

COMMUNICATION SCIENCES AND ENGINEERING

XVII. MODULATION THEORY AND SYSTEMS

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RESEARCH OBJECTIVES

In this group we are concerned with a variety of problems in modulation and communication. We are engaged in studies relating to:

1. Advancing the techniques of separating signals by means of simple economical methods so that the use of guard bands between assigned frequency channels can be dispensed with.
2. Increasing the range and reliability of FM systems by developing techniques for extracting FM signals in the presence of random fluctuation noise whose relative level exceeds the threshold experienced with conventional demodulation techniques.
3. Determining the conditions under which single-sideband (SSB) reception in the presence of strong interference can be improved, and developing appropriate signal-processing techniques.
4. Examination of various aspects of diversity reception, particularly with regard to the determination and improvement of performance in the presence of correlated disturbances in the various channels.
5. The problem of extracting short pulses in the presence of high-level random noise by means of simple circuits.
6. The problem of combatting various types of impulse noise in frequency modulation and other types of modulation systems.

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