ANSI/SMPTE 215-1984

American National Standard for motion-picture film (65-mm)—camera aperture image

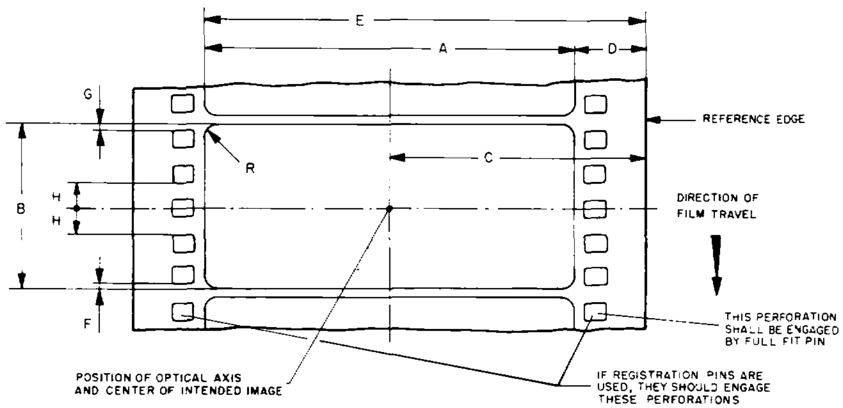
Approved November 28, 1984 Sponsor: Society of Motion Picture and Television Engineers

1. Scope

This standard specifies the dimensions of the camera aperture image and the relative positions of the vertical and horizontal centerlines of the intended image area with respect to the reference edge and the perforations of the camera negative film for 65-mm motion-picture cameras.

2. Dimensions

The dimensions shall be as specified in the figure and table. They shall apply to measurements of the images formed on freshly exposed and processed film.



Film as Seen from Inside Camera Looking Toward Lens

Dimensions	Inches	Millimeters
A*	2.066 min	52.48 min
B	0.906 + 0.020 − 0.000	23.01 + 0.51 − 0.00
C	1.279 nom	32.49 nom
D	0.246 max	6.25 max
E	2.312 min	58.72 min
F = G	within 0.008	within 0.20
H = H	nominally equal	nominally equal
R	0.020 max	0.51 max

*Dimension A is derived and is given for information only.

American National Standards Institute, 1430 Broadway, New York, N.Y. 10018

SMPTE RECOMMENDED PRACTICE **RP 125–1984**

Bit-Parallel Digital Interface for Component Video Signals

1. *Introduction and Scope*

1.1 *Introduction.* Developments in digital technology have resulted in the common use of digital video equipment in television systems. While the digital parameters used within equipment vary widely from unit to unit depending on the design decisions of different manufacturers, the equipment must operate across a common standard interface to permit interconnection at the digital level between equipment. Such a standard digital interface is advantageous to both the equipment manufacturer and the equipment user, easing the transition to partial or complete conversion of television program production plants or studios from analog to digital operation. This practice describes a bit-parallel digital interface for component video signals, meeting the requirements of CCIR Recommendation 601, Encoding Parameters of Digital Television for Studios. The practice has application in the television studio over distances up to 300 m (1000 ft).

1.2 *Scope.* This practice defines an interface for System M (525/60) digital television equipment based on CCIR 601. The characteristics of the interface are summarized below:

1.2.1 The video signal is transmitted in the form of one luminance and two color-difference components, (Y, R-Y, B-Y).

1.2.2 The video signal is transmitted at the 4:2:2 family level of CCIR 601, with a nominal luminance sampling frequency of 13.5 MHz.

1.2.3 The bits of the digital code words that describe the video signal are transmitted in a parallel arrangement using eight conductor pairs. Each pair carries a multiplexed stream of bits (of the same significance) of each of the component signals, Y, (R-Y), (B-Y). Accordingly, the bit rate used in each pair is nominally 27 Mb/sec. A ninth conductor pair carries a clock signal at 27 MHz.

1.2.4 The signals on the interface are transmitted using balanced conductor pairs for a distance of up to 50 m (~160 ft) without equalization and up to 300 m (~1000 ft) with appropriate equalization.

1.2.5 The interface consists of one transmitter and one receiver in a point-to-point connection.

1.2.6 Parameters of the signal format are chosen to facilitate conversion to and from a serial digital interface format.

1.2.7 The interface allows the transmission of appropriate ancillary signals that may be multiplexed into the data stream during video blanking intervals.

2. *General Considerations*

2.1 *Signal Convention.* The signalling sense of the voltage appearing across the interconnection cable is positive binary and defined as follows (refer to Fig. 1):

2.1.1 The A terminal of the generator shall be negative with respect to the B terminal for a binary 0 (LOW or L or OFF) state.

2.1.2 The A terminal of the generator shall be positive with respect to the B terminal for a binary 1 (HIGH or H or ON) state.

2.2 *Signal Names.* Expression of the data word requires more than one binary signal. DATA 0 through DATA 7 are all required to completely specify the data. This group of eight signals is identified by placing parentheses around the range of subscripts included, as DATA (0-7). DATA 7 is the most significant bit.

2.3 *SINx/x Considerations.* The characteristics of the data word at the interface are based on the assumption that the location of any required SINx/x correction is at the point where the digital signal is converted to an analog format.

2.4 *Blanking Interval Considerations.* This practice does not require the device feeding the interface to transmit video data during the entire blanking interval. Therefore, ancillary information may be inserted into the horizontal blanking interval by the user within the constraints specified in 3.4 and 3.5.

The vertical blanking duration is a minimum of nine lines. Ancillary information may be inserted into this nine-line interval by the user within the constraints specified in 3.4 and 3.5.

862 Scarsdale Avenue, Scarsdale, NY 10583, (914) 472-6606

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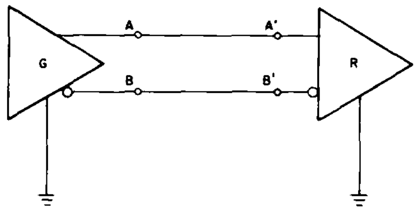


G = Generator
R = Receiver
A, A' = the data line
B, B' = the return line

The A terminal is positive with respect to the B terminal for a binary 1.

Fig. 1
Positive Binary Signal Convention

2.5 *Signal Specifications.* All digital signal time intervals are specified at the half-amplitude points. All transitions are specified between the 20% and 80% amplitude points.

2.6 *Related International Documents:*

CCIR Recommendation 601, Encoding Parameters of Digital Television for Studios

CCIR Report 629-1 (Mod F), Digital Coding of Colour Television Signals

CCIR Report 962, The Filtering, Sampling and Multiplexing for Digital Encoding of Colour Television Signals

2.7 Electro-Magnetic Interference Considerations. Digital apparatus can radiate a significant amount of energy at harmonics of the clock frequency. In the case of 13.5 MHz, clock harmonics lie at 121.5 and 243 MHz, both of which are aeronautical distress frequencies. Equipment and system designers must, therefore, pay particular attention to the providing of adequate screening. In practice, the level of radiation suppression required may considerably exceed current, open-field radiation standards.

3. *Interface Format*

3.1 *General Description.* The interface consists of a unidirectional, nine-pair interconnection between a transmitting equipment and a receiving equipment. Video data, timing reference information, and ancillary signals are time multiplexed and transferred on eight data pairs in NRZ form. A ninth pair provides a synchronous clock. Two additional user pairs may be provided for use in special applications.

3.2 *Encoding Parameters.* Table 1 specifies the encoding parameter values which are in accordance with CCIR 601.

Table 1
Encoding Parameters

Parameter	Specification
Coded signals	Y = 0.299R+0.587G+0.114B C_R = 0.713 (R-Y) = 0.500R—0.419G—0.081B C_B = 0.564 (B-Y) = 0.500B—0.169R—0.331G
Number of samples per total line:	
— luminance (Y)	858
— each color-difference signal (C_R, C_B)	429
— total number of samples	1716
Sampling Structure	Orthogonal; line, field and frame repetitive; C_R and C_B samples are co-sited with odd (1st, 3rd, 5th) Y samples in each line.
Sampling frequency:	
— luminance signal (Y)	13.5 MHz nominal
— each color-difference signal (C_R, C_B)	6.75 MHz nominal
Form of encoding	Uniformly quantized, PCM, 8 bits per sample, for the luminance signal and each color-difference signal.
Number of samples per digital active line:	
— luminance signal	720
— each color-difference signal	360
— total number of samples	1440
Correspondence between video signal levels and quantization levels:	
— luminance signal (Y)	220 quantization levels with the black level corresponding to level 16 and the peak white level corresponding to level 235.
— each color-difference signal (C_R, C_B)	225 quantization levels symmetrically distributed about level 128, corresponding to the zero signal.

3.3 *Interface Characteristics.* Table 2 specifies the interface characteristics.

Table 2
Interface Characteristics

Digital Format	Parallel; nine balanced signal pairs carrying clock and eight data bits. (Two additional signal pairs are optional).
Interface Clock	27.0 MHz nominal
Voltage Levels	Standard ECL
Driver Impedance	Standard ECL
Receiver Impedance	110 Ohms nominal, balanced

3.4 *Digital Blanking Relationships*

3.4.1 *Horizontal Sync Relationship.* Fig. 2 shows the relationship between video signals in the digital and analog domain for 525-line systems.

1440 multiplexed luminance and chrominance values are transmitted during each active line.

The remaining 276 interface clock intervals are used to transmit synchronizing information and may be used to carry ancillary information.

The first of these 1716 interface clock intervals is designated line word 0 for the purpose of reference only. The 1716 sample words per total line are therefore numbered 0 through 1715. Intervals 0 through 1439, inclusive, contain video data. The interface clock intervals occurring during digital blanking are designated 1440 through 1715.

Intervals 1440 through 1443 are reserved for the end-of-active-video (EAV) timing reference described in 3.5.3.

Intervals 1712 through 1715 are reserved for the start-of-active-video (SAV) timing reference described in 3.5.3.

The half-amplitude point of the leading (falling) edge of the analog horizontal sync signal shall be coincident with interval number 1471.

3.4.2 *Vertical.* Fig. 3 shows the relationship between video signals in the digital and analog domains for 525-line systems.

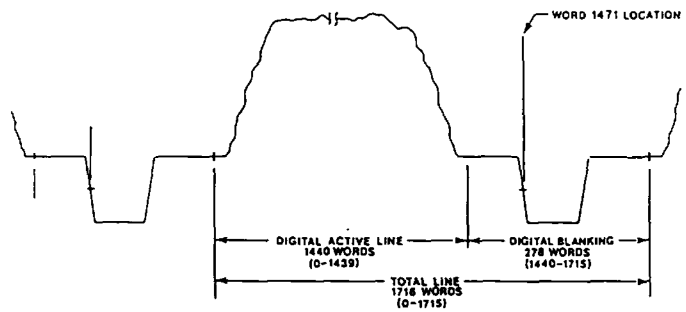


Fig. 2
Horizontal Sync Relationship

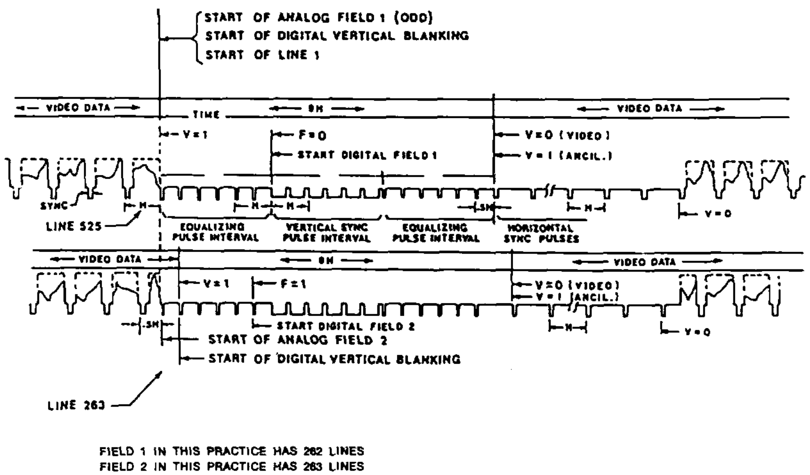


Fig. 3
Relationship of Video Data/Vertical Sync

3.5 *Video Data Signal Format*

3.5.1 *Data Signal Format.* Data is transferred across the interface on eight data pairs, DATA 0 through DATA 7. DATA 7 is the most significant bit (MSB). 254 of the 256 levels (digital levels 1 through 254 or 01 through FE in the hexadecimal representation) of the eight-bit word are used to express a quantized value.

Data levels 0 and 255 (00 and FF in the hexadecimal representation) are reserved to indicate timing references. Use of the hexadecimal representation is assumed hereafter.

3.5.2 *Multiplex Structure.* The video data words shall be conveyed as a 27 MHz multiplex in the following order:

C_B Y C_R [Y] C_B . . .

where the three words C_B Y C_R refer to co-sited samples, the following word [Y] being an isolated luminance only sample. The C_B and C_R samples are co-sited with the odd (1st, 3rd, 5th) Y samples on each line. The first video data word in each active line period shall be C_B.

3.5.3 *Timing Reference Signals — Video.* Fig. 4 shows the position of the timing reference signals with respect to horizontal blanking in the multiplexed data stream. It is implicit that the timing reference signals are contiguous with the video data, when present, and continue through the vertical blanking interval.

Each timing reference signal consists of a four-word sequence in the following format:

FF 00 00 XY

The first three words are a fixed preamble. The *fourth word shall contain information defining:*

even field (field 2) identification

state of vertical blanking

state of horizontal blanking

Fig. 5 is a spatial representation of the timing reference signals during a television frame.

Assignment of bits within the fourth word is shown in Table 3.

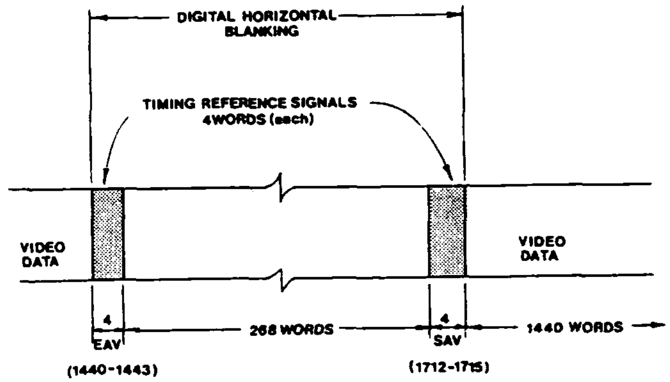


Fig. 4
Relationship Between Timing Reference Signals and Horizontal Blanking

Table 3
Timing Reference Signal

BIT NO.	PREAMBLE SIGNAL				
7	1	0	0	1	Fixed
6	1	0	0	F	F=1 during field 2 (change state when H=1 in EAV)
5	1	0	0	V	V=1 during vertical blanking (change state when H=1 in EAV)
4	1	0	0	H	H=1 at start of horizontal blanking
3	1	0	0	P3	
2	1	0	0	P2	Protection bits, Hamming Code 6:3
1	1	0	0	P1	
0	1	0	0	P0	Even parity bits 1-6

P0, P1, P2, and P3 have states dependent on states of bits F, V, and H, according to Table 4.

Note 1: The H, V, and bits (bits 4-6) provide the necessary information. Bits 0-3 provide error detection and correction information.

Note 2: Each 525-line digital video frame is divided into two fields. Field one contains 262 complete horizontal lines. Field two contains 263 complete horizontal lines.

Note 3: The protection bits allow correction of all single-bit errors and detection of two-bit errors.

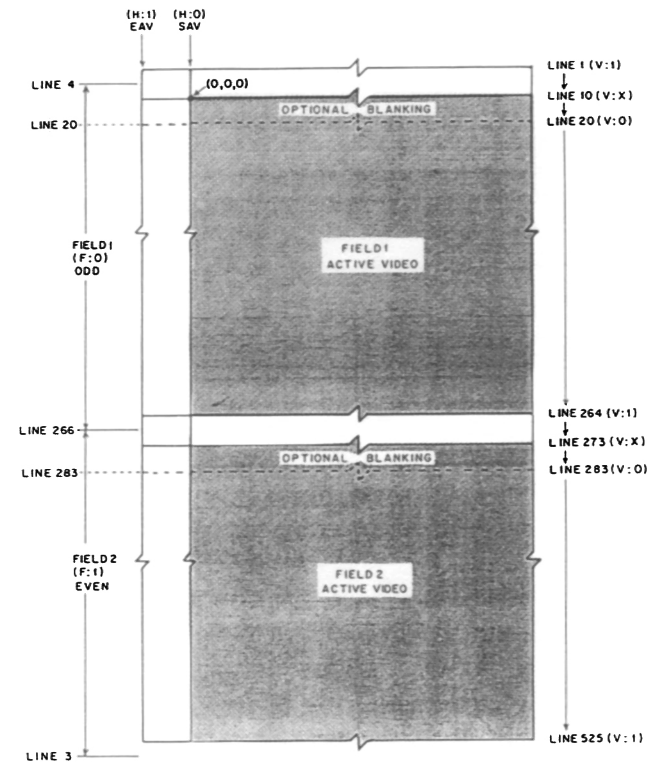


Fig. 5
Timing Reference Signal Locations

Table 4
Protection Bit States

7	F	V	H	P3	P2	P1	P0
1	0	0	0	0	0	0	0
1	0	0	1	1	1	0	1
1	0	1	0	1	0	1	1
1	0	1	1	0	1	1	0
1	1	0	0	0	1	1	1
1	1	0	1	1	0	1	0
1	1	1	0	1	1	0	0
1	1	1	1	0	0	0	1

Lines are numbered from 1 through 525 as shown in Fig. 3.

Vertical blanking in the digital interface is in full-line increments.

EAV and SAV are the digital interface horizontal synchronization signals and occur on every line.

The interval starting at EAV and ending with SAV is the digital horizontal blanking period as shown in Fig. 4.

Small blocks of data, less than 268 words in total length, including the ANC sequence (as described in 3.5.4), can be transmitted within the horizontal blanking period on every line.

Large blocks of data, up to 1440 words in total length, including the ANC sequence, can be transmitted within the interval starting with the end of SAV and terminating with the beginning of EAV on lines 1 through 19 and 264 through 282 only.

Video data will not be present on lines 1-9 and 264-272 and may not be present on lines 10-19 and 273-282. Ancillary data could be optionally transmitted in the video portion of these lines.

3.5.4 *Timing Reference Signals — Ancillary Data.* Ancillary data may be inserted in any portion of the data stream not occupied by timing reference signals or video data (see 3.4.1 and 3.4.2).

Ancillary data must not include the reserved levels 00 and FF, used for timing reference purposes as noted in 3.5.3.

Each ancillary data block shall be preceded by the ancillary timing reference signal code which consists of a six-word sequence in the following format:

00 FF FF TT MM LL

The first three words are a fixed preamble.

The fourth word, noted above as "TT" shall contain the data identification code in the range 01 to FE. Data identification can be line number, digital audio, teletext, etc. Data identification codes are shown in Appendix C. Words five (MM) and six (LL) contain either the line number or the data word count. When the timing reference signal is used to transmit the video line number, the line number is transmitted in the two words shown as MM LL and no ancillary data follows. Line numbers or data word counts shall be in the range of 1 to 1440 and shall be transmitted as a 12-bit binary value with 6 binary bits in each word. Each of the words is transmitted with odd parity. The parity bit is the LSB (Bit 0). The six-bit word occupies bits 1 through 6. Bit 7 is zero. The most significant six bits shall be transmitted in the first word.

The ancillary timing reference six-word sequence (ANC) precedes all ancillary data, and can occur on any line during the horizontal blanking period defined in 3.5.3. An ANC can occur during the interval between the end of SAV and the beginning of EAV on lines 1 through 19 and 264 through 282.

ANC can occur multiple times per line period if different blocks of data are transmitted.

ANC and its associated data block cannot occupy the intervals reserved for EAV, SAV, or active video.

3.6 *Clock Signal*

3.6.1 *Clock Signal Description (at transmitter).* The clock signal is a 27-MHz square wave as shown in Fig. 6. The clock pulse width (tw) is 18.5 ± 3 nanoseconds.

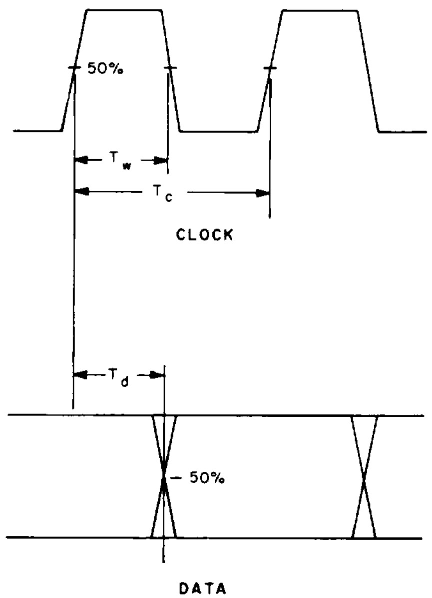
3.6.2 *Clock Jitter.* The peak-to-peak jitter between rising edges shall be within 3 ns of the average time of the rising edge computed over at least one field.

3.6.3 *Clock Data Timing Relationship.* The positive transition of the clock signal nominally occurs midway between data transitions (Fig. 6).

3.7 *Spare Signal Lines.* Two signal pairs SPARE A and SPARE B may be included at the discretion of the user.

If SPARE A and SPARE B are utilized for additional data bits to extend the resolution of the data word, then SPARE A shall be more significant than SPARE B but less significant than DATA 0.

The SPARE A and SPARE B signal line data format and clock relationship shall conform to the requirements specified for the data bit lines (DATA 0-7).



tw = 18.5 ± 3 ns
tc = 1/(1716xfh) = 37 ns (nominal)
td = 18.5 ± 3 ns
fh = 15.734 ... KHz nominal

Fig. 6
Transmitted Clock Waveform

4. *Electrical Characteristics*

4.1 *General.* The nine signals shall be transmitted via balanced signal pairs.

Although the use of ECL technology is not specified, the line driver and receiver must be ECL-compatible to permit the use of standard ECL parts for either or both ends in applications where such ECL parts are deemed adequate.

Standard ECL parameters are provided in Appendix A.

4.2 *Generator Characteristics*

4.2.1 *Output Impedance.* The generator shall have a balanced output with a maximum output impedance of 110 ohms.

4.2.2 *Signal Amplitude.* The generated signal shall lie between 0.8 V peak-to-peak and 2.0 V peak-to-peak, measured across a 110-ohm resistor connected to the output terminals without any transmission line.

4.2.3 *Rise and Fall Times.* Rise and fall times shall be no longer than 5 ns and differ by not more than 2 ns, as measured between the 20% and 80% amplitude points across a 110-ohm resistor connected to the output terminals without any transmission line.

4.3 *Receiver Characteristics*

4.3.1 *Terminating Impedance.* The cable shall be terminated by 110 ± 10 ohms.

4.3.2 *Maximum Input Signal.* The line receiver must sense properly the binary data when connected directly to a line driver operating at the extreme voltage limits permitted by 4.2.2.

4.3.3 *Input Sensitivity.* The receiver shall require a differential input voltage of no more than 185 millivolts to correctly attain the intended binary state.

4.3.4 *Common Mode Rejection.* The receiver shall operate correctly in the presence of common mode noise having a maximum amplitude of ± 0.5 volts.

4.4 *Differential Delay.* The relative differential delay between the received clock and any received data signals shall not exceed 8 ns.

5. *Mechanical Characteristics*

5.1 *General.* This section defines the mechanical specifications for the interface of digital video systems used in environments where the physical distance between devices is limited and the general physical environment can be termed "interior."

5.2 *Interconnecting Cable Characteristics.* The interface is designed to operate with a nominal signal pair impedance of 110 ohms.

5.2.1 *Cable Length.* The majority of applications of this interface involve lengths less than 50 m. For these lengths, cables with reasonable uniformity will generally give satisfactory results. For cable lengths greater than 50 m, the cable and termination characteristics become more critical, in some cases requiring equalization. In any case, the performance characteristics specified heretofore are required for satisfactory performance.

5.2.2 *Cable Construction.* The cable shall normally contain 20 conductors of which nine shall be used as signal lines and nine shall be used as signal returns, to accommodate the nine signal pairs. Two additional conductors shall be used as system ground. Where the two additional spare pairs are implemented, the cable will contain 24 conductors.

It is recommended that the cable shall be constructed to minimize the effects of crosstalk between signal lines, the susceptibility of the signal lines to external noise, and the transmission of interface signals to the external environment.

The cable shall contain an overall shield, to minimize radiation, carried through the cable assembly and connectors via the cable shield pins and the connector body at each end.

The cable shall be constructed to minimize the differential delay between any two conductor pairs.

5.3 *Connector Characteristics*

5.3.1 *Mechanical Considerations.* The connectors shall have the mechanical characteristics conforming to the industry standard 25 contact D subminiature connector described below. Additional information may be found in Appendix B.

Number of Contacts : 25

Contact Surfaces : Self wiping

Shell Shape : Trapezoidal polarization

(Most applications of this interface require that the connectors be inserted many times. ECL voltage and current levels are relatively low. The materials used in the connector should be appropriate to the application.)

5.3.2 *Connector Contact Assignments*

Contact	*Signal Line*	*Contact*	*Signal Line*
1	CLOCK	14	CLOCK RET
2	SYSTEM GND	15	SYSTEM GND
3	DATA 7 (MSB)	16	DATA 7 RET
4	DATA 6	17	DATA 6 RET
5	DATA 5	18	DATA 5 RET
6	DATA 4	19	DATA 4 RET
7	DATA 3	20	DATA 3 RET
8	DATA 2	21	DATA 2 RET
9	DATA 1	22	DATA 1 RET
10	DATA 0	23	DATA 0 RET
11	SPARE A	24	SPARE A RET
12	SPARE B	25	SPARE B RET
13	CHASSIS GND		

5.3.3 *Cable Connector* Assembly. The cable assembly must be provided with a connector containing pin contacts at the transmitter end of the cable and a connector containing pin contacts at the receiver end of the cable as shown in Fig. 7.

5.3.4 *Device Connectors.* Each device or equipment shall provide a transmitter connector containing socket contacts for each digital signal generated by the equipment as shown in Fig. 7.

Each device or equipment shall provide a receiver connector receptacle containing socket contacts for each digital signal received by the equipment as shown in Fig. 7.

5.3.5 *Connector Retaining Mechanism.* The cable connector shall be provided with a one-piece slide locking mechanism and the equipment connector shall be provided with locking posts such as shown in Appendix B.

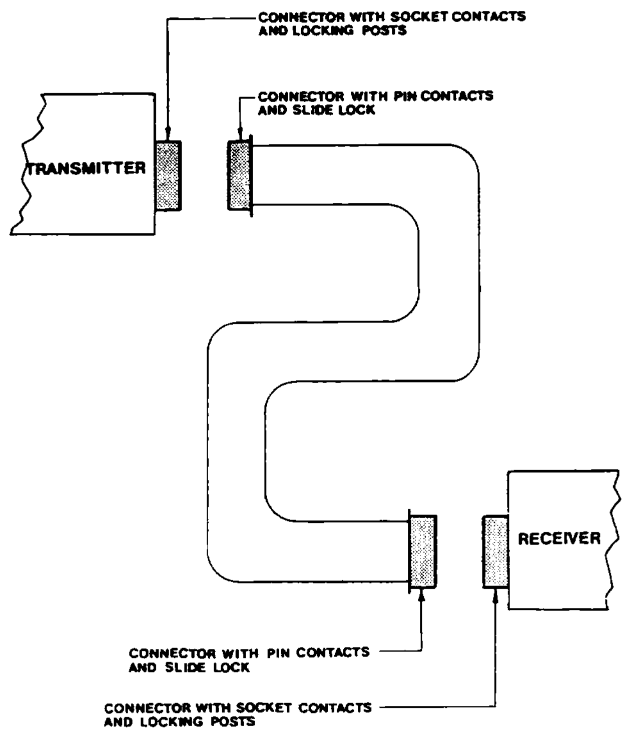


Fig. 7
Cable Connector Assembly

Appendix

(The Appendix is not a part of this SMPTE Recommended Practice, but is included for information purposes only.)

Appendix A
ECL 10,000 Parameters

A1. *Standard ECL Parameters*

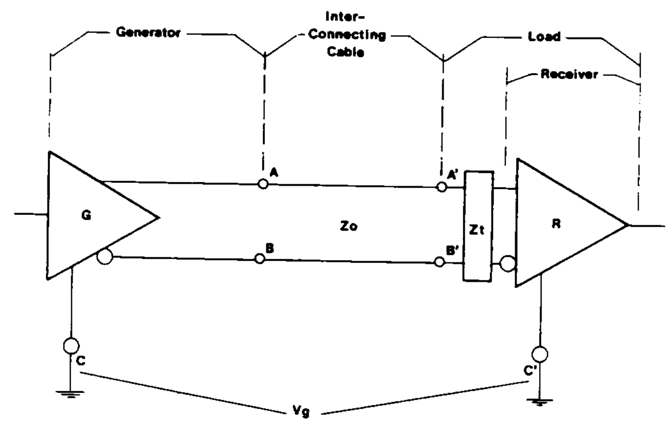
"Standard ECL" in this application means an integrated circuit device of the ECL 10,000 series or equivalent. Typical key parameters are:

System Power Supply (V_{EE})	: —4.7 V to —5.7 V —5.2 V nominal
Logic states with respect to ground (typical)	: "1" = —0.8 V = High (H) "0" = —1.85 V = Low (L)
Output Impedance	: Open emitter-follower output (7 ohm typical) to drive terminated lines.
Propagation Delay	: 2-3 ns per gate typical
Rise and Fall Times	: Internally controlled, typical edge speeds are 2-3 ns (20% to 80%)

A2. *Balanced Interface Circuit*

Each circuit consists of three parts as shown in Fig. 8: the line driver, the balanced interconnecting cable, and the load. The line driver is comprised of a single generator (G) with a low-output impedance. The load is comprised of a single receiver (R), and a cable termination impedance (Zt).

Electrical characteristics of the receiver without cable termination shall conform to standard balanced ECL specifications. Use of a cable termination (Zt) is mandatory. Zt shall be nominally 110 ohms.



Zt	=	Cable Termination
Vg	=	Ground Potential Difference
A, B	=	Generator Interface Points
A', B'	=	Load Interface Points
C	=	Generator Circuit Ground
C'	=	Load Circuit Ground
A, A'	=	Data Line
B, B'	=	Return Line
Zo	=	Cable Characteristic Impedance

Fig. 8
Balanced Interface Circuit

Appendix B
Connector Characteristics

The interface employs the 25 contact D-subminiature connector, with the connectors on the transmitter and receivers using socket contacts and the connectors on the cable both using pin contacts. Connectors are locked together by a one-piece slide-lock on the cable connectors, which engages locking posts on the equipment connector. Detailed dimensions are shown below:

Connectors	Fig. 9
Locking Posts	Fig. 10 (mm) and 12 (in)
Locking Slide Latch	Fig. 11 (mm) and 13 (in)

It is recommended that the cable connectors employ a conductive backshell to maintain shielding of the signal conductors and care must be taken to select designs that are appropriate for use with the slide/post latching method specified.

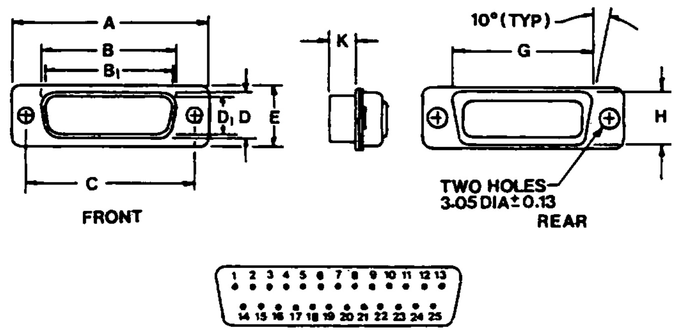
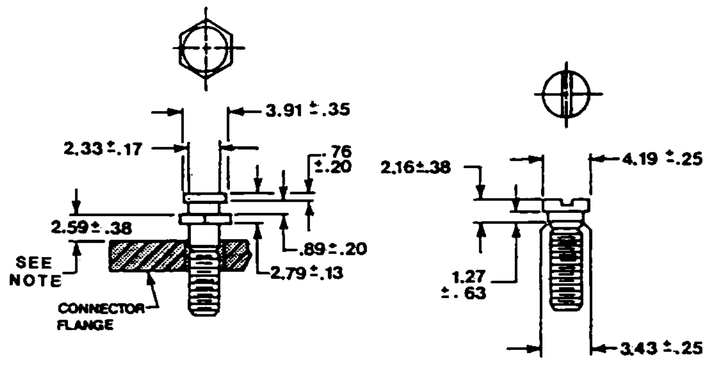


Fig. 9
Connector Assembly

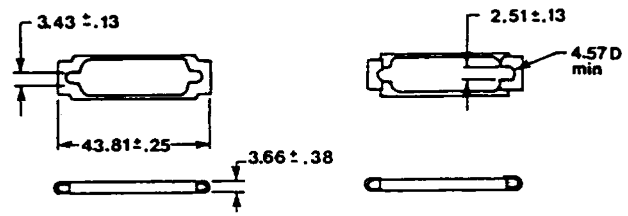
Table 5
Connector Dimensions

Dimensions	Millimeters D25P	Millimeters D25S	Inches D25P	Inches D25S
A	53.0 ± 0.4	53.0 ± 0.4	2.087 ± 0.016	2.087 ± 0.016
B	—	38.3 ± 0.3	—	1.508 ± 0.012
B_1	39.0 ± 0.3	—	1.535 ± 0.012	—
C	47.0 ± 0.2	47.0 ± 0.2	1.850 ± 0.008	1.850 ± 0.008
D	—	7.8 ± 0.3	—	0.307 ± 0.012
D_1	8.4 ± 0.3	—	0.331 ± 0.012	—
E	12.5 ± 0.4	12.5 ± 0.4	0.492 ± 0.016	0.492 ± 0.016
G	41.3 ± 0.3	41.3 ± 0.3	1.626 ± 0.012	1.626 ± 0.012
H	10.7 ± 0.3	10.7 ± 0.3	0.421 ± 0.012	0.421 ± 0.012
K	5.9 ± 0.3	6.2 ± 0.3	0.232 ± 0.012	0.244 ± 0.012



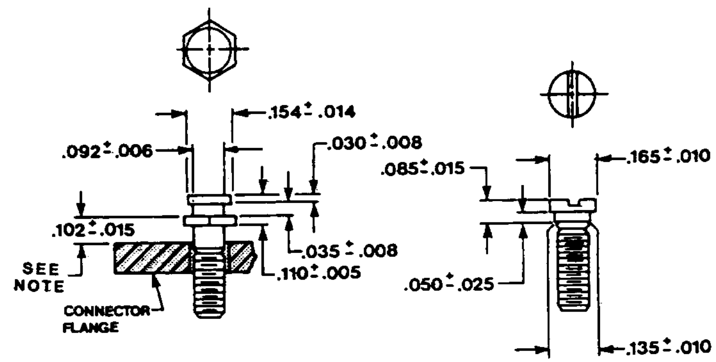
NOTE: THIS DIMENSION MUST BE MAINTAINED IN ASSEMBLY TO ENSURE INTERCHANGEABILITY.

Fig. 10
Connector Locking Posts
(Dimensions in Millimeters)



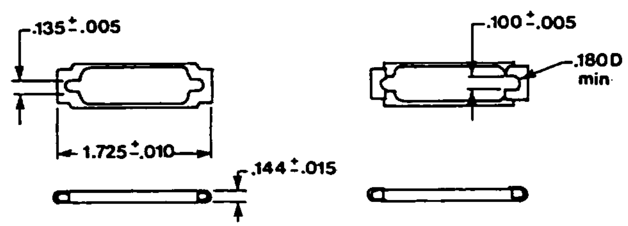
NOTE: SLIDE LATCH MUST BE ASSEMBLED DIRECTLY TO CONNECTOR FLANGE.

Fig. 11
Connector Slide Latch
(Dimensions in Millimeters)



NOTE: THIS DIMENSION MUST BE MAINTAINED IN ASSEMBLY TO ENSURE INTERCHANGEABILITY.

Fig. 12
Connector Locking Posts
(Dimensions in Inches)



NOTE: SLIDE LATCH MUST BE ASSEMBLED DIRECTLY TO CONNECTOR FLANGE.

Fig. 13
Connector Slide Latch
(Dimensions in Inches)

Appendix C
Ancillary Data Identification Codes

Table 6 specifies the assigned ancillary date identification codes appearing in the fourth word (TT) of the Ancillary Data Timing Reference Signal as described in 3.5.4.

Table 6
Ancillary Data Identification Codes

HEX Code	Usage
Available from Society Headquarters	

Appendix D
Monochrome Operation

Monochrome operation at 29.97 Hz frame rate can be achieved by setting the color difference signals (C_R, C_B) to zero.

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SMPTE RECOMMENDED PRACTICE RP 126-1984

Dimensions of Photographic Control and Data Records on 35-mm Motion-Picture Film Perforated 8-mm Type S (1-3-5-7-0) and on 16-mm Motion-Picture Film Perforated 8-mm Type S (1-3) and (1-4)

1. *Scope*

This practice specifies the lateral location and dimensions of the photographic control and data records on 35-mm motion-picture film perforated 8-mm Type S (1-3-5-7-0) and on 16-mm motion-picture film perforated 8-mm Type S (1-3) and (1-4).

2. *Dimensions*

The lateral location and dimensions of the control and data records shall be as specified in the figures and tables.

3. *Film Stock*

The film stock used shall be safety type, cut and perforated in accordance with American National Standard Dimensions for 35-mm Motion-Picture Film Perforated 8-mm Type S, 5R (1-3-5-7-0), ANSI PH22.165-1981; Dimensions for 16-mm Motion-Picture Film Perforated 8-mm Type S, (1-3), ANSI PH22.151-1981; and Dimensions for 16-mm Motion-Picture Film Perforated Super 8, (1-4), ANSI PH22.168-1973 (R1980). The dimensions, the width scanned by the control and data reproducer, and the reproducer spectral sensitivity of the photographic control and data record shall be in accordance with SMPTE Recommended Practice on Dimensions of Photographic Control and Data Record on 8-mm Type S Motion-Picture Prints, RP 118-1983.

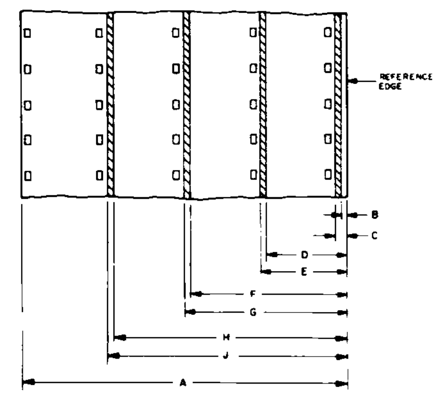

Fig. 1
Data Track on 35-mm Film Perforated 8-mm Type S (5R)

Table 1

Dimensions	Inches	Millimeters
A	1.377 ref	34.98 ref
B	0.033 ± 0.002	0.84 ± 0.05
C	0.047 ± 0.002	1.19 ± 0.05
D	0.347 ± 0.002	8.81 ± 0.05
E	0.361 ± 0.002	9.17 ± 0.05
F	0.661 ± 0.002	16.79 ± 0.05
G	0.675 ± 0.002	17.14 ± 0.05
H	0.975 ± 0.002	24.76 ± 0.05
J	0.989 ± 0.002	25.12 ± 0.05

862 Scarsdale Avenue, Scarsdale, NY 10583, (914) 472-6606

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