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Title:A fast spatial-domain terahertz imaging using block-based compressed sensing
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Abstract:A fast imaging method for a spatial-domain terahertz imaging system based on compressed sensing is proposed. Observing that the correlation between image pixels is localized, the image reconstruction in compressed sensing is performed on a block basis, resulting in a reduced computational load with no degradation in image quality. By applying the proposed method to a conventional spatial-domain terahertz imaging system, it was verified that a 128×128 image reconstructed using 30% measurements has the equivalent quality to that done using full measurements. The proposed method requires no additional hardware, and provides a general solution to fast spatial-domain terahertz imaging.
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