Direct Detection of Digital Optical Receiver

Preview

Direct detection is the simplest form of optical signal recovery. The transmitter modulates the intensity of the optical carrier, and the receiver uses a photodetector (PIN diode or avalanche photodiode) that responds only to the optical power envelope. 100 Gb/s links (and higher) are now common between regional data centers, often stretching tens of kilometers. The receiver implements strong dispersion and delay lines on a compact chip. For much of the past fifteen years, the boundary between these two approaches was relatively clear.

We report on optimum direct detection of digital data signals that are transmitted over optical fibers. Direct detection is provided by a

We experimentally demonstrate a free-space optical communication system utilizing seven-aperture direct-detection

Using BER and EVM analysis, this paper will compare receiver sensitivity between coherent and direct detection.

Applying KK receiver in higher-order QAM systems requires more on optical signal noise ratio (OSNR), effective number of bit

10.1 Introduction The commercialization in 2008 of the first 40 Gb/s coherent optical communica-tions systems employing

Direct detection systems are communication systems that detect modulated optical power, often referred to as intensity-modulation

With the capability to do coherent detection, an optical receiver can track the phase of an optical transmitter so as to

The realization of such a receiver on a compact photonic chip highlights the potential for low-cost direct-detection solutions for data

K. Kikuchi, "Coherent detection of phase-shift keying signals using digital carrier-phase estimation," in Proceedings of IEEE

In recent years much attention has been focused on communication over optical channels.1-2 Most early work

was concerned with

A direct-detection optical OFDM (DDO-OFDM) aims for simpler transmitter/receiver than CO-OFDM for lower costs. It has many

In this article, we propose sensitivity-improved and dispersion-tolerant optical mobile fronthaul solution based on the

Direct detection is straightforward and we consider it first in our analysis of optical communication systems. Of course, we still use a

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Learn how 100G direct-detection (IM/DD) and coherent optical solutions compare for metro DCI, and select the best

Abstract: A model that is sufficiently general to describe the predominant statistical characteristics of the output of many real optical

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