

Abstract

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System Optimization to eliminate Chirping in Dual Drive LiNbO₃ MZM at 40 Gb/s

The chirping performance of dual drive lithium Niobate (LiNbO₃) Mach–Zehnder modulators (MZM) at 40 Gb/s non-return to zero (NRZ) data signal is investigated along with the effect of various filtering techniques. The chirping performance is evaluated then enhanced by optimizing the design parameters (bias voltage and the extinction ratio). Also while comparing the results of the unfiltered and filtered signals it shows that the chirp parameter can decrease from 0.41 to 0.15 at the push-pull operation. Also a remarkable 100 Hz chirping amplitude is achieved with Bessel filtering, half wave voltage ($V_p = 4$ V), push pull operation and an extinction ratio of 20 dB.