RP 85-1999
Revision of RP 85-1991

SMPTE RECOMMENDED PRACTICE

Tracking-Control Record for 1-in Type C Helical-Scan Television Tape Recording

1 Scope

This practice specifies the characteristics of the tracking-control record and the relationship between the recorded video and tracking-control signal for 1-in type C helical-scan television tape recorders operating on 525/60 monochrome or NTSC color systems.

2 Tracking-control record

2.1 The tracking-control record consists of a series of constant flux levels alternating in polarity at a field rate as shown in figure 1. An extra pair of transitions is added to alternate frames.

2.2 The polarity of the tracking-control record flux shall be such that the south poles of magnetic domains point in the direction of tape travel during the vertical interval identifying fields I and III, and the north poles of the magnetic domains point in the direction of tape travel during the vertical interval identifying fields II and IV. Therefore, the north-to-south transition which occurs during fields II and IV will be adjacent south magnetic poles, that is, the transition area will attract the south-seeking pole of a bar magnetic.

2.3 The amplitude of the tracking control recorded flux shall be at least 30 dB above the residual flux of any previous recording.

2.4 The 10%-to-90% rise time of record current required to produce the specified flux level changes shall be 0.015 ms ± 0.010 ms.

2.5 The width of the record-current pulses for the extra pair of transitions on alternate frames shall be 0.20 ms ± 0.03 ms or 0.40 ms ± 0.06 ms for the N-S-N transitions. Signal timing shall be measured at the zero-crossing points of record head current.

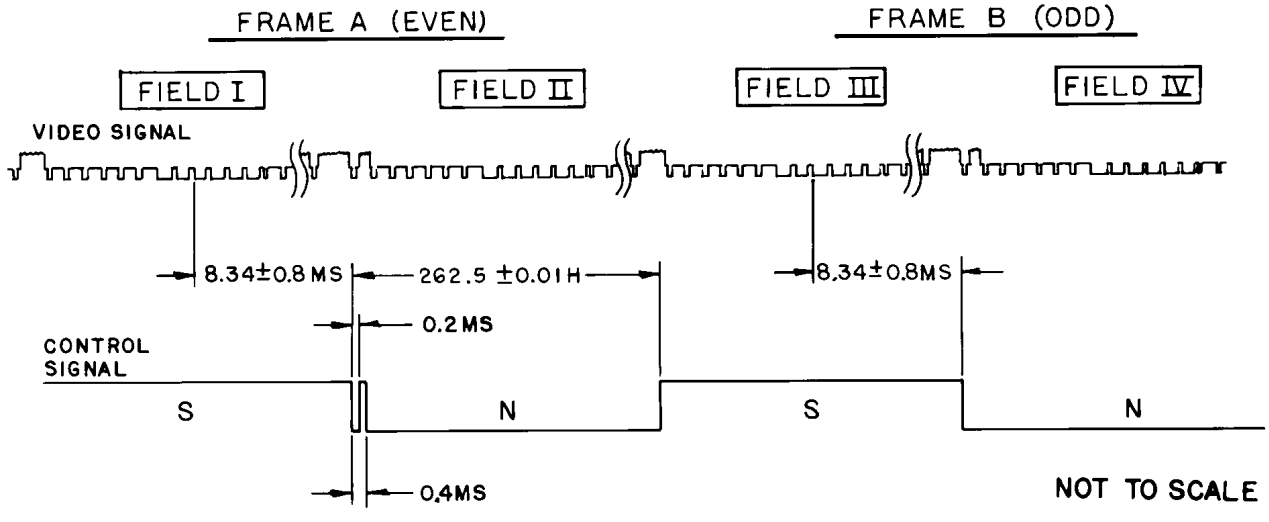

Figure 1 – Tracking control waveform and timing

Approved November 5, 1999

3 Tracking control and video timing

3.1 Recording current transitions representing video fields shall occur 8.34 ms ± 0.80 ms after the negative-going transition of the third broad pulse, as shown in figure 1. The south-to-north transition shall occur in fields I and II, identified as the fields which end with a half line of video information.

3.2 Alternate frames shall be identified by an extra pair of transitions of recorded flux occurring at the south-to-north transition of every other frame, as shown in figure 1.

3.3 It is possible to use the alternate-frame identification to specify odd and even frames, as designated by EIA Industrial Electronics Tentative Standard No. 1. When not limited by other system requirements, the alternate-frame identification shall represent frame A (even). Since not all video signals meet the EIA standard and certain types of edits may prohibit compliance with the specified frame identification, the reproduce system must be able to use or ignore the alternate-frame information as directed by the operator.

Annex A (informative)
Bibliography

ANSI/SMPTE 18M-1996, Television Analog Recording — 1-in Type C — Basic System and Transport Geometry Parameters

EIA Industrial Electronics Tentative Standard No. 1, Color Television Studio Picture Line Amplifier Output Drawing