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RP 47-1999
Revision of RP 47-1994

SMPTE RECOMMENDED PRACTICE

Electronic Method of Dropout Detection and Counting

1 Scope

This practice specifies the method of electronic drop-out detection and counting for 2-in quadruplex video magnetic tape recordings made in accordance with practice HB of SMPTE RP 6.

2 Dropout definition

A momentary random reduction of the recovered frequency modulated (rf) playback signal that is sufficient to cause a substantial impairment in the video output signal of a quadruplex video tape recorder.

3 Specifications

The dropout to be detected shall have an rf signal reduction of 16 dB or more for 5 μs or longer.

4 Detection

4.1 Recorder alignment

4.1.1 The tip penetration shall be 2 mils for record and playback. (This penetration may not correspond to that specified in SMPTE RP 11, and adjustment of vacuum guide position may be necessary.)

4.1.2 The tip projection shall be between 1.5 mils and 2.5 mils (see annex A.1).

4.1.3 Equalization shall be in accord with practice HB of SMPTE RP 6, producing a flat input-to-output response.

4.1.4 The recovered playback signal prior to limiting shall not vary more than 2 dB over four head passes, including amplitude variations due to geometrical error.

4.2 Test signal

Any test signal may be used; color bars or sync and set up are preferred (see annex A.2).

4.3 Electronic dropout counter

The dropout counter shall be capable of utilizing the above-mentioned signals and specifications.

4.4 Operation

The dropout counter shall be interfaced into the playback system of the video recorder so that a standard amplitude of the unlimited rf signal can be applied to the level detector of the dropout counter. This point is usually the video head switcher output.

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Annex A (informative)
Additional data

A.1 The range of tip projection from 1.5 mils to 2.5 mils permits versatility in the heads used for dropout testing and is adequate in most cases. For the highest degree of repeatability, heads with a tip projection of 2.0 mils to 2.2 mils should be used.

A.2 For dropout evaluation, the sync and set up signal gives the best repeatability and minimizes machine-to-machine variables.

A.3 A detailed report by the SMPTE Tapes and Reels Subcommittee is presented in Dropout considerations in video tape recordings and proposed recommended practices. Journal of the SMPTE, 81: 401-403, May 1972.

Annex B (informative)
Bibliography

SMPTE RP 6-1994 (R1999), Recorded Carrier Frequencies and Preemphasis Characteristics for 2-in Quadruplex Video Magnetic Tape Recording for 525-Line/60-Field Television Systems

SMPTE RP 11-1994 (R1999), Tape Vacuum Guide Configuration and Position for Quadruplex Video Magnetic Tape Recording