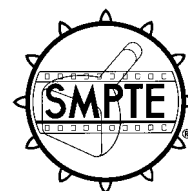


SMPTE STANDARD**ANSI/SMPTE 209M-1996**Revision of
ANSI/SMPTE 209-1991

for Motion-Picture Film (8-mm Type S) — Magnetic Audio Records — Recorded Characteristic



Page 1 of 2 pages

1 Scope

This standard specifies the recorded characteristic of magnetic audio records on 8-mm type S motion-picture prints and full-coat motion-picture magnetic film conforming to ANSI/SMPTE 149, running at the nominal speed of 24 frames (102 mm [4.0 in]) per second or 25 frames (106 mm [4.2 in]) per second.

2 Recorded characteristics

The recorded relative short circuit magnetic flux level versus frequency shall be as given by the following equation:

$$L_{\phi} = 0.02738 - 10 \log_{10} \left(\frac{1 + (2\pi\tau_h)^2 f^2}{1 + \frac{1}{(2\pi\tau_l)^2 f^2}} \right) \text{dB}$$

where L_{ϕ} is the recorded relative short circuit magnetic flux level in decibels; f is the frequency in hertz; τ_l is the low-frequency time constant of 3180 μs ; τ_h is the high-frequency time constant of 90 μs ; and 0.02738 is a constant calculated to make $L_{\phi} = 0$ at the reference frequency of 315 Hz.

The appropriate numerical values of the recorded relative short circuit magnetic flux level, L_{ϕ} , for a series of preferred 1/3-octave frequencies in hertz are given in table 1.

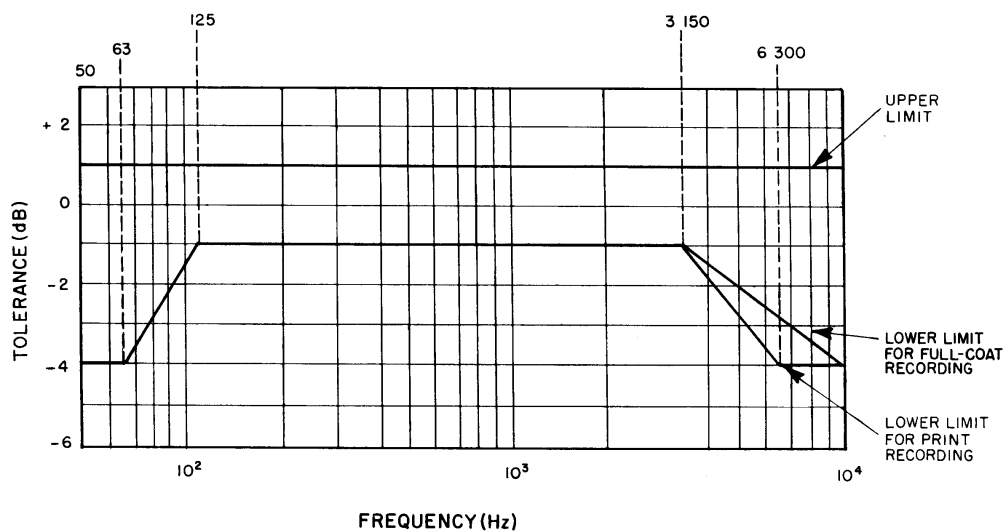
3 Tolerances

Magnetic audio records on the film shall be recorded to the characteristic specified in clause 2 within the tolerances given in figure 1.

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Table 1 – Relative flux level (L_ϕ) versus frequency

Hz	dB
50	3.04
63	2.15
80	1.45
100	0.98
125	0.65
160	0.40
200	0.24
250	0.11
315	0.00
400	– 0.12
500	– 0.26
630	– 0.46
800	– 0.76
1000	– 1.17
1250	– 1.73
1600	– 2.57
2000	– 3.55
2500	– 4.74
3150	– 6.18
4000	– 7.84
5000	– 9.51
6300	–11.34
8000	–13.29
10 000	–15.15

**Figure 1 - Tolerances on recorded levels**

Annex A (informative)

Bibliography

ANSI/SMPTE 149-1994, Motion-Picture Film (8-mm Type S) — Perforated 1R