ANSI/SMPTE 29M-1995
Revision of
ANSI/SMPTE 29M-1989

SMPTE STANDARD

for Television Analog Recording — 1-in Type B Reference Recorders — Basic System and Transport Geometry

1 Scope

This standard specifies test conditions, general video record system, video pole-tip locations, scanner parameters, scanner-guide locations, and the tape tension for 1-in type B helical-scan video tape reference recorders operating on the 525/60 monochrome or NTSC color systems.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the edition indicated was 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 standard indicated below:

SMPTE RP 84-1992, Reference Carrier Frequencies and Preemphasis Characteristics for 1-in Type B Helical-Scan Television Analog Recording

3 General specifications

Tests and measurements made on the recorder to check the requirements of this standard shall be made under the following atmospheric conditions:

Temperature of drum diameter	23°C ± 0.5°C
Temperature for all other tests	23°C ± 1°C
Relative humidity	(50 ± 2)%
Barometric pressure	86 kPa to 106 kPa (860 mbar to 1060 mbar)
Conditioning before testing	24 h

4 Video record system

4.1 The video modulation system shall be the FM type.

4.2 The video record shall contain all picture lines and vertical sync information.

5 Video heads and scanner parameters

5.1 Two video heads shall be positioned 180° ± 20" apart, β, measured from the gap of video head 1 to the gap of video head 2, as shown in figure 1.

5.2 The drum size shall be 50.330 mm + 0 mm – 0.003 mm.

5.3 The nominal rotational speed of the head wheel shall be 150 r/s.

5.4 The video head protrusion shall be 0.030 mm ± 0.005 mm, measured from the outer surface of the drum to the end of the head tip.

5.5 The video head gap shall be 90° nominal to the plane of rotation of the video head.

5.6 The control head gap shall be located at point Y (see figure 1) which lies on a line which is at 90° ± 7.5′, measured from diameter F-G which is the centerline through the plate assembly.

6 Tape tension

The record tape tension shall be as follows:

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American National Standard

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T_{in}, tape tension in	measured between B and X = 2.0 N ± 0.1 N
T_{out}, maximum tape tension out	measured between Y and E = 2.3 N ± 0.1 N

7 Characteristic frequencies

Characteristic frequencies shall be in accordance with table 1 in SMPTE RP 84, except that the tolerances shall be tightened to ± 0.025 MHz. Other values shall be held as closely as possible.

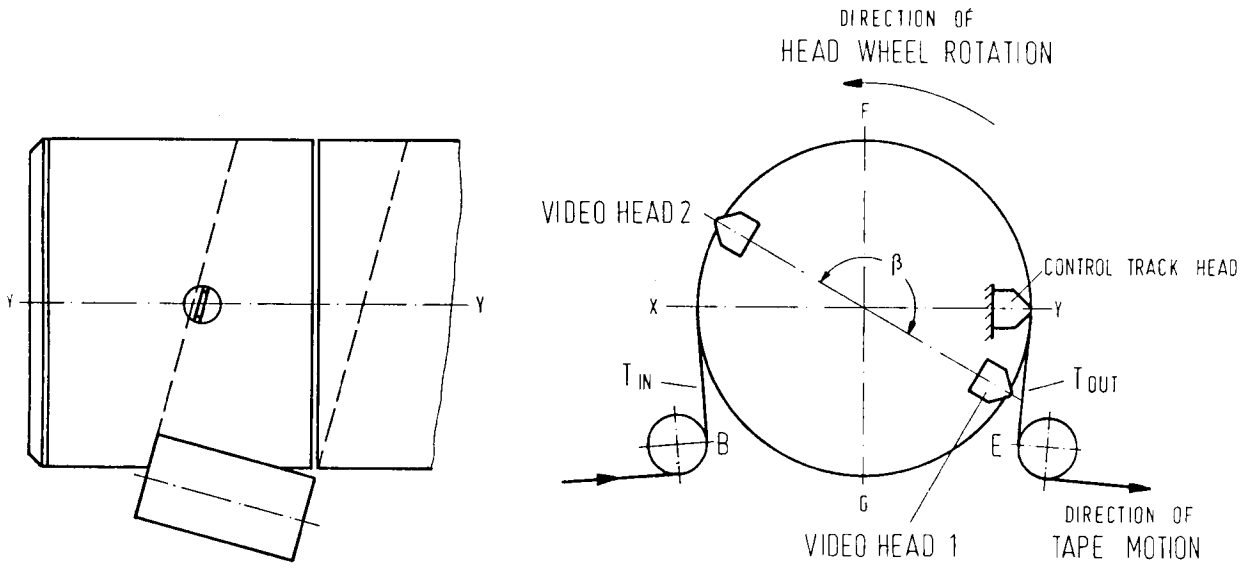

Figure 1 – Video heads and control head gap

Annex A (informative)
Bibliography

ANSI/SMPTE 26M-1995, Video Recording — 1-in Helical-Scan Recorders — Raw Stock for Reference Tapes

ANSI/SMPTE 30M-1995, Television Analog Recording — 1-in Type B Reference Recorders — Records on Reference Tapes

SMPTE RP 83-1992, Specifications of Tracking Control Record for 1-in Type B Helical-Scan Television Analog Recording

SMPTE RP 107-1988, Video and Audio Reference Tape for 1-in Type B Helical-Scan Format