258
Accession number:20125015781983
Title:Multimode illumination in the terahertz for elimination of target orientation requirements and minimization of coherent effects in active imaging systems
Authors:Petkie, Douglas T. (1); Holt, Jennifer A. (2); Patrick, Mark A. (2); De Lucia, Frank C. (2)
Author affiliation:(1) Wright State University, Department of Physics, 3640 Colonel Glenn Highway, Dayton, OH 45435, United States; (2) Ohio State University, Department of Physics, 191 West Woodruff Avenue, Columbus, OH 43210, United States
Corresponding author:Petkie, D.T.
Source title:Optical Engineering
Abbreviated source title:Opt Eng
Volume:51
Issue:9
Issue date:September 2012
Publication year:2012
Article number:091604
Language:English
ISSN:00913286
E-ISSN:15602303
CODEN:OPEGAR
Document type:Journal article (JA)
Publisher:SPIE, P.O. Box 10, Bellingham, WA 98227-0010, United States
Abstract:It is shown that with appropriate multimode illumination and modulation strategies, it is possible to achieve the high sensitivity of active illumination, with the elimination of the need for "strategic" angular orientation of the target and to do so while minimizing the impact of coherent effects such as speckle. It is also shown that very modest terahertz (THz) power levels correspond to very high brightness temperatures, even when this power is divided among the many modes of large enclosures. We also consider how technical advances in the THz will continue to expand the scenarios of applicability for these approaches. © 2012 Society of Photo-Optical Instrumentation Engineers (SPIE).
Number of references:15
Main heading:Speckle
Controlled terms:Engineering - Molecular physics
Uncontrolled terms:Active imaging - Coherent - Continuous Wave - Multimodes - Tera Hertz - Terahertz imaging
Classification code:741.1 Light/Optics - 901 Engineering Profession - 931.3 Atomic and Molecular Physics
DOI:10.1117/1.OE.51.9.091604
Database:Compendex