

1. Record Nr.	UNINA9910467832603321
Autore	Rodriguez Vince
Titolo	Anechoic range design for electromagnetic measurements // .Vince Rodriguez
Pubbl/distr/stampa	Boston : , : Artech House, , [2019] [Piscataqay, New Jersey] : , : IEEE Xplore, , [2019]
ISBN	1-63081-539-X
Descrizione fisica	1 online resource (321 pages)
Collana	Artech House electromagnetics library
Disciplina	621.384
Soggetti	Antenna radiation patterns Anechoic chambers Damping (Mechanics) Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index
Nota di contenuto	Anechoic Range Design for Electromagnetic Measurements; Contents; Foreword; Introduction; The Beginning; The Early Years; Developing My Own Approach; About This Book; Chapter 1 Basic Electromagnetics; 1.1 Introduction; 1.2 Maxwell's Equations; 1.3 Boundary Conditions and Wave Propagation; 1.3.1 Boundary Conditions; 1.3.2 Wave Propagation; 1.3.3 Wave Propagation in Lossy Media; 1.3.4 Incident and Reflected Waves; 1.4 Theorems of Electromagnetics; 1.4.1 Image Theory; 1.4.2 Reciprocity Theorem; 1.4.3 Surface Equivalence Theorem; 1.5 Antenna Basics; 1.5.1 Radiation Problems 1.5.2 Radiation Regions 1.5.3 The Herzian Dipole Antenna; 1.6 About Numerical Methods; References; Chapter 2 Measurement Ranges; 2.1 Indoor Ranges; 2.2 Antenna Measurements; 2.2.1 Pattern Parameters; 2.3 Antenna Ranges; 2.3.1 Far-Field Ranges; 2.3.2 The Antenna Measurement System; 2.3.3 Link Budgets; 2.4 Selecting the Range; 2.4.1 Indoor Far-Field Ranges; 2.4.2 Near-Field Ranges; 2.4.3 Compact Ranges; References; Chapter 3 Radio-Frequency Absorber; 3.1 Absorber Family; 3.2 Electrically Lossy Absorbers; 3.2.1 Absorber Theory; 3.2.2 Absorber Manufacturing 3.2.3 Types of Electrically Lossy Absorbers 3.3 Magnetically Lossy

Absorbers; 3.3.1 Ferrite Tiles; 3.3.2 Ferrite "Cones"; 3.4 Hybrid Absorbers; 3.4.1 The Mismatch Issue; 3.5 Power Handling; References; Appendix 3A: MATLAB(a) Scripts; 3A.1 Simulation of a Pyramidal Shape; 3A.2 Normal Incidence Reflectivity of Ferrite Tile; 3A.3 Computation of Reflectivity Using Rodriguez's Equations; Chapter 4 RF Shielding; 4.1 To Shield or Not To Shield?; 4.1.1 Phase-Locked Measurements; 4.1.2 Reasons for Shielding; 4.1.3 What Level of Shielding Is Required?; 4.2 Shield; 4.3 Doors; 4.4 Filters; 4.5 Penetrations
4.6 Testing the Shielding EffectivenessReferences; Chapter 5 Anechoic Ranges for Far-Field Measurements; 5.1 Introduction; 5.2 The Rectangular Anechoic Range; 5.2.1 Sizing the Chamber; 5.2.2 Absorber Layout; 5.2.3 Positioners and Range Antennas; 5.3 The Tapered Anechoic Chamber; 5.3.1 Theory of the Tapered Chamber; 5.3.2 Sizing the Chamber; 5.3.3 Absorber Layout; 5.3.4 Concerns and Limitations of the Tapered Chamber; 5.4 Error and Uncertainty Analysis in a Far-Field Range; 5.4.1 Contributions from the Absorber Treatment; 5.4.2 Contributions from the Positioning Equipment
5.5 Range Validation Testing5.6 Conclusion; References; Appendix 5A: MATLAB Scripts; 5A.1 Hickman and Lyon Ground Reflection Range Analogy; 5A.2 Taper Array Factor; Chapter 6 Anechoic Ranges for Near-Field Measurements; 6.1 A Bit of History; 6.2 The PNF Range; 6.2.1 Sizing the Chamber; 6.2.2 Absorber Layout; 6.3 The SNF Range; 6.3.1 Fixed-Probe Implementations; 6.3.2 Sizing the Chamber; 6.3.3 Absorber Layout; 6.3.4 Movable Probe and Movable AUT SNF; 6.3.5 Sizing the Chamber; 6.3.6 Absorber Layout; 6.4 The CNF Range; 6.4.1 Sizing the Chamber; 6.4.2 Absorber Layout
