC0) VA1) ) (8 (9, SC1) (7 (5, A5)	VA0) (7, (8, SC 3, VA1) [Invali (5, A2) (6	(5, VA1)   (6, SC1) (6, VA2) VA0) 20)   (9, VA0) d Data(48words)   (5, A3)   (5, A6) (6, A0) , A3)
(4, A8) (5, SC (5, VA1) (6, SC1) (6, VA2) (7, VA0] (8, SC1 (8, VA2) (9, VA0) (5, A3) (5, A6) (6, A0) (6, A3)	:0) [ (7, SC0) (7, VA1) ) [ (7, VA1) ) [ (6, A1) (6, A4)	2: (5, S (5, VA2) , VA0) (8, VA (9, SC0) VA1) (5, A4) (5, A4) 5, A7)	280 56 56 56 56 (7, SC1 (7, SC1) (6, A2) (6, A2) (6, A5)	s) (5, (6, SC0) VA1) ) (8 (9, SC1) (7, VA2) (15, A5) (5, A8)	VA0) (7, (8, SC 3, VA1) Invali (5, A2) (6 (6, A6)	(5, VA1)   (6, SC1) (6, VA2) VA0) 20)   (9, VA0) d Data(48words)   (5, A3)   (5, A6) (6, A0) , A3)
(4, A8) (5, SC (5, VA1) (6, SC1) (6, VA2) (7, VA0] (8, SC1 (8, VA2) (9, VA0) (5, A3) (5, A6) (6, A0) (6, A3) (6, A7)	:0) [ (7, SC0) (7, VA1) ) [ (7, VA1) ) [ (6, A1) (6, A4)	2: (5, S (5, VA2) , VA0) (8, VA (9, SC0) VA1) (5, A4) (5, A4) 5, A7) (6, A	280 56 56 56 56 (7, SC1 (7, SC1) (6, A2) (6, A2) (6, A5)	s) (5, (6, SC0) VA1) ) (8 (9, SC1) (7 (5, A5) (5, A8) (7) (7)	VA0) (7, (8, SC 3, VA1) [Invali (5, A2) (6	(5, VA1)   (6, SC1) (6, VA2) VA0) 20)   (9, VA0) d Data(48words)   (5, A3)   (5, A6) (6, A0) , A3)   (7, A1)
(4, A8) (5, SC (5, VA1) (6, SC1) (6, VA2) 7, VA0] (8, SC1 (8, VA2) (9, VA0) (5, A3) (5, A6) (6, A0) (6, A3) (6, A7) (7, A1)	:0) [ (7, SC0) (7, VA1) (7, VA1) (7, VA1) (6, A1) (6, A4) (7, VA1) (6, A4) (6, A4)	2: (5, S (5, VA2) , VA0) (8, VA (9, SC0) VA1) (5, A4) (5, A4) 5, A7) (6, A (7, A2)	280 56 56 56 56 57 (7, SC1 (7, SC1) (7, SC1 (7, SC1 (7, SC1 (7, SC1 (7, SC1 (7, SC1 (7, SC1 (7, SC1) (7, SC1 (7, SC1 (7, SC1 (7, SC1) (7, SC1 (7, SC1 (7, SC1) (7, SC1 (7, SC1) (7, SC1 (7, SC1) (7, SC1) (7, SC1 (7, SC1) (7, SC1)	s) (5, (6, SC0) VA1) ) (8 (9, SC1) (7, A3) (7, A3)	VA0) (7, (8, SC 3, VA1) Invali (5, A2) (6 (6, A6)	(5, VA1)   (6, SC1) (6, VA2) VA0) 20)   (9, VA0) d Data(48words)   (5, A3)   (5, A6) (6, A0) , A3)   (7, A1)   (7, A4)
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(4, A8) (5, SC (5, VA1) (6, SC1) (6, VA2) 7, VA0] (8, SC1 (8, VA2) (9, VA0) (5, A3) (5, A6) (6, A0) (6, A3)] (6, A7) (7, A1) (7, A4) (7, A7)	:0) [ (7, SC0) (7, VA1) (7, VA1) (7, VA1) (6, A4) (6, A4) (7, A8)	2: (5, S (5, VA2) , VA0) (8, VA (9, SC0) VA1) (5, A4) (5, A4) 5, A7) (6, A (7, A2)	280 56 56 56 56 57 (7, SC1 (7, SC1 (7, SC1 (7, SC1 (7, SC1) (7, SC1 (7, SC1) (6, A2) (6, A2) (6, A5) 8) (6, A5) (7, SC1) (7, SC1) (8, A0)	s) (5, (6, SC0) VA1) ) (8 (9, SC1) , VA2) (1 (5, A5) (7, A3) (7, A6)	VA0) (7, (8, SC 3, VA1) Invali (5, A2) (6 (6, A6) 7, A0) (8	(5, VA1)   (6, SC1) (6, VA2) VA0) 20)   (9, VA0) d Data(48words)   (5, A3)   (5, A6) (6, A0) , A3)   (7, A1)   (7, A4) (7, A7) , A1)
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(4, A8) (4, A8) (5, SC (5, VA1) (6, SC1) (6, VA2) (7, VA0] (8, SC1 (8, VA2) (9, VA0) (5, A3) (5, A6) (6, A0) (6, A3)] (6, A7) (7, A4) (7, A4) (7, A7) (8, A5) (8, A8) (9, A2)	:0) [ (7, SC0) (7, VA1) (7, VA1) (7, VA1) (6, A4) (6, A4) (6, A4) (7, A8) (8, A2) (7, C, C) (7, C) (7, C) (7, C) (7, C) (7, C) (7, C) (7, SC0) (7, S	2: (5, S (5, VA2) , VA0) (8, VA (9, SC0) VA1) (5, A4) (5, A4) (5, A4) (5, A7) (6, A (7, A2) 7, A5) (8, A	280 56 56 56 56 57 56 56 57 56 57 56 57 56 57 57 57 57 57 57 57 57 57 57	s) (5, (6, SC0) VA1) ) (4 (9, SC1) (7, A3) (7, A6) (7, A3) (7, A6) (8,	VA0) (7, (8, SC 3, VA1) Invali (5, A2) (6 (6, A6) 7, A0) (8 (8, A4 A7)	(5, VA1) (6, SC1) (6, VA2) VA0) 20) (9, VA0) d Data(48words) (5, A3) (5, A6) (6, A0) , A3) (7, A1) (7, A4) (7, A4) (7, A7) , A1) ) (8, A8) (9, A2) (9, A5)
(4, A8) (4, A8) (5, SC (5, VA1) (6, SC1) (6, VA2) (7, VA0] (8, SC1 (8, VA2) (9, VA0) (5, A3) (5, A6) (6, A7) (6, A3) (6, A7) (7, A1) (7, A4) (7, A7) (8, A5) (8, A8)	:0) [ (7, SC0) (7, VA1) (7, VA1) (7, VA1) (6, A4) (6, A4) (6, A4) (7, A8) (8, A2) (8, A2)	2: (5, S (5, VA2) , VA0) (8, VA (9, SC0) VA1) (5, A4) (5, A4) (5, A4) (5, A4) (5, A7) (6, A (7, A2) 7, A5) (8, A (9, A0) (9, A3)	280 56 56 56 56 57 (7, SC1 (7, S	s) (5, (6, SC0) VA1) (4) (9, SC1) (4) (9, SC1) (7, A3) (7, A3) (7, A3) (7, A3) (7, A3) (9, A1) 9, A4)	VA0) (7, (8, SC 3, VA1) Invali (5, A2) (6 (6, A6) 7, A0) (8 (8, A4 A7)	(5, VA1)   (6, SC1) (6, VA2) VA0) 20)   (9, VA0) d Data(48words)   (5, A3)   (5, A6) (6, A0) , A3)   (7, A4) (7, A7) , A1) )   (8, A8)   (9, A2)

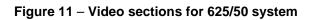
# Figure 9 – SC/VAUX and audio/AAUX sections for 525/60 system

	Data block header	Reserved	Reserved	Reserved	Reserved	Reserved	
	(6words)	4		Data=200h			
S D T I	Control Data block (10words)	Compressed Video Data1 540X80 =43200 Words (169 Lines)	R E S E				
H E A D E R		Compressed Video Data2-1 270X80 =21600 Words (85 Lines)	R V E D				
		SC/VAUX 30X80=2400 (10 Lines)					
		Audio/AAUX 54X80=4320 (17 Lines)					
		Reserved	Reserved	Reserved	Reserved	Reserved	
				Data=200h			
		Compressed Video Data2-2 270X80 =21600 Words (85 Lines)	R				
		Compressed Video Data3 540X80 =43200 Words (169 Lines)	S E R V E D				
		SC/VAUX 30X80=2400 (10 Lines)					
		Audio/AAUX 54X80=4320 (17 Lines)					
		Reserved	Reserved	Reserved	Reserved	Reserved	

Figure 10 – Transmission format for 625/50system

(0, V0)	(0, V	1)	(0, V2)	(0, V3)
(0, V3)	(0, V4)		(0, V5)	(0, V6)
(0, V6)	(0, V7)	(0, V8)		(0, V9)
(0, V131)	(0, V132)		D, V133)	(0, V134)
(0, V134)	(1, V0)	(1, V1)		(1, V2)
(1, V2)	(1, V3)	(1, V4)		(1, V5)
	1, V131)	(1, V132)		, V133)
(1, V133) (1, V134)		(2, V0)		V1)
(2, V2)	(2, )	V3)	(2, V4)	(2, V5)
(2, V130)	(2, V13		(2, V132)	(2, V133)
(2, V133)	(2, V134)		3, V0)	(3, V1)
(3, V1)	(3, V2)	(3, V3)		(3, V4)
(3, V129)	(3, V130)	(3, V131)		(3, V132)
	, V133)	(3, V134)		Data(64words)
(4, V0)	(4, \	/1)	(4, V2)	( <b>4</b> , <b>V</b> 3)
(4, V131)	(4, V132)	(4	, V133)	(4, V134)
(4, V134)	(5, V0)	(5, V1)		(5, V2)
(5, V2)	(5, V3)	(5, V4)	(	5, V5)
(5, V130) (5	, V131)	(5, V132)	(5,	V133)
(5, V133) (5, V134	4)	Invalid Data(1	60words)	

(0, VU)		(6, V1)	(6, VZ)	[ (b, V3)
(6, V3)	(6,	V4)	(6, V5)	(6, V6)
(6, V6)	(6, V7)		(6, V8)	(6, V9)
(6, V131)	(6, V13	2)	(6, V133)	(6, V134)
(6, V134)	(7, V0)		(7, V1)	(7, V2)
(7, V2)	(7, V3)	(7, V4)	)	(7, V5)
(7, V130)	(7, V131)	(7, V132	2)	(7, V133)
	V134)		lid Data(160words)	· · · · · · · · · · · · · · · · · · ·
(8, V0)	· · ·	(8, V1)	(8, V2)	(8, V3)
(7, V131)	(8, V1	32)	(8, V133)	(8, V134)
(8, V134)	(9, V0)		(9, V1)	(9, V2)
(9, V2)	(9, V3)	(9, V4)		(9, V5)
(9, V131)	(9, V132)	(9, V13	3)	(9, V134)
	(10, V0)	(10, V1)		10, V2)
(10, V3		(10, V4)	(10, V	
(10, V130	)	(10, V131)	(10, V132	2) (10, V13
(10, V133)	(10, V13		(11, V0)	(11, V1)
(11, V1)	(11, V2)		(11, V3)	(11, V4)
(11, V129)	(11, V130)	(1)	1, V131)	(11, V132)
(11, V132)	(11, V133)	(11, V134		d Data(64words)



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imber 🚽	l		256		▶	▲ 24
262	(0, SC0)		(0, SC1)	(0, VA	D) (0, VA1)	
263	(0, VA1)	(0, VA2)		(1, SC0)	(1, SC1)	_
264	(1, SC1)	(1, VA0)		(1, VA1)	(1, VA2)	R
265	(1, VA2)	(2, SC0)	(2, SC		(2, VA0)	E S
	2, VA0) (2, VA		(2, VA2)		(3, SC0)	E
267	(3, SC1)		, VA0)	(3, VA		R
268	(3, VA2)	(4, SC0)	<u> </u>	(4, SC1)	(4, VA0)	v
269	(4, VA0)	(4, VA1)		(4, VA2)	(5, SC0)	Ě
270	(5, SC0)	(5, SC1)	(5, VA		(5, VA1)	D
271 (	5, VA1) (5, VA2		Inva	lid Data(160words)		U
272	(0, A0)		(0, A1)	(0, A2	(0, A3)	
273	(0, A3)	(0, A4)		(0, A5)	(0, A6)	
274	(0, A6)	(0, A7)		(0, A8)	(1, A0)	
275	(1,A0)	(1, A1)	(1, A2	2)	(1, A3)	
	(1, A3) (1, A		(1, A5)	<u>/</u>	(1, A6)	
277	(1, A7)		(1, A8)	(2, A)		~
278	(2, A1)	(2, Å2)	<u>,,</u>	(2, A3)	(2, A4)	R
279	(2, A4)	(2, A5)	<u> </u>	(2, A6)	(2, A7)	E
280	(2, A7)	(2, A8)	(3, A		(3, A1)	S E
	(3, A1) (3, A		(3, A3)	<u> </u>	(3, A4)	R
282	(3, A5)		(3, A6)	(3, A7)		v
283	(3, A8)	(4, A0)		(4, A1)	(4, A2)	Ĕ
284	(4, A2)	(4, A3)		(4, A4)	(4, A5)	D
285	(4, A5)	(4, A6)	(4, A		(4, A8)	U
	(4, A8) (5, A		(5, A1)		5, A2)	
287	(5, A3)		5, A4)	(5, A		
288	(5, A6)	(5, A7)		(5, A8)	Invalid(32words	
575	(6, SC0)		(6, SC1)	(6, VAC		
576	(6, VA1)	(6, VA2)		(7, SC0)	(7, SC1)	R
577	(7, SC1)	(7, VA0)		(7, VA1)	(7, VA2)	E
578	(7, VA2)	(8, SC0)	(8, SC	<u> </u>	(8, VA0)	S
579 (8	8, VA0) (8, VA		(8, VA2)		(9, SC0)	E
580	(9, SC1)		, VA0)	(9, VA		R
581	(9, VA2)	(10, SC0)		(10, SC1)	(10, VA0)	V
582	(10, VA0)	(10, VA1)		(10, VA2)	(11, SC0)	Е
583	(11, SC0)	(11, SC1)	(11, VA		(11, VA1)	D
	(11, VA1) (11, VA			alid Data(160words)		
585	(6, A0)		6, A1)	(6, A2)		
586	(6, A3)	(6, A4)		(6, A5)	(6, A6)	
587	(6, A6)	(6, A7)	, <u></u> ,	(6, A8)	(7, A0)	
588	(7, A0)	(7, A1)	(7, A2	<u>()</u>	(7, A3)	
	(7, A3) (7, A4		(7, A5)	/	(7, A6)	
590	(7, A7)		(7, A8)	(8, A0		R
	(8, A1) (8, A4)	(8, A2) (8, A5)		(8, A3)	(8, A4)	E
591				(8, A6)	(8, A7)	S
592		/0 / 0 / 0	(9, A	<u>(U)</u>	(9, A1) (9, A4)	E
592 593	(8, A7)	(8, A8)	(0 4 2)		1 4 4 4 1	
592 593 594	(8, A7) (9, A1) (9, A	2)	(9, A3)			R
592 593 594 (( 595	(8, A7) (9, A1) (9, A (9, A5)	(12)	(9, A6)	(9, A7)	(9, A8)	v
592 593 594 ( 595 596	(8, A7) (9, A1) (9, A (9, A5) (9, A8)	2) ( (10, A0)	(9, A6)	(10, A1)	(9, A8) (10, A2)	V E
592 593 594 ( 595 596 597	(8, A7) (9, A1) (9, A5) (9, A8) (10, A2)	2) (10, A0) (10, A3)	(9, A6) )	(10, A1) (10, A4)	(9, A8) (10, A2) (10, A5)	v
592       593       594       595       596       597       598	(8, A7) (9, A1)] (9, A (9, A5) (9, A8) (10, A2) (10, A5)	2) (10, A3) (10, A6)	(9, A6) ) (10, 4	(10, A1) (10, A4) A7)	(9, A8) (10, A2) (10, A5) (10, A8)	V E
592       593       594       595       596       597       598       599	(8, A7) (9, A1)] (9, A (9, A5) (9, A8) (10, A2) [ (10, A5) [ 10, A8] (11, A	2) (10, A6)	(9, A6) ) [ (10, 7 (11, A1)	(10, A1) (10, A4) A7) [ (10, A4)	(10, A8) (10, A2) (10, A5) (10, A8) 11, A2)	V E
592       593       594       595       596       597       598	(8, A7) (9, A1)] (9, A (9, A5) (9, A8) (10, A2) (10, A5)	2) (10, A6)	(9, A6) )	(10, A1) (10, A4) A7)	(10, A8) (10, A2) (10, A5) (10, A8) 11, A2)	V E

Figure 12 – SC/VAUX and audio/AAUX sections for 625/50 system

Annex A (informative) Bibliography

ANSI/SMPTE 259M-1997, Television — 10-Bit 4:2:2 Component and 4fsc Composite Digital Signals — Serial Digital Interface

SMPTE RP 168-2002, Definition of Vertical Interval Switching Point for Synchronous Video Switching

ITU-R BT.656-4 (02/98), Interface for Digital Component Video Signals in 525-Line and 625-Line Television Systems Operating at the 4:2:2 Level of Recommendation ITU-R BT.601 (Part A)