Abstracts

An approach to single optical component antenna base stations for broad-band millimeter-wave fiber-radio access systems

K. Kitayama, A. Stohr, T. Kuri, R. Heinzelmann, D. Jager and Y. Takahashi. "An approach to single optical component antenna base stations for broad-band millimeter-wave fiber-radio access systems." 2000 Transactions on Microwave Theory and Techniques 48.12 (Dec. 2000 [T-MTT] (Special Issue on 2000 International Microwave Symposium)): 2588-2595.

To realize a cost-effective and practical antenna base station (BS) for 60-GHz-band millimeter-wave fiber-radio access systems, an approach to a single optical component BS is presented in this paper. The external modulation technique will allow to replace the pair of a photodetector (PD) and a laser diode with an external modulator at the BS by an optical transceiver. Two system architectures using different types of optical transceivers are studied in detail: one employs an electroabsorption transceiver (EAT), and the other employs an electroabsorption transceiver/mixer (EATX). The EAT serves simultaneously as a PD and an external light modulator in 60-GHz-band millimeter-wave region. The EATX furthermore acts as an IF-to-RF upconverter and an RF-to-IF downconverter. It is shown that both system architectures have good prospects to realize cost-effective fiber-radio access systems.

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