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RP 75-2002
Revision of RP 75-1997

SMPTE RECOMMENDED PRACTICE

Specifications for Flutter Test Film for 35-mm Studio Audio Reproducers, Magnetic Type

1 Scope

This practice specifies a test film for determining the presence of flutter in 35-mm motion-picture studio magnetic audio reproducers operating at 96 perforations per second or approximately 90 ft (27 m) per minute for use with one-, three-, four-, and six-track audio systems.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this practice. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this practice are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

AES 6-1982, Method for Measurement of Weighted Peak Flutter of Sound Recording and Reproducing Equipment

AES 7-1982 (R1992), Method of Measuring Recorded Flux of Magnetic Sound Records at Medium Wavelengths

ANSI/SMPTE 86-1996, Motion-Picture Film — Magnetic Audio Records — Two, Three, Four and Six Records on 35-mm and One Record on 17.5-mm Magnetic Film

ANSI/SMPTE 139-1996, Motion-Picture Film (35-mm) — Perforated KS

SMPTE 223M-2001, Motion-Picture Film — Safety Film

3 Test film signal

3.1 Frequency

The audio record shall reproduce at a frequency of 3150 Hz ± 25 Hz when the linear speed of the film is 96 perforations per second or approximately 90 ft (27 m) per minute (18 in or 46 cm per second).

3.2 Distortion

The total harmonic distortion of the recorded signal shall not exceed 0.2%.

3.3 Audio record

The audio record shall be recorded so that it extends from one edge of the film to the other.

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3.4 Recorded level

The flutter test tone shall be not less than 6 dB down from the equivalent reference level of 1 k Hz at 185 nanowebers per meter after correct equalization of 35 μs.

3.5 Flutter

The weighted peak flutter of the audio record shall not exceed ± 0.4% when measured in accordance with AES 6.

3.6 Azimuth

The azimuth of the audio record shall be 90° ± 3′ to the reference edge of the film.

4 Film stock

4.1 The film stock shall be full-coat, splice-free, safety type in compliance with SMPTE 223M.

4.1.1 Test films made on low-shrinkage, triacetate base shall be cut and perforated in accordance with long-pitch dimensions specified in ANSI/SMPTE 139.

4.1.2 Test films made on polyester base shall be perforated in accordance with short-pitch dimensions specified in ANSI/SMPTE 139.

4.2 The film stock shall be conditioned for 10 days at 20°C ± 3°C (68°F ± 5.4°F) at a relative humidity of 50% ± 10% prior to recording.

4.3 The film shall be recorded and packaged within the temperature and humidity limits specified in 4.2. The recorded film shall be packaged in a metal can and sealed either with a low-moisture permeability plastic tape or a fabric tape having a moisture barrier.

5 Identification

Each test film shall be identified by a suitable identification marking.

6 Calibration

6.1 Flux

The short circuit flux on the test film shall be determined by means of the calibrated short-gap ferromagnetic core reproducer technique. This technique is described in AES 7.

6.2 Level

The signal level specified in 3.4 shall be measured with an rms voltmeter calibrated in decibels with an accuracy of ± 0.1 dB over the bandwidth 31.5 Hz to 16 kHz.

6.3 Method

The test film shall be calibrated on a reproducing head made in accordance with ANSI/SMPTE 86.