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Digital signal processing algorithm for signal analysis and performance monitoring in an optical communication link

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Abstract content
   (Max 300 words)

Digital signal processing (DSP) algorithm is proposed to analyse and monitor the performance of a digital optical communication link. In this paper, an efficient offline and flexible reprogrammable DSP algorithm is developed, to determine the bit error rate (BER) as a measure of performance of an optical communication system. The 10 Gbps optical signal transmitted over the fibre is received, sampled and reconstructed in the digital electrical domain. Further a DSP algorithm is implemented offline to normalise and quantise the signal before it is digitized into respective transmitted bits. The DSP technique is an indispensable technology for next generation ultra-fast optical fibre communication. The developed offline DSP algorithm has outstanding advantages such as guaranteed accuracy, perfect reproducibility and high reliability. The effectiveness of the proposed algorithm is quantitatively verified by measuring the BER for different transmissions.

Key terms: - Digital signal processing, optical communication, BER, Performance monitoring

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yes

Level for award
 (Hons, MSc,
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PhD

Main supervisor (name and email)
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