

Amplitude Modulated Multipulse PPM for Bandwidth-Limited Optical Systems

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Abstract

Optical direct-detection systems have been considered before for high-speed intersatellite links. In this paper we consider a three-level amplitude modulated multipulse PPM for use in bandwidth limited optical systems. Specifically, we investigate the capacity, cutoff rate, and error probability of this modulation scheme. This facilitates the evaluation of the bandwidth efficiency of the proposed modulation as compared to regular multipulse PPM which delivers the same throughput and detection quality under the same average-power constraint.

Index Terms – Optical systems, error probability, modulation, bandwidth efficiency.

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