All-optical OFDM demultiplexing with optical partial Fourier transform and coherent sampling - DTU Orbit (09/02/2019)

All-optical OFDM demultiplexing with optical partial Fourier transform and coherent sampling
We propose a novel scheme with a "time-lens"-based partial optical Fourier transform (OFT) and coherent sampling for high-speed complex orthogonal frequency-division multiplexing (OFDM) signal detection. Compared with all-optical OFDM demultiplexing with a matched optical filter, our proposed method replaces specialized optical filters with commercially available equipment, which relaxes stringent manufacturing and operational requirements. Our simulation shows that even with a partial OFT, theoretically, close to inter-channel interference-free performance is possible. In addition, we performed a proof-of-concept experiment of $16 \times 10$ Gbaud quadrature phase-shift keying (QPSK) all-optical OFDM detection, with all the bit error rates far below the 7% hard-overhead forward error correction limit.

General information
State: Published
Organisations: Department of Photonics Engineering, High-Speed Optical Communication, Centre of Excellence for Silicon Photonics for Optical Communications, Machine Learning in Photonic Systems, Monash University, Centre for Ultra-high-bandwidth Devices for Optical Systems
Contributors: Geng, Z., Kong, D., Corcoran, B., Guan, P., Da Ros, F., Porto da Silva, E., Oxenløwe, L. K., Lowery, A. J.
Pages: 443-446
Publication date: 2019
Peer-reviewed: Yes

Publication information
Journal: Optics Letters
Volume: 44
Issue number: 2
ISSN (Print): 0146-9592
Ratings:
BFI (2019): BFI-level 2
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Impact factor 3.589
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Impact factor 3.416
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 3.53 SJR 2.013 SNIP 1.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 3.86 SJR 2.429 SNIP 1.997
Web of Science (2014): Impact factor 3.292
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 3.95 SJR 2.441 SNIP 2.058
Web of Science (2013): Impact factor 3.179
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 3.52 SJR 2.577 SNIP 1.92
Web of Science (2012): Impact factor 3.385
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 3.69 SJR 2.519 SNIP 2.453
Web of Science (2011): Impact factor 3.399
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Impact factor 3.318
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685
Original language: English
Electronic versions:
ol_44_2_443.pdf
DOIs:
10.1364/OL.44.000443
Source: FindIt
Source-ID: 2443016017
Research output: Research - peer-review › Journal article – Annual report year: 2019