

## Accepted Manuscript

Practical considerations of terahertz communications for short distance applications

Tadao Nagatsuma, Kazuki Oogimoto, Yuki Inubushi, Jiro Hirokawa

PII: S1878-7789(16)30038-2

DOI: <http://dx.doi.org/10.1016/j.nancom.2016.07.005>

Reference: NANCOM 159

To appear in: *Nano Communication Networks*

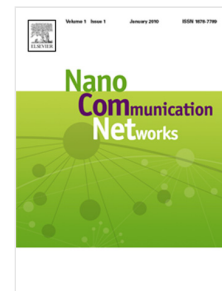
Received date: 15 February 2016

Revised date: 13 June 2016

Accepted date: 12 July 2016

Please cite this article as: T. Nagatsuma, K. Oogimoto, Y. Inubushi, J. Hirokawa, Practical considerations of terahertz communications for short distance applications, *Nano Communication Networks* (2016), <http://dx.doi.org/10.1016/j.nancom.2016.07.005>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



## Practical Considerations of Terahertz Communications for Short Distance Applications

Tadao Nagatsuma<sup>1\*</sup>, Kazuki Oogimoto<sup>1</sup>, Yuki Inubushi<sup>1</sup>, and Jiro Hirokawa<sup>2</sup>

<sup>1</sup>*Graduate School of Engineering Science, Osaka University, 1-3 Machikaneyama, Toyonaka, Osaka 560-8531, Japan*

<sup>2</sup>*Dept. of Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, 152-8552, Japan*

**\*e-mail: nagatsuma@ee.es.osaka-u.ac.jp**

Key words : terahertz, free space optics, communications, horn antenna, array antenna

### 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.

Download English Version:

<https://daneshyari.com/en/article/4956913>

Download Persian Version:

<https://daneshyari.com/article/4956913>

[Daneshyari.com](https://daneshyari.com)