

Standards and Recommended Practices

Approved American National Standards

Two American National Standards were approved by the American National Standards Institute on June 5, 1989: ANSI/SMPTE 5-1989, Television Analog Recording — 2-in Reels; and ANSI/SMPTE 4-1989, Television Analog Recording — 2-in Magnetic Tape for Quadruplex Recording — Speed. Copies of the standards are available for a nominal fee from the American National Standards Institute, 1430 Broadway, New York, NY 10018.

Approved SMPTE Engineering Guidelines

The Society's Executive Committee for Standards Approval approved two SMPTE Engineering Guidelines: EG 7-1989, Audio Sync Pulse for 8-mm Type S Cameras, Magnetic Audio Recorders and Rerecording Projectors; and EG 3-1989, Projection for Technical Conferences. These and other guidelines may be obtained from Society Headquarters for \$3.00 each.

Proposed Editorial Revision

A Proposed American National Standard is subject to a period of trial and public review. The technical content is unaffected

because the modifications are editorial in nature. The changes are being published for your information and comment.

SMPTE 209M, Motion-Picture Film (8-mm Type S) — Recorded Characteristic — Magnetic Audio Records, is a revision of ANSI PH22.209M-1984 which was published in the December 1984 *Journal*. Fig. 1, Recorded Relative Magnetic Flux Level Versus Frequency, was deleted. An upper limit was added to Fig. 2, Tolerances on Recorded Levels.

Copies of the proposal are available from Society Headquarters for \$3.00 each. The proposal will be submitted to the Society's Executive Committee for Standards Approval if no adverse comments are received from publication. Comments should be addressed to Sherwin H. Becker, Director of Engineering, prior to January 1, 1990.

SMPTE Engineering Guideline Reaffirmed

The Society's Executive Committee for Standards Approval approved reaffirmation of an SMPTE Engineering Guideline: EG 8-1984, Specifications for Motion-Picture Camera Equipment Used in Space Environment. The guideline may be purchased from Society Headquarters for \$3.00.

— *Sherwin H. Becker, Director of Engineering*

SMPTE Standards Subscription Service

The Society provides a Standards Subscription Service to assist firms, libraries, and individuals in establishing and maintaining a complete and current file of approved American National Standards, SMPTE Recommended Practices, and SMPTE Engineering Guidelines in the motion-picture, television, and video magnetic recording fields. Through this service, the Society makes automatic distribution to standards subscribers of all new and revised standards, recommended practices, and guidelines that are approved during the calendar year in these fields.

For further information, write to: Standards Subscription Service, Engineering Dept., Society of Motion Picture and Television Engineers, 595 West Hartsdale Ave., White Plains, NY 10607.

American National Standard for television analog recording— 2-in reels

Approved June 5, 1989

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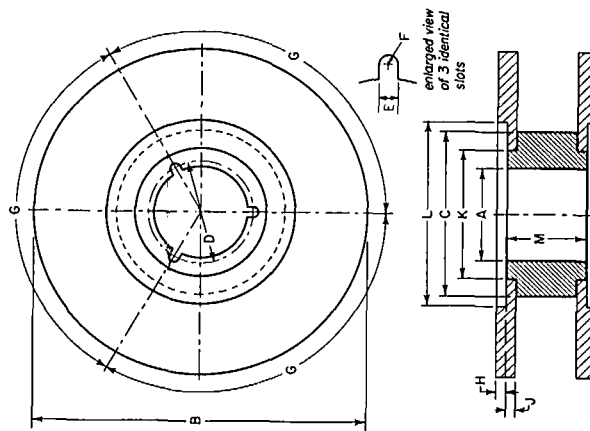
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1. Scope

This standard specifies the dimensions of reels in maximum capacities of 750, 1650, 3600, 5540, and 7230 ft designed to accommodate the maximum thickness of 2-in wide magnetic tape for television recording, as specified in ANSI C98.1-1978.

2. Referenced American National Standard

This standard is intended for use in conjunction with the following American National Standards:
ANSI C98.1-1978 (R1984), Dimensions of 2-in Video Magnetic Recording Tape



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3. Reel Dimensions

3.1 The dimensions of the reels shall be as specified in the figure and tables.

3.2 Flange-fastening members shall be flush with or below the outer surface of the flanges.

3.3 The outside cylindrical surface of the hub (C diameter) shall be concentric with the center bore (A diameter) within 0.002 in (0.05 mm) and shall have a maximum taper of 0.0016 in (0.041 mm).

3.4 The outside diameter of the flanges (B diameter) shall be concentric to the center bore of the hub (A diameter) within 0.015 in (0.38 mm).

Table 1
Reel Dimensions

Dimensions	Inches	Millimeters	Degrees
A	3.000 + 0.004 — 0.000	76.20 + 0.10 — 0.00	
B	See Table 2	See Table 2	
C	4.500 ± 0.010	114.30 ± 0.25	
D	3.250 ± 0.002	82.55 ± 0.05	
E	0.219 + 0.006 — 0.000	5.56 + 0.15 — 0.00	
F	0.109 ref	2.77 ref	
G			120 ± 0.1
H*	0.025 max	0.64 max	
J*	0.098 max	2.49 max	
K†	3.600 min	91.44 min	
L†	6.000 min	152.40 min	
M‡	2.212 ± 0.003	56.18 ± 0.08	

* The surface of the flanges from B to L shall lie between the planes defined by H and J.

† Outside surfaces of reel flanges between diameters K and L shall not extend beyond the surfaces defined by Dimension M.

‡ The hub surfaces defined by M shall be parallel within 0.008 in (0.20 mm) and square with the hub outside diameter C within 0.003 in (0.08 mm) at maximum diameter.

Table 2
Reel Capacities

Maximum Capacity,*	Maximum Playing Time in Min at		Dimension B
	Feet	Meters	
750	229	20	165.10 ± 0.25
1650	503	44	203.20 ± 0.25
3600	1097	96	266.70 ± 0.25
5540	1689	148	317.50 ± 0.25
7230	2204	192	355.60 ± 0.25

* Maximum capacity is based on a minimum distance of 0.2 in (5 mm) from the reel periphery to the tape stock, utilizing maximum thickness tape.

Appendix

(This Appendix is not part of the American National Standard, but is included for information only.)

The outside diameters of the flanges, B, will give reels the capacities suggested in Table 2. These capacities should be regarded as maximum.

It is recommended that both flanges have air escape holes. If provided, these holes should extend to the hub periphery and be of such size at this point as to facilitate easy threading.

ANSI/SMPTE 5-1989

American National Standard

for television analog recording— 2-in magnetic tape for quadruplex recording— speed

Approved June 5, 1989
Sponsor: Society of Motion Picture and Television Engineers

1. Scope

This standard specifies the nominal rates of travel of 2-in wide magnetic tape for quadruplex video magnetic tape recording.

2. Referenced American National Standard

This standard is intended for use in conjunction with the following American National Standard: ANSI/SMPTE 6-1988, Video Recording—Video, Audio and Tracking-Control Records — 2-in Quadruplex Tape

3. Primary Nominal Rate of Tape Travel

The primary nominal rate of tape travel shall be 15 in/s (38.1 cm/s).

4. Secondary Nominal Rate of Tape Travel

The secondary nominal rate of tape travel shall be 7.5 in/s (19.05 cm/s).

NOTE: The absolute tape speed is outlined in ANSI/SMPTE 6-1988.

SMPTE ENGINEERING GUIDELINE

Audio Sync Pulse for 8-mm Type S Cameras, Magnetic Audio Recorders and Rerecording Projectors

EG 7-1989



1. Scope

This guideline specifies the characteristics of the audio sync pulse for 8-mm type S cameras and film recorders and for magnetic tape recorders and audio projectors used for transfer of audio records from magnetic tape and film to a magnetic edge stripe on an 8-mm type S print.

2. Terminology

2.1 Camera and Projector Classes

2.1.1 Class A. Speed controllable (self-resolving)

2.1.2 Class B. Speed uncontrollable

2.2 Sync Signal Phase

2.2.1 Open Shutter Sync. Sync occurs while the shutter is open.

2.2.2 Closed Shutter Sync. Sync occurs while the shutter is closed.

3. Camera Specifications

3.1 Sync Signal. The camera shall provide a sync pulse at frame rate (24 fps nominal) as a voltage pulse, tone burst, or other sync signal.

3.2 Photographic Sync Mark. The photographic sync mark shall be on the edge of the film opposite the sprocket holes and shall be approximately one frame in length.

4. Recorder Specifications

4.1 Location of Sync Signal

4.1.1 Cassette Recorder. The signal shall be located on track 4 in accordance with IEC and NAB standards for audio-visual cue pulses.

4.1.2 Reel-to-Reel Quarter-Inch Tape Recorders

4.1.2.1 The signal shall be located on track 3 (right stereo channel) as specified in NAB Standard

Magnetic Tape Recording and Reproducing (Reel-to-Reel). Four-Track Stereophonic Recordings Section.

4.1.2.2 The signal shall be located on track 4 of the four-channel quadruplex recorders and stereo recorders with an extra sync head.

4.1.3 Full-Coat Film Recorders. The signal shall be located in the audio record position as specified in American National Standard for Motion-Picture Film (8-mm type S)—Magnetic Audio Record—Position, Dimensions and Reproducing Speed, ANSI/SMPTE 164-1988, on recorders using 8-mm type S full-coat magnetic stock.

4.2 Recorded Signal Level. The signal shall be recorded at 10 dB below the reference level of 185 nWb/m at 315 Hz.

5. Projector Specifications

5.1 Sync Signal. The projector shall provide a sync pulse at frame rate (24 fps nominal) as a voltage pulse or a tone burst.

5.2 Sync Signal Phase. The sync pulse shall be generated immediately following the first shutter opening of a new frame.

NOTE: Socket-Pin Connections. Use of the 8-pin miniature socket (IEC type 130-9-21) is recommended since it offers enough connections to accomplish all sync camera requirements. The connections shall be:

Pin 1. Camera chassis ground (sync circuit common)

Pin 2. 1/F (1-pulse-per-frame) signal

Pin 3. 1/4F (1-pulse-per-4-frames) signal

Pin 4. Motor circuit, positive speed control

Pin 5. Motor circuit, negative speed control

Pin 6. Tape recorder start/stop normally closed

Pin 7. Tape recorder start/stop insulated common

Pin 8. Tape recorder start/stop normally open

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Revision of EG 7-1984
Approved May 5, 1989

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