

Audio Recording Reference Level for Post-Production of Motion-Picture Related Materials



Page 1 of 3 pages

1 Scope

This guideline specifies the audio recording reference level for intra- and inter-studio operations concerned with motion-picture post-production audio recording on both sprocketed and nonsprocketed analog and digital magnetic and photographic materials.

2 Normative reference

The following document contains provisions which, through reference in this text, constitutes provisions of this guideline. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this guideline are encouraged to investigate the possibility of applying the most recent edition of the document indicated below.

SMPTE RP 155-2004, Motion Picture and Television — Reference Level for Digital Audio Systems

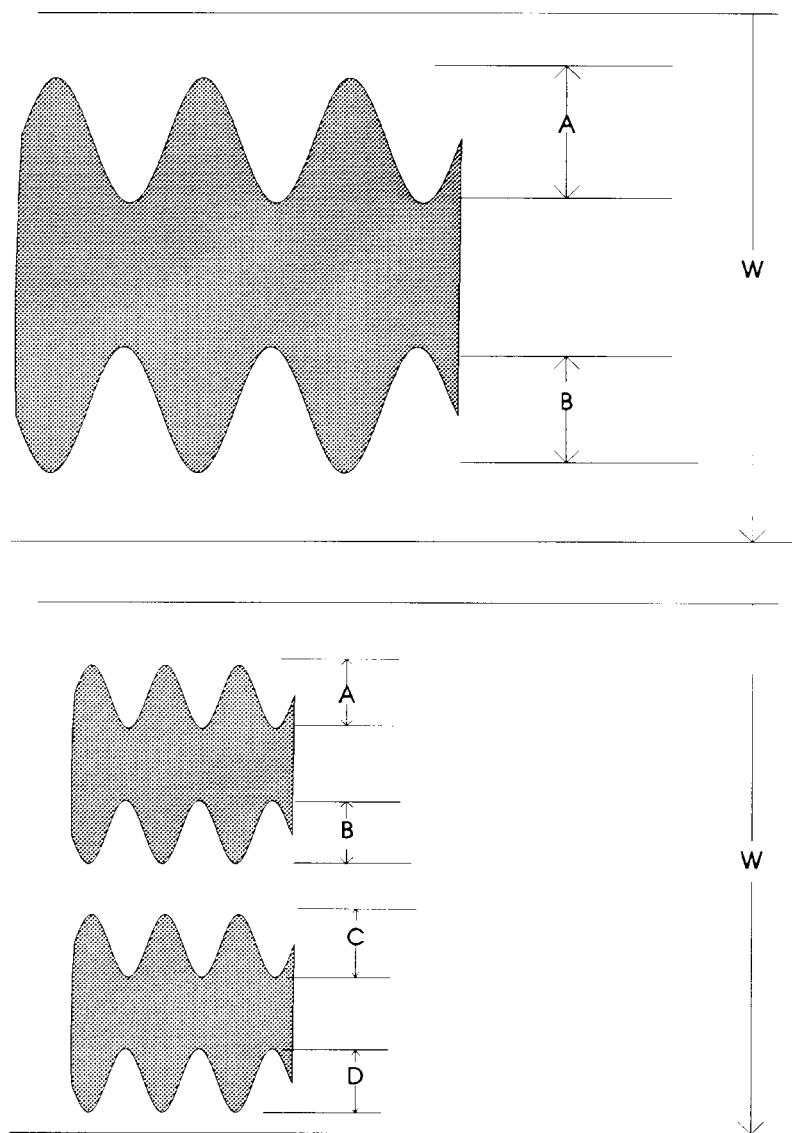
3 Specifications

3.1 The audio recording reference level shall be a sine wave of approximately 1 kHz.

3.2 For analog recording on magnetic materials, the fluxivity of the reference level shall be 185 nWb/m.

3.3 For analog recording on photographic audio tracks, the reference level shall correspond to 50% maximum modulation. The maximum modulation width is 0.076 in (1.93 mm) for 35-mm monophonic sound tracks, 0.033 in (0.84 mm) for each track of 35-mm stereo sound tracks, and 0.060 in (1.52 mm) for 16-mm monophonic sound tracks. The condition of 100% modulation is commonly referred to as optical clash, and thus 50% modulation represents a level of approximately 6 dB below optical clash (see figure 1).

3.4 For digital recording, the reference level shall correspond to 20 dB below the maximum recording level of the digital medium.



$$\% \text{ MOD} = \frac{A+B}{W} \times 100\% = \frac{A+B+C+D}{W} \times 100\%$$

WHERE: $W = 0.076 \text{ IN (1.93 MM)}$ FOR 35-MM MONO (SMPTE 40)
 $W = 0.033 \text{ IN (0.84 MM)}$ FOR 1 TRACK OF 35-MM STEREO (SMPTE 203)
 $W = 0.060 \text{ IN (1.52 MM)}$ FOR 16-MM MONO (SMPTE 41)

EXAMPLE: % MODULATION OF ONE TRACK OF A STEREO TRACK

$$\begin{array}{l} A = 0.0083 \text{ IN} \\ B = 0.0082 \text{ IN} \end{array} \quad \% \text{ MOD} = \frac{0.0083 + 0.0082}{0.033} \times 100\% = 50\% \text{ MOD}$$

Figure 1 – Measurement of percent modulation