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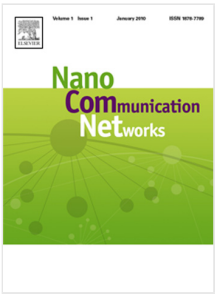

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Practical Considerations of Terahertz Communications for Short Distance Applications

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ABSTRACT

This paper describes two practical issues of terahertz (THz) communications for short-distance applications. One is the effect of standing waves formed between transmitter and receiver antennas in close-proximity or near-field communications. We discuss and propose new approaches to decreasing or eliminating the standing-wave effect by carrier signal modulation and by using array antenna structures. The other issue is the effect of beam misalignment between transmitter and receiver on the transmission characteristics in indoor communications at a link distance of a few meters. Theoretical and experimental comparison is made between THz communications and free-space optics (FSO) using infrared light waves.