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标题: A technique to measure optical properties of brownout clouds for modeling terahertz propagation
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摘要: Brownout, the loss of visibility caused by dust resultant of helicopter downwash, is a factor in the large majority of military helicopter accidents. As terahertz radiation readily propagates through the associated dust aerosols and is attenuated by atmospheric water vapor within short distances, it can provide low-profile imaging that improves effective pilot visibility. In order to model this application of terahertz imaging, it is necessary to determine the optical properties of obscurants at these frequencies. We present here a method of empirical calculation and experimental measurement of the complex refractive index of the obscuring aerosols. Results derived from terahertz time-domain spectral measurements are incorporated into the AFIT CDE Laser Environmental Effects Definition and Reference (LEEDR) software. (C) 2012 Optical Society of America
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