



Fig. 10. Overdeviation: The carrier deviation produced by the leading transient overshoot of the white level signals are beyond the bandpass of the system and result in a streaked interference pattern following the transition from black to white.

ready under way must be completed before optimum performance is achieved and industry agreement is reached on these characteristics.

Audio Signal

The practices currently in use for the recording and playback of the audio signal in video-tape recording are essentially the same as those employed for audio-only equipment. The pre- and post-emphasis characteristics are those determined by the standard magnetic tape reproducing characteristic specified by the NAB. As for standard program level, in CBS operation this is set at 10 db below the level of a 400-cps signal at which distortion is 3%. Because of the narrower track and the cross-orientation of the magnetic particles, performance is slightly degraded from that of conventional high-quality audio equipment. However, providing it is not necessary to

resort to third or higher generation recordings, the performance is adequate for broadcast transmission.

Magnetic Tape

Until very recently there has been only one commercial source for video magnetic tape. Consequently, the problems of uniformity of performance have been relatively few. As more manufacturers enter the field, however, it will be necessary to develop standards in regard to the tape oxide characteristics in addition to the dimensional standards for tape and reels currently being adopted by the SMPTE Video-Tape Recording Committee.³

Conclusion

Full interchangeability of video-tape recordings among different playback equipments is a necessary practice in

present-day television broadcasting. This mode of operation is being put to daily wide-scale use by a large number of video-tape users. For example, the CBS Television Network currently is running a combined load in New York and Hollywood of well over 1,000 machine-hours a week, almost all of which relies upon the ability to provide acceptable playback performance on a head assembly or video-tape equipment other than that used for recording. However, this cannot be accomplished without an intensive program of operating checks and routine maintenance. It is hoped that the foregoing discussion has made it clear that practical means exist for the measurement and control of the critical factors necessary for the achievement of interchangeable performance on a day-to-day basis.

Acknowledgment

A valuable contribution to the preparation of this paper has been the encouragement and assistance of Howard Chinn, Richard O'Brien, and Price Fish of the CBS Television Network Engineering Department. In addition, the operational data furnished by Helmer Andersen and by Richard Sedia and Harvey Schwartz of the CBS Video Tape Operations in Hollywood and New York, respectively, and by members of the SMPTE Video Tape Committee provided a sound basis for the conclusions reached.

References

1. Howard A. Chinn, "Five months experience with video tape," 35th NARTB Convention, April 8, 1957.
2. R. M. Morris, "Panel discussion of video tape operational experiences"; K. B. Benson, "Video tape production problems"; *IRE Transactions on Broadcasting*, Feb. 1959.
3. C. E. Anderson, "A progress report on television magnetic-tape standardization," *Jour. SMPTE*, 69: 410-413, June 1960.

Errata

MAY 1960

Progress Committee Report for 1959, pp. 299-345:

On p. 327, col. 2, line 2

For: 10 lm

Read: 10,000 lm

JUNE 1960

"The Performance of Television Camera Lenses," by G. H. Cook, pp. 406-410:

On p. 409, col. 1, par. 5, lines 7-13

For: The zero liminal . . center

Read: The zero liminal unit rating for vignetting, as defined by the BBC, corresponds to a lens yielding a level of illumination

in the corner of the picture in excess of 63% of that in the center. A down rating of 1 liminal unit corresponds to a lens yielding a corner illumination of 32% of that in the center.

On p. 407

The Author takes this opportunity to point out that the treatment described here refers to the simplified case of imagery on axis where optical aberrations yield symmetrical light distributions. In the general case for off-axis imagery there will, of course, be a change of phase as well as a change of amplitude at different frequencies and this has to be included in the mathematics associated with this type of assessment.

OCTOBER 1960

"Fiber Optics—A New Tool in Electronics," by L. J. Krolak, W. P. Siegmund and R. G. Neuhauser, pp. 705-710:

On p. 710, References

Add: 8. A. N. Goldsmith, U. S. patent 2,354,591, July 25, 1944,