

VII. MODULATION THEORY AND SYSTEMS

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A. FEEDFORWARD ACROSS THE LIMITER

This report completes the summary of a Master's thesis on the feedforward technique submitted by the author (1). The thesis reports in detail experimental work that had been described previously (2) and gives a few additional experimental results.

The most important new experimental result was the completion of a set of measurements of the demodulator output spectrum of the experimental feedforward receiver while it was capturing the weaker of two cochannel sinusoidally modulated signals. The inherent distortion on captured weaker-signal modulation seems to result from a very high-order interaction between the stronger- and weaker-signal modulating frequencies; frequency components appear at a frequency f_0 that is equal to the highest common factor of the two modulating frequencies and at all harmonics of f_0 in the audio range. The weaker-signal modulation component was clearly predominant over all distortion components.

Work has been started on the design of a laboratory-model feedforward receiver that should give improved performance and be free of many of the secondary circuit difficulties and adjustments of the earlier models.

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References

1. B. H. Hutchinson, Jr., Interference Suppression Performance of Several FM Receivers Using Feedforward, S.M. Thesis, Department of Electrical Engineering, M.I.T., Jan. 18, 1961.
2. B. H. Hutchinson, Jr., Feedforward across the limiter, Quarterly Progress Report No. 60, Research Laboratory of Electronics, M.I.T., Jan. 15, 1961, p. 113.

