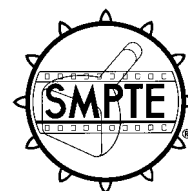


**SMPTE STANDARD****ANSI/SMPTE 30M-1995**Revision of  
ANSI/SMPTE 30M-1989

# for Television Analog Recording — 1-in Type B Reference Recorders — Records on Reference Tapes



Page 1 of 3 pages

**1 Scope**

This standard specifies the dimensions and location of video, audio, and tracking-control records on reference tapes for 1-in type B helical-scan video tape recorders, operating on the 525/60 monochrome or NTSC color system, as described in ANSI/SMPTE 29M.

**2 General specifications**

**2.1** Tests and measurements made on the tape record to check the requirements of this standard shall be made under the following conditions unless otherwise specified:

Temperature	23°C ± 1°C
Relative humidity	(50 ± 2)%
Barometric pressure	86 kPa to 106 kPa (860 mbar to 1060 mbar)
Tape tension	2.0 N ± 0.1 N

**2.2** Before recording and testing, the tape shall be conditioned for 24 hours, and wound on a reel at 2.0 N ± 0.5 N.

**2.3** The reference edge of the tape for dimensions in this standard shall be the lower edge as shown in figure 1. The magnetic coating is on the side facing the observer.

**2.4** The tape speed shall be 245.0 mm/s ± 0.8 mm/s.

**3 Record location and dimensions**

**3.1** Record location and dimensions shall be in accordance with figure 1 and table 1.

**3.2** The nominal width of audio records 1, 2, and 3 shall be 0.8 mm.

**3.3** The audio and cue recordings shall be downstream from the associated video information (see dimension J in figure 1 and table 1).

**3.4** The audio recording shall be made so that the azimuth of the recorded record is at an angle of 90° ± 2.5' to the reference edge of the tape. Audio 1 and 2 head gaps shall be in line.

**3.5** The position of the field synchronizing signal on the video record shall be 7.609 mm ± 0.024 mm from the intersection of L<sub>t</sub> and X, in the direction of tape travel as measured along the video track.

**3.6** The cue signal and time code shall be recorded in the audio 3 track.

**4 Video record curvature**

The edge of the video record shall be contained within two parallel straight lines 0.015 mm apart.

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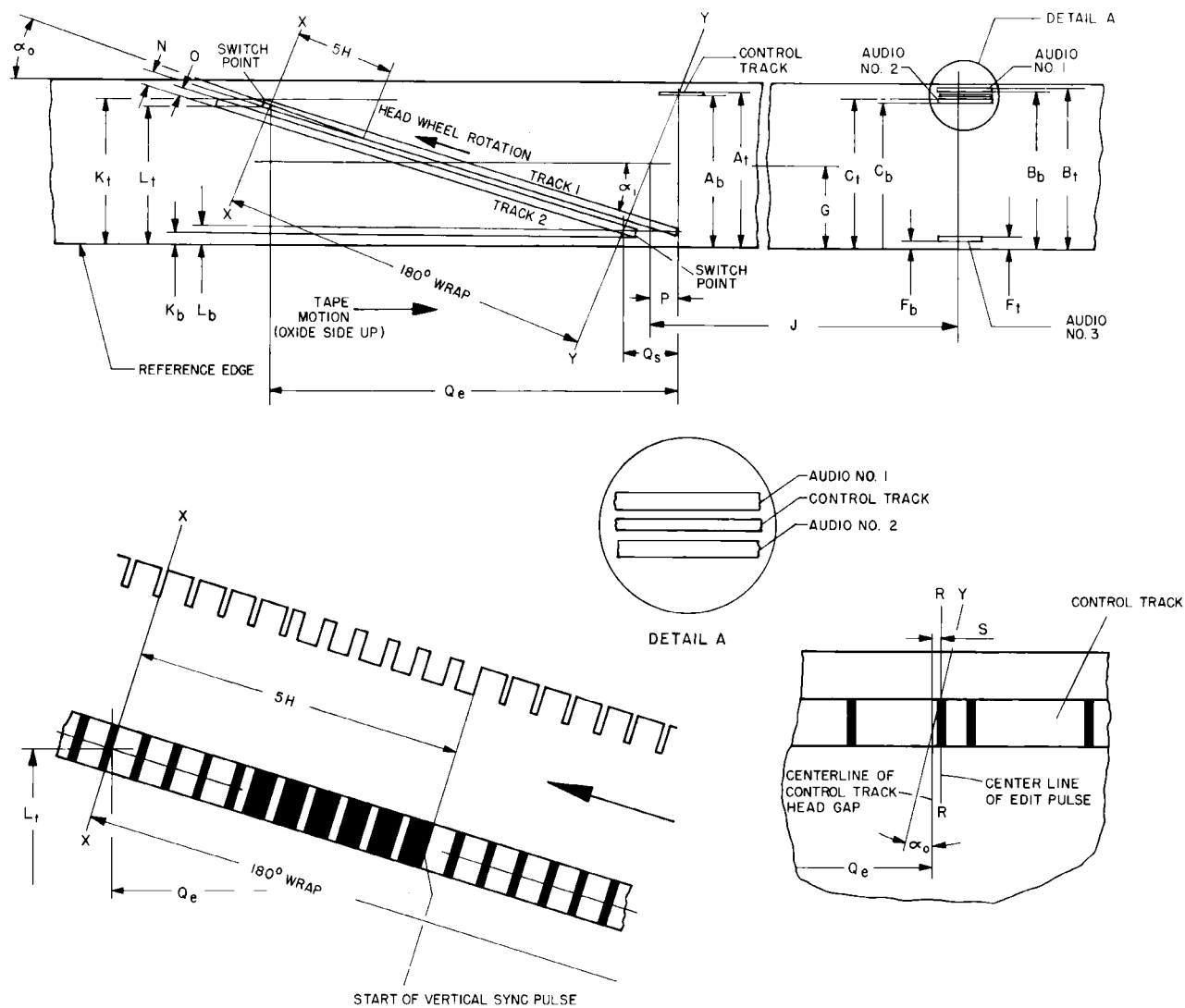


Figure 1 – Record location

**Table 1 – Specifications**

Dimensions		Millimeters	
		Minimum	Maximum
A <sub>b</sub>	Control track bottom edge	23.54	23.64
A <sub>t</sub>	Control track top edge	23.94	24.04
B <sub>b</sub>	Audio 1 track bottom edge	24.34	24.44
B <sub>t</sub>	Audio 1 track top edge	25.14	25.24
C <sub>b</sub>	Audio 2 track bottom edge	22.34	22.44
C <sub>t</sub>	Audio 2 track top edge	23.14	23.24
F <sub>b</sub>	Audio 3 track bottom edge	0.16	0.24
F <sub>t</sub>	Audio 3 track top edge	0.96	1.04
G	Center of video tape	12.70	ref
J	Position of audio heads	232.2	232.8
K <sub>b</sub>	Full video width bottom edge	1.18	1.18
K <sub>t</sub>	Full video width top edge	22.19	22.19
L <sub>b</sub>	Video width (180°) bottom edge	1.82	ref
L <sub>t</sub>	Video width (180°) top edge	21.55	ref
N	Video track pitch	0.200	ref
O	Video track width	0.156	0.164
P	Position of control track head	2.845	2.875
Q <sub>e</sub>	Switch point distance video 2 track	82.096	82.121
Q <sub>s</sub>	Switch point distance video 1 track	5.523	5.533
S	Distance between control track head gap and center edit pulse at 180° switch point	0.040	ref
α <sub>0</sub>	Scanning angle (helix angle)	14.434° ± 10"	
α <sub>1</sub>	Video track angle (525/60)	14.288°	

**Annex A** (informative)**Bibliography**

ANSI/SMPTE 29M-1995, Television Analog Recording —  
 1-in Type B Reference Recorders — Basic System and  
 Transport Geometry