PROPOSED

SMPTE RECOMMENDED PRACTICE

RP 11
Revision of RP 11-1968

Tape Vacuum Guide Configuration and Position for Quadruplex Video Magnetic Tape Recording

1. *Scope*

This practice specifies the tape vacuum guide configuration and position for quadruplex video recordings on 2-in magnetic tape, and the test conditions for verifying these parameters.

2. *Mechanical Dimensions*

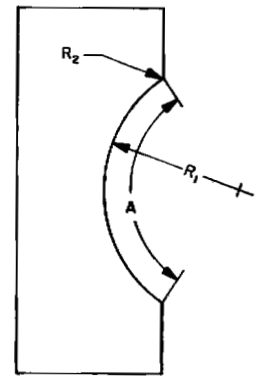
2.1 The radius of the tape vacuum guide (Dimension R_1) shall be 1.0334 + 0.0000 — 0.0004 in (26.248 + 0.000 — 0.010 mm).

2.2 The radius of the entrance contour (Dimension R_2) shall be 0.156 + 0.000 — 0.005 in (3.96 + 0.00 — 0.13 mm).

2.3 The arc of the vacuum guide (Dimension A) shall be 1.940 ± 0.005 in (49.28 ± 0.13 mm).

3. *Guide Position for Recordings*

The center of curvature of the vacuum guide shall lie between the axis of rotation of the video pole tips and the vacuum guide. The extension of a line joining the center of curvature of the vacuum guide and the axis of rotation of the heads shall intersect the tape at the midpoint of its width. The distance (eccentricity) between the center of curvature of the vacuum guide and the axis of rotation of the heads shall be zero when the radius R_1 has its maximum permitted value (see 2.1) and shall increase by the same amount by which the radius R_1 decreases from its maximum permitted value. The table shows an example of such dimensional dependence. The dimensions are based on a nominal tape thickness of 0.0014 in (0.036 mm) and a radius of rotation of the magnetic head pole tips of 1.0329 in minimum to 1.0352 in maximum (26.236 mm minimum to 26.294 mm maximum).



Vacuum Guide Radius		Eccentricity	
Inches	Millimeters	Inches	Millimeters
1.0334	26.248	0.0000	0.000
1.0333	26.246	0.0001	0.003
1.0332	26.243	0.0002	0.005
1.0331	26.241	0.0003	0.008
1.0330	26.238	0.0004	0.010

4. *Test Conditions*

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

Temperature for drum diameter	23 ± 0.5°C (73 ± 1°F)	Temperature for other tests	23± 1°C (73 ± 2° F)
		Relative humidity	50 ± 2 percent
		Barometric pressure	86 to 106 kPa (860 to 1060 mbar)
		Conditioning before testing	24 h

Appendix

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

Achievement of tape reproducing interchangeability requires, among other things, that means be provided to accommodate variations of (a) the radius of rotation of the magnetic head pole tips, (b) the radius of the vacuum guide and (c) tape thickness. These effects are compensated by the stretching of the tape into a slot cavity in the vacuum guide by virtue of the radius of rotation of the magnetic head pole tips projecting beyond the unstretched oxide surface of the tape as held in the vacuum guide. Over the limits normally encountered, the stretching provides automatic compensation if the vacuum guide is positioned to give the minimum geometric distortion in the reproduced picture.