We experimentally demonstrate an optical network compatible high-speed optoelectronics THz wireless transmission system operating at 400-GHz band. In the experiment, optical Nyquist quadrature phase-shift keying signals in a 12.5-GHz ultradense wavelength-division multiplexing grid is converted to the THz wireless radiation by photomixing in an antenna integrated unitravelling photodiode. The photomixing is transparent to optical modulation formats. We also demonstrate in the experiment the scalability of our system by applying single to four channels, as well as mixed three channels. Wireless transmission of a capacity of 60 Gb/s for four channels (15 Gb/s per channel) at 400-GHz band is successfully achieved, which pushes the data rates enabled by optoelectronics approach beyond the envelope in the frequency range above 300 GHz. Besides those, this study also validates the potential of bridging next generation 100 Gigabit Ethernet wired data stream for very high data rate indoor applications.
Ultradense wavelength division multiplexing, Wireless transmission systems, Wireless transmissions, Quadrature phase shift keying

Electronic versions:
07556985.pdf
DOIs:
10.1109/TTHZ.2016.2599077

Bibliographical note
(c) 2016 IEEE. Personal use of this material is permitted. Permission from IEEE must be obtained for all other users, including reprinting/republishing this material for advertising or promotional purposes, creating new collective works for resale or redistribution to servers or lists, or reuse of any copyrighted components of this work in other works.
Source: FindIt
Source-ID: 2345151370
Research output: Research - peer-review › Journal article – Annual report year: 2016