

Optical receiver eq represents



Overview

In the optical domain, an equalizer is a device that equalizes the gain response over a particular wavelength range. The main reason for this equalization is to enable the cascading of amplifiers. DSP-based equalizer systems have become ubiquitous in many diverse applications including voice, data, and video communications via various transmission media. Typical applications range from acoustic echo cancelers for full-duplex speakerphones to video deghosting systems for terrestrial. We perform a feasibility study of implementing a 16-QAM 112-Gbit/s decision directed equalizer on a state-of-the-art FPGA platform. An FPGA offers the reconfigurability needed to allow for modulation scheme updates, however, its clock rate is limited. Since most lightwave systems employ the binary intensity modulation, we focus on digital optical receivers. As signals travel in a fiber, they are attenuated and distorted, and it is the function of the receiver circuit at the other side of the fiber to generate a clean electrical signal from the optical signal to an electrical signal. However, the signal generated by a

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The equalizer in an optical receiver normally is a linear frequency-shaping filter used to mitigate the effects of signal distortion and intersymbol interference.



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A typical optical receiver is shown in Figure . The three basic stages of the receiver are a photodetector, an amplifier, and an equalizer.



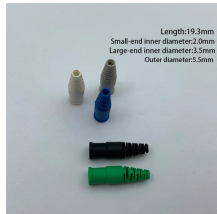
Photodetector responsivity (defined by Eq. (1.3.2) in Chapter 1) is a measure of optical-to-electrical conversion efficiency of a photodetector and is usually expressed by the value of the photocurrent ...



The linear channel in optical receivers consists of a high-gain amplifier (the main amplifier) and a low-pass filter. An equalizer is sometimes included just before the amplifier to correct for the limited ...



9.2 Receiver optical subassembly (ROSA) consists of an opti-cal detector. The detector is usually part of a receiver optical subassembly, or ROSA. The role of a ROSA is very much similar to that of a TOSA ...



The complete channel inverse shows a dependency on the complex conjugates of equalizer inputs, coinciding with the widely linear equalization theory. A complete version was submitted to ECOC 2021.



A high bandwidth, high receiver sensitivity and a high dynamic range represent the most important requirements of an optical receiver. The frequency-response characteristics of the equalizer ...



The first nonzero sample of the response represents the direct path, while the second represents a delayed path to the receiver. In this instance, the pulses are identical in amplitude and phase and are ...

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