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SMPTE RECOMMENDED PRACTICE

RP 158-1999

Revision of RP 158-1991

Basic System and Transport Geometry Parameters for 1/2-in Type M-2 Format



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1 Scope

This practice specifies the video recording system, scanner parameters, and test conditions for 1/2-in type M-2 helical-scan video tape recorders operating with video signals having a typical scanning structure of 525 lines, 59.94 fields/s, 2:1 interlace, and utilizing the cassettes specified in ANSI/SMPTE 250M. The parameters described in this practice are for reference purposes only and should not be taken as the only method available to attain the specifications as defined in ANSI/SMPTE 249M.

2 Definitions

2.1 scanner: A mechanical assembly containing a drum, rotating pole tips, and tape-guiding elements used to record and reproduce video and PCM audio mode signals.

2.2 drum: A cylindrical column around which the tape is at least partially wrapped in order to form the head-to-tape interface of a video tape recording system.

2.3 upper drum: The part of the drum which is not in contact with the reference edge of the tape. (See figure 1.)

2.4 lower drum: The part of the drum which contacts the reference edge of the tape and provides tape-guiding functions. (See figure 1.)

2.5 effective drum diameter: The value of drum diameter which yields the actual video and PCM audio record dimensions in a theoretical calculation. This value is equal to or greater than the actual drum diameter.

2.6 helix angle: The angle formed between the path of the rotating pole tips and the tape reference edge guiding system.

2.7 track angle: The angle formed between the video record and the reference edge of the tape.

2.8 center span tension: A calculated value of the tape tension at a point midway between the tape entrance and exit guides of the scanner in a video tape recording system.

2.9 wrap angle: The angle at the center of the drum rotation subtended by the lines of contact between the drum and the reference edge of the tape.

2.10 lead signal overlap: That portion of the helical record which is required to provide a duplicate (overlap) recording.

3 General specifications

3.1 Dimensions are in the metric system.

3.2 A basic dimension is a fundamental dimension to which no tolerance is applicable.

3.3 Tests and measurements made on the recorder to check the parameters specified in this practice shall be made under the following atmospheric conditions:

Temperature for drum diameter	20°C ± 0.5°C
Temperature for all other tests	20°C ± 1.0°C
Relative humidity	(50% ± 2)%
Barometric pressure	86 kPa to 106 kPa
Conditioning time before testing	24 hours