RP 93-1999
Revision of RP 93-1994

SMPTE RECOMMENDED PRACTICE

Requirements for Recording American National Standard Time and Control Code on 1-in Type B Helical-Scan Video Tape Recorders

1 Scope

This practice specifies the recorded signal and the conditions for recording the time and control code on 1-in type B helical-scan video tape recorders as specified in ANSI/SMPTE 12M.

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.

ANSI/SMPTE 12M-1995, Television, Audio and Film — Time and Control Code

SMPTE 15M-1998, Television Analog Recording — 1-in Type B Helical Scan — Basic System Parameters

SMPTE 16M-1998, Television Analog Recording — 1-in Type B Helical Scan — Records

SMPTE 17M-1998, Television Analog Recording — 1-in Type B Helical Scan — Frequency Response and Operating Level

SMPTE RP 83-1996, Specifications of Tracking Control Record for 1-in Type B Helical-Scan Television Analog Recording

SMPTE RP 84-1996, Reference Carrier Frequencies and Preemphasis Characteristics for 1-in Type B Helical-Scan Television Analog Recording

3 Position of code on video tape

3.1 The code, if used, shall be recorded on the audio 3 track.

3.2 The start of the address for original recording shall be as specified in ANSI/SMPTE 12M.

3.3 The position of the address start point along the tape is determined by the position of the appropriate audio head gap.

4 Recorded signal

4.1 The input waveform of the recorder for original time and control code recording shall be as specified in ANSI/SMPTE 12M.

4.2 The response of the recording channel shall be as specified in ANSI/SMPTE 17M.

4.3 The amplitude of the recorded signal shall be such as to produce a peak-to-peak short circuit recorded flux level on the tape of at least 185 nWb/m of track width.

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Annex A (informative)
Additional data

A.1 Flux level mesurements

Means for measuring the short-circuit flux level on magnetic recordings usually are not available to users of audio and video tape recorders. The values recommended in this practice may be established by use of reference tapes. Such tapes usually contain a sine-wave reference level recording on each audio track whose rms short-circuit flux level is as specified for the format being used. Usually the recorder is adjusted to record the same level that exists on the reference tape when its volume meter reads 0 vu. If the recording level of the code then is adjusted so that the volume indicator reads 0 vu, the recorded code will have the required peak-to-peak flux level specified in 4.3. Measurements should be made with a standard volume indicator (vu meter), as specified in ANSI/IEEE 152. Although the ballistics of the meter are of little importance with respect to the code, the use of a full-wave rectifier and the approximate average reading characteristic of the volume indicator are essential to the accuracy of the procedure.

A.2 Dub recordings

A.2.1 The preferred method of producing time and control code dubs is by insertion of a slaved time code generator in the video and time code signal paths between reproducer and recorder to ensure compliance with all sections of ANSI/SMPTE 12M and the section of this practice for original recordings. When using this method, the user-bit information, if any, may be delayed by two or more frames due to the length of a complete code group and the mechanical tolerance of audio head-gap location specified.

A.2.2 Other acceptable methods of producing time and control code dubs are:

A.2.2.1 Reclock and reshape the time code waveform to meet ANSI/SMPTE 12M. The resulting waveform will not comply with ANSI/SMPTE 12M, thereby allowing buildup of video-to-address timing errors on multiple-generation dubs.

A.2.2.2 Reshape the time code waveform to meet ANSI/SMPTE 12M. Video-to-address timing errors and waveform transition jitter will build up on multigeneration dubs.

A.2.2.3 Provide no special time code signal processing. The usefulness of dubs will be limited.

Annex B (informative)
Bibliography

ANSI/IEEE 152-1992, Audio Program Level Measurement