

1. Record Nr.	UNINA9910810674403321
Titolo	Terahertz metrology // Mira Naftaly, editor
Pubbl/distr/stampa	Boston : , : Artech House, , [2015] [Piscataway, New Jersey] : , : IEEE Xplore, , [2014]
ISBN	1-60807-777-2
Descrizione fisica	1 online resource (386 p.)
Disciplina	535.8
Soggetti	Terahertz spectroscopy Metrology Terahertz technology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Terahertz Metrology; Contents; Foreword; Introduction; 1 Terahertz Time-Domain Spectrometers; 1.1 Pulsed Terahertz Time-Domain Spectrometers; 1.1.1 Principles of Operation; 1.1.2 Photoconductive Emitters and Detectors; 1.1.3 Optical Rectification; 1.1.4 Electro-Optic Detection; 1.1.5 Terahertz Air-Based Coherent Detection; 1.1.6 Cherenkov (Tilted Wavefront) Emitters and Detectors; 1.2 Continuous-Wave Terahertz Time-Domain Spectrometer and Microwave Photonics; 1.2.1 Principles and Operation; 1.2.2 Types of Continuous-Wave Terahertz Emitters and Detectors. 1.3 Time-Domain Spectrometer Configurations 1.3.1 Transmission; 1.3.2 Reflection; 1.3.3 Attenuated Total Reflection; 1.3.4 Asynchronous Optical Sampling; 1.3.5 Substrate Lenses; 1.4 Commercial Systems; References; 2 Parameter Extraction in Time-Domain Spectrometers; 2.1 Introduction; 2.2 Material Properties and Wave Propagation; 2.2.1 Complex Refractive Index and Complex Permittivity.
Sommario/riassunto	This new book describes modern terahertz (THz) systems and devices and presents practical techniques for accurate measurement with an emphasis on evaluating uncertainties and identifying sources of error. This is the first THz book on the market to address measurement methodologies and issues -- perfect for practitioners and aspiring practitioners wishing to learn good measurement practice and avoid

pitfalls. This book provides a brief review of different THz systems and devices, followed by chapters detailing the measurement issues encountered in using each of the main types of THz systems, and a guide to performing measurements rigorously. Particular attention is given to evaluating uncertainties, and recognizing potential sources of errors. The main focus is on time-domain spectroscopy, by far the most widely used technique. Readers are also presented with examples of applications with the emphasis on utility, both in research and in industry.
