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SMPTE ENGINEERING GUIDELINE

Tape Transport Geometry Parameters for 19-mm Type D-1 Television Digital Component Recording



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1 Scope

This guideline describes three feasible examples of mechanical designs and test conditions for achieving the record dimensions specified in SMPTE 224M. The parameters are for reference purposes only.

2 Definitions

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

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

2.3 helix angle: An angle formed between the path of the rotating pole tips and the tape reference edge-guiding system on the scanner of the helical-scan digital audio and video recording system.

2.4 track angle: An angle of the helical track record with respect to the reference edge of the tape.

2.5 effective wrap angle: An angle at the center of the drum subtended by the start and endpoint of the track.

2.6 total wrap angle: An angle at the center of the drum subtended by the lines of contact between the drum and the reference edge of the tape.

2.7 tape tension: Tape tension is defined by the tension after the entrance guide and before the exit guide scanner.

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 the digital audio and video recording system.

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