

## **Terahertz transmitted spectral imaging for some drugs**

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### **Abstract**

THz wave imaging is a new and promising technology for non-destructive testing. Due to the most drugs have several or one at least own absorption frequency at 0.2~2.5THz, THz imaging will be become a power method for drug inspecting. In this paper, some drugs, such as heroin, cocaine and so on, are inspected and imaged. Due to the diversity of samples and the complicity of surroundings of hiding samples in the practical applications, several signal processing approaches based on classical transmitted scanning imaging setup and Fourier transformation are adopted to exact inspect hiding samples, including time-domain maximum-amplitude ( minimum-amplitude ) imaging, time-domain peak-to-peak amplitude imaging, time-domain time delay imaging, frequency-domain fixed frequency amplitude(power) imaging, as well as frequency-domain fixed frequency phase imaging, are discussed and compared. The results indicate that imaging making use of drug's finger spectrum at terahertz band is a promising and applied method for drug inspecting.

**Keywords:** Terahertz, THz imaging, image processing, drug