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Terahertz imaging using the Jefferson Lab – FEL high power broadband terahertz source[1] J. MICHAEL KLOPF, Jefferson Lab - Free Electron Laser Facility, MATTHEW COPPINGER, NATHAN SUSTERSIC, JAMES KOLODZEY, University of Delaware, GWYN P. WILLIAMS, Jefferson Lab - Free Electron Laser Facility — Imaging using THz radiation is of considerable interest due to the non-ionizing nature of the radiation as well as the relative transmission, absorption, and reflection of various materials of interest. With a source of sufficient power and spectral characteristics, it is possible to realize imaging capabilities that were not previously possible. At the Jefferson Lab – Free Electron Laser Facility, a high power broadband source has been commissioned, providing an ideal resource for the development of THz imaging technology. Even with this high power source now available, significant challenges remain in creating detector arrays with sufficient responsivity and creating optical systems to provide the illumination and resolution necessary to create usable images. In collaboration with a group from the University of Delaware, unprecedented imaging tests have been performed toward this goal and are presented here.

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