

## 300GHz wireless link with a CMOS transceiver

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### Abstract

Since terahertz provides a wide frequency band, terahertz communication realizes a data rate exceeding 100 Gbps approaching fibre-optic speed. The frequency band from 252 to 275 GHz has already been allocated for communication. Further discussion is being made to use the frequency band exceeding 275 GHz, which has not been assigned yet, for communication use. On the other hand, since terahertz has large atmospheric attenuation and strong directivity, it is limited to short-distance fixed radio communication. However, it is long-distance and mobile application that is intrinsically expected for wireless communication. In this talk, even in terahertz, it is shown that kilometre communication is potentially possible by selecting the frequency appropriately. It is also shown that terahertz communication can be performed using CMOS process, which was said to have inferior high frequency characteristics to compound semiconductors. How will the world change when technologies beyond such conventional common sense are established? The impact of terahertz communication and the contribution of CMOS transceivers are discussed.

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