Equalizer Complexity for 6-LP Mode 112 Gbit/s m-ary DP-QAM Space Division Multiplexed Transmission in Strongly Coupled Few-Mode-Fibers

We have quantified equalizer complexity for transmitting dual-polarized 6-LP modes (LP01, LP11a, LP11b, LP21a, LP21b and LP02) of 112 Gbit/s m-ary QAM (m=4, 16, 32, 64, 256) single carrier signals over 20 km step-index few-mode fiber. The transmitted signals are strongly coupled and recovered using 12×12 multiple-input multiple-output (MIMO) adaptive digital signal processing (DSP). Time domain equalization (TDE) is realized to implement the linear adaptive MIMO module that is implemented in blind mode using conventional constant-modulus algorithm (CMA) for finite impulse response (FIR) adaptive filter continuous update. Moreover, the benefit of employing harddecision (HD) and soft-decision (SD) FEC for higher order QAM variants are also discussed.

General information
State: Published
Organisations: Department of Photonics Engineering, High-Speed Optical Communication
Authors: Asif, R. (Intern), Ye, F. (Intern), Morioka, T. (Intern)
Pages: 322-325
Publication date: 2015

Host publication information
Title of host publication: Proceedings of 2015 European Conference on Networks and Communications
Main Research Area: Technical/natural sciences
Conference: European Conference on Networks and Communications 2015, Paris, France, 29/06/2015 - 29/06/2015
DOIs: 10.1109/EuCNC.2015.7194090
Source: PublicationPreSubmission
Source-ID: 111971642
Publication: Research - peer-review » Article in proceedings – Annual report year: 2015