Throughput performance analysis of multirate, multiclass S-ALOHA OFFH-CDMA packet networks

In this paper, we propose a new throughput expression for multirate, multiclass slotted-ALOHA optical fast frequency hopping code-division multiple-access (OFFH-CDMA) packet networks considering a Poisson distribution for packet composite arrivals. We analyze the packet throughput performance of a three-class OFFH-CDMA network, where multirate transmissions are achieved via manipulation of the user's code parameters. It is shown that users transmitting at low rates interfere considerably in the performance of high rate users. Finally, we perform a validation procedure to demonstrate that the proposed multirate throughput expression converges towards the single rate expression (considered as the network limiting case).

General information

State: Published
Organisations: Department of Photonics Engineering, Metro-Access and Short Range Systems, Universidade de Sao Paulo
Number of pages: 4
Publication date: 2015

Host publication information

Title of host publication: 17th International Conference on Transparent Optical Networks
Publisher: IEEE
ISBN (Print): 978-1-4673-7880-2
Keywords: Computer Networks and Communications, Electrical and Electronic Engineering, Electronic, Optical and Magnetic Materials, BER, Multiclass, Multirate, OCDMA, OFFH-CDMA, S-ALOHA, Throughput, Frequency hopping, Optical communication, Packet networks, Poisson distribution, Signal encoding, Transparent optical networks, Multi rate, S-ALOHA, Code division multiple access
DOIs: 10.1109/icton.2015.7193476
Source: FindIt
Source-ID: 2287477153
Research output: Research - peer-review › Article in proceedings – Annual report year: 2015