Secure Multi-Gigabit Ultra-Wide Band Communications for Personal Area Networks

Secure communications at the physical layer will become a requirement by end users soon. Current security enabling techniques involve cryptography and other higher layer methods to secure the transmitted data. This does not resolve in full the psychological need for trust, especially in access scenarios where the user may be located in public spaces. We propose to use Ultra-Wideband communications, which can be seamlessly transported over fiber or wireless, and show different transmission experiments ranging from 2 Gbit/s to 35 Gbit/s. To achieve these record bit rates, the multi-band approach of Carrierless Amplitude Phase modulation scheme is employed.

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