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Title: Terahertz Acoustic Optical Modulator and its Application on Free Space Communication.

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Abstract: We demonstrate in this paper a terahertz free space communication system based on acoustic optical modulation and heterodyne detection. A high resistivity silicon acoustic optical modulator (AOM) was used to modulate a continuous terahertz wave at $2.52 THz$. A pyroelectric detector was used to detect the modulated terahertz signal via heterodyne detection mode. A modulation frequency of $937 kHz$ and sampling rate of $1 kbit/s$ was achieved.

Keywords: Terahertz, Free space communication, Acoustic optical modulation.