155
标题: Simultaneous Imaging and Precision Alignment of Two mm Wave Antennas Based on Polarization-Selective Machine-Vision
作者: Gordon, JA (Gordon, Joshua A.); Novotny, DR (Novotny, David R.)
来源出版物: IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT 卷: 61 期: 11 页: 3065-3071 DOI: 10.1109/TIM.2012.2202190 出版年: NOV 2012
在 Web of Science 中的被引频次: 0
被引频次合计: 0
引用的参考文献数: 11
摘要: In this paper, we present an optical imaging tool, the Overlay Imaging Aligner (OIA), developed to aid in the mechanical alignment of antenna components in the mm-wave and low-THz frequency regimes (50-500 GHz) where the millimeter and sub millimeter wavelengths pose significant alignment challenges. The OIA uses a polarization-selective machine-vision approach to generate two simultaneous and overlaid real-time digital images along a common axis; this allows for aligning two antenna components to within fractions of a wavelength in the mm-wave and THz frequency regimes. The overall concept, optical design, function, performance characteristics and application examples are presented. A quantitative assessment of the alignment accuracy achievable with the OIA at specific frequencies in the WR-2.2 band is made where the alignment achieved with the OIA is compared to an electrical alignment.
入藏号: WOS:000309866500024
语种: English
文献类型: Article
作者关键词: Alignment; antenna; machine vision; millimeter wave; terahertz; waveguide
地址: [Gordon, Joshua A.; Novotny, David R.] Natl Inst Stand & Technol, Electromagnet Div, Boulder, CO 80305 USA
通讯作者地址: Gordon, JA (通讯作者),Natl Inst Stand & Technol, Electromagnet Div, Boulder, CO 80305 USA.
电子邮件地址: josh.gordon@nist.gov
出版商: IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC
出版商地址: 445 HOES LANE, PISCATAWAY, NJ 08855-4141 USA
Web of Science 类别: Engineering, Electrical & Electronic; Instruments & Instrumentation
研究方向: Engineering; Instruments & Instrumentation
IDS 号: 021DW
ISSN: 0018-9456
29 字符的来源出版物名称缩写: IEEE T INSTRUM MEAS
ISO 来源出版物缩写: IEEE Trans. Instrum. Meas.
来源出版物页码计数: 7