Indzawo Optic Connect

Principles and Simulation of Optical Receivers



Overview

This course will discuss methods and considerations for modeling transmitter and receiver components of coherent optical communication systems. integrated coherent receivers (ICRs). Using numerical simulation models, the impact of real-life device imperfections is shown. However, the key figures of merit against which optoelectronic components for coherent optical communications systems need to be assessed differ significantly from that of traditional direct- detect optical systems. In this chapter we examine in detail the receiver structure and the way in which the intercepted field at the receiver area is converted to. In the intensity-modulation/direct-detection (IM-DD) system, the intensity modula-tion means that information is carried only by the intensity or power of the transmitted lightwave, not by its frequency or phase. Non-zero amplifier time constant can actually increase TIA bandwidth!! must decrease quadratically! If we integrate the output noise, the upper bound isn't too critical. Often this is infinity for derivations, or 2X. composed of compound parabolic concentrators (CPCs) coupled with p off for e overall ADR dimensions to find optimum configuration of t on, 6G, compact receiver design, vertical cavity surface emitting r possible publication. Copyright may

© 2026 Indzawo Optic Connect - All rights reserved

be to support ubiquitous mobile ultra-broadband. Sara Radfar A Thesis in The Department of Electrical and Computer Engineering Presented in Partial Fulfillment of the Requirements for the Degree of Master of Applied Science (Electrical Engineering) at Concordia University Montréal, Québec, Canada July 2025 © Sara Radfar, 2025 CONCORDIAUNIVERSITY.

© 2026 Indzawo Optic Connect - All rights reserved

Principles and Simulation of Optical Receivers



Using numerical simulation models, the impact of real-life device imperfections is shown and evaluated. The course will demonstrate how various design parameters influence the needed ...



In the following sections, we will examine one of the most commonly used inverter-based main amplifiers in optical receivers and then explore a suitable alternative for PAM-4 optical receivers.



It discusses detector response time, the basic operation of optical receivers, and provides details on topics like detection principles, photodiode characteristics, ...

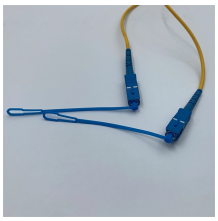


enging requirements for high performance laser-based optical wireless receivers. A non-convex optimisation problem was formulated for maximising the achievable data rate R under constraints on ...



Abstract: This article presents the implementation of an interactive software that integrates various functional blocks of an optical receiver of intensity modulation and direct detection (IM-DD), with ...

© 2026 Indzawo Optic Connect - All rights reserved

	In this chapter, we will introduce the basic concept of a high-speed receiver, the integrated circuit (IC) technique of the front-end. Subsequently, passive peaking techniques for a preamplifier are described.
	Our objective is to define the key parameters characterizing the optical receiver and to establish the relation between these parameters and desired system performance.
	This chapter deals with various measurement and characterization techniques of fundamental optical devices such as semiconductor lasers, optical receivers, optical amplifiers, and various passive ...
	In this paper, a new approach based on Q-factor modelling is presented, compared with analytical receiver models, and applied to a multitude of exemplary receiver implementations. A methodology is ...
	How to get a differential output with a single-ended photocurrent input?
	The chapter focuses on reverse-biased p–n junctions that are used for making optical receivers, and discusses metal–semiconductor–metal photodetectors. The design of an optical receiver depends on ...

© 2026 Indzawo Optic Connect - All rights reserved

	The author also gave a summary of power tower modeling software, including generation of heliostat layouts, characterization of the optical ...

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: https://www.indzawo.co.za
Email: sales@indzawo.co.za
Phone: +27 71 296 8473
Address: 22 Quantum Street, Midrand, 1685, Gauteng, South Africa

This document is for informational purposes only. Specifications subject to change without notice.

© 2026 Indzawo Optic Connect - All rights reserved