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标题: Portable real-time THz imaging setup based on QC lasers
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摘要: A portable, stand-alone, real-time THz imaging system for high resolution is presented. The total weight of the apparatus is less than 15 kg and its physical dimension is of approximately (65 cm)(3). A quantum cascade laser emitting at 3.4 THz based on a third-order distributed feedback cavity is used as radiation source for transmission and reflection imaging modes. We report real-time THz imaging with a bolometric camera operating at 15 Hz producing movies with a resolution of 120 x 160 pixels. With the help of a Stirling motor cryocooler the laser operates in continuous-wave at 40 K with more than 1 mW output power and less than 300 mW of power consumption. We were able to image small objects employing refractive elements that we manufactured in high density polyethylene achieving a resolution of twice the wavelength.
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