E perimental Stud of Burst-Mode Reception in a 1300 km Deplo ed Fiber Link

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***Abstract*—We experimentall demonstrate burst-mode reception in a 1300 km fiber link that spans from Montreal to Quebec Cit and back, with a 1.25 Gb/s burst-mode receiver (BMRx). The receiver features automatic phase acquisition using a clock phase aligner (CPA) and provides instantaneous (0 preamble bit) phase acquisition with error-free operation [packet-loss ratio (PLR) $<10^{-6}$ and bit error rate (BER) $<10^{-10}$] for an phase step ($\pm 2\pi$ rad) between consecutive packets, while also supporting more than 1100 consecutive identical digits (CIDs). The CPA makes use of a phase picking algorithm and an oversampling semi-blind clock and data recover circuit operated at 2× the bit rate. We also stud the effect of channel impairments on the performance of BMRx at such distances. More specificall , we investigate the PLR performance of the s stem and quantif it as a function of the phase step between consecutive packets, received signal power, CID immunit , and BER, while assessing the trade-offs in preamble length, power penalt , and pattern correlator error resistance.**

***Index Terms*—Burst-mode receiver; Clock and data recover (CDR); Clock phase aligner (CPA); Optical fiber communications; Optical networks.**

I. Introduction

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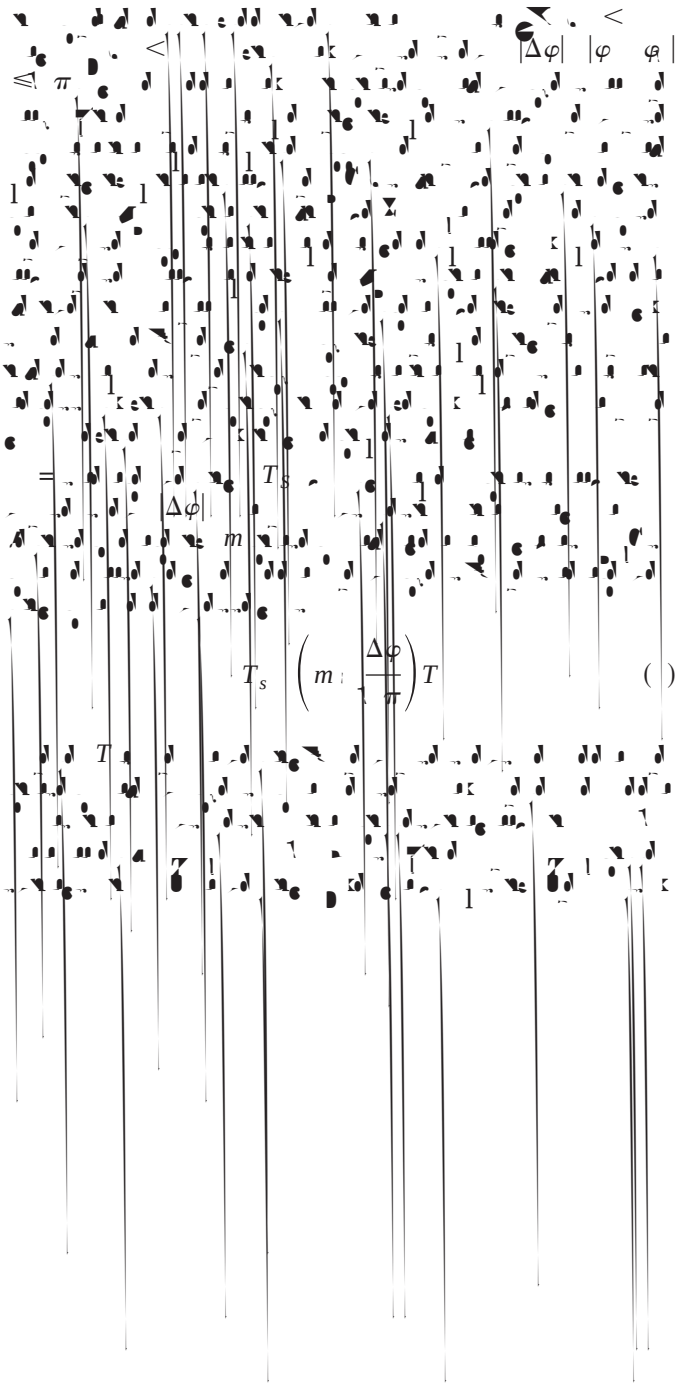
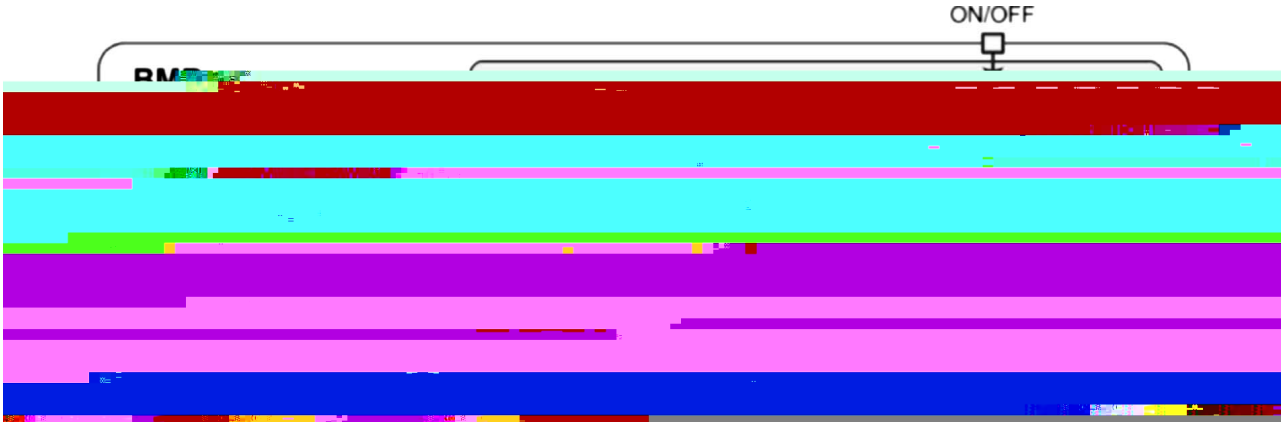
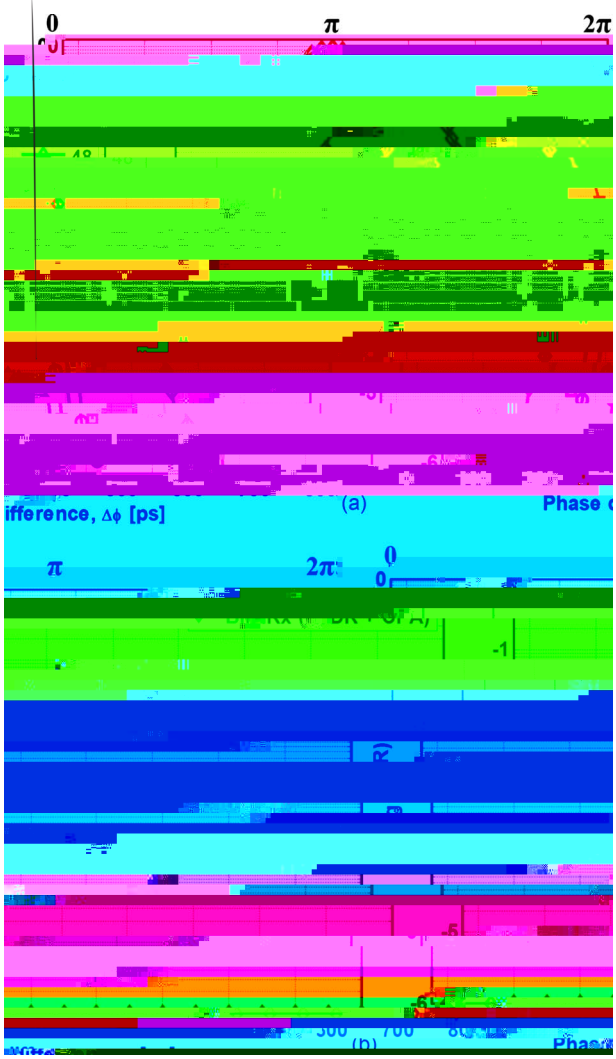




III. Experimental Results and Discussion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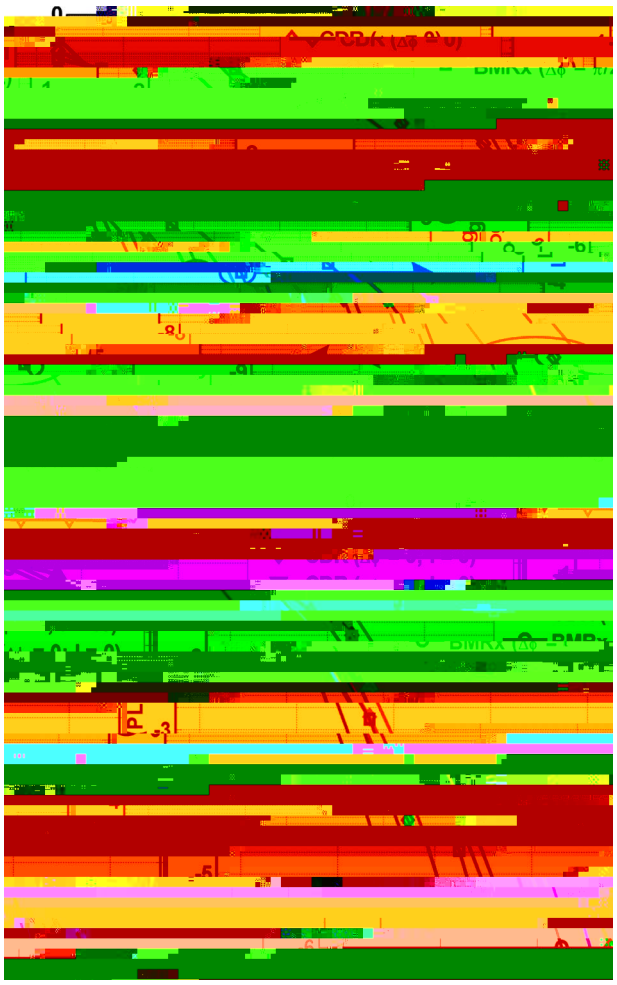
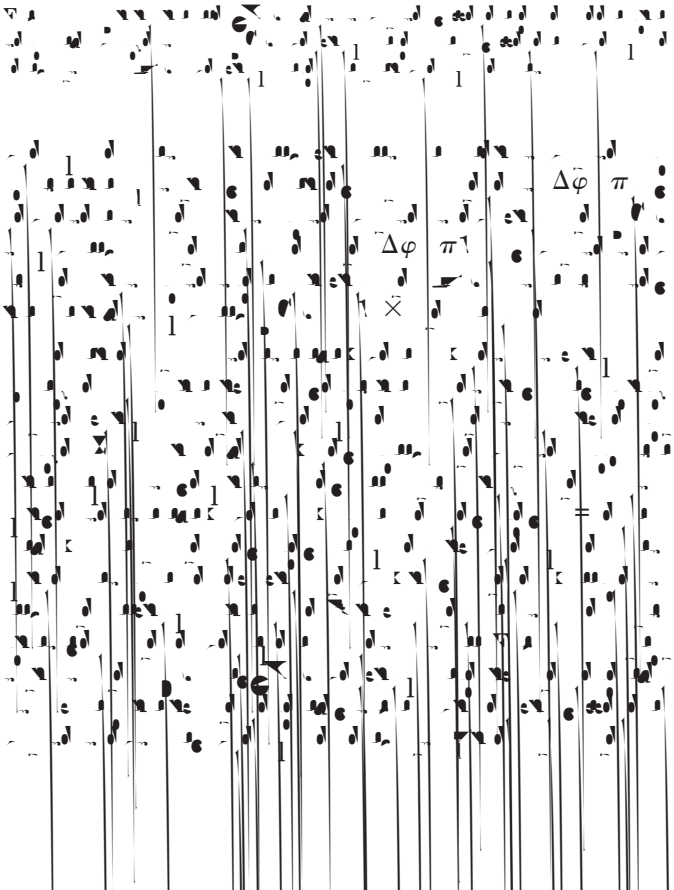
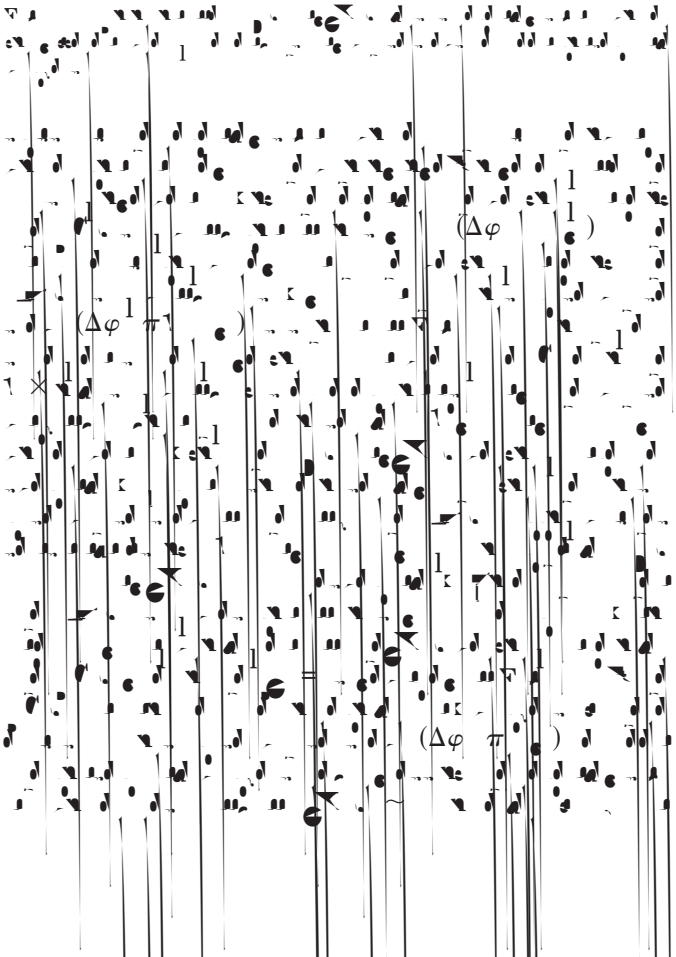
(a)
(b)







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