A Bibliography of the NIST Electromagnetic Fields Division Publications

Ruth Marie Lyons, Editor

August 1996
A Bibliography of the NIST Electromagnetic Fields Division Publications

Ruth Marie Lyons, Editor

Electromagnetic Fields Division
Electronics and Electrical Engineering Laboratory
National Institute of Standards and Technology
Boulder, Colorado 80303-3328

August 1996
CONTENTS

INTRODUCTION ................................................................. 1

ANTENNAS ................................................................. 3

DIELECTRIC MEASUREMENTS ........................................... 25

ELECTROMAGNETIC INTERFERENCE .................................... 32

MICROWAVE METROLOGY ................................................. 68

NOISE ................................................................. 91

REMOTE SENSING ........................................................ 99

TIME DOMAIN ............................................................. 102

WAVEFORM METROLOGY ............................................... 105

MISCELLANEOUS .......................................................... 113

AUTHOR INDEX ............................................................ 125
A BIBLIOGRAPHY OF THE NIST ELECTROMAGNETIC FIELDS DIVISION PUBLICATIONS

Edited by
Ruth Marie Lyons
National Institute of Standards and Technology
Boulder, CO 80303

This bibliography lists the publications by the staff of the Electromagnetic Fields Division of the National Institute of Standards and Technology for the period January 1970 through July 1996. It supersedes NISTIR 5039, which listed the publications of the Electromagnetic Fields Division from January 1970 through July 1995. Selected earlier publications from the division's predecessor organizations are included.

Key words: antennas; attenuation; dielectric measurements; electromagnetic interference; impedance; microwave metrology; microwave power; near-field antenna measurements; noise; nonionizing radiation; radiation hazards; standards; time domain; waveform metrology.

INTRODUCTION

The Electromagnetic Fields Division was formed during the reorganization of NIST (formerly NBS) in April 1978. Originally, the division developed measurement methods and standards, and provided metrological support for antenna systems, noise measurement equipment, fast pulse waveforms, electromagnetic interference, electromagnetic environmental characterization equipment, electromagnetic emission and immunity (or susceptibility) testing equipment, and especially for fields near sources or in other complicated field conditions. In April 1985, microwave and millimeter wave metrology were added to the division.

The attempt has been made to include all work published by the division staff from January 1970 through July 1996. Work performed by authors before joining this division or work by authors who have left this division has been included only when it had special significance. A miscellaneous category includes general publications. A few references are listed in more than one category where appropriate.

Several other information sources may be useful to the reader who is interested in NIST activities connected with electromagnetic metrology. Two companion bibliographies, NISTIR 5051 and NISTIR 5052, list publications of the Electromagnetic Technology Division and the Optoelectronics Division for the same period. Topics include metrology for laser systems, optical fibers, optical communication equipment, cryoelectronics, superconductors, and other unusual electrical engineering materials. Three additional bibliographies list publications of the former Electromagnetics Division: NBSIR 73-320 (July 1972 through June 1973); NBSIR 74-395 (July 1973 through June 1974); NBSIR 75-818 (July 1974 through June 1975). These were preceded by a series of unpublished reports (edited by H. M. Altschuler) that cover the period back to 1956. An excellent summary of the whole field of electromagnetic metrology as it stood in 1967 was published as a special issue of the Proceedings of the IEEE (volume 55, June 1967). Advances in the following decades were described in two other special issues of the same journal (volume 66, April 1978, and volume 74, January 1986).
A Note on Abbreviations

On August 23, 1988, the National Bureau of Standards (NBS) became the National Institute of Standards and Technology (NIST); therefore, documents with either prefix are considered NIST publications. Most readers are familiar with the commonly used abbreviations for the names of the professional journals that appear in this bibliography. Some publication series are peculiar to NIST and may call for explanation. They are:

| NISTIR - NIST Interagency/Internal Report | NBSIR - NBS Interagency/Internal Report |
| NIST TN - NIST Technical Note              | NBS Tech. Note - NBS Technical Note |
| NIST SP - NIST Special Publication         | NBS SP - NBS Special Publication |
| NIST HB - NIST Handbook                    | NBS HB - NBS Handbook |
| NIST JRES - NIST Journal of Research       | NBS JRES - NBS Journal of Research |
| NIST MN - NIST Monograph                   | NBS MN - NBS Monograph |

Purchase Procedures and Document Availability

NIST (NBS) Technical Notes, Special Publications, Handbooks, Journals of Research, and Monographs may be purchased from the U.S. Government Printing Office at the following address: New Orders, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Orders may be paid by major credit card, NTIS Deposit Account, or check or money order payable in U.S. dollars to the Superintendent of Documents. The Government Printing Office usually stocks these publications for only a year or two, after which they may be purchased from the National Technical Information Service at the address listed below.

NIST (NBS) Interagency/Internal Reports (NISTIRs, NBSIRs) may be purchased from the National Technical Information Service, Springfield, VA 22161, (703) 487-4650. Orders may be payed by major credit card, NTIS Deposit Account, or check or money order payable in U.S. dollars to NTIS.

Reprints of papers published in non-NIST media may be available in limited quantities from the authors.
FRANCIS, M. H.; NEWELL, A. C.; GRIMM, K. R.; HOFFMAN, J.; SCHRANK, H. E.
Comparison of Ultralow-Sidelobe Antenna Far-Field Patterns Using the Planar Near-Field Method and the Far-Field Method
IEEE Antennas and Propagation Magazine, Vol. 37, No. 6, pp. 7-15
December 1995

FRANCIS, M. H.
A Comparison of K-Correction and Taylor-Series Correction for Probe-Position Errors in Planar Near-Field Scanning
November 1995

Planar Near-Field Measurements and Microwave Holography for Measuring Aperture Distribution on a 60 GHz Active Array Antenna
November 1995

MUTH, L. A.; LEWIS, R. L.; WITTMANN, R. C.
Polarimetric Calibration of Reciprocal-Antenna Radars
November 1995

LEWIS, R. L.
Spherical-Wave Source-Scattering Matrix Analysis of Antennas and Antenna-Antenna Interactions
NIST TN 1373
July 1995

LEWIS, R. L.; MUTH, L. A.; WITTMANN, R. C.
Polarimetric Calibration of Reciprocal Antenna Radars: A Study of RCS Polarization Uncertainty Due to Target Depolarization
NISTIR 5033
March 1995

LEWIS, R. L.; MUTH, L. A.; WITTMANN, R. C.
RangeCAD and the NIST RCS Uncertainty Analysis
NISTIR 5022
December 1994

FRANCIS, M. H.; KREMER, D. P.; JACOBSON, M. D.; FEDOR, L. S.; HAZEN, D. A.; MADSEN, W. B.
A Dual-Frequency Millimeter-Wave Radiometer Antenna for Airborne Remote Sensing of Atmosphere and Ocean
October 1994

GUERRIERI, J. R.; TAMURA, D. T.
effects of Microwave Absorber on Insertion-Loss Measurements
October 1994
Antennas (cont.)

GUERRIERI, J. R.; TAMURA, D. T.
Effects of Microwave Absorber on Insertion-Loss Measurements
October 1994

WITTMANN, R. C.; FRANCIS, M. H.; MUTH, L. A.; LEWIS, R. L.
Proposed Analysis of RCS Measurement Uncertainty
October 1994

JACOBSON, M. D.; FEDOR, L. S.; HAZEN, D. A.; MADSEN, W. B.; FRANCIS, M. H.; KREMER, D. P.
A Dual-Frequency Millimeter-Wave Radiometer Antenna for Airborne Remote Sensing of Atmosphere and Ocean
Microwave Journal, pp. 24-38
September 1994

MUTH, L. A.; GARY, J. M.
Accurate Computations of Radar Cross Sections of Simple Objects
Proc., MIKON '94 Microwave Conf. 30 May-2 June 1994, Ksąż, Poland, pp. 298-302
June 1994

FRANCIS, M. H.; NEWELL, A. C.; GRIMM, K. R.; HOFFMAN, J.; SCHRANK, H. E.
Planar Near-Field Measurements of Low-Sidelobe Antennas
NIST JRES, Vol. 99, No. 2, pp. 143-167
March-April 1994

WITTMANN, R. C.; FRANCIS, M. H.; MUTH, L. A.; LEWIS, R. L.
Proposed Uncertainty Analysis for RCS Measurements
NISTIR 5019
January 1994

FRANCIS, M. H.; NEWELL, A. C.; GRIMM, K. R.; HOFFMAN, J.; SCHRANK, H. E.
Planar Near-Field Measurements of Low-Sidelobe Antennas
October 1993

GUERRIERI, J. R.; KREMER, D. P.; RUSYN, T.
A New Extrapolation/Spherical/Cylindrical Measurement Facility at the National Institute of Standards and Technology
Proc., Antenna Meas. Tech. Assoc. Symp., 4-8 October 1993, Dallas, TX, pp. 343-352
October 1993

KREMER, D. P.; NEWELL, A. C.; ROSE, C.; TRABELSI, A.; PINKASI, M.
Planar Near-Field Alignment
Proc., Antenna Meas. Tech. Assoc. Symp., 4-8 October 1993, Dallas, TX, pp. 198-204
October 1993

FRANCIS, M. H.; MACREYNOLDS, K.; CANALES, S.
Dual-Port Circularly Polarized Probe Standards at the National Institute of Standards and Technology
NISTIR 5007
August 1993
STUBENRAUCH, C. F.

Development of Near-Field Test Procedures for Communication Satellite
Lecture Notes, Antenna Measurement Tech. Assoc. Workshop on Communication Satellite
Antenna Meas., Ann Arbor, MI, July 2, 1993
July 1993

FRANCIS, M. H.; REPJAR, A. G.; KREMER, D. P.
A Certification Plan for a Planar Near-Field Range Used for High-Performance Phased-Array Testing
October 1992

GUERRIERI, J. R.; TAMURA, D. T.; REPJAR, A. G.
Accurate Planar Near-Field Probe Correction Using Dual-Port Circularly-Polarized Probes
October 1992

MACREYNOLDS, K.; REPJAR, A. G.; KREMER, D. P.; CANALES, S.
Phased Array Testing and Diagnostics Using Planar Near-Field Scanning
October 1992

WITTMANN, R. C.; NEWELL, A. C.; STUBENRAUCH, C. F.; MACREYNOLDS, K.; FRANCIS, M. H.
Simulation of the Merged-Spectrum Techniques for Aligning Planar Phased-Array Antennas, Part I
NISTIR 3981
October 1992

FRANCIS, M. H.; REPJAR, A. G.; KREMER, D. P.
A Certification Plan for a Planar Near-Field Range Used for High-Performance Phased-Array Testing
NISTIR 3991
July 1992

MUTH, L. A.
Probe-Position Error Correction in Planar Near-Field Measurement at 60 GHz: Experimental Verification
NIST JRES, Vol. 97, No. 2, pp. 273-297
March-April 1992

WITTMANN, R. C.
Probe-Corrected Spherical Near-Field Scanning Theory in Acoustics
February 1992

FRANCIS, M. H.; WITTMANN, R. C.
Swept Frequency Gain Measurements from 33-50 GHz at the National Institute of Standards and Technology
October 1991
Antennas (cont.)

REPJAR, A. G.; GUERRIERI, J. R.; KREMER, D. P.; CANALES, S.
Determining Faults on a Flat Phased Array Antenna Using Planar Near-Field Techniques
Boulder, CO, pp. 8-11 through 8-19
October 1991

WITTMANN, R. C.; YAGHJIAN, A. D.
Spherical-Wave Expansions of Piston-Radiator Fields
September 1991

MUTH, L. A.
General Analytic Correction for Probe-Position Errors in Spherical Near-Field Measurements
NIST JRES, Vol. 96, No. 4, pp. 391-410
July-August 1991

MUTH, L. A.; LEWIS, R. L.
Personal Computer Codes for Analysis of Planar Near Fields
NISTIR 3970
June 1991

ESTIN, A. J.; JANEZIC, M. D.
Improvements in Dielectric Measurements with a Resonant Cavity
May 1991

WITTMANN, R. C.
Probe-Corrected Spherical Near-Field Scanning Theory in Acoustics
May 1991

MUTH, L. A.
Analytic Correction for Probe-Position Errors in Spherical Near-Field Measurements
April 1991

MUTH, L. A.; LEWIS, R. L.
A General Technique to Correct Probe Position Errors in Planar Near-Field Measurements to Arbitrary
Accuracy
December 1990

FRANCIS, M. H.; MACREYNOLDS, K.
Evaluation of Dual-Port Circularly Polarized Probes for Planar Near-Field Measurements
Philadelphia, PA, pp. 13-3 through 13-8
October 1990

Experimental and Theoretical Probe Position Error Correction in Near-Field Antenna Measurements
Philadelphia, PA, pp. 13-27 through 13-30
October 1990
KREMER, D. P.; NEWELL, A. C.
Alignment Fixture for Millimeter Waveguide
June 1990

WITTMANN, R. C.
Spherical Near-Field Scanning: Determining the Incident Field Near a Rotatable Probe
May 1990

HILL, D. A.; EHRET, R. L.
Near-Field Gain of Pyramidal Horns from 18 to 40 GHz
NISTIR 89-3924
November 1989

FRANCIS, M. H.
Antenna Far-Field Pattern Accuracies at Millimeter Wave Frequencies Using the Planar Near-Field Technique
October 1989

GUERRIERI, J. R.; KREMER, D. P.
Automated Multi-Axis Motor Controller and Data Acquisition System for Near-Field Scanners
October 1989

KREMER, D. P.; NEWELL, A. C.; AGE, D. A.
Absorber Characterization
October 1989

MUTH, L. A.; LEWIS, R. L.
Planar Near-Field Codes for Personal Computers
NISTIR 89-3929
October 1989

NEWELL, A. C.; GUERRIERI, J. R.; PERSINGER, R. R.; STILES, J. A.; MCFARLANE, E. J.
Comparison of Antenna Boresight Measurements Between Near-Field and Far-Field Ranges
October 1989

NEWELL, A. C.; KREMER, D. P.; GUERRIERI, J. R.
Improvements in Polarization Measurements of Circularly Polarized Antennas
October 1989
MUTH, L. A.; LEWIS, R. L.
An Iterative Technique to Correct Probe Position Errors in Planar Near-Field to Far-Field Transformations
August 1989

WITTMANN, R. C.
Comments on Spherical Near-Field Antenna Measurements
June 1989

HILL, D. A.
Antennas for Geophysical Applications - Antenna Handbook: Theory, Applications and Design (Chapter 3),
1988

MUTH, L. A.; LEWIS, R. L.
An Iterative Technique to Correct Probe Position Errors in Planar Near-Field to Far-Field Transformations
NISTTN 1323
October 1988

FRANCIS, M. H.; REPJAR, A. G.; KREMER, D. P.
Antenna Measurements for Millimeter Waves at the National Bureau of Standards
September 1988

KREMER, D. P.; REPJAR, A. G.
Antenna Calibrating Standards Using CW and Pulsed-CW Measurements and the Planar Near-Field Method
September 1988

NEWELL, A. C.
Development of Near-Field Test Procedures for Communication Satellite Antennas, Phase I, Part 2
NBSIR 87-3081
August 1988

WITTMANN, R. C.
Spherical Wave Operators and the Translation Formulas
August 1988

BAIRD, R. C.; NEWELL, A. C.; STUBENRAUCH, C. F.
A Brief History of Near-Field Measurements of Antennas at the National Bureau of Standards
June 1988
LEWIS, R. L.; NEWELL, A. C.
Efficient and Accurate Method for Calculating and Representing Power Density in the Near Zone of Microwave Antennas
June 1988

NEWELL, A. C.; STUBENRAUCH, C. F.
Effect of Random Errors in Planar Near-Field Measurement
June 1988

NEWELL, A. C.
Improved Polarization Measurements Using a Modified Three Antenna Technique
June 1988

NEWELL, A. C.
Error Analysis Techniques for Planar Near-Field Measurements
June 1988

REPJAR, A. G.; NEWELL, A. C.; FRANCIS, M. H.
Accurate Determination of Planar Near-Field Correction Parameters for Linearly Polarized Probes
June 1988

MUTH, L. A.
Displacement Errors in Antenna Near-Field Measurements and Their Effect on the Far Field
May 1988

FRANCIS, M. H.; STUBENRAUCH, C. F.
Comparison of Measured and Calculated Antenna Side Lobe Coupling Loss in the Near Field Using Approximate Far-Field Data
March 1988

LEWIS, R. L.
Spherical-Wave Source-Scattering Matrix Analysis of Coupled Antennas; A General System Two-Port Solution
December 1987

LEWIS, R. L.; WITTMANN, R. C.
Improved Spherical and Hemispherical Scanning Algorithms
December 1987
HILL, D. A.; FRANCIS, M. H.
Out-of-Band Response of Antenna Arrays
November 1987

FRANCIS, M. H.; HILL, D. A.
Out-of-Band Response of Array Antennas
September 1987

MUTH, L. A.
Experimental Study of Interpanel Interactions at 3.3 GHz
September 1987

HILL, D. A.; FRANCIS, M. H.
Out-of-Band Response of Antenna Arrays
August 1987

REPJAR, A. G.; NEWELL, A. C.; TAMURA, D. T.
Extrapolation Range Measurements for Determining Antenna Gain and Polarization
NBS TN 1311
August 1987

HILL, D. A.; CAVCEY, K. H.
Coupling Between Two Antennas Separated by a Planar Interface
July 1987

DAYWITT, W. C.
A Simple Technique for Determining Joint Losses on a Coaxial Line from Swept-Frequency Reflection Data
June 1987

FITZGERRELL, R. G.
Three PC-Computer Programs for Antenna Calculations Primarily for Use Below 1000 MHz
June 1987

KANDA, M.; ORR, R. D.
Near-Field Gain of a Horn and an Open-Ended Waveguide; Comparison Between Theory and Experiment
January 1987

LARSEN, E. B.
Calibration and Meaning of Antenna Factor and Gain for EMI Antennas
Interference Technology Engineers' Master (ITEM 1986), pp. 113-335
1986
Antennas (cont.)

HILL, D. A.
Far-Field Transient Response of an Antenna from Near-Field Data
NBSIR 86-3063
December 1986

HILL, D. A.; KOEPKE, G. H.
A Near-Field Array of Yagi-Uda Antennas for Electromagnetic Susceptibility Testing
November 1986

Calibration Requirements for EHF Satellite Communication Systems
NBSIR 86-3058
October 1986

FITZGERRELL, R. G.
Standard Linear Antennas, 30 GHz to 1000 MHz
October 1986

KANDA, M.; ORR, R. D.
Near-Field Gain of a Horn and an Open-Ended Waveguide; Comparison Between Theory and Experiment
October 1986

MUTH, L. A.
Gradient Displacement Errors in Antenna Near-Field Measurements and Their Effects on the Far Field
NBS TN 1306
October 1986

HILL, D. A.; FRANCIS, M. H.
Out-of-Band Response of Antenna Arrays
NBSIR 86-3047
June 1986

KANDA, M.; ORR, R. D.
Near-Field Gain of a Horn and an Open-Ended Waveguide; Comparison Between Theory and Experiment
June 1986

NEWELL, A. C.; STUBENRAUCH, C. F.
The Effect of Random Errors in Planar Near-Field Measurements
June 1986

FITZGERRELL, R. G.
Linear Gain - Standard Antennas Below 1000 MHz
NBS TN 1098
May 1986
JESCH, R. L.  
Measured Vehicular Antenna Performance  
National Institute of Justice, NJ Report-201-85  
May 1986

NEWELL, A. C.; STUBENRAUCH, C. F.; BAIRD, R. C.  
Calibration of Microwave Antenna Gain Standards  
January 1986

MUTH, L. A.  
Interelement Interactions in Phased Arrays: Theory, Methods of Data Analysis, and Theoretical Simulations  
NBS TN 1091  
December 1985

YAGHJIAN, A. D.; WITTMANN, R. C.  
The Receiving Antenna as a Linear Differential Operator: Application to Spherical Near-Field Scanning  
November 1985

NEWELL, A. C.; REPJAR, A. G.  
Development of Near-Field Test Procedures for Communication Satellite Antennas, Phase I, Part 1  
NBSIR 85-3031  
September 1985

A Theory of Mutual Impedances and Multiple Reflections in an N-Element Array Environment  
pp. 440-443  
August 1985

HILL, D. A.; KOEPKE, G. H.  
An Array of Dipoles for Plane Wave Synthesis  
pp. 422-427  
August 1985

MUTH, L. A.  
A Theory of Mutual Impedances and Multiple Reflections in an N-Element Array Environment  
August 1985

HILL, D. A.; KOEPKE, G. H.  
A Near-Field Array of Yagi-Uda Antennas for Electromagnetic Susceptibility Testing  
NBS TN 1082  
July 1985

NEWELL, A. C.; FRANCIS, M. H.; KREMER, D. P.; GRIMM, K. R.  
Results of Planar Near-field Testing with Ultra-low Sidelobe Antennas  
Dig., Intl. IEEE Antenna Propagat. Soc. Symp. on Antennas and Propagat., 17-21 June 1985,  
University of British Columbia, Vancouver, Canada, pp. 693-698  
June 1985

12
JESCH, R. L.
Measured Vehicular Antenna Performance
May 1985

HILL, D. A.
Out-of-Band Response of Reflector Antennas
NBSIR 85-3021
April 1985

WYSS, J. C.; SHEERAN, S.
A Passive, Optical Modulator and Link for Antennas
April 1985

CRUZ, J. E.; LARSEN, E. B.
Screenroom Measurements of Antenna Factors
March 1985

LARSEN, E. B.; CRUZ, J. E.
E and H Fields in Transmission Lines and Coils for Susceptibility Testing, Probe Calibration, and RF Exposure Chambers
March 1985

MUTH, L. A.
A Theory of Mutual Impedances and Multiple Reflections in an N-Element Array Environment
NBS TN 1078
February 1985

KANDA, M.
Transients in a Resistively Loaded Loop Antenna
October 1984

NEWELL, A. C.; FRANCIS, M. H.; KREMER, D. P.
The Determination of Near-Field Correction Parameters for Circularly Polarized Probes
October 1984

STUBENRAUCH, C. F.; FRANCIS, M. H.
Comparison of Measured and Calculated Mutual Coupling in the Near Field Between Microwave Antennas
Proc., 1984 Antenna Applications Symp., 19-21 September 1984, University of Illinois, Urbana-Champaign, IL, pp. 1-21
September 1984

WYSS, J. C.; ANSON, W. J.; ORR, R. D.
Building Penetration Project
NBSIR 84-3009
September 1984
DAYWITT, W. C.
A Preliminary Investigation into Using the Sun as a Source for G/T Measurements
NBSIR 84-3015
August 1984

KANDA, M.
An Electromagnetic Near-Field Sensor for Simultaneous Electric and Magnetic-Field Measurements
August 1984

STUBENRAUCH, C. F.; FRANCIS, M. H.
Comparison of Measured and Calculated Mutual Coupling in the Near Field Between Microwave Antennas
NBSIR 84-3010
June 1984

WITTMANN, R. C.
Probe Correction in Spherical Near-field Scanning Viewed as an Ideal Probe Measuring an Effective Field
June 1984

FITZGERRELL, R. G.
A Source of E and H Fields for Antenna-Factor Calibration
May 1984

DAYWITT, W. C.
An Error Analysis for the Use of Presently Available Lunar Radio Flux Data in Broadbeam Antenna-System Measurements
NBS TN 1973
February 1984

HILL, D. A.
Theory of Near-Field Phased Arrays for Electromagnetic Susceptibility Testing
NBS TN 1072
February 1984

MA, M. T.
Arrays of Discrete Elements
January 1984

GREENLEE, D. H.; KANDA, M.; CHANG, D. C.
The Characteristics of Iris-Fed Millimeter Wave Rectangular Microstrip Patch Antennas
NBS TN 1063
October 1983

BENSEMA, W. D.
NBSIR 83-1693
July 1983
YAGHJIAN, A. D.
Approximate Formulas for the Far Field and Gain of Open-Ended Rectangular Waveguide
NBSIR 83-1689
May 1983

REPJAR, A. G.; NEWELL, A. C.; BAIRD, R. C.
Antenna Gain Measurements by an Extended Version of the NBS Extrapolation Method
March 1983

WAIT, D. F.
Precision Measurement of Antenna System Noise Using Radio Stars
March 1983

BAIRD, R. C.; ESTIN, A. J.
The Orbiting Standards Package: A Recalibratable Satellite Instrument Assembly for Measuring Large Earth Station Antennas
Proc., 1982 Antenna Meas. Tech. Assoc., 5-7 October 1982, New Mexico State University, Las Cruces, NM, pp. 5-1 through 5-9
October 1982

FITZGERRELL, R. G.
A Partial Loop Source of E and H Fields for Antenna Factor Calibration (A Loop Cell)
October 1982

FRANCIS, M. H.; YAGHJIAN, A. D.
Computations of Antenna Side-Lobe Coupling in the Near Field Using Approximate Far-Field Data
NBSIR 82-1674
August 1982

REPJAR, A. G.; NEWELL, A. C.; BAIRD, R. C.
Antenna Gain Measurements by an Extended Version of the NBS Extrapolation Method
June 1982

STUBENRAUCH, C. F.; SPIESS, W.; GALLIANO, P. G.; BABIJ, T.
International Intercomparison of Electric Field Strength at 100 MHz
June 1982

WAIT, D. F.
Precision Measurement of Antenna System Noise Using Radio Stars
June 1982
Antennas (cont.)

WYSS, J. C.; KANDA, M.; MELQUIST, D. G.; ONDREJKA, A. R.
Optical Modulator and Link for Broadband Antennas
June 1982

KANDA, M.
The Effects of Resistive Loading on TEM Horns
May 1982

KANDA, M.; CHANG, D. C.; GREENLEE, D. H.
The Characteristics of Iris-Fed Millimeter Wave Rectangular Microstrip Patch Antennas
May 1982

REPJAR, A. G.; KREMER, D. P.
Accurate Evaluation of a Millimeter Wave Compact Range Using Planar Near-Field Scanning
May 1982

WILSON, P. F.; CHANG, D. C.; MA, M. T.
Input Impedance of a Probe Antenna Exciting a TEM Cell
NBS TN 1054
April 1982

YAGHJIAN, A. D.
A Delta-Distribution Derivation of the Electric Field in the Source Region
April-June 1982

ESTIN, A. J.; STUBENRAUCH, C. F.; REPJAR, A. G.; NEWELL, A. C.
Optimized Wavelength-Sized Scalar Horns as Antenna Radiation Standards
March 1982

YAGHJIAN, A. D.
Efficient Computation of Antenna Coupling and Fields Within the Near-Field Region
January 1982

MA, M. T.
Synthesis of Broadband Antenna Arrays as Possible Over-the-Horizon Radars Research Topics in EM Wave Theory
Chapter 9, John Wiley Interscience, pp. 188-209
1981

TREADO, M. J.; TAGGART, H. E.; NELSON, R. E.; WORKMAN, J. L.
Fixed and Base Station Antennas
National Institute of Justice (NI) Standard-0204.01 (supersedes National Institute for Law Enforcement and Criminal Justice (NILECJ) STD-0204.00, dated November 1977)
December 1981
Antennas (cont.)

BAIRD, R. C.
Microwave Antenna Measurement Services at the National Bureau of Standards
October 1981

BENSEMA, W. D.
Broadband Orthogonal Array Antenna System: Microprocessor Control and Computation
Boulder, CO
August 1981

REEVE, G. R.
Synthesized Isotropic Pattern Antennas for EM Field Measurements
Boulder, CO
August 1981

Kerns, D. M.
Plane-Wave Scattering Matrix Theory of Antennas and Antenna-Antenna Interactions
NBS MN 162
June 1981

Lewis, R. L.
Spherical-Wave Source-Scattering-Matrix Analysis of the Mutual Coupling Between Two Antennas
June 1981

Lewis, R. L.
Spherical Scanning Data Processing: An Algorithm for Halving the Data Processing Effort when the Radiation into the Back Hemisphere is Negligible
June 1981

Reeve, G. R.; Wainwright, A. E.
A Frequency Tracking, Tuned, Receiving Monopole
June 1981

Stubenrauch, C. F.; Yaghjian, A. D.
Determination of Mutual Coupling Between Co-Sited Microwave Antennas and Calculation of Near-Zone Electric Field
NBSIR 81-1630
June 1981

Yaghjian, A. D.
A Delta-Distribution Derivation of the Electric Field in the Source Region
June 1981

Lewis, R. L.
Efficient Computation of the Far-Field Radiated by an Arbitrary Rectangular-Aperture Distribution
NBSIR 81-1643
April 1981
YAGHJIAN, A. D.
An Approximate Expression for the Principal Beamwidth of Directive Antennas in Terms of Aperture Fields
NBSIR 81-1644
March 1981

REPJAR, A. G.; KREMER, D. P.
Results of Planar Near-Field Measurements on a Compact Range at 18 and 54 GHz
Dig., IEEE Antenna Propagat. Soc. Symp. 1980

HILL, D. A.; WAIT, J. R.
Electromagnetic Characteristics of a Coaxial Cable with Periodic Slots
November 1980

WAIT, J. R.; HILL, D. A.
Fields of a Horizontal Loop of Arbitrary Shape Buried in a Two-Layer Earth
Radio Sci., Vol. 15, No. 5, pp. 903-912
September-October 1980

KANDA, M.
The Characteristics of a Linear Antenna with Tapered Resistive and Capacitive Loading
June 1980

KANDA, M.
Analytical and Numerical Techniques for Analyzing an Electrically Short Dipole with a Nonlinear Load
January 1980

KANDA, M.
Transients in Resistively Loaded Antennas and Their Comparison with Conical Antennas and TEM Horns
January 1980

STUBENRAUCH, C. F.
Some Recent Near-Field Antenna Measurements
Proc., 1979 Antenna Application Symp., September, 1979
September 1979

KANDA, M.
The Effects of Resistive Loading on TEM Horns
NBSIR 79-1601
August 1979

MA, M. T.
A Theoretical Study of Unbalanced Ground Effects on Receiving Dipoles
NBSIR 79-1605
May 1979
KANDA, M.
The Time Domain Characteristics of a Traveling Wave Linear Antenna with Linear and Non-Linear Loads
NBSIR 78-892 (Restricted)
February 1979

WACKER, P. F.
Plane-Radial Scanning Techniques With Probe Correction; Natural Orthogonalities with Respect to
Summation on Planar Measurement Lattices
Dig., IEEE Antenna Propagat. Soc. Symp., pp. 561-564
February 1979

WACKER, P. F.
Qualitative Survey of Near-Field Analysis and Measurement
NBSIR 79-1602
January 1979

KANDA, M.
Analytical and Numerical Techniques for Analyzing an Electrically Short Dipole with a Nonlinear Load
NBSIR 78-898
November 1978

LAWTON, R. A.; ONDREJK, A. R.
Antennas and the Associated Time Domain Range for the Measurement of Impulsive Fields
NBS TN 1008
November 1978

TAGGART, H. E.; SHAFER, J. F.
Testing of Electronic Industries Association Land-Mobile Communication Antenna Gain Standards at the
National Bureau of Standards
November 1978

DAYWITT, W. C.
An Error Analysis for the Measurement of Satellite EIRP using a Calibrated Radio Star
September 1978

DOUGHERTY, H. T.; ESTIN, A. J.; MORGAN, W. L.; WOODRUFF, J. J.
The Orbiting Standards Platform
September 1978

ESTIN, A. J.; BAIRD, R. C.
Feasibility Study of Orbiting Standards Platform
NBSIR 78-886
June 1978

KANDA, M.
A Relatively Short Cylindrical Broadband Antenna with Tapered Resistive Loading for Picosecond Pulse
Measurements
May 1978
KANDA, M.
A Relatively Short Cylindrical Broadband Antenna with Tapered Resistive Loading for Picosecond Pulse Measurements
May 1978

DAYWITT, W. C.
Atmospheric Propagation Equations Used in the NBS Earth Terminal Measurement System
NBSIR 78-883
April 1978

WAIT, D. F.
Earth Terminal Measurement System Operations Manual
NBSIR 78-879
April 1978

DAY, G. W.; STUBENRAUCH, C. F.
Laser Far-Field Beam-Profile Measurements by the Focal Plane Technique
NBS TN 1001
March 1978

KANDA, M.
Transients in Resistively Loaded Antennas and Their Comparison with Conical Antennas and TEM Horns
NBSIR 78-876
March 1978

WACKER, P. F.
Symmetry Analysis Applied to Scattering, Inverse Scattering, and Antenna Patterns: Measurements, Moment Method, and Characteristic Modes
1977

WACKER, P. F.
Symmetry Analysis Applied to Wave Theory
1977

DAYWITT, W. C.
Error Equations Used in the NBS Earth-Terminal Measurement System
NBSIR 78-869
December 1977

YAGHJIAN, A. D.
A Direct Approach to the Derivation of Electric Dyadic Green's Functions
NBS TN 1000
December 1977

DAYWITT, W. C.
A Precision Earth-Terminal System for Accurate C/KT, G/T, and EIRP Measurements with a Calibrated Radio Star
October 1977
MA, M. T.; FITZGERRELL, R. G.
Design of a Van-Top Low-Profile HF Antenna
OTR-77-131
October 1977

YAGHJIAN, A. D.
Near-Field Antenna Measurements on a Cylindrical Surface: A Source Scattering-Matrix Formulation
NBS TN 696
September 1977

KANDA, M.
A Relatively Short Cylindrical Broadband Antenna with Tapered Resistive Loading for Picosecond Pulse Measurements
NBSIR 77-861
August 1977

LEWIS, R. L.
The Use of Three Term Recursion Relations for Numerical Computations as Applied to Near-Field Spherical Scanning
June 1977

Wacker, P. F.; Newell, A. C.
Advantages and Disadvantages of Planar, Circular Cylindrical and Spherical Scanning and Description of the NBS Antenna Scanning Facilities
Proc., 1977 European Space Agency Symp., 6-8 June 1977, Noordwijk, Netherlands, pp. 115-121
June 1977

Wacker, P. F.
Recent Results with Spherical Near-Field Antenna Scanning at the National Bureau of Standards
Proc., 1977 European Space Agency Symp., 6-8 June 1977, Noordwijk, Netherlands, pp. 159-164
June 1977

Wait, D. F.
Satellite Earth Terminal G/T Measurements
Microwave J., Vol. 20, No. 4, pp. 49, 51, 58
April 1977

YAGHJIAN, A. D.
A Direct Approach to the Derivation of Electric Dyadic Green's Functions
Dig., Antenna Propagat. Soc. Symp., pp. 76-156
October 1976

DAYWITT, W. C.
Error Equations Used in the NBS Precision G/T Measurement System
NBSIR 76-842
September 1976
KANDA, M.
Study of Error Analysis for Absolute Flux Density Measurements of Cassiopeia
September 1976

LARSEN, E. B.; ANDREWS, J. R.
Using Fiber Optics in a Broadband, Sensitive, Isotropic Antenna - 15 kHz to 150 MHz
July 1976

CRAWFORD, M. L.
Calibration of Broadbeam Antennas Using Planar Near-Field Measurements
June 1976

NEWELL, A. C.; REPJAR, A. G.
Results of Spherical Near-Field Measurements on Narrow-Beam Antennas
June 1976

WACKER, P. F.
Non-Planar Near-Field Measurements: Spherical Scanning
NBSIR 75-809
1975

YAGHJIAN, A. D.
Upper-Bound Errors in Far-Field Antenna Parameters Determined from Planar Near-Field Measurements.
Part 1: Analysis
NBS TN 667
October 1975

DAYWITT, W. C.; KANDA, M.
G/T Measurement Errors with Radio Stars
Proc., 1975 IEEE Intl. Antenna and Propagat. Symp., 2-4 June 1975, Urbana-Champaign, IL,
Session 20, pp. 460-463
June 1975

NEWELL, A. C.; YAGHJIAN, A. D.
Study of Errors in Planar Near-Field Measurements
Proc., 1975 IEEE Intl. Antenna and Propagat. Symp., 2-4 June 1975, Urbana-Champaign, IL,
Session 20, pp. 470-473
June 1975

NEWELL, A. C.
Improved Polarization Measurements Using a Modified Three Antenna Technique
Proc., 1975 IEEE Intl. Antenna and Propagat. Symp., 2-4 June 1975, Urbana-Champaign, IL,
Session 15, pp. 337-340
June 1975

KANDA, M.
Accuracy Considerations in the Measurement of the Power Gain of a Large Microwave Antenna
May 1975

22
KERNs, D. M.
Plane-Wave Scattering Matrix Theory of Antennas and Antenna-Antenna Interactions: Formulation and Applications
NBSIR 75-824
January 1975

MA, M. T.
Theory and Application of Antenna Arrays
John Wiley Interscience
1974

WACKER, P. F.
Near-Field Antenna Measurements Using a Spherical Scan: Efficient Data Reduction with Probe Correction
1974

NEWELL, A. C.; CRAWFORD, M. L.
Planar Near-Field Measurements on High Performance Array Antennas
NBSIR 74-380
July 1974

BUSSEY, H. E.; LARSEN, E. B.
Buried Antenna Performance: Development of Small Resonant Buried Antennas
RADC-TR-74-169M, AD 783274
June 1974

KANDA, M.
Accuracy Considerations in the Measurement of the Power Gain of a Large Microwave Antenna
June 1974

NEWELL, A. C.; CRAWFORD, M. L.
Planar Near-Field Measurements on Phased Array Antennas
June 1974

WACKER, P. F.
Antenna Measurements at the National Bureau of Standards Near-Field and Extrapolation Techniques
Proc., 1974 Colloquium on Microwave Communication 24-30 June 1974, Budapest,
PME-113-114
June 1974

BAIRD, R. C.; KERNs, D. M.
The Accurate Determination of Millimeter-Wave Antenna Characteristics by Deconvolution and Extrapolation Techniques
March 1974

NEWELL, A. C.; BAIRD, R. C.; WACKER, P. F.
Accurate Measurement of Antenna Gain and Polarization at Reduced Distances by an Extrapolation Technique
July 1973
Kerns, D. M.
Comment on Correction of Errors in Aerial Far-Field Radiation-Pattern Determinations
Electronics Lett., Vol. 7, No. 24, pp. 706
December 1971

Newell, A. C.; Kerns, D. M.
Determination of Both Polarization and Power Gain of Antennas by a Generalized 3-Antenna Measurement Method
Electronics Lett., Vol. 7, No. 3, pp. 68-70
January 1971
DIELECTRIC MEASUREMENTS

KRUPKA, J.; Geyer, R. G.
Complex Permeability of Demagnetized Microwave Ferrites Near and Above Gyromagnetic Resonance
May 1996

BAKER-JARVIS, J. R.; GROSVENOR, J. H.
Dielectric and Magnetic Measurements at Elevated Temperatures in the Frequency Band 50 MHz to 2 GHz
NISTIR 5045
March 1996

BAKER-JARVIS, J. R.; JANEZIC, M. D.
Analysis of a Two-Port Flanged Coaxial Holder for Shielding Effectiveness and Dielectric Measurements of Thin Films and Thin Materials
February 1996

Applicability of Effective Medium Theory to Ferroelectric/Ferrimagnetic Composites with Composition and Frequency-Dependent Complex Permittivities and Permeabilities
February 1996

VANDERAH, T. A.; HUANG, Q.; WONG-NG, W.; CHAKOUMAKOS, B. C.; GOLDFARB, R. B.; GEYER, R. G.; BAKER-JARVIS, J. R.; ROTH, R. S.; SANTORO, A.
Preparation, Crystal Structure, Dielectric Properties, and Magnetic Behavior of Ba$_2$Fe$_2$Ti$_4$O$_{13}$
Journal of Solid State Chemistry, Vol. 120, pp. 121-127
November 1995

WEIL, C. M.
The NIST Metrology Program on Electromagnetic Characterization of Materials
November 1995

BAKER-JARVIS, J. R.; JONES, C. A.
Dielectric Measurements on Printed-Wiring and Circuit Boards, Thin Films, and Substrates: An Overview
April 1995

GEYER, R. G.; KRUPKA, J.
Microwave Dielectric Properties of Anisotropic Materials at Cryogenic Temperatures
April 1995

CEREMUGA, J.; KRUPKA, J.; GEYER, R. G.; MODELSKI, J.
Influence of Film Thickness and Air Gaps in Surface Impedance Measurements of High Temperature Superconductors Using the Dielectro Resonator Technique
December 1994
Dielectric Measurements (cont.)

VANZURA, E. J.; BAKER-JARVIS, J. R.; GROVENOR, J. H.; JANEZIC, M. D.
Intercomparison of Permittivity Measurements Using the Transmission/Reflection Method in 7-mm Coaxial Transmission Lines
IEEE Trans. Microwave Theory Tech., Vol. 42, No. 11, pp. 2063-2070
November 1994

BAKER-JARVIS, J. R.; JANEZIC, M. D.; DOMICH, P. D.; GEYER, R. G.
Analysis of an Open-Ended Coaxial Probe with Lift-Off for Nondestructive Testing
IEEE Trans. Instrumen. Meas., Vol. 43, No. 5, pp. 711-718
October 1994

GEYER, R. G.; KRUPKA, J.; KUHN, M.; HINKEN, J.
Dielectric Properties of Single Crystals of Al₂O₃, LaAlO₃, NdGaO₃, SrTiO₃, and MgO at Cryogenic Temperatures
October 1994

GEYER, R. G.; MANTESE, J.; BAKER-JARVIS, J. R.
Effective Medium Theory for Ferrite-Loaded Materials
NIST TN1371
October 1994

JONES, C. A.
Substrate and Thin Film Measurements
October 1994

BAKER-JARVIS, J. R.; JANEZIC, M. D.
Distribution of Dielectric Relaxation Times and the Moment Problem
June 1994

GEYER, R. G.; KRUPKA, J.
Dielectric Properties of Materials at Cryogenic Temperatures and Microwave Frequencies
June 1994

KRUPKA, J.; GEYER, R. G.; CROS, D.
Use of Higher-Order TEₜₘ Modes in Dielectric Measurements of Dielectric Rod Resonators
Proc., MIKON '94 Microwave Conf., 30 May-2 June 1994, Ksąż, Poland, pp. 567-572
June 1994

BAKER-JARVIS, J. R.; JANEZIC, M. D.
Open-Ended Coaxial Probes for Nondestructive Testing of Substrates and Circuit Boards
April 1994

BAKER-JARVIS, J. R.
Dielectric and Magnetic Relaxation by Maximum-Entropy Method
Smart Mater. Struct., Vol. 2, pp. 113-123
1993

26
Dielectric Measurements (cont.)

GROSVENOR, J. H.
NIST Measurement Service for Electromagnetic Characterization of Materials
NISTIR 5006
August 1993

VANZURA, E. J.; GEYER, R. G.; JANEZIC, M. D.
The NIST 60-Millimeter Diameter Cylindrical Cavity Resonator: Performance Evaluation for Permittivity Measurements
NIST TN 1354
August 1993

BAKER-JARVIS, J. R.; JANEZIC, M. D.; STAFFORD, R. B.
Shielded Open-Circuited Sample Holders for Dielectric and Magnetic Measurements of Liquids and Powders
NISTIR 5001
March 1993

CLARK, A. V.; SCHAPS, S. R.; BAKER-JARVIS, J. R.; GEYER, R. G.
Development of Electromagnetic Probes for Intelligent Processing of Dielectric Materials
NISTIR 4963, pp. 34-37
November 1992

BAKER-JARVIS, J. R.; GEYER, R. G.; DOMICH, P. D.
A Nonlinear Least-Squares Solution with Causality Constraints Applied to Transmission Line Permittivity and Permeability Determination
October 1992

BAKER-JARVIS, J. R.
Dielectric and Magnetic Measurement Methods in Transmission Lines: An Overview
July 1992

GEYER, R. G.; BAKER-JARVIS, J. R.; JANEZIC, M. D.; DOMICH, P. D.
Spectral Characterization of Ferrites for Use as Magnetic Reference Materials
June 1992

VANZURA, E. J.; WEIL, C. M.; WILLIAMS, D. F.
Complex Permittivity Measurements of Gallium Arsenide Using a High-Precision Resonant Cavity
June 1992

BAKER-JARVIS, J. R.; JANEZIC, M. D.; GROSVENOR, J. H.; GEYER, R. G.
Transmission/Reflection and Short-Circuit Line Methods for Measuring Permittivity and Permeability
NIST TN 1355
May 1992

WEIL, C. M.
The Electromagnetic Properties of Materials Program at NIST
April 1992
Dielectric Measurements (cont.)

CAPOBIANCO, T. E.; AULD, B. A.
Development of Electromagnetic Probes for Intelligent Processing of Dielectric Materials
NISTIR 4693, pp. 54-61
November 1991

DOMICH, P. D.; BAKER-JARVIS, J. R.; GEYER, R. G.
Optimization Techniques for Permittivity and Permeability Determination
NIST JRES, Vol. 96, No. 5, pp. 565-575
September/October 1991

DOMICH, P. D.; BAKER-JARVIS, J. R.; GEYER, R. G.
Optimization Techniques for Permittivity and Permeability Determination
NISTIR 4571
June 1991

JANEZIC, M. D.; GROSVENOR, J. H.
Improved Technique for Measuring Permittivity of Thin Dielectrics with a Cylindrical Resonant Cavity
May 1991

VANZURA, E. J.; ROGERS, J. E.
Evaluation of a Resonant Circuit Model Using Reflected S-Parameter Data
May 1991

WEIL, C. M.; KISSICK, W. A.
The NIST Electromagnetic Properties of Materials Program
May 1991

HILL, D. A.
Electric and Magnetic Dipole Radiation in a Random Medium
Electromagnetics, Vol. 10, pp. 279-292
1990

BAKER-JARVIS, J. R.; VANZURA, E. J.; KISSICK, W. A.
Improved Technique for Determining Complex Permittivity with the Transmission/Reflection Method
IEEE Trans. Microwave Theory Tech., Vol. 38, No. 8, pp. 1096-1103
August 1990

BAKER-JARVIS, J. R.
Transmission/Reflection and Short-Circuit Line Permittivity Measurement Methods
NIST TN 1341
July 1990

BAKER-JARVIS, J. R.; GEYER, R. G.
Improvements in Transmission Line Permittivity and Permeability Measurements
June 1990
Dielectric Measurements (cont.)

GEYER, R. G.; WEIL, C. M.; KISSICK, W. A.
Precision Dielectric Measurements Using a Mode-Filtered Cylindrical Cavity Resonator
Dig., Conf. on Prec. Electromagn. Meas., 11-14 June 1990, Ottawa, Canada, pp. 174-175
June 1990

GEYER, R. G.
Dielectric Characterization and Reference Materials
NIST TN 1338
April 1990

GEYER, R. G.
Electrodynamics of Materials for Dielectric Measurement Standardization
February 1990

GEYER, R. G.; JANEZIC, M. D.; KISSICK, W. A.; BAKER-JARVIS, J. R.
Preliminary Microwave Complex Permittivity Measurements of Heavy-Metal Fluoride Glasses
Proc., Third DoD Symp. on Electromagnetic Windows, 14-16 November 1989, Redstone Arsenal, Huntsville, AL, pp. 116-141
November 1989

HILL, D. A.
Near-Field Detection of Buried Dielectric Objects
July 1989

VANZURA, E. J.; KISSICK, W. A.
Advances in NIST Dielectric Measurement Capability Using a Mode-Filtered Cylindrical Cavity
June 1989

JESCH, R. L.
Measurement of Shielding Effectiveness of Different Cable and Shielding Configurations by Mode-Stirred Techniques
August 1988

GEYER, R. G.
Dielectric Mixing Rules for Background Test Soils
NBSIR 88-3095
June 1988

LAWTON, R. A.; ANDERSON, W. T.
Two Layer Dielectric Microstrip Line Structure: SiO₂ on Si and GaAs on Si: Modeling and Measurement
IEEE Trans. Microwave Theory Tech., Vol. MTT-36, No. 4, pp. 785-789
April 1988

DAYWITT, W. C.
Complex Permittivity of Beryllium Oxide Between 100 and 300 Kelvins at 9.3 Gigahertz
March 1985
JESCH, R. L.
Dielectric Measurements of Oil Shale as Functions of Temperature and Frequency
March 1984

BUSSEY, H. E.
Dielectric Measurements in a Shielded Open Circuit Coaxial Line
June 1980

BUSSEY, H. E.
Dielectric Measurements of Lunar Soil
Proc., 1979 Lunar and Planetary Science Conf. (10th) Natl. Aeronautics and Space Administration, 19-23 March 1979, Lyndon B. Johnson Space Center, Houston, TX
March 1979

BUSSEY, H. E.
Open Circuited Coaxial Resonator for High Sensitivity Dielectric Measurements, Application to Lunar Soil
70051-20
Proc., 1979 Lunar and Planetary Science Conf. (10th) Natl. Aeronautics and Space Administration, 19-23 March 1979, Lyndon B. Johnson Space Center, Houston, TX
March 1979

JESCH, R. L.
Dielectric Measurements of Five Different Soil Textural Types as Functions of Frequency and Moisture Content
NBSIR 78-896
1978

BENNETT, W. S.; TAGGART, H. E.
Characteristics of A CISPR/VDE Far-Field EMI Test Site with Ground Screen
Proc., Third Rotterdam Electromagn. Compat. Symp.,
December 1978

JONES, R. N.; BUSSEY, H. E.; LITTLE, W. E.; METZKER, R. F.
Electrical Characteristics of Corn, Wheat, and Soya in the 1-200 MHz Range
NBSIR 78-897
October 1978

ELLERBRUCH, D. A.; LITTLE, W. E.; BOYNE, H. S.; BACHMAN, D. D.
Microwave Characteristics of Snow
April 1977

BUSSEY, H. E.; RICHMOND, J. H.
Scattering by a Lossy Dielectric Circular Cylindrical Multilayer, Numerical Values
September 1975

BUSSEY, H. E.; MORRIS, D.; ZALTSMAN, E. B.
International Comparison of Complex Permittivity Measurement at 9 GHz
September 1974
Dielectric Measurements (cont.)

LAWTON, R. A.
Autocorrelation and Power Measurement with Pyroelectric and Dielectric Bolometers
December 1973

BUSSEY, H. E.
Wavelength of a Slotted Rectangular Line Containing Two Dielectrics
NBSIR 73-326
July 1973

BUSSEY, H. E.
Rapport sur la Comparaison Int'l des Mesures de Permittivite Complexe a 9 GHz (Intl. Comparison of Complex Permittivity Measurement at 9 GHz)
Proc., of Comite Consultatif, D'Electricite Comite, Bureau Intl. des Poids et Mesures, 12-13 October 1972, Sevres, France, pp. 124-137
October 1972
ELECTROMAGNETIC INTERFERENCE

LADBURY, J. M.; JOHNK, R. T.; ONDREJKA, A. R.
Rapid Evaluation of Mode-Stirred Chambers Using Impulsive Waveforms
NIST TN 1381
June 1996

CAMELL, D. G.; KOEPKE, G. H.; SMITH, R. B.; RAKOSKI, B.
A Standard Source Method for Reducing Antenna Factor Errors in Shielded Room Measurements
NIST TN 1382
March 1996

HILL, D.A.
Electromagnetic Shielding Characterization of Gaskets
NIST IR 5032
February 1996

CRAWFORD, M. L.; RIDDLE, B. F.; CAMELL, D. G.
TEM/Reverberating Chamber Electromagnetic Radiation Test Facility at Rome Laboratory
NISTIR 5002
January 1996

CRAWFORD, M. L.; LOUGHRY, T. A.; HATFIELD, M. O.; FREYER, G. J.
Band-Limited White Gaussian Noise Excitation for Reverberation Chambers and Applications to Radiated Susceptibility Testing
NIST TN 1375
January 1996

CRAWFORD, M. L.
Alternative EMC Compliance Test Facilities
Chapter 18 in Electromagnetic Compatibility Handbook, Academic Press, San Diego, CA
1995

HILL, D. A.
Electric Dipole Excitation of a Long Conductor in a Lossy Medium
Electromagnetics, Vol. 15, pp. 301-319
1995

KANDA, M.
Standard Antennas for Electromagnetic Field Measurements
Chapter 16 in Electromagnetic Compatibility Handbook, Academic Press, San Diego, CA
1995

KANDA, M.
Methodology for Electromagnetic Interference Measurements
1995

CAMELL, D. G.; MA, M. T.
Data Evaluation of a Linear System by a Second Order Transfer Function
August 1995
Electromagnetic Interference (cont.)

HILL, D. A.; CAMELL, D. G.; CAVCEY, K. H.; KOEPKE, G. H.
Radiated Emissions and Immunity of Microstrip Transmission Lines: Theory and Measurements
TN 1377
July 1995

RANDA, J.
A Low-Frequency Model for Radio-Frequency Absorber
NIST JRES, Vol. 100, No. 3, pp. 257-267
May-June 1995

HILL, D. A.
Spatial Correlation Function for Fields in a Reverberation Chamber
IEEE Trans. Electromagn. Comp. (Correspondence), Vol. 37, No. 1, p. 1
February 1995

RANDA, J.; GILLILAND, D.; GJERTSON, W.; LAUBER, W.; McINERNEY, M.
Catalogue of Electromagnetic Environment Measurements, 30 to 300 Hz
February 1995

HILL, D. A.
Gradiometer Antennas for Detection of Long Subsurface Conductors
1994

KOEPKE, G. H.; RANDA, J.
Screen-Room Measurements on the NIST Spherical-Dipole Standard Radiator
November/December 1994

HILL, D. A.; CAVCEY, K. H.; JOHNK, R. T.
Crosstalk Between Microstrip Transmission Lines
November 1994

HILL, D. A.
Electronic Mode Stirring for Reverberation Chambers
November 1994

KANDA, M.
Standard Antennas for Electromagnetic Interference Measurements and Methods to Calibrate Them
November 1994

CAMELL, D. G.; MA, M. T.
Assessment of Particular Measurement Data by a Linear Transfer Function Technique
NIST TN 1372
October 1994

Aperture Excitation of Electrically Large, Lossy Cavities
August 1994

33
Electromagnetic Interference (cont.)

Measurements of Shielding Effectiveness and Cavity Characteristics of Airplanes
NISTIR 5023
July 1994

JOHNK, R. T.; KANDA, M. T.
Alternative Contour Technique for the Efficient Computation of the Effective Length of an Antenna
May 1994

HILL, D. A.; CAVCEY, K. H.; JOHNK, R. T.
Crosstalk between Microstrip Transmission Lines
NISTIR 5015
December 1993

KANDA, M.
Standard Probes for Electromagnetic Field Measurements
October 1993

RANDA, J.; KOEPKE, G. H.
Results of Screened-Room Measurements on NIST Standard Radiators
NISTIR 5010
October 1993

JOHNK, R. T.
Aperture Excitation of Electrically Large, Lossy Cavities
NIST TN 1361
September 1993

MA, M. T.; ADAMS, J. W.
Characterization of Unknown Linear Systems Based on Measured CW Amplitude
Record, IEEE Intl. Symp. on Electromagn. Compat., 9-13 August 1993, Dallas, TX, pp. 78-82
August 1993

NOVOTNY, D. R.; MASTERSON, K. D.; KANDA, M.
An Optically Linked Three-Loop Antenna System for Determining the Radiation Characteristics of an
Electrically Small Source
Record, IEEE Intl. Symp. on Electromagn. Compat., 9-13 August 1993, Dallas, TX, pp. 300-304
August 1993

RANDA, J.; GILLILAND, D.; GJERTSON, W.; LAUBER, W.; McINERNEY, M.
Condensed Catalogue of Electromagnetic Environment Measurements, 30-300 Hz
Record, IEEE Intl. Symp. on Electromagn. Compat., 9-13 August 1993, Dallas, TX, pp. 126-131
August 1993

MA, M. T.
Selected EMC Standards and Regulations: A Summary
NISTIR 5005
July 1993
Electromagnetic Interference (cont.)

MA, M. T.; ADAMS, J. W.
Characteristics of Unknown Linear Systems Deduced from Measured CW Magnitude
NIST JRES, Vol. 93, No. 3, pp. 297-319
May-June 1993

HILL, D. A.
Gradiometer Antennas for Tunnel Detection
Proc., 4th Tunnel Detection Symp. on Subsurface Exploration Technology, April 26-29, 1993,
Golden, CO
April 1993

HILL, D. A.; CRAWFORD, M. L.; KANDA, M.
Aperture Coupling to Shielded Transmission Lines: Theory and Experiment
Proc. 10th Intl. Zurich Symp. on EMC, 9-11 March 1993, Zurich, Switzerland, pp. 569-571
March 1993

Aperture Coupling to a Coaxial Air Line: Theory and Experiment
February 1993

RANDA, J.
Correction Factor for Nonplanar Incident Field in Monopole Calibrations
February 1993

HILL, D. A.
Electromagnetic Scattering by a Periodic Surface with a Wedge Profile
Electromagnetics, Vol. 12, pp. 247-264
1992

HILL, D. A.
Currents Induced on Multiconductor Transmission Lines by Radiation and Injection
November 1992

ADAMS, J. W.; CRUZ, J. E.; MELQUIST, D. G.
Comparison Measurements of Currents Induced by Radiation and Injection
August 1992

ADAMS, J. W.
Electromagnetic Shielding of RF Gaskets Measured by Two Methods
August 1992

CRAWFORD, M. L.; RIDDLE, B. F.
A Reverberating Asymmetric TEM Cell for Radiated EMC/V and SE Testing, 10 kHz - 18 GHz
August 1992
Electromagnetic Interference (cont.)

New Spherical Dipole Source 
August 1992

RANDA, J.; KANDA, M.; ORR, R. D. 
Optimized Thermo-Optic Electric-Field Probes for Microwaves and Millimeter Waves 
August 1992

TOFANI, S.; ONDREJKA, A. R.; KANDA, M.; HILL, D. A. 
Bistatic Scattering of Absorbing Materials from 30 to 1000 MHz 
August 1992

HILL, D. A. 
Gradiometer Antennas for Tunnel Detection 
NISTIR 3990 
June 1992

MA, M. T.; ADAMS, J. W. 
System Response to Pulsed Excitations Estimated from Measurement of CW Amplitudes 
May 1992

MA, M. T. 
EMC Standards and Regulations: A Brief Review 
NISTIR 3989 
May 1992

Aperture Coupling to Shielded Transmission Lines: Theory and Experiment 
NISTIR 3988 
April 1992

KANDA, M.; HILL, D. A. 
A Three-Loop Method for Determining the Radiation Characteristics of an Electrically Small Source 
February 1992

KANDA, M.; MASTERSON, K. D. 
Optically Sensed EM-Field Probes for Pulsed Fields 
January 1992

A Standard Spherical Dipole Source 
NIST TN 1351 
December 1991

36
MA, M. T.; ADAMS, J. W.
Phase Characteristics and Time Responses of Unknown Linear Systems Determined from Measured CW Amplitude Data
NIST TN 1349
November 1991

MA, M. T.; LARSEN, E. B.; CRAWFORD, M. L.
Electromagnetic Fields with Arbitrary Wave Impedances Generated Inside a TEM Cell
November 1991

RANDA, J.; KANDA, M.; ORR, R. D.
Thermo-Optic Designs for Electromagnetic Field Probes for Microwaves and Millimeter Waves
August 1991

RANDA, J.; KANDA, M.; ORR, R. D.
Resistively-Tapered-Dipole Electric-Field Probes up to 40 GHz
August 1991

HILL, D. A.
Diffraction by a Half Plane in a Lossy Medium
J. Appl. Phys., Vol. 69, No. 12, pp. 8405-8407
June 1991

ONDREJKA, A. R.; KANDA, M.
A Time-Domain Method for Measuring the Reflection Coefficient of Microwave Absorbers at Frequencies Below 1 GHz
June 1991

CRAWFORD, M. L.; RIDDLE, B. F.
A Proposed TEM Driven Mode-Stirred Chamber for Large System Radiated EMC/V Testing 10 kHz - 40 GHz
March 1991

KANDA, M.; RANDA, J.
Estimation of Electromagnetic Fields in Complex Environments
March 1991

RANDA, J.
Simultaneous vs. Independent Injection Testing of Nonlinear Multiport Systems
March 1991
Electromagnetic Interference (cont.)

HILL, D. A.
A Generalization of the Cornu Spiral for Lossy Media
J. Appl. Phys., Vol. 69, No. 3, pp. 1772-1774
February 1991

WILSON, P. F.; MA, M. T.
Fields Radiated by Electrostatic Discharges
February 1991

CAMELL, D. G.; LARSEN, E. B.; CRUZ, J. E.; HILL, D. A.
NIST Calibration Procedure for Vertically Polarized Monopole Antennas, 30 kHz to 300 MHz
NIST TN 1347
January 1991

RANDA, J.
Theoretical Considerations for a Thermo-Optic Microwave Electric-Field Probe
1990

HILL, D. A.
Near-Field and Far-Field Excitation of a Long Conductor in a Lossy Medium
NISTIR 3954
September 1990

CRAWFORD, M. L.; MA, M. T.; LADBURY, J. M.; RIDDLE, B. F.
Measurement and Evaluation of a TEM/Reverberating Chamber
NIST TN 1342
July 1990

HILL, D. A.
Quasi-Static Analysis of a Two-Wire Transmission Line Located at an Interface
Radio Sci., Vol. 25, No. 4, pp. 435-440
July-August 1990

CRAWFORD, M. L.; LADBURY, J. M.; RIDDLE, B. F.; LARSEN, E. B.
Electromagnetic Radiation Test Facilities: Evaluation of a Small Reverberating Chamber Located at
RADC, Griffiss AFB, Rome, NY
NISTIR 90-3939
June 1990

MASTERSON, K. D.; KANDA, M.
Broadband, Photonic Electric Field Sensors for EMP and HPM Applications
Proc., Fifth Natl. Conf. on High Power Microwave Technology (DoD), 10-15 June 1990, West
Point, NY, pp. 388-391
June 1990

ADAMS, J. W.; WU, D. I.; BUDLONG, A.
Measurement of Electric Field Strength Near Higher-Powered Personal Transceivers
NISTIR 90-3938
May 1990

38
Electromagnetic Interference (cont.)

HILL, D. A.; KANDA, M.; LARSEN, E. B.; KOEPKE, G. H.; ORR, R. D.
Generating Standard Reference Electromagnetic Fields in the NIST Anechoic Chamber, 0.2 to 40 GHz
NIST TN 1335
March 1990

KANDA, M.
A Microstrip Patch Antenna as a Standard Transmitting and Receiving Antenna
February 1990

MA, M. T.; CRAWFORD, M. L.
Facilities for Improving Evaluations of Electromagnetic Susceptibilities of Weapon Systems and Electronic Equipment
NISTIR 89-3928
November 1989

WU, D. I.; KANDA, M.
Comparison of Theoretical and Experimental Data for the Near-Field of an Open Ended Rectangular Waveguide
November 1989

KANDA, M.
A Microstrip Patch Antenna as a Standard Transmitting and Receiving Antenna
September 1989

MASTERSOHN, K. D.; DRIVER, L. D.
A Broadband, Isotropic, Photonic Electric Field Probe for Measurements from 10 kHz to Above 1 GHz
September 1989

CRAWFORD, M. L.
TEM/Reverberating Chamber Design/Concept Study: A Single Facility for Large System Radiated EMC Testing, 10 kHz-40 GHz?
August 1989

FITZGERRELL, R. G.
Monopole Impedance and Gain Measurements of Finite Ground Planes
National Institute of Justice Report, 200-87
May 1989

LARSEN, E. B.; EHRET, R. L.; CAMELL, D. G.; KOEPKE, G. H.
Calibration of Antenna Factor at a Ground Screen Field Site Using an Automatic Network Analyzer
May 1989

39
Electromagnetic Interference (cont.)

MASTERNON, K. D.; DRIVER, L. D.; KANDA, M.
Photonic Probes for the Measurement of Electromagnetic Fields over Broad Bandwidths
May 1989

RANDA, J.; KANDA, M.; MELQUIST, D. G.; ORR, R. D.
Thermo-optic Designs for Microwave and Millimeter-wave Electric-Field Probes
May 1989

WU, D. I.; CHANG, D. C.
The Effect of an Electrically Large Stirrer in a Mode-Stirred Chamber
May 1989

KOEPKE, G. H.; MA, M. T.; BENSEMA, W. D.
Implementation of an Automated System for Measuring Radiated Emissions Using a TEM cell
April 1989

CRUZ, J. E.; LARSEN, E. B.
Alternative Techniques for Some Typical MIL-STD-461/462 Types of Measurements
NIST TN 1320
March 1989

MA, M. T.
How High is the Level of Electromagnetic Fields Radiated by an ESD?
March 1989

CAVCEY, K. H.
Transmission Loss Through 6061 T-6 Aluminum Using a Pulsed Eddy Current Source
February 1989

HILL, D. A.
Clutter Models for Subsurface Electromagnetic Applications
NISTIR 89-3909
February 1989

HILL, D. A.
Reflection Coefficient of a Waveguide with Slightly Uneven Walls
IEEE Trans. Microwave Theory Tech., Vol MTT-37, No. 1, pp. 244-252
January 1989

KOEPKE, G. H.; MA, M. T.; BENSEMA, W. D.
Theory and Measurements of Radiated Emissions Using a TEM Cell
NIST TN 1326
January 1989
Electromagnetic Interference (cont.)

ADAMS, J. W.; FRIDAY, D. S.
Measurement Procedures for Electromagnetic Compatibility Assessment of Electroexplosive Devices
November 1988

DRIVER, L. D.; KANDA, M.
An Optically Linked Electric and Magnetic Field Sensor for Poynting Vector Measurements in the Near Fields of Radiating Sources
November 1988

REEVE, G. R.
Proficiency Testing for MIL-STD 462 NVLAP Laboratories
Dig., EMC EXPO '88, 10-12 May 1988, Washington, DC, pp. T33.13 through T33.15
September 1988

WU, D. I.; CHANG, D. C.
A Hybrid Representation of the Green's Function in an Over-Moded Rectangular Cavity
IEEE Trans. Microwave Theory Tech., Vol. MTT-36, No. 9, pp. 1334-1342
September 1988

CAMELL, D. G.; LARSEN, E. B.; ANSON, W. J.
NBS Calibration Procedures for Horizontal Dipole Antennas (25 to 100 MHz)
August 1988

CRAWFORD, M. L.; LADBURY, J. M.
Mode-Stirred Chamber for Measuring Shielding Effectiveness of Cables and Connectors an Assessment of MIL-STD 1344A Method 3008
August 1988

JESCH, R. L.
Measurement of Shielding Effectiveness of Different Cable and Shielding Configurations by Mode-Stirred Techniques
August 1988

KANDA, M.; ORR, R. D.
Generation of Standard Electromagnetic Fields in a TEM Cell
NBS TN 1319
August 1988

WILSON, P. F.; MA, M. T.
Techniques for Measuring the Electromagnetic Shielding Effectiveness of Materials: Part II - Near-Field Source Simulation
August 1988
Electromagnetic Interference (cont.)

WILSON, P. F.; MA, M. T.; ADAMS, J. W.
Techniques for Measuring the Electromagnetic Shielding Effectiveness of Materials: Part I - Far-Field Source Simulation
August 1988

WILSON, P. F.; MA, M. T.; ONDREJKA, A. R.
Fields Radiated by Electrostatic Discharges
August 1988

KANDA, M.; DRIVER, L. D.
An Optically Linked Electric and Magnetic Field Sensor for Poynting Vector Measurements in the Near Field of Radiating Sources
Dig., Conf. on Prec. Electromagn. Meas., 7-10 June 1988, Tsukuba Science City, Japan, pp. 32-33
June 1988

MA, M. T.
Theory and Measurements of Unintentional Radiators
Dig., Conf. on Prec. Electromagn. Meas., 7-10 June 1988, Tsukuba Science City, Japan, pp. 30-31
June 1988

RANDA, J.; KANDA, M.; MELQUIST, D. G.; SEGA, R. M.; NORGARD, J. D.
High Frequency Electric Field Probe Development
May 1988

VANZURA, E. J.
Automated System for Electromagnetic Field Generation and Immunity Testing
April 1988

FITZGERRELL, R. G.
Monopole Impedance and Gain Measurements on Finite Ground Planes
March 1988

MA, M. T.
Understanding Reverberating Chambers as an Alternative Facility for EMC Testing
March/April 1988

WU, D. I.; CHANG, D. C.
The Effect of a Large Rotating Scatterer in a Rectangular Cavity
NBS TN 1317
March 1988

HILL, D. A.
A Circular Array for Plane-Wave Synthesis
February 1988

42
Electromagnetic Interference (cont.)

RANDA, J.; KANDA, M.; MELQUIST, D. G.
Possible Designs for Electric-Field Strength-Probes for Millimeter Waves
NBSIR 88-3084
February 1988

WILSON, P. F.; ONDREJKA, A. R.; MA, M. T.; LADBURY, J. M.
Electromagnetic Fields Radiated From Electrostatic Discharges – Theory and Experiment
NBS TN 1314
February 1988

WILSON, P. F.
A Comparison Between Near-Field Shielding Effectiveness Measurements Based on Coaxial Dipoles and on Electrically Small Apertures
February 1988

CAVCEY, K. H.; FRIDAY, D. S.
Aircraft Field Degradation and Electromagnetic Compatibility
NBSIR 88-3083
January 1988

HILL, D. A.
Electromagnetic Detection of Long Conductors in Tunnels
January 1988

HILL, D. A.
Effect of a Thin Conducting Sheet on the Fields of a Buried Magnetic Dipole
Electromagnetics, pp. 71-79
1987

CRAWFORD, M. L.; KOEPKE, G. H.; LADBURY, J. M.
EMR Test Facilities Evaluation of Reverberating Chamber Located at RADC, Griffiss, AFB, Rome, New York
NBSIR 87-3080
December 1987

RANDA, J.; KANDA, M.
A New Approach to Volumes Irradiated by Unknown Sources
November 1987

VANZURA, E. J.; ADAMS, J. W.
Generating Constant Electromagnetic Fields Inside a Partially-Loaded Shielded Room
Test and Meas. World, pp. 72-83
November 1987

JESCH, R. L.
Measurement of Shielding Effectiveness of Different Cable and Shielding Configurations by Mode-Stirred Techniques
NBSIR 87-3076
October 1987

43
MA, M. T.
Characterization of Unknown RF Leakage Sources: Problems, Solutions and Practical Implications
Union Radio Scientifique Internationale XXII General Assembly, 24 August - 2 September 1987, Tel Aviv, Israel
September 1987

WU, D. I.; CHANG, D. C.
An Investigation of a Ray-Mode Representation of the Green's Function in a Rectangular Cavity
NBS TN 1312
September 1987

CRAWFORD, M. L.
A TEM Driven Reverberating Chamber: A Single Facility for Radiated EMS/V Testing, 10 kHz - 18 GHz?
May 1987

MA, M. T.; BENSEMA, W. D.
Automated TEM Cell for Measuring Unintentional EM Emissions
May 1987

CRAWFORD, M. L.; KOEPKE, G. H.
Performing EM Susceptibility/Vulnerability Measurements Using a Reverberation Chamber
Proc., 7th Intl. Symp. on Electromagn. Compat., 3-5 March 1987, Zurich, Switzerland, pp. 121-126
March 1987

MARTZLOFF, F. D.; WILSON, P. F.
Fast Transient Tests - Trivial or Terminal Pursuit?
March 1987

RANDA, J.; KANDA, M.
A Lattice Approach to Environments Irradiated by Unknown Sources
March 1987

WILSON, P. F.; MA, M. T.
Techniques for Measuring the Shielding Effectiveness of Materials
Proc., 7th Intl. Symp. on Electromagn. Compat., 3-5 March 1987, Zurich, Switzerland, pp. 547-552
March 1987

KANDA, M.; DRIVER, L. D.
An Isotropic, Electric-Field Probe with Tapered Resistive Dipoles for Broadband Use, 100 kHz - 18 GHz
February 1987

44
Electromagnetic Interference (cont.)

HILL, D. A.
Radio-Wave Propagation from a Forest to a Clearing
Electromagnetics, pp. 217-228
1986

LARSEN, E. B.
Calibration and Meaning of Antenna Factor and Gain for EMI Antennas
Interference Technology Engineers’ Master (ITEM 1986), pp. 113-335
1986

MASTERSON, K. D.
A Photonic Electric Field Probe for Frequencies up to 2 GHz
Proc., Soc. for Photo-Optical Instrumentation Engineers (SPIE), Vol. 720, p. 100
1986

CRAWFORD, M. L.; BEAN, J. L.
NSWC Reverberating Chamber: A High Power Microwave Exposure Chamber
December 1986

HILL, D. A.; KOEPKE, G. H.
A Near-Field Array of Yagi-Uda Antennas for Electromagnetic Susceptibility Testing
November 1986

HILL, D. A.
An Error Bound for Near-Field Array Synthesis
November 1986

BENSEMA, W. D.; KOEPKE, G. H.; MEDLEY, H. W.
Handbook for NBS Multisensor Automated EM Field Measurement System
NBSIR 86-3056
October 1986

CRUZ, J. E.; LARSEN, E. B.
Assessment of Errors for MIL-STD-461/462
NBS TN 1300
October 1986

JESCH, R. L.
A Survey of Triaxial and Mode-Stirred Techniques for Measuring the Shielding Effectiveness of Connectors and Cables
NBSIR 86-3060
October 1986

KANDA, M.; WYSS, J. C.
Evaluation of Off-Axis Measurements Performed in an Anechoic Chamber
NBS TN 1305
October 1986
Electromagnetic Interference (cont.)

RANDA, J.; KANDA, M.
A Lattice Approach to Volumes Irradiated by Unknown Sources
NBS TN 1303
October 1986

ADAMS, J. W.; VANZURA, E. J.
Shielding Effectiveness Measurements of Plastics
EMC Technology and Interference Control News, pp. 39-44
September-October 1986

CRAWFORD, M. L.; KOEPKE, G. H.
Preliminary Evaluation of Reverberation Chamber Method for Pulsed RF Immunity Testing
September 1986

KANDA, M.; DRIVER, L. D.
An Isotropic, Electric-Field Probe with Tapered Resistive Dipoles for Broadband Use, 100 kHz - 18 GHz
September 1986

KANDA, M.; ORR, R. D.
Near-Field Gain of a Horn and an Open-Ended Waveguide: Comparison Between Theory and Experiment
September 1986

MA, M. T.; KANDA, M.; CRAWFORD, M. L.; LARSEN, E. B.
Measuring Electromagnetic Interference, Part I, Open-Field Sites and TEM Cells; Part II, Reverberating Chambers; Part III, Anechoic Chambers and Field Probes
September 1986

RANDA, J.; KANDA, M.
A Lattice Approach to Complex Electromagnetic Environments
September 1986

WILSON, P. F.; MA, M. T.
Shielding Effectiveness Measurements Using an Apertured TEM Cell in a Reverberation Chamber
September 1986

HILL, D. A.
Out-of-Band Response of a Coax-to-Waveguide Adapter
August 1986
Electromagnetic Interference (cont.)

WILSON, P. F.; MA, M. T.
Simple Approximate Expressions for Higher-Order Mode Cut Off and Resonant Frequencies in TEM Cells
August 1986

HILL, D. A.; WAIT, J. R.
Anomalous Vertical Magnetic Field for Electromagnetic Induction in a Laterally Varying Thin Conductive Sheet
Radio Sci., Vol. 21, No. 4, pp. 617-621
July-August 1986

MA, M. T.; KANDA, M.
Electromagnetic Compatibility and Interference Metrology
NBS TN 1099
July 1986

CRAWFORD, M. L.; KOEPKE, G. H.
Performing EM Susceptibility/Vulnerability Measurements Using a Reverberation Chamber
June 1986

CRAWFORD, M. L.; KOEPKE, G. H.
EMR Test Facilities - Evaluation of Reverberation Chambers Located at NSWC, Dahlgren, VA
NBSIR 86-3051
June 1986

KANDA, M.; DRIVER, L. D.
A Broadband, Electric-Field Probe Using Resistively Tapered Dipoles, 100 kHz - 18 GHz
June 1986

REEVE, G. R.
Alternate EMI Measurement Techniques for Microelectronic Circuits
June 1986

WILSON, P. F.; MA, M. T.
Methods for Measuring the Near-Field and Far-Field Shielding Effectiveness of Materials
June 1986

FRIDAY, D. S.; ADAMS, J. W.
A Statistical Characterization of Electroexplosive Devices Relevant to Electromagnetic Compatibility
NBS TN 1094
May 1986

JESCH, R. L.
Susceptibility of Emergency Vehicle Sirens to External Radiated Electromagnetic Fields
National Institute of Justice Technology Program, NIJ Report-200-85
May 1986

47
Electromagnetic Interference (cont.)

WILSON, P. F.; MA, M. T.
A Study of Techniques for Measuring the Electromagnetic Shielding Effectiveness of Materials
NBS TN 1095
May 1986

CRAWD, M. L.; KOEPKE, G. H.
Design, Evaluation and Use of a Reverberation Chamber for Performing Electromagnetic
Susceptibility/Vulnerability Measurements
NBS TN 1092
April 1986

KUFFEL, J.; MALEWSKI, R.; VAN HEESWIJK, R.; LAWTON, R. A.
Dynamic Performance of Digital Recorders Used for Monitoring High-Voltage Impulse Tests
March 1986

FITZGERRELL, R. G.
Site Attenuation
February 1986

HILL, D. A.
Electromagnetic Wave Propagation in an Asymmetrical Coal Seam
February 1986

WILSON, P. F.; MA, M. T.
Electromagnetic Shielding Effectiveness: Measurement Techniques and Interpretations
1986 IEEE Regional Conf. and Exhib. on Electromagn. Compat., 6 February 1986, Anaheim,
CA, pp. 1-14
February 1986

ADAMS, J. W.; VANZURA, E. J.
Shielding Effectiveness Measurements of Plastics
NBSIR 85-3035
January 1986

FRIDAY, D. S.
Methodology for Statistical Control of the Anechoic Chamber Field Generation System
NBSIR 85-3033
January 1986

KANDA, M.; LARSEN, E. B.; BORERO, M.; GALLIANO, P. G.; YODOSHIMA, I.; NAHMAN, N. S.
Standards for Electromagnetic Fields Measurements
January 1986

MA, M. T.
Measurements of Unintentional Electromagnetic Emissions
January 1986
Electromagnetic Interference (cont.)

WILSON, P. F.; MA, M. T.
Measurements of Electromagnetic Shielding Capabilities of Materials
January 1986

NAHMAN, N. S.; KANDA, M.; LARSEN, E. B.; CRAWFORD, M. L.
Methodology for Standard Electromagnetic Field Measurements
December 1985

FITZGERRELL, R. G.
Site Attenuation
NBS TN 1089
November 1985

HILL, D. A.
A Numerical Method for Near-Field Array Synthesis
November 1985

CRUZ, J. E.; DRIVER, L. D.; KANDA, M.
Design of the National Bureau of Standards Isotropic Magnetic Field Meter (MFM-10) 300 kHz to 100 MHz
NBS TN 1085
October 1985

WILSON, P. F.; CHANG, D. C.
Mode Coupling by a Longitudinal Slot for a Class of Planar Waveguiding Structures: Part I - Theory
IEEE Trans. Microwave Theory Tech., Vol. MTT-33, No. 10, pp. 981-987
October 1985

WILSON, P. F.; CHANG, D. C.
Mode Coupling by a Longitudinal Slot for a Class of Planar Waveguiding Structures: Part II - Applications
IEEE Trans. Microwave Theory Tech., Vol. MTT-33, No. 10, pp. 988-993
October 1985

CRAWFORD, M. L.; KOEPKE, G. H.
Comparing EM Susceptibility Measurement Results Between Reverberation and Anechoic Chambers
August 1985

FITZGERRELL, R. G.
Site Attenuation
August 1985

HILL, D. A.; KOEPKE, G. H.
An Array of Dipoles for Plane Wave Synthesis
August 1985
Electromagnetic Interference (cont.)

KANDA, M.; ORR, R. D.
NBS TN 1083
August 1985

RANDA, J.; KANDA, M.
Directional Scanning of Complex Electromagnetic Environments
August 1985

RANDA, J.; KANDA, M.
High Frequency Errors of an Electric-field-meter in Complicated Environments
August 1985

RANDA, J.; KANDA, M.
A Finite-Element Action Approach to the Characterization of Complex Electromagnetic Environments
August 1985

WILSON, P. F.; MA, M. T.
Shielding Effectiveness Measurements in a Dual TEM Cell
August 1985

WILSON, P. F.; MA, M. T.
Factors Influencing Material Shielding Effectiveness Measurements
August 1985

HILL, D. A.; KOEPKE, G. H.
A Near-field Array of Yagi-Uda Antennas for Electromagnetic Susceptibility Testing
NBS TN 1082
July 1985

RANDA, J.; KANDA, M.
A Directional Scanning Technique for Characterization of Complex Electromagnetic Environments
June 1985

WYSS, J. C.; SHEERAN, S.
A Passive, Optical Modulator and Link for Antennas
April 1985

BENSEMA, W. D.; REEVE, G. R.; KOEPKE, G. H.
A Multisensor Automated EM Field Measurement System
March 1985
Electromagnetic Interference (cont.)

CRUZ, J. E.; LARSEN, E. B.
Screenroom Measurements of Antenna Factors
March 1985

KANDA, M.; NAHMAN, N. S.
Standards for Measurement of Electromagnetic Fields
March 1985

KANDA, M.; RANDA, J.; NAHMAN, N. S.
Possible Estimation Methodologies for Electromagnetic Field Distributions in Complex Environments
NBS TN 1081
March 1985

KANDA, M.
A Methodology for Evaluating Microwave Anechoic Chamber Measurements
Proc., 1985 Symp. and Technical Exhib. on Electromagn. Compat., 5-7 March 1985, Zurich,
Switzerland, pp. 69-74
March 1985

LARSEN, E. B.; CRUZ, J. E.
E and H Fields in Transmission Lines and Coils for Susceptibility Testing, Probe Calibration, and RF
Exposure Chambers
March 1985

MA, M. T.; KANDA, M.; CRAWFORD, M. L.; LARSEN, E. B.
A Review of Electromagnetic Compatibility/Interference Measurement Methodologies
Proc., IEEE, Vol. 73, No. 3, pp. 388-411
March 1985

RANDA, J.; KANDA, M.
Multiple-Source, Multiple-Frequency Error of an Electric Field Meter
January 1985

SHAFAER, J. F.
Field Strength Levels in Vehicles Resulting from Communications Transmitters
National Institute of Justice Report, 200-83
1984

WILSON, P. F.; MA, M. T.
Input Impedance of a Probe Antenna in a TEM Cell
November 1984

KANDA, M.
Error Analysis of Radiation Characteristics of an Unknown Interference Source Based on Power
Measurements
October 1984

51
Electromagnetic Interference (cont.)

WILSON, P. F.; MA, M. T.
Small Aperture Analysis of the Dual TEM Cell and an Investigation of Test Object Scattering in a Single TEM Cell
NBS TN 1076
October 1984

WILSON, P. F.; MA, M. T.
Small Obstacle Loading in a TEM Cell
October 1984

WYSS, J. C.; ANSON, W. J.; ORR, R. D.
Building Penetration Project
NBSIR 84-3009
September 1984

ONDREJKA, A. R.; ADAMS, J. W.
Shielding Effectiveness (SE) Measurement Techniques
June 1984

WILSON, P. F.; MA, M. T.
Some Problems Associated with Interpreting Shielding Effectiveness Measurement Results
June 1984

FITZGERELL, R. G.
A Source of E and H Fields for Antenna-Factor Calibration
May 1984

CRAWFORD, M. L.; KOEPKE, G. H.
Operational Considerations of a Reverberation Chamber for EMC Immunity Measurements, Some Experimental Results
April 1984

DRIVER, L. D.; REEVE, G. R.
Application of a Systematic Approach to an Investigation of HF Interference to a Shipboard Radar Set
April 1984

ONDREJKA, A. R.; ADAMS, J. W.
Shielding Effectiveness (SE) Measurement Techniques
April 1984
Electromagnetic Interference (cont.)

WILSON, P. F.; MA, M. T.
Small Aperture Analysis of the Dual TEM Cell
pp. 365-369
April 1984

HILL, D. A.
Theory of Near-Field Phased Arrays for Electromagnetic Susceptibility Testing
NBS TN 1072
February 1984

ALSPACH, W. J.; MILLER, C. K. S.; REEVE, G. R.
An Assessment of Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC)
Measurement Practices to Meet U.S. Army Aviation Research and Development Command EMI/EMC
Requirements
NBSIR 84-1698 (Restricted)
January 1984

KANDA, M.
Arrays of Discrete Elements
Book Co.
January 1984

CRAWSFORD, M. L.
Comparison of Open-Field, Anechoic Chamber and TEM Cell Facilities/Techniques for Performing
Electromagnetic Radiated Emissions Measurements
pp. 413-418
August 1983

FITZGERRELL, R. G.
E-Fields Over Ground
pp. 6-9
August 1983

LIU, B. H.; CHANG, D. C.; MA, M. T.
Eigenmodes and the Composite Quality Factor of a Reverberating Chamber
NBS TN 1066
August 1983

LIU, B. H.; CHANG, D. C.; MA, M. T.
Design Consideration of Reverberating Chambers for Electromagnetic Interference Measurements
pp. 508-512
August 1983

WILSON, P. F.; CHANG, D. C.; MA, M. T.; CRAWFORD, M. L.
Theoretical and Experimental Analysis of Coupling Characteristics of Dual TEM Cells
pp. 513-517
August 1983

53
Electromagnetic Interference (cont.)

BENSEMA, W. D.
NBSIR 83-1693
July 1983

MA, M. T.; KOEPKE, G. H.
Uncertainties in Extracting Radiation Parameters for an Unknown Interference Source Based on Power and Phase Measurements
NBS TN 1064
June 1983

KANDA, M.; RIES, F. X.
Time Domain Sensors for Radiated Impulsive Measurements
May 1983

KANDA, M.
An Electric and Magnetic Field Sensor for Simultaneous Electromagnetic Near-Field Measurements - Theory
NBS TN 1062
April 1983

CRAWFORD, M. L.
Improving the Repeatability of EM Susceptibility Measurements of Electronic Components When Using TEM Cells
March 1983

CRAWFORD, M. L.
Evaluation of Shielded Enclosure for EMI/EMC Measurements Without and With RF Anechoic Material
March 1983

KANDA, M.; RIES, F. X.; DRIVER, L. D.; ORR, R. D.
An Electric and Magnetic Field Sensor Concept for Simultaneous Near-Field Electromagnetic Components When Using TEM Cells
March 1983

KOEPKE, G. H.; MA, M. T.
A New Method for Determining the Emission Characteristics of an Unknown Interference Source
March 1983

STUBENRAUCH, C. F.; SPIESS, W.; GALLIANO, P. G.; BABIJ, T.
International Intercomparison of Electric Field Strength at 100 MHz
March 1983
MILLER, C. K. S.
The EMI Measurement Challenge
January 1983

FITZGERRELL, R. G.
A Partial Loop Source of E and H Fields for Antenna Factor Calibration (A Loop Cell)
Proc., 1982 Antenna Meas. Techniques Assoc., 5-7 October 1982, New Mexico State University, Las Cruces, NM, pp. 15-1 through 15-22
October 1982

MA, M. T.; KOEPKE, G. H.
A Method to Quantify Radiation Characteristics of an Unknown Interference Source
NBS TN 1059
October 1982

TAGGART, H. E.
Radiated EMI Instrumentation Errors
EMC Technology Magazine, Vol. 1, No. 4, pp. 26-35
October 1982

DRIVER, L. D.; CRUZ, J. E.
Development of the NBS Isotropic Magnetic-Field Meter (MFM-10), 300 kHz to 100 MHz
September 1982

KANDA, M.; RIES, F. X.
Time Domain Sensors for Radiated Impulsive Measurements
September 1982

KOEPKE, G. H.; MA, M. T.
A New Method for Determining the Emission Characteristics of an Unknown Interference Source
September 1982

ADAMS, J. W.
Measurement of Electromagnetic Radiation from Electric Rail Cars
NBSIR 82-1669
August 1982

FITZGERRELL, R. G.
Free-Space Transmission Loss for Anechoic Chamber Performance Evaluation
August 1982

KANDA, M.; RIES, F. X.; DRIVER, L. D.; ORR, R. D.
Design Considerations for Broadband Magnetic-Field Sensors
June 1982
Electromagnetic Interference (cont.)

WYSS, J. C.; KANDA, M.; MELQUIST, D. G.; ONDREJKA, A. R.
Optical Modulator and Link for Broadband Antennas
June 1982

KANDA, M.
The Effects of Resistive Loading on TEM Horns
May 1982

ARTHUR, M. G.; ORR, R. D.; REEVE, G. R.
Planning Guidance for Future EMI Measurement Instrumentation
NBSIR 82-1662
April 1982

WILSON, P. F.; CHANG, D. C.; MA, M. T.
Input Impedance of a Probe Antenna Exciting a TEM Cell
NBS TN 1054
April 1982

MA, M. T.; ARTHUR, M. G.
A Study of Distribution of Electromagnetic Fields Inside Buildings with Apertures Excited by an External Source
NBSIR 82-1659
February 1982

RIES, F. X.; MILLER, C. K. S.
Influence of Electromagnetic Interference on Electronic Devices Bulletin
OIML Seminar
December 1981

TAGGART, H. E.
Methods of Suppressing Automotive Interference
NBS SP 480-44
November 1981

BENSEMA, W. D.
Broadband Orthogonal Array Antenna System: Microprocessor Control and Computation
August 1981

CRUZ, J. E.
Design, Construction, and Calibration of the Broadband Electric Field Monitor (EFM-5)
August 1981

FITZGERRELL, R. G.
Free-Space Transmission Loss for Anechoic Chamber Performance Evaluation
August 1981
Electromagnetic Interference (cont.)

LARSEN, E. B.
Background and Present Status of RF Probe Development at NBS
August 1981

REEVE, G. R.
Synthesized Isotropic Pattern Antennas for EM Field Measurements
August 1981

SREENIVASIAH, I.; CHANG, D. C.; MA, M. T.
A Critical Study of Emission and Susceptibility Levels of Electrically Small Objects from Tests Inside a TEM Cell
August 1981

SREENIVASIAH, I.; CHANG, D. C.; MA, M. T.
Emission Characteristics of Electrically Small Radiating Sources from Tests Inside a TEM Cell
August 1981

CLARK, H. E.
Requirements for an Effective National Nonionizing Radiation Measurement System
NBS SP 613
June 1981

REEVE, G. R.; WAINWRIGHT, A. E.
A Frequency Tracking, Tuned, Receiving Monopole
Record, IEEE/APS Symp., June 1981
June 1981

KANDA, M.
Theoretical and Experimental Investigations of Electromagnetic Field Distortion Due to a Perfectly Conducting Rectangular Cylinder in a Transverse Electromagnetic Cell
NBS TN 1028
April 1981

MA, M. T.; CHANG, D. C.; SREENIVASIAH, I.
A Method of Determining the Emission and Susceptibility Levels of Electrically Small Objects Using a TEM Cell
NBS TN 1040
April 1981

CRAWFORD, M. L.
Options to Open-Field and Shielded Enclosure Electromagnetic Compatibility Measurements
March 1981

57
Electromagnetic Interference (cont.)

KANDA, M.
Theoretical and Experimental Investigations of Loading Effects Due to a Perfectly Conducting Rectangular Cylinder in a Transverse Electromagnetic Cell
March 1981

LARSEN, E. B.; RIES, F. X.
Design and Calibration of the NBS Isotropic Electric-Field Monitor (EFM-5), 0.2 to 1000 MHz
NBS TN 1033
March 1981

MA, M. T.; WILSON, P. F.; CHANG, D. C.
Excitation of a TEM Cell by a Vertical Electric Hertzian Dipole
NBS TN 1037
March 1981

CRAWFORD, M. L.
Evaluation of a Reverberation Chamber Facility for Performing EM Radiated Fields Susceptibility Measurements
NBSIR 81-1638
February 1981

BOWMAN, R. R.
A Temperature Probe for Radio-Frequency Heated Material
NBSIR 81-1634
January 1981

CRAWFORD, M. L.; WORKMAN, J. L.
Predicting Free-Space Radiated Emissions from Electronic Equipment Using TEM Cell and Open-Field Site Measurements
1980

HILL, D. A.; WAIT, J. R.
Electromagnetic Characteristics of a Coaxial Cable with Periodic Slots
November 1980

MILLER, C. K. S.
Challenges of EMI Measurements
Proc., Natl. Conf. of Standards Laboratories, 22-25 September 1980, pp. 8-1 through 8-17
September 1980

CRAWFORD, M. L.; WORKMAN, J. L.
Spherical Dipole for Radiating Standard Fields
June 1980

KANDA, M.
The Characteristics of a Linear Antenna with Tapered Resistive and Capacitive Loading
June 1980

58
Electromagnetic Interference (cont.)

KANDA, M.
The Time-Domain Characteristics of a Traveling-Wave Linear Antenna with Linear and Nonlinear Parallel Loads
March 1980

SREENIVASIAH, I.; CHANG, D. C.; MA, M. T.
Characterization of Electrically Small Radiating Sources by Tests Inside a Transmission Line Cell
NBS TN 1017
March 1980

HILL, D. A.; WAIT, J. R.
Propagation Along a Coaxial Cable with a Helical Shield
IEEE Trans. Microwave Theory Tech., Vol. MTT-28, No. 2, pp. 84-89
February 1980

KANDA, M.
Analytical and Numerical Techniques for Analyzing an Electrically Short Dipole with a Nonlinear Load
January 1980

KANDA, M.
Transients in Resistively Loaded Antennas and Their Comparison with Conical Antennas and a TEM Horn
January 1980

KANDA, M.; RIES, F. X.; BELSHER, D. R.
A Broadband Isotropic, Real-Time, Electric Field Sensor (BIRES) Using Resistively Loaded Dipoles
NBSIR 79-1622
December 1979

KANDA, M.
The Effects of Resistive Loading on TEM Horns
NBSIR 79-1601
August 1979

ARTHUR, M. G.
Impulse Spectral Intensity – What is it?
Proc., 1978 Electromagn. Interference Workshop NBS SP 551
July 1979

TIPPET, J. C.; CHANG, D. C.
Dispersion and Attenuation Characteristics of Modes in a TEM Cell with a Lossy Dielectric Slab
NBSIR 79-1615
July 1979

CRAWFORD, M. L.
Comparison and Selection of Techniques for Measuring EM Radiated Emissions and Susceptibility of Large Equipment
May 1979
Electromagnetic Interference (cont.)

MA, M. T.
A Theoretical Study of Unbalanced Ground Effects on Receiving Dipoles
NBSIR 79-1605
May 1979

SREENIVASIAH, I.; CHANG, D. C.
Variational Expression for the Scattering Matrix of a Coaxial Line Step Discontinuity and its Application to
an Over Modeled Coaxial TEM Cell
NBSIR 79-1606
May 1979

CRAWFORD, M. L.; WORKMAN, J. L.
Using a TEM Cell for EMC Measurements of Electronic Equipment
NBS TN 1013
April 1979

DECKER, W. F.; CRAWFORD, M. L.; WILSON, W. A.
Construction of a Large Transverse Electromagnetic Cell
NBS TN 1011
February 1979

KANDA, M.
The Time Domain Characteristics of a Traveling Wave Linear Antenna with Linear and Non-Linear Loads
NBSIR 78-892 (Restricted)
February 1979

KANDA, M.
The Characteristics of a Traveling-Wave, Linear Antenna with a Nonlinear Load
January 1979

MILLER, C. K. S.
EMI - A Problem of Growing Concern
Report of the 63rd Natl. Conf. on Weights and Measures NBS SP 532
1978

KANDA, M.
Analytical and Numerical Techniques for Analyzing an Electrically Short Dipole with a Nonlinear Load
NBSIR 78-898
November 1978

LAWTON, R. A.; ONDREJKA, A. R.
Antennas and the Associated Time Domain Range for the Measurement of Impulsive Fields
NBS TN 1008
November 1978

TIPPET, J. C.; CHANG, D. C.
Characteristic Impedance of a Rectangular Coaxial Line With Offset Inner Conductor
IEEE Trans. Microwave Theory Technol., Vol. MTT-26, No. 11, pp. 876-883
November 1978
Electromagnetic Interference (cont.)

CRAWFORD, M. L.; WORKMAN, J. L.; THOMAS, C. L.
Expanding the Bandwidth of TEM Cells for EMC Measurements
August 1978

ANDREWS, J. R.; BALDWIN, E. E.
SHF Impulse Generator
NBSIR 78-888
June 1978

CRAWFORD, M. L.; WORKMAN, J. L.
Asymmetric Versus Symmetric TEM Cells for EMI Measurements
June 1978

ANDREWS, J. R.; BALDWIN, E. E.
UHF Impulse Generator
NBSIR 78-880
April 1978

KANDA, M.
Transients in Resistively Loaded Antennas and Their Comparison with Conical Antennas and TEM Horns
NBSIR 78-876
March 1978

TIPPET, J. C.; CHANG, D. C.
Higher Order Modes in Rectangular Coaxial Line with Infinitely Thin Inner Conductor
NBSIR 78-873
March 1978

ADAMS, J. W.; TAGGART, H. E.
Electromagnetic Compatibility Evaluation of Seven Electronic Brake Systems
NBSIR 78-872
February 1978

FLANIGAN, W. F. Jr.; BOWMAN, R. R.; LOWELL, W. R.
Nonmetallic Electrode System for Recording EEG and ECG in Electromagnetic Fields
Physiology and Behavior, Vol. 18, No. 3, pp. 531-533
1977

KANDA, M.
A Relatively Short Cylindrical Broadband Antenna with Tapered Resistive Loading for Picosecond Pulse Measurements
1977

LARSEN, E. B.; SHAFER, J. F.
Surveys of Electromagnetic Field Intensities Near Representative Higher-Power FAA Transmitting Antennas
FAA-RD-77
December 1977
KANDA, M.
The Characteristics of Broadband, Isotropic Electrical Field and Magnetic Field Probes
NBSIR 77-868
November 1977

ANDREWS, J. R.; ARTHUR, M. G.
Spectrum Amplitude – Definition, Generation and Measurement
NBS TN 699
October 1977

CRAWFORD, M. L.; WORKMAN, J. L.; THOMAS, C. L.
Generation of EM Susceptibility Test Fields Using a Large Absorber-Loaded TEM Cell
September 1977

ADAMS, J. W.; KANDA, M.; SHAFER, J. F.; WU, Y.
Near-Field Electric Field Strength Levels of EM Environments Applicable to Automotive Systems
336-343
August 1977

CRAWFORD, M. L.; THOMAS, C. L.
Converting a Rectangular Shielded Enclosure into a TEM Transmission Cell for EMI Measurements
August 1977

KANDA, M.
A Relatively Short Cylindrical Broadband Antenna with Tapered Resistive Loading for Picosecond Pulse
Measurements
NBSIR 77-861
August 1977

KANDA, M.
A Broadband Antenna with Tapered Resistive Loading for EMI Measurements
13-18
August 1977

BENSEMA, W. D.
Amplitude, Time, and Frequency Statistics of Quasi-Impulsive Noise
June 1977

KANDA, M.
The Characteristics of a Relatively Short Broadband Linear Antenna with Tapered Resistive Loading
June 1977

BENSEMA, W. D.
A Noise Spectrum Measurement System Using the Fast Fourier Transform
May 1977
ANDREWS, J. R.
Impulse Generator Spectrum Amplitude Measurement Techniques
December 1976

GREENE, F. M.
Measurement of RF Power-Absorption in Biological Specimens (10 to 100 MHz)
NBS TN 687
November 1976

LARSEN, E. B.; ANDREWS, J. R.; BALDWIN, E. E.
Sensitive Isotropic Antenna with Fiber-Optic Link to a Conventional Receiver
NBSIR 75-819
September 1976

TIPPET, J. C.; CHANG, D. C.
A New Approximation for the Capacitance of a Rectangular, Coaxial, Strip Transmission Line
IEEE Trans. Microwave Theory Tech., pp. 602-604
September 1976

CRAWFORD, M. L.
Improved Techniques and Instrumentation for EMC Measurements
July 1976

LARSEN, E. B.; ANDREWS, J. R.
Using Fiber Optics in A Broadband, Sensitive, Isotropic Antenna - 15 KHz to 150 MHz
July 1976

CRAWFORD, M. L.
Experimental Evaluation of the Radiation Characteristics of Dipole Sources Enclosed in a TEM Transmission Cell
June 1976

REEVE, G. R.
A Standard Percent Modulation Measurement System
June 1976

TIPPET, J. C.; CHANG, D. C.; CRAWFORD, M. L.
An Analytical and Experimental Determination of the Cutoff Frequencies of Higher-Order TE Modes in a TEM Cell
NBSIR 76-841
June 1976

BOWMAN, R. R.
Calibration Techniques for Electromagnetic Hazard Meters: 500 MHz To 20 GHz
NBSIR 75-805
April 1976
Electromagnetic Interference (cont.)

ADAMS, J. W.; CRAWFORD, M. L.; SHAFER, J. F.
Electromagnetic Interference (EMI) Measurements for Automotive Applications
February 1976

BOWMAN, R. R.
A Probe for Measuring Temperature in Radio-Frequency-Heated Material
January 1976

TIPPET, J. C.; CHANG, D. C.
Radiation Characteristics of Dipole Sources Located Inside a Rectangular, Coaxial Transmission Line
NBSIR 75-829
January 1976

FITZGERRELL, R. G.
Experimental RF Field Polarization Meter
FAA-RD-74-188
1975

CRAWFORD, M. L.
Techniques for Measurement of Electromagnetic Radiation and Susceptibility of Electronic Equipment
May 1975

KANDA, M.; ADAMS, J. W.
Amplitude Statistics of Electromagnetic Noise in Coal Mines
May 1975

BELSHER, D. R.
Development of Near-Field Electric Energy Density Meter Model EDM-2
Department of Health, Education, and Welfare, Publ. No. (NIOSH) 75-140
March 1975

CRAWFORD, M. L.
Generation of Standard EM Fields for Calibration of Power Density Meters 20 kHz to 1000 MHz
NBSIR 75-804
January 1975

GREENE, F. M.
Development of Electric and Magnetic Near-Field Probes
NBS TN 658
January 1975

ANDREWS, J. R.
Picosecond Pulse Generators Using Microminiature Mercury Switches
NBSIR 74-377
1974
Electromagnetic Interference (cont.)

SCOTT, W. W., Jr.; ADAMS, J. W.; BENSEMA, W. D.; DOBROSKI, H.
Electromagnetic Noise in Lucky Friday Mine
NBSIR 74-391
1974

CRAWFORD, M. L.
Generation of Standard EM Fields Using TEM Transmission Cells
November 1974

KANDA, M.
Time and Amplitude Statistics for Electromagnetic Noise in Mines
NBSIR 74-378
July 1974

NEWELL, A. C.; CRAWFORD, M. L.
Planar Near-Field Measurements on High Performance Array Antennas
NBSIR 74-380
July 1974

ADAMS, J. W.; BENSEMA, W. D.; KANDA, M.
Electromagnetic Noise in Grace Mine
NBSIR 74-388
June 1974

ADAMS, J. W.; BENSEMA, W. D.; TOMOEDA, N. C.
Surface Magnetic Field Noise Measurements at Geneva Mine
NBSIR 74-369
June 1974

BENSEMA, W. D.; KANDA, M.; ADAMS, J. W.
Electromagnetic Noise in Itmann Mine
NBSIR 74-390
June 1974

CRAWFORD, M. L.
Evaluation of Reflectivity Level of Anechoic Chambers Using Isotropic, 3-Dimensional Probing
June 1974

HUDSON, P. A.; MELQUIST, D. G.; ONDREJKA, A. R.; WERNER, P. E.
Completion of the Program to Evaluate/Improve Instrumentation and Test Methods for Electroexplosive
Device Safety Qualification
NBSIR 74-379
June 1974

KANDA, M.; ADAMS, J. W.; BENSEMA, W. D.
Electromagnetic Noise in McElroy Mine
NBSIR 74-389
June 1974
Electromagnetic Interference (cont.)

SIMPSON, P. A.
Broadband Pulsed/CW Calibration Signal Standard for Field Intensity Meter (FIM) Receivers
NBSIR 74-371
June 1974

ARTHUR, M. G.
Impulse Spectral Intensity – What is it?
NBSIR 74-365
May 1974

GREENE, F. M.
Development and Construction of an Electromagnetic Near-Field Synthesizer
NBS TN 652
May 1974

BENSEMA, W. D.; KANDA, M.; ADAMS, J. W.
Electromagnetic Noise in Robena No. 4 Coal Mine
NBS TN 654
April 1974

REEVE, G. R.
Calibration of Impulse Noise Generators
NBSIR 73-343
1973

BAIRD, R. C.
Methods of Calibrating Microwave Hazard Meters
Proc., 1973 Intl. Symp on Biological Effects and Health Hazards of Microwave Radiation, 15-18
October 1973, Warsaw, Poland, pp. 228-236
October 1973

BOWMAN, R. R.
Some Recent Developments in the Characterization and Measurement of Hazardous Electromagnetic Fields
Proc., 1973 Intl. Symp. on Biological Effects and Health Hazards of Microwave Radiation, 15-18
October 1973, Warsaw, Poland, pp. 217-227
October 1973

LARSEN, E. B.
Calibration of Radio Receivers to Measure Broadband Interference
NBSIR 73-335
September 1973

KANDA, M.; ADAMS, J. W.
Amplitude Statistics of Electromagnetic Noise in Coal Mines
Proc., 1973 Thru-the-Earth Electromagn. Workshop, 15-17 August 1973, Colorado School of
Mines, Golden, CO, pp. 156-160
August 1973

HUDSON, P. A.; MELQUIST, D. G.; ONDREJKA, A. R.; WERNER, P. E.
A Program to Evaluate/Improve Instrumentation and Test Methods for Electroexplosive Device Safety
Qualification
NBSIR 73-323
June 1973

66
Electromagnetic Interference (cont.)

NAHMAN, N. S.
Miniature Superconductive Coaxial Transmission Lines
Proc., IEEE, Vol. 61, pp. 76-79
January 1973

BENSEMA, W. D.
Coal Mine Magnetic-Field Noise Measurements
Proc., 1972 W. Virginia Conf. on Coal Mine Electrotechnology (1st), 2-4 August 1972, West Virginia Univ., Morgantown, WV, pp. XII-1 through XII-12
August 1972

ADAMS, J. W.; TAGGART, H. E.; SPAULDING, A. D.
NBS Rept. 10723
November 1971

WACKER, P. F.; BOWMAN, R. R.
Quantifying Hazardous Electromagnetic Fields: Scientific Basis and Practical Considerations
IEEE Trans. Microwave Theory Tech., Vol. MTT-19, No. 22
February 1971

BOWMAN, R. R.
Quantifying Hazardous Electromagnetic Microwave Fields: Practical Considerations
June 1970

WACKER, P. F.
Quantifying Hazardous Microwave Fields: Analysis
June 1970

LAWTON, R. A.
A New Standard for Electric Field Strength
February 1970
MICROWAVE METROLOGY

WILLIAMS, D. F.; BELQUIN, J.; DAMBRINE, G.; FENTON, R.
On-Wafer Measurement at Millimeter Wave Frequencies
June 1996

WEIDMAN, M. P.
Direct Comparison Transfer of Microwave Power Sensor Calibrations
NIST TN 1379
January 1996

JARGON, J. A.; MARKS, R. B.
Two-Tier Multiline TRL for Calibration of Low-Cost Network Analyzers
Dig., 46th Auto. RF Tech. Group Conf. 30 November - 1 December 1995, Scottsdale, AZ,
pp. 1-8
December 1995

WILLIAMS, D. F.; SCHAPPACHER, J. B.
Line-Reflect-Match Calibrations with Nonideal Microstrip Standards
Dig., 46th Auto. RF Tech. Group Conf., 30 November - 1 December 1995, Scottsdale, AZ,
pp. 35038
December 1995

JARGON, J. A.
A 30 MHz Comparison Receiver
pp. 94-96
October 1995

JARGON, J. A.; MARKS, R. B.; WILLIAMS, D. F.
Coaxial Line-Reflect-Match Calibration
pp. 86-89
October 1995

MARKS, R. B.; JARGON, J. A.; PAO, C. K.; WEN, C. P.
Electrical Measurements of Microwave Flip-Chip Interconnections
October 1995

CLAGUE, F. R.
A Calibration Service for Coaxial Reference Standards for Microwave Power
NIST TN 1374
May 1995

MARKS, R. B.; JARGON, J. A.; PAO, C. K.; WEN, C. P.; SHIH, Y. C.
Microwave Characterization of Flip-Chip MMIC Components
May 1995

68
MARKS, R. B.; JARGON, J. A.; PAO, C. K.; WEN, C. P.
Microwave Characterization of Flip-Chip MMIC Interconnections
May 1995

PUCIC, S. P.; DAYWITT, W. C.
Single-Port Technique for Adaptor Efficiency Evaluation
May 1995

MARKS, R. B.; WILLIAMS, D. F.
Comments on "Conversation Between S, Z, Y, h, ABCD, and T Parameters Which are Valid for Complex Source and Load Impedances"
IEEE Trans. Microwave Theory Tech., Vol. 43, No. 4, pp. 914-915
April 1995

WILLIAMS, D. F.; MARKS, R. B.
LRM Probe-Tip Calibrations Using Nonideal Standards
IEEE Trans. Microwave Theory Tech., Vol. 43, No. 2, pp. 466-469
February 1995

WILLIAMS, D. F.; MARKS, R. B.
Compensation for Substrate Permittivity in Probe-Tip Calibration
December 1994

MARKS, R. B; WILLIAMS, D. F.
Accurate Electrical Characterization of High-Speed Interconnections
Proc., Intl. Symp on Microelectronics, 14-17 November 1994, Boston, MA, pp. 96-101
November 1994

CLAGUE, F. R.; SPLETT, J. D.
Developing a NIST Coaxial Microwave Power Standard at 1 mW
Proc., NCSL Conf., 3 August 1994, Chicago, IL, pp. 291-298
August 1994

CLAGUE, F. R.
A Method to Determine the Calorimetric Equivalence Correction for a Coaxial Microwave Microcalorimeter
June 1994

MARKS, R. B.; WILLIAMS, D. F.
Microwave Characterization of Printed Circuit Transmission Lines
June 1994

WILLIAMS, D. F.; MARKS, R. B.
On-Wafer Impedance Measurement on Lossy Substrates
IEEE Microwave Guided Wave Lett., Vol. 4, No. 6, pp. 175-176
June 1994
ENGEND, G. F.; JUDISH, R. M.; JUROSHEK, J. R.
The Multi-State Two-port: An Alternative Transfer Standard
Dig, 43rd Auto. RF Tech. Group Conf., 27 May 1994, San Diego, CA, pp. 11-18
May 1994

JUROSHEK, J. R.; FREE, G. M.
Measurements of the Characteristic Impedance of Coaxial Air Line Standards
IEEE Trans. Microwave Theory Tech., Vol. 42, No. 2, pp. 186-191
February 1994

JARGON, J. A.; GINLEY, R. A.; SUTTON, D. D.
The NIST 30 MHz Linear Measurement System
January-February 1994

JARGON, J. A.
A Revised Uncertainty Analysis for the NIST 30-MHz Attenuation Calibration System
January 1994

CLAGUE, F. R.
NIST Model PM2 Power Measurement System for 1 mW at 1 GHz
NISTIR 5016
December 1993

MARKS, R. B.; WILLIAMS, D. F.
Verification of Commercial Probe-Tip Calibrations
December 1993

WILLIAMS, D. F.; MARKS, R. B.
LRM Probe-Tip Calibrations with Imperfect Resistors and Loss Lines
December 1993

CLAGUE, F. R.
Microcalorimeter for 7 mm Coaxial Transmission Line
NIST TN 1358
August 1993

WILLIAMS, D. F.; MARKS, R. B.
Accurate Transmission Line Characterization
August 1993

WILLIAMS, D. F.; MARKS, R. B.
Reciprocity Relations in Waveguide Junctions
IEEE Trans. Microwave Theory Tech., Vol. 41, No. 6/7, pp. 1105-1110
June/July 1993

CLAGUE, F. R.; VORIS, P. C.
Coaxial Reference Standard for Microwave Power
NIST TN 1357
April 1993

70
Mark, R. B.
Comments on "Protecting EFIE-Based Scattering Computations from Effects of Interior Resonances"
March 1993

Jargon, J. A.; Rebul德拉, G.
Measurement Service for High-Power CW Wattmeters at the National Institute of Standards and Technology
January 1993

Sherwood, G. V.
Dimensional Characterization of Precision Coaxial Transmission Line Standards
January 1993

Mark, R. B.; Williams, D. F.
Interconnection Transmission Line Parameter Characterization
Dig., 40th Auto. RF Tech. Group Conf., 3-4 December 1992, Orlando, FL, pp. 88-95
December 1992

Walker, D. K.; Williams, D. F.; Morgan, J. M.
Planar Resistors for Probe Station Calibration
December 1992

Williams, D. F.; Mark, R. B.
Calibrating On-Wafer Probes to the Probe Tips
December 1992

Rebul德拉, G.; Jargon, J. A.
High Power CW Wattmeter Calibration at NIST
NIST JRes, Vol. 97, No. 6, pp. 673-687
November - December 1992

Williams, D. F.; Mark, R. B.; Walker, D. K.; Clague, F. R.
Wafer Probe Transducer Efficiency
October 1992

Mark, R. B.; Williams, D. F.
A General Waveguide Circuit Theory
NIST JRes, Vol. 97, No. 5, pp. 533-562
September - October 1992

Huang, D. X.; Rebul德拉, G.
High-Frequency Response of Micropotentiometers
Proc., NCSL, 2-6 August 1992, Washington, DC, pp. 547-555
August 1992
MARKS, R. B.; WILLIAMS, D. F.
Accurate Experimental Characterization of Interconnects: A Discussion of "Experimental Electrical Characterization of Interconnects and Discontinuities in High-Speed Digital Systems"
August 1992

WILLIAMS, D. F.; MARKS, R. B.
Comments on "Characterization of Resistive Transmission Lines by Short-Pulse Propagation"
August 1992

CLAGUE, F. R.
A New Coaxial Microwave Microcalorimeter Evaluation Technique
June 1992

MARKS, R. B.; WILLIAMS, D. F.
Traceability for On-Wafer MMIC Measurements
June 1992

REBULDELA, G.; JARGON, J. A.
High Power CW Wattmeter Calibration at NIST
June 1992

WILLIAMS, D. F.; MARKS, R. B.
Verification of Scattering Parameter Measurements
June 1992

Basic RF and Microwave Measurements: A Review of Selected Programs
Metrologia, Vol. 29, No. 2, pp. 135-151
May 1992

MARKS, R. B.
Comments on "Rapid Pulsed Microwave Propagation"
IEEE Microwave Guided Wave Lett., Vol. 2, No. 5, p. 204
May 1992

WILLIAMS, D. F.; MARKS, R. B.
Frequency-Dependent Transmission Line Parameters
April 1992

FREE, G. M.; JONES, R. N.
Calibration Service for Low-Loss, Three-Terminal Capacitance Standards at 100 kHz and 1 MHz
NIST TN 1348
February 1992

72
Microwave Metrology (cont.)

FURLOW, R.; SHIMODA, R. Y.; WILLIAMS, D. F.; MARKS, R. B.; GUPTA, K. C.
Benchmark for the Verification of Microwave CAD Software
December 1991

MARKS, R. B.; WILLIAMS, D. F.
Reciprocity Relations for On-Wafer Power Measurements
December 1991

WILLIAMS, D. F.; MARKS, R. B.; DAVIDSON, A.
Comparison of On-Wafer Calibrations
December 1991

MARKS, R. B.; WILLIAMS, D. F.
Transmission Line Capacitance Measurement
IEEE Microwave and Guided Wave Lett., Vol. 1, No. 9, pp. 243-245
September 1991

REEVE, G. R.
Millimeter Wave Metrology at the National Institute of Standards and Technology
August 1991

MARKS, R. B.
A Multi-Line Method of Network Analyzer Calibration
July 1991

MARKS, R. B.; WILLIAMS, D. F.
Characteristic Impedance Determination Using Propagation Constant Measurement
IEEE Microwave and Guided Wave Lett., Vol. 1, No. 6, p. 141-143
June 1991

JUDISH, R. M.; BURNS, J. G.
Measurement Program Compares Automatic Vector Analyzers
Microwaves and RF, pp. 203-206
May 1991

WILLIAMS, D. F.; MARKS, R. B.; PHILLIPS, K. R.
Translate LRL and LRM Calibrations
Microwaves and RF, pp. 78-84
February 1991

SHERWOOD, G. V.
Air Gage Size Measurement of Microwave Standards
January 1991

73
Microwave Metrology (cont.)

REEVE, G. R.; MARKS, R. B.; BLACKBURN, D.
Microwave Monolithic Integrated Circuit-Related Metrology at the National Institute of Standards and Technology
December 1990

CLAGUE, F. R.
Power Measurement System for 1 mW at 1 GHz
NIST TN 1345
November 1990

MARKS, R. B.
Multi-Line Calibration for MMIC Measurement
November 1990

PHILLIPS, K. R.; WILLIAMS, D. F.
MMIC Package Characterization with Active Loads
November 1990

WILLIAMS, D. F.; MARKS, R. B.
The Interpretation and Use of S-Parameters in Lossy Lines
November 1990

WILLIAMS, D. F.; MARKS, R. B.; PHILLIPS, K. R.; MIERS, T.
Progress Toward MMIC On-Wafer Standards
Dig., 36th Auto. RF Tech. Group Conf., 29-30 November 1990, Monterey, CA, pp. 73-83
November 1990

HOLT, D. R.
Determination of Scattering Parameters with Respect to the Characteristic Impedance of Precision Coaxial Air-Line Standards
Dig., Conf. on Prec. Electromagn. Meas., 11-14 June 1990, Ottawa, Canada, pp. 282-283
June 1990

MARKS, R. B.
Comments on "Improved Calibration and Measurement of the Scattering Parameters of Microwave Integrated Circuits"
IEEE Trans. Microwave Theory Tech., Vol. MTT-38, No. 4, p.453
April 1990

REEVE, G. R.; MARKS, R. B.; BLACKBURN, D.
MMIC Related Metrology at the National Institute of Standards and Technology
February 1990

MARKS, R. B.; PHILLIPS, K. R.
Wafer-Level ANA Calibrations at NIST
December 1989

74
Microwave Metrology (cont.)

WILLIAMS, D. F.
Development of On-Wafer Microwave Standards at NIST
Dig., 34th Auto. RF Tech. Group Conf., 30 November - 1 December 1989, Ft. Lauderdale, FL, pp. 5-10
December 1989

ADAIR, R. T.; LIVINGSTON, E. M.
Coaxial "Intrinsic" Impedance Standards
NIST TN 1333
October 1989

JUROSHEK, J. R.; HOER, C. A.; KAISER, R. K. F.
Calibrating Network Analyzers with Imperfect Test Ports
August 1989

HOER, C. A.
Systematic Errors in Power Measurements Made with a Dual Six Port ANA;
NIST TN 1332
July 1989

WEIL, C. M.; MARLER, F. E.; MAJOR, J. R.; WEIDMAN, M. P.; RUSSELL, D. H.
Dual Six-Port Reflectometer Systems Using Waveguide in the Frequency Range 18-50 GHz.
June 1989

HOLT, D. R.
Scattering Parameters Representing Imperfections in Precision Coaxial Air Lines
NIST JRES, Vol. 94, No. 2, pp. 117-133
March-April 1989

CLAGUE, F. R.
The NIST Automated Coaxial Microwave Power Standard
January 1989

LIVINGSTON, E. M.; ADAIR, R. T.
Performance Evaluation of Radiofrequency, Microwave and Millimeter Wave Power Meters
NIST TN 1310
December 1988

COUNAS, G. J.; YATES, B. C.
Measurement of Adapter Loss, Mismatch, and Efficiency Using the Dual Six-Port
NBSIR 88-3095
July 1988

HOER, C. A.
An Equivalent Circuit for Imperfect Transmission Line Connectors
Dig., Conf. on Prec. Electromagn. Meas., 7-10 June 1988, Tsukuba Science City, Japan, pp. 264-265
June 1988
Microwave Metrology (cont.)

HOLT, D. R.
Determination of Scattering Parameters from Precision Coaxial Air-Line Standards
Dig., Conf. on Prec. Electromagn. Meas., 7-10 June 1988, Tsukuba Science City, Japan, p. 263
June 1988

ADAIR, R. T.; RUSSELL, D. H.
A Calibration Service for 30 MHz Attenuation and Phase Shift
NBS SP 250-32
April 1988

LARSEN, N. T.
Microwave Power Standards at the National Bureau of Standards
1987 NCSL Workshop and Symp., 12-16 July 1987, Denver, CO, pp. 34-1 through 34-7
July 1987

ENGEN, G. F.
On-Line Accuracy Assessment for the Dual Six-Port ANA: Background and Theory
June 1987

HOER, C. A.
Some Questions and Answers Concerning Air Lines as Impedance Standards
June 1987

HOER, C. A.
On-Line Accuracy Assessment for the Dual Six-Port ANA; Treatment of Systematic Errors
June 1987

JUDISH, R. M.; ENGEN, G. F.
On-Line Accuracy Assessment for the Dual Six-Port ANA: Statistical Methods for Random Errors
June 1987

JUROSHEK, J. R.
On-Line Accuracy Assessment for the Dual Six-Port ANA: Experimental Results
June 1987

JUROSHEK, J. R.
A Study of Measurement of Connector Repeatability Using Highly Reflecting Loads
IEEE Trans. Microwave Theory Tech., Vol. MTT-35, No. 4, pp. 457-460
April 1987

ADAIR, R. T.; REEVE, G. R.; GATTERER, L. E.
The Expanding Need for Microwave and Millimeter Wave Calibration Services
NCSL Newsletter, Vol. 27, No. 1, pp. 21-31
January 1987
Microwave Metrology (cont.)

SAULSBERRY, L. F.; ADAIR, R. T.
ANA Measurement Results on the Auto. RF Tech. Group Traveling Experiment
Conf. Dig., 28th Auto. RF Tech. Group Conf., 4-5 December 1986, St. Petersburg Beach, FL,
pp. 65-78
January 1987

HOER, C. A.
Multiport Network Analyzers
1986

CLAGUE, F. R.; LARSEN, N. T.
A Transient Response Error in Microwave Power Meters Using Thermistor Detectors
79-89
December 1986

ENGEN, G. F.
On-Line Accuracy Assessment for the Dual Six-Port ANA: Background and Theory
June 1986

ENGEN, G. F.
In Search of a More Realistic Accuracy Statement for Microwave Metrology
Dig., 27th Auto. RF Techniques Group, 5-6 June 1986, Baltimore, MD,
pp. 181-183
June 1986

HOER, C. A.; ENGEN, G. F.
Calibrating a Dual Six-Port or Four-Port for Measuring Two-Ports with Any Connectors
Dig., 1986 IEEE Microwave Theory Tech. Symp., 2-4 June 1986, Baltimore, MD,
pp. 665-668
June 1986

HOER, C. A.
On-Line Accuracy Assessment for the Dual Six-Port ANA; Treatment of Systematic Errors
Dig., 1986 Conf. on Prec. Electromagn. Meas., 23-27 June 1986, Gaithersburg, MD,
pp. 238-239
June 1986

HOER, C. A.; ENGEN, G. F.
On-Line Accuracy Assessment for the Dual Six-Port ANA: Extension to Non-Mating Connectors
pp. 241-242
June 1986

JUDISH, R. M.
On-Line Accuracy Assessment for the Dual Six-Port ANA: Statistical Methods for Random Errors
June 1986
Microwave Metrology (cont.)

JUROSHEK, J. R.
On-Line Accuracy Assessment for the Dual Six-Port ANA: Experimental Results
June 1986

ADAIR, R. T.; REEVE, G. R.; GATTERER, L. E.
Millimeter Wave Standards: An Emerging Need
No. 4, pp. 376-382
March 1986

GINLEY, R. A.; ALLRED, C. M.
1.25 MHz Attenuation Measurement System
No. 4, pp. 463-466
March 1986

MAJOR, J. R.; LIVINGSTON, E. M.; ADAIR, R. T.
Automatic Frequency Response of Frequency Modulated Generators Using the Bessel Null Method
NBS TN 1093
March 1986

JUDISH, R. M.
Quality Control of Measurements—Measurement Assurance
January 1986

SLADEK, M. J.; JESCH, R. L.
Standardization of Coaxial Connections in the IEC
January 1986

HOLT, D. R.; HOER, C. A.
Estimation of True Power Ratios in Six-Port Network Analyzers Using Diode Detectors
December 1985

WEIDMAN, M. P.
Finline Diode Six-Port: Fundamentals and Design Information
NBS TN 1090
December 1985

SEQUEIRA, H. B.; YATES, B. C.
Approach for Evaluating Effects of Wall Losses on Quarter-Wave Losses on Quarter-Wave Short-Circuit Impedance Standards
IEEE Trans. Microwave Theory Tech., Vol. MTT-33, No. 11, pp. 1106-1109
November 1985

JUROSHEK, J. R.; HOER, C. A.
A Technique for Extending the Dynamic Range of the Dual Six-Port Network Analyzer
IEEE Trans. Microwave Theory Tech., Vol. MTT-33, No. 6, pp. 453-459
June 1985

78
Microwave Metrology (cont.)

MAJOR, J. R.; LIVINGSTON, E. M.; ADAIR, R. T.
Automatic Frequency Response of Frequency Modulated Generators Using the Bessel Null Method
Proc., 1985 Test and Measurement World Expo, 14-16 May 1985, San Jose, CA, pp. 78-100
May 1985

HOLT, D. R.; HOER, C. A.
Estimation of True Power Ratios in Six-port Network Analyzers Using Diode Detectors
March 1985

REEVE, G. R.; MILLER, C. K. S.
Current NBS Metrology Capabilities and Limitations at Millimeter Wave Frequencies
January 1985

MAJOR, J. R.; LIVINGSTON, E. M.; ADAIR, R. T.
Automatic Frequency Response of Frequency Modulated Generators Using the Bessel Null Method
December 1984

JUDISH, R. M.; JONES, R. N.
A Generalized Method for the Calibration of Four-Terminal-Pair Type Digital Impedance Meters
NBSIR 84-3016
August 1984

JUROSHEK, J. R.; HOER, C. A.
A High-Power Automatic Network Analyzer for Measuring the RF Power Absorbed by Biological Samples in a TEM Cell
IEEE Trans. Microwave Theory Tech., Vol. MTT-32, No. 8, pp. 818-824
August 1984

JUROSHEK, J. R.; HOER, C. A.
A Dual Six-Port Network Analyzer Using Diode Detectors
IEEE Trans. Microwave Theory Tech., Vol. MTT-32, No. 1, pp. 78-82
January 1984

KAMPER, R. A.; HOER, C. A.
Millimeter Wave Standards at the National Bureau of Standards (NBS)
August 1983

ENGEN, G. F.
Redundancy: A Monitor of Six-Port Performance
Dig., IEEE 1983 Colloquium on Advances in S-Parameter Measurement at Microwave Lengths,
May 1983

HOER, C. A.
Choosing Line Lengths for Calibrating Network Analyzers
IEEE, Trans. Microwave Theory Tech., Vol. MTT-31, No. 2, pp. 76-78
January 1983
Microwave Metrology (cont.)

KAMPER, R. A.
Current Trends in NBS Calibration Services
NCSL Newsletter, Vol. 22, No. 1, pp. 38-39
March 1982

EBBESEN, H.; ENGEN, G. F.
Singlarities in Calibration of Six-Port Network Analyzers
Dig., 1981 IEEE MTT-S Intl. Microwave Symp., p. 149
1981

HOER, C. A.
A High Power Dual Six-Port Automatic Network Analyzer Used in Determining Biological Effects of RF and Microwave Radiation
IEEE Trans. Microwave Theory Tech., Vol. MTT-29, pp. 157-159
December 1981

WEIDMAN, M. P.
WR-10 Single Six-Port Measurement System
NBSIR 81-1650
September 1981

WEIDMAN, M. P.; HUDSON, P. A.
WR-10 Millimeter Wave Microcalorimeter
NBS TN 1044
June 1981

ENGEN, G. F.
A Least Squares Solution for Use in Six-Port Measurement Technique
December 1980

JONES, R. N.
Evaluation of Three-Terminal and Four-Terminal Pair Capacitors at High Frequencies
NBS TN 1024
September 1980

HILL, D. A.; WAIT, J. R.
Electromagnetic Theory of the Loosely Braided Coaxial Cable: Part II - Numerical Results
IEEE Trans. Microwave Theory Tech., Vol. MTT-28, No. 4, pp. 326-331
April 1980

HILL, D. A.; WAIT, J. R.
Propagation Along a Coaxial Cable with a Helical Shield
IEEE Trans. Microwave Theory Tech., Vol. MTT-28, No. 2, pp. 84-89
February 1980

ENGEN, G. F.; HOER, C. A.
Through-Load-Delay: An Improved Technique for Calibrating the Dual Six-Port Automatic Network Analyzer
Dig., Intl. Microwave Symp., Orlando, FL, p. 53
1979
Microwave Metrology (cont.)

REEVE, G. R.; ARTHUR, M. G.
A Standard for RF Modulation Factors
NBS TN 1016
September 1979

HOER, C. A.
Performance of a Dual Six-Port Automatic Network Analyzer
April 1979

JONES, R. N.
A Comparison of Centrifuge and Freezing Calorimeter Methods for Measuring Free Water in Snow
NBSIR 79-1604
April 1979

HOER, C. A.
Calibrating a Six-Port Reflectometer with Four Impedance Standards
NBS TN 1012
March 1979

ENGEN, G. F.; HOER, C. A.; SPECIALE, R. A.
The Application of "Through-Short-Delay" to the Calibration of the Dual Six-port
IEEE Intl. Microwave Symp. Dig., pp. 184-185
1978

KOMAREK, E. L.
Advantages of the Six-port Reflectometer for RF/Microwave Power Measurement in Operational Systems
Government Micro-Circuit Applications Conf. Dig.
1978

DRIVER, L. D.; RIES, F. X.; REBULDELA, G.
NBS RF Voltage Comparator
NBSIR 78-871
December 1978

ENGEN, G. F.
Calibrating the Six-Port Reflectometer by Means of Sliding Terminations
IEEE Trans. Microwave Theory Tech., Vol. MTT-26, No. 12, pp. 951-957
December 1978

KAMPER, R. A.
Status of RF and Microwave Calibration Services at NBS
Natl. Conf. of Standards Laboratories Newsletter, Vol. 18, No. 3, p. 40
December 1978

HOER, C. A.
Calibrating Two Six-Port Reflectometers With an Unknown Length of Precision Transmission Line
June 1978

81
Microwave Metrology (cont.)

HOER, C. A.
Calibrating Two Six-Port Reflectometers with Only One Impedance Standard
NBS TN 1004
June 1978

ENGEN, G. F.
The Six-Port Measurement Technique: A Status Report
Microwave J., Vol. 21, pp. 18, 21-22, 24, 84, 87, 89
May 1978

ENGEN, G. F.
Advances in Microwave Measurement Science
April 1978

ENGEN, G. F.
Instrumentation: Six Ports Simplify Network
Microwave Syst. News, pp. 54-55
January 1978

ENGEN, G. F.
An Improved Circuit for Implementing the Six-Port Technique of Microwave Measurements
IEEE Trans. Microwave Theory Tech., Vol. MTT-25, No. 12, pp. 1080-1083
December 1977

HOER, C. A.
A Network Analyzer Incorporating Two 6-Port Reflectometers
IEEE Trans. Microwave Theory Tech., Vol. MTT-25, No. 12, pp. 1070-1074
December 1977

JESCH, R. L.
Evaluation of Low-Loss/Low-Reflection Two-Port Devices or Adapters by Automated Measurement Techniques
NBSIR 78-870
December 1977

KOMAREK, E. L.
Performance Characteristics of an Automated Broad-Band Bolometer Unit Calibration System
December 1977

WEIDMAN, M. P.
A Semi-Automated Six-Port for Measuring Millimeter Wave Power and Complex Reflection Coefficient
IEEE Trans. Microwave Theory Technol., Vol. MTT-25, No. 12, pp. 1083-1085
December 1977

LARSEN, N. T.
NBS Type IV RF Power Meter Operation and Maintenance
NBSIR 77-866
October 1977
Microwave Metrology (cont.)

ENGEN, G. F.
Design Considerations for Automatic Network Analyzers Based on the Six-Port Concept
September 1977

ENGEN, G. F.
The Six-Port Reflectometer: An Alternative Network Analyzer
June 1977

ENGEN, G. F.
An Improved Circuit for Implementing the Six-Port Technique of Microwave Measurements
June 1977

HOER, C. A.
A Microwave Network Analyzer Using Two 6-Port Reflectometers;
June 1977

KAMPER, R. A.
The National Electromagnetic Measurement System
NBSIR 75-936
June 1977

KOMAREK, E. L.
An Application of the Six-Port Junction to Precision Measurement of Microwave One-Port Parameters
June 1977

WEIDMAN, M. P.
A Semi-Automated Six-Port for Measuring Millimeter Wave Power and Complex Reflection Coefficient
June 1977

ENGEN, G. F.
Determination of Microwave Phase and Amplitude from Power Measurements
December 1976

ESTIN, A. J.
Scattering Parameters of SMA Coaxial Connectors
December 1976

JESCH, R. L.
Repeatability of SMA Coaxial Connectors
December 1976

83
LARSEN, N. T.
A New Self-Balancing DC-Substitution RF Power Meter
December 1976

RIES, F. X.
An International Intercomparison of Voltage Standards at 1 GHz in Coaxial Transmission Line
September 1976

ROE, K. C.; HOER, C. A.
A Microwave Vector Voltmeter System
NBSIR 76-844
August 1976

SIMPSON, P. A.; HUDSON, P. A.
Implementation of the Notch Technique as an RF Peak Pulse Power Standard
NBS TN 682
July 1976

ENGGEN, G. F.
Measurement of Complex Microwave Circuit Parameters Using Only Power Detectors
June 1976

HOER, C. A.; ROE, K. C.; ALLRED, C. M.
Measuring and Minimizing Diode Detector Nonlinearity
June 1976

KOMAREK, E. L.
An Automated Broadband System for Measurement of One-Port Microwave Parameters
June 1976

LARSEN, N. T.
A New Self-Balancing DC-Substitution RF Power Meter
June 1976

LITTLE, W. E.; WAKEFIELD, J. P.; HEIM, L.; ALLRED, C. M.; ZAPF, T. L.
An NBS Developed Automatic Network Analyzer
June 1976

LITTLE, W. E.; YATES, B. C.
Reflection Coefficient Standards for Automated Network Analyzers
June 1976

ALLRED, C. M.; MANNEY, C. H.
The Calibration and Use of Directional Couplers Without Standards
March 1976
HUDSON, P. A.
The National Measurement System for Medical Ultrasonics
NBSIR 75-937
February 1976

ADAIR, R. T.
A Precision 30 MHz Waveguide-Below-Cutoff Attenuator with an Absolute Electronic Readout, NBS Model XII
NBSIR 76-833
January 1976

GENE, G. F.
Automated Calibration of Directional-Coupler-Bolometer-Mount Assemblies
IEEE Trans. Microwave Theory Tech., Vol. MTT-23, No. 12, pp. 984-990
December 1975

HOER, C. A.; ROE, K. C.
Using an Arbitrary Six-Port Junction to Measure Complex Voltage Ratios
IEEE Trans. Microwave Theory Tech., Vol. MTT-23, No. 12, pp. 978-984
December 1975

HOER, C. A.
Using Six-Port and Eight-Port Junctions to Measure Active and Passive Circuit Parameters
NBS TN 673
September 1975

KANDA, M.; MAY, W. G.
A Millimeter Wave Reflection Beam Isolator
IEEE Trans. Microwave Theory Tech., Vol. MTT-23, No. 6, pp. 506-508
June 1975

ENGEL, G. F.
Automated Calibration of Directional-Coupler-Bolometer-Mount Assemblies
May 1975

JESCH, R. L.; HOER, C. A.
Characterization of a High Frequency Probe Assembly for Integrated Circuit Measurements
NBS TN 663
January 1975

ENGEL, G. F.
Calibration Technique for Automated Network Analyzers with Application to Adapter Evaluation
December 1974

KOMAREK, E. L.; TRYON, P. V.
An Application of the Power Equation Concept and Automation Techniques to Precision Bolometer Unit Calibration
December 1974

85
Microwave Metrology (cont.)

ENGEN, G. F.
An Alternative Calibration Technique for Automated Network Analyzers with Application to Adapter Evaluation
June 1974

HUDDSON, P. A.; MELQUIST, D. G.; ONDREJKA, A. R.; WERNER, P. E.
Completion of the Program to Evaluate/Improve Instrumentation and Test Methods for Electroexplosive Device Safety Qualification
NBSIR 74-379
June 1974

JONES, R. N.
The Measurement of Lumped Parameter Impedance
NBS MN 141
June 1974

KOMAREK, E. L.
An Application of the Power Equation Concept and Automation Techniques to Precision Bolometer Unit Calibration
June 1974

SIMPSON, P. A.
Broadband Pulsed/CW Calibration Signal Standard for Field Intensity Meter (FIM) Receivers
NBSIR 74-371
June 1974

ENGEN, G. F.
Comments on Practical Analysis of Reflectometers and Power Equation Concepts
March 1974

LARSON, W.; CAMPBELL, E.
Microwave Attenuation Measurement System (Series Substitution)
NBS TN 647
February 1974

ENGEN, G. F.
Calibration of an Arbitrary Six-Port Junction for Measurement of Active and Passive Circuit Parameters
December 1973

WEIDMAN, M. P.; ENGEN, G. F.
Application of a Non-Ideal Sliding Short to Two-Port Loss Measurement
NBS TN 644
October 1973

YATES, B. C.; COUNAS, G. J.
Summary of WR15 Flange Evaluation at 60 GHz
NBS TN 642
October 1973
ENGEN, G. F.
Mismatch Considerations in Evaluating Amplifier Noise Performance
September 1973

ALLRED, C. M.; MANNEY, C. H.
Self-Calibration of Complex Ratio Measuring System
pp. 157-166
June 1973

HOER, C. A.; ENGEN, G. F.
Analysis of a Six-Port Junction for Measuring, V, I, A, B, Z, Gamma, and Phase
Vol. 1, pp. 213-222
June 1973

ENGEN, G. F.
Theory of UHF and Microwave Measurements Using the Power Equation Concept
NBS TN 637
April 1973

NAHMAN, N. S.
A Note on the Transition (Rise) Time Versus Line Length in Coaxial Cables
March 1973

ENGEN, G. F.; HOER, C. A.
Application of an 'Arbitrary' 6-Port Junction to Power Measurement Problems
November 1972

HOER, C. A.
The Six-Port Coupler: A New Approach to Measuring Voltage, Current, Power, Impedance, and Phase
November 1972

FOOTE, W. J.; HUNTER, R. D.
Improved Gearing for Rotary-Vane Attenuators
Rev. Scientific Instrum., Vol. 43, No. 7, pp. 1042-1043
July 1972

YATES, B. C.; LARSON, W.
Millimeter Attenuation and Reflection Coefficient Measurement System
NBS TN 619
July 1972

ENGEN, G. F.; HOER, C. A.
Application of an 'Arbitrary' 6-Port Junction to Power Measurement Problems
June 1972
ESTIN, A. J.
A Calculable Microwave Attenuation Standard: The High Q Cavity
June 1972

HOER, C. A.
The Six-Port Coupler; A New Approach to Measuring V, I, P, Z, and Theta
June 1972

HUDSON, P. A.; SAULSBURY, L. F.
An Adjustable-Slot-Length UHF Coaxial Coupler with Decade Bandwidth
IEEE Trans. Microwave Theory Tech., Vol. MTT-19, pp. 781-783
September 1971

ENGEN, G. F.; HUDSON, P. A.
International Intercomparison of Power Standards at 3 GHz
IEEE Trans. Microwave Theory Tech., Vol. MTT-19, pp. 411-413
April 1971

COOK, C. C.; ALLRED, C. M.
An Excitation System for Piston Attenuators
February 1971

ENGEN, G. F.
Power Equations: A New Concept in the Description and Evaluation of Microwave Systems
February 1971

ENGEN, G. F.
Theorem Giving Limits for $S_{22}$ When $S_{11}$ and the Two-Port Efficiency are Known
February 1971

ENGEN, G. F.
A New Method of Characterizing Amplifier Noise Performance
November 1970

HOER, C. A.; AGY, D. L.
Broad-Band Resistive-Divider-Type Directional Coupler
November 1970

CRAWFORD, M. L.; SMART, G. R.
New Coaxial Thermistor Mounts for Use as Precision Transfer Standards
October 1970
Microwave Metrology (cont.)

SIMPSON, P. A.; ONDREJKA, A. R.
Improvements to the NBS RF Peak-Pulse Power Standard
1970 Instrument Soc. of America Silver Jubilee Intl. Conf. and Exhibit, October 1970,
Philadelphia, PA, Paper 709-70, pp. 1-7
October 1970

WEIDMAN, M. P.; CAMPBELL, E.
A Method for Designing Multi-Screw Waveguide Tuners
NBS TN 393
October 1970

AGY, D. L.; NELSON, R. E.
An Immittance Transcomparator
1970 Annual Precision Measurement Association Metrology Conf. (3rd), 17-18 June 1970,
Gaithersburg, MD, Vol. 1, pp. 147-154
June 1970

SCOTT, W. W., Jr.
A New Coaxial RF-DC Ammeter
June 1970

JONES, R. N.; HUNTLEY, L. E.
A Precision, High Frequency Calibration Facility for Coaxial Capacitance Standards
NBS TN 386
March 1970

LAWTON, R. A.; ALLRED, C. M.; HUDSON, P. A.
A Wide Range CW Power Measurement Technique
February 1970

ENGEN, G. F.
An Introduction to the Description and Evaluation of Microwave Systems Using Terminal Invariant
Parameters
NBS MN 112
October 1969

BEATTY, R. W.
Impedance Measurements and Standards for Uniconductor Waveguide
June 1967

ELLERBRUCH, D. A.
UHF and Microwave Phase-Shift Measurements
June 1967

HUDSON, P. A.
Measurement of RF Peak Pulse Power
June 1967

89
Microwave Metrology (cont.)

HUNTLEY, L. E.; JONES, R. N.
Lumped Parameter Impedance Measurements
June 1967

JESCH, R. L.
Impedance Measurements in Coaxial Waveguide Systems
June 1967

KERNS, D. M.
Definitions of v, i, Z, Y, a, b, Γ, and S
June 1967

ONDREJKA, A. R.
Peak Pulse Voltage Measurement (Baseband Pulse)
June 1967

RUMFELT, A. Y.; ELWELL, L. B.
Radio Frequency Power Measurements
June 1967

RUSSELL, D. H.; LARSON, W.
RF Attenuation
June 1967

SCOTT, W. W., Jr.; FREDERICK, N. V.
The Measurement of Current at Radio Frequencies
June 1967

SELBY, M. C.
Voltage Measurement at High and Microwave Frequencies in Coaxial Systems
June 1967
WAIT, D. F.
Radiometer Equation for Noise Comparison Radiometers
April 1995

PUCIC, S. P.
Uncertainties of the NIST Coaxial Noise Calibration System
June 1994

WAIT, D. F.
Relative Accuracy of Isolated and Unisolated Noise Comparison Radiometers
June 1994

PUCIC, S. P.
Evaluation of Uncertainties of the Null-Balanced Total-Power Radiometer System NCS1
NIST JRES, Vol. 99, No. 1, pp. 65-75
January-February 1994

PUCIC, S. P.
Derivation of the System Equation for Null-Balanced Total-Power Radiometer System NCS1
NIST JRES, Vol. 99, No. 1, pp. 55-63
January-February 1994

PUCIC, S. P.
A Null-Balanced Total-Power Radiometer System NCS1
NIST JRES, Vol. 99, No. 1, pp. 45-53
January-February 1994

PUCIC, S. P.
Diffusion of Copper into Gold Plating
May 1993

ENGEN, G. F.; WAIT, D. F.
A "Terminal Invariant" Description of Amplifier Noise
June 1992

PERERA, S.
"Broadband Mismatch Error" in Noise Measurement Systems
June 1992

WAIT, D. F.
A Comparison of Three Techniques for the Precision Measurement of Amplifier Noise
June 1992
Noise (cont.)

WAIT, D. F.
Measuring Accuracies for Various Techniques for Measuring Amplifier Noise
June 1992

DAYWITT, W. C.
Exact Principal Mode Field for a Lossy Coaxial Line
IEEE Trans. Microwave Theory Tech., Vol. MTT-39, No. 8, pp. 1313-1322
August 1991

WAIT, D. F.; ENGEN, G. F.
Application of Radiometry to the Accurate Measurement of Amplifier Noise
April 1991

WAIT, D. F.; COUNAS, G. J.; KESSEL, W.; BUCHHOLZ, F. IM.
PTB - NIST Bilateral Comparison of Microwave Noise Power in Coaxial Transmission Line
April 1991

DAYWITT, W. C.
First Order Symmetric Modes for a Slightly Lossy Coaxial Transmission Line
IEEE Trans. Microwave Theory Tech., Vol. MTT-38, No. 11, pp. 1644-1650
November 1990

WAIT, D. F.
Comments Concerning On-Wafer Noise Parameter Measurements
November 1990

DAYWITT, W. C.
First Order Principal Mode Fields and Distributed Line Parameters for a Slightly Lossy Coaxial Transmission Line.
Dig., Conf. on Prec. Electromagn. Meas., 11-14 June 1990, Ottawa, Canada, pp. 404-405
June 1990

PERERA, S.
A Simple Noise Calibration Radiometer
Dig., Conf. on Prec. Electromagn. Meas., 11-14 June 1990, Ottawa, Canada, pp. 32-33
June 1990

WAIT, D. F.; COUNAS, G. J.; KESSEL, W.; BUCHHOLZ, F. IM.
PTB - NIST Bilateral Comparison of Microwave Noise Power in Coaxial Transmission Line
Dig., Conf. on Prec. Electromagn. Meas., 11-14 June 1990; Ottawa, Canada, pp. 34-35
June 1990

DAYWITT, W. C.; COUNAS, G. J.
Measuring Adapter Efficiency Using a Sliding Short Circuit
March 1990

92
DAYWITT, W. C.
Radiometer Equation and Analysis of systematic Errors for the NIST Automated Radiometers
NIST TN 1327
March 1989

WAIT, D. F.; DAYWITT, W. C.
Intercomparison of NBS Noise Calibration Services
209-210
1988

GEYER, R. G.
Magnetostatic Measurements for Mine Detection
NISTIR 88-3098
October 1988

DAYWITT, W. C.
Complex Admittance of a Lossy Coaxial Open Circuit with a Hollow Center Conductor
1987

DAYWITT, W. C.
A Simple Technique for Determining Joint Losses on a Coaxial Line from Swept-Frequency Reflection
Data
June 1987

DAYWITT, W. C.
A Simple Technique for Investigating Defects in Coaxial Connectors
IEEE Trans. Microwave Theory Tech., Vol. MTT-35, No. 4, pp. 460-464
April 1987

WAIT, D. F.
The Impact of Automation on NBS Noise Temperature Measurements
1986

DAYWITT, W. C.
A Simple Technique for Determining Joint Losses on a Coaxial Line from Swept-Frequency Reflection
Data
June 1986

DAYWITT, W. C.
10-60 GHz G/T Measurements Using the Sun as a Source - A Preliminary Study
NBSIR 86-3046
April 1986

DAYWITT, W. C.
Broadband Noise Source Applications
1985
DAYWITT, W. C.
A Derivation for the Noise Temperature of a Horn-type Noise Standard
Metrologia, Vol. 21 pp. 127-133
1985

HALFORD, D.
Transparent Metrology of Signal to Noise Ratios of Noisy Band-limited Digital Signals
NBS TN 1077
June 1985

PERERA, S.
Noise Temperature Measurements at the National Bureau of Standards
March 1985

DAYWITT, W. C.
An Error Analysis for the Use of Presently Available Lunar Radio Flux Data in Broadbeam
Antenna-System Measurements
Proc., 1984 Antenna Applications Symp., 19-21 September 1984, University of Illinois,
Urbana-Champaign, IL, pp. 1-26
September 1984

DAYWITT, W. C.
A Preliminary Investigation into Using the Sun as a Source for G/T Measurements
NBSIR 84-3015
August 1984

MILLER, C. K. S.; DAYWITT, W. C.
The Reference Noise Standards NBS WR62 and WR90
NBSIR 84-3005
May 1984

MILLER, C. K. S.; DAYWITT, W. C.
The NBS Switching Radiometers
NBSIR 84-3004
May 1984

DAYWITT, W. C.
A Coaxial Noise Standard for the 1 GHz to 12.4 GHz Frequency Range
NBS TN 1074
March 1984

DAYWITT, W. C.
An Error Analysis for the Use of Presently Available Lunar Radio Flux Data in Broadbeam
Antenna-System Measurements
NBS TN 1073
February 1984

COUNAS, G. J.
NBS 2.0 GHz to 4.0 GHz Automated Radiometer Operation and Service Manual
NBSIR 84-1697
January 1984
DAYWITT, W. C.
Design and Error Analysis for the WR10 Thermal Noise Standard
NBS TN 1071
December 1983

WAIT, D. F.; DAYWITT, W. C.
Preliminary Examination of 20 GHz G/T Measurements of Earth Terminals
NBSIR 83-1686
March 1983

WAIT, D. F.
Precision Measurement of Antenna System Noise Using Radio Stars
March 1983

WAIT, D. F.
Earth Terminal Measurement System Operations Manual (Revised)
NBSIR 83-1679 (Restricted)
January 1983

WAIT, D. F.
Precision Measurement of Antenna System Noise Using Radio Stars
June 1982

COUNAS, G. J.; BREMER, T. H.
NBS 30/60 Megahertz Noise Measurement System Operation and Service Manual
NBSIR 81-1656
December 1981

WAKEFIELD, J. P.
Addendum to Earth Terminal Measurement System Maintenance Manual
NBSIR 81-1641
October 1981

ESTIN, A. J.; DAYWITT, W. C.
evaluation of Signal Plus Noise Detection Error in an Envelope Detector with Logarithmic Compression
September 1981

ESTIN, A. J.; DAYWITT, W. C.
Evaluation of Signal Plus Noise Detection Error in an Envelope Detector with Logarithmic Compression
NBSIR 79-1614 (Restricted)
August 1979

ESTIN, A. J.; DAYWITT, W. C.
Evaluation of Signal Plus Noise Detection Error in an Envelope Detector with Logarithmic Compression
1978

DAYWITT, W. C.
An Error Analysis for the Measurement of Satellite EIRP using a Calibrated Radio Star
September 1978
Noise (cont.)

DAYWITT, W. C.
Atmospheric Propagation Equations Used in the NBS Earth Terminal Measurement System
NBSIR 78-883
April 1978

WAIT, D. F.
Earth Terminal Measurement System Operations Manual
NBSIR 78-879
April 1978

DAYWITT, W. C.
Error Equations Used in the NBS Earth-Terminal Measurement System
NBSIR 78-869
December 1977

DAYWITT, W. C.
A Precision Earth-Terminal System for Accurate C/KT, G/T, and EIRP Measurements with a Calibrated Radio Star
October 1977

KANDA, M.
An Improved Solid State Noise Source
December 1976

DAYWITT, W. C.
Error Equations Used in the NBS Precision G/T Measurement System
NBSIR 76-842
September 1976

KANDA, M.
Study of Errors in Absolute Flux Density Measurements of Cassiopeia A
September 1976

KANDA, M.; LARSON, T. R.
Stability of Silicon Avalanche Noise Diodes at K and Ka Bands
June 1976

KANDA, M.
An Improved Solid State Noise Source
June 1976

KANDA, M.
Study of Errors in Absolute Flux Density Measurements of Cassiopeia A
NBSIR 75-822
October 1975
Noise (cont.)

DAYWITT, W. C.; KANDA, M.
G/T Measurement Errors with Radio Stars
Proc., 1975 IEEE Intl. Antenna and Propagat. Symp., 2-4 June 1975, Urbana-Champaign, IL,
Session 20, pp. 460-463
June 1975

KANDA, M.; LARSON, T. R.
A Measure for the Stability of Solid State Noise Sources
Proc., 1975 IEEE Intl. Microwave Theory and Technique Symp., 12-14 May 1975, Palo Alto,
CA, pp. 315-317
May 1975

WAIT, D. F.; KANDA, M.; DAYWITT, W. C.; MILLER, C. K. S.
A Study of the Measurement of G/T Using Cassiopeia A
NBSIR 74-382
October 1974

ARTHUR, M. G.
NBS MN 142
June 1974

DAYWITT, W. C.
A Reference Noise Standard for Millimeter Waves
IEEE Trans. Microwave Theory Tech., Vol. MTT-21, No. 12, pp. 845-847
December 1973

ENGEN, G. F.
Mismatch Considerations in Evaluating Amplifier Noise Performance
September 1973

HALFORD, D.
Comparing Frequencies
Physics Today, Vol. 26, No. 2, p. 15
February 1973

BOYLE, D. R.; CLAGUE, F. R.; REEVE, G. R.; WAIT, D. F.; KANDA, M.
An Automated Precision Noise Figure Measurement System at 60 GHz
November 1972

HALFORD, D.
Infrared-Microwave Frequency Synthesis Design: Some Relevant Conceptual Noise Aspects
Proc., 1971 Frequency Standards and Metrology Seminar, 30 August - 1 September 1972,
Quebec, Canada, pp. 431-466
August 1972

DAYWITT, W. C.; FOOTE, W. J.; CAMPBELL, E.
WR15 Thermal Noise Standard
NBS TN 615
March 1972

97
Noise (cont.)

ARTHUR, M. G.
A Precision HF-Noise Power Measurement System
Proc., Instrum. Soc. Amer. ISA-70 Conf., October 1971
October 1971

ENGEL, G. F.
A New Method of Characterizing Amplifier Noise Performance
November 1970
REMOTE SENSING

GANS, W. L.; GEYER, R. G.; KLEMPERER, W. K.
Quantifying Standard Performance of Electromagnetic-Based Mine Detectors
NISTIR 3982
October 1991

HILL, D. A.
Magnetic Dipole Excitation of an Insulated Conductor of Finite Length
May 1990

HILL, D. A.; ANDERSON, L. R.
Propagation Along a Two-Wire Line Located at the Air-Earth Interface.
May 1990

HILL, D. A.
Magnetic Dipole Excitation of a Long Conductor in a Lossy Medium
November 1988

HILL, D. A.
Fields of Horizontal Currents Located Above the Earth
November 1988

HILL, D. A.
Electromagnetic Wave Propagation in a Symmetrical Coal Seam
February 1986

HILL, D. A.
Radio Propagation in a Coal Seam and the Inverse Problem
August 1985

BELSHER, D. R.; MCLAUGHLIN, R. G.; REPJAR, A. G.; BUSSEY, H. E.
Detection of Lost Wells and Unknown Water-filled Voids in Coal Mines through Development of an Experimental Microwave System
NBSIR 84-3017
September 1984

HILL, D. A.
Radio Propagation in a Coal Seam and the Inverse Problem
NBS JRES, Vol. 89, No. 5, pp. 385-394
September-October 1984

CHEW, H.
Electromagnetic Modeling of Oil Shale Retorts for Remote Sensing Purposes
October 1982

99
Remote Sensing (cont.)

ROE, K. C.; WITTMANN, R. C.
Improved Coal Interface Detector
NBSIR 82-1663
May 1982

CHEW, H.
Modeling of Oil Shale Retorts for Electromagnetic Sensing Techniques
NBSIR 81-1653
November 1981

Preliminary Results of Passive Microwave Snow Experiment During February and March 1978
NASA-TP-1408, Rept-7802-F22, p. 114
1979

BELSHER, D. R.
Feasibility Study on the Use of a Microwave System for the Nondestructive Evaluation of Historic Adobe Structures
NBSIR 79-1610
July 1979

MONTGOMERY, J. P.; CHANG, D. C.
Electromagnetic Boundary-Value Problems Based Upon a Modification of Residue Calculus and Function Theoretic Techniques
NBS MN 164
June 1979

BOYNE, H. S.; ELLERBRUCH, D. A.
Microwave Measurements of Snow Stratigraphy and Water Equivalence
Proc., Western Snow Conference
April 1979

High Resolution Sensing Techniques for Slope Stability Studies
Federal Highway Administration Report, FHWA-7-3-0001
March 1979

ELLERBRUCH, D. A.; BELSHER, D. R.
Electromagnetic Technique of Measuring Coal Layer Thickness
April 1978

ELLERBRUCH, D. A.; JESCH, R. L.; JONES, R. N.; BUSSEY, H. E.; BOYNE, H. S.
Electromagnetic Scattering Properties of Soils and Snow
April 1978

BEREUTER, W. A.; CHANG, D. C.
Electromagnetic Remote Sensing of Inhomogeneous Media
NBSIR 76-851
January 1977
ELLERBRUCH, D. A.; BELSHER, D. R.
FM-CW Electromagnetic Technique of Measuring Coal Layer Thickness
NBSIR 76-840
May 1976

ELLERBRUCH, D. A.; ADAMS, J. W.
Microwave Measurement of Coal Layer Thickness
NBSIR 74-387
September 1974

ELLERBRUCH, D. A.
Electromagnetic Attenuation Properties of Clay and Gravel Soils
NBSIR 74-381
August 1974

STOLTENBERG, R. E.
Detection of Human Intruders by Low Frequency Sonic Interferometric Techniques
NBSIR 74-364
May 1974

CRUZ, J. E.; ROGERS, E. H.; HIESTER, A. E.
Continuous Liquid Level Measurements with Time-Domain Reflectometry
1973

COLLIER, R. S.; ELLERBRUCH, D. A.
RF (Radiofrequency) Total Mass Gauging in Large Storage Containers: Empty Tank Modes
NBSIR 73-346
October 1973

COLLIER, R. S.; ELLERBRUCH, D. A.; CRUZ, J. E.; STOKES, R. W.; LUFT, P. E.
Mass Quantity Gauging by RF Mode Analysis
NBSIR 73-318
June 1973
TIME DOMAIN

MARKS, R. B.; HAYDEN, L. A.; RETTIG, J. B.
Accuracy and Repeatability in Time Domain Network Analysis
December 1994

MARKS, R. B.; HAYDEN, L. A.; JARGON, J. A.; WILLIAMS, F.
Time Domain Network Analysis Using the Multiline TRL Calibration
December 1994

HAYDEN, L. A.; MARKS, R. B.
Accuracy in Time Domain Transmission Line Measurements
November 1994

BLEJER, D. J.; WITTMANN, R. C.; YAGHJIAN, A. D.
On-Axis Fields from a Circular Uniform Surface Current
1993

JOHNK, R. T.; ONDREJKA, A. R.; TOFANI, S.; KANDA, M.
Time-Domain Measurements of the Electromagnetic Backscatter of Pyramidal Absorbers and Metallic Plates
November 1993

ALLEN, O. E.; HILL, D. A.; ONDREJKA, A. R.
Time-Domain Antenna Characterizations
August 1993

KANDA, M.; ONDREJKA, A. R.
An Ultra-Broadband and Nondispersive Sensor for the Measurement of Time-Domain Signals
November 1991

TOFANI, S.; ONDREJKA, A. R.; KANDA, M.
A Time-Domain Method for Characterizing the Reflection Coefficient of Absorbing Materials from 30 to 1000 MHz
August 1991

GANS, W. L.; GEYER, R. G.; KLEMPERER, W. K.
Suggested Methods and Standards for Testing and Verification of Electromagnetic Buried Object Detectors
NISTIR 88-3915
March 1990

102
Time Domain (cont.)

Recent Improvements in Time-Domain EMC Measurement System
NISTIR 89-3927
November 1989

GEYER, R. G.
Magnetostatic Measurements for Mine Detection
NISTIR 88-3098
October 1988

ADAMS, J. W.; ONDREJKA, A. R.; MEDLEY, H. W.
Time-Domain System for Identification of the Natural Resonant Frequencies of Aircraft Relevant to Electromagnetic Compatibility Testing
NBSIR 87-3077
November 1987

LAWTON, R. A.; RIAD, S. M.; ANDREWS, J. R.
Pulse and Time Domain Measurements
Proc., IEEE, Special Issue on Radio Meas. Methods and Stds, Vol. 74, No. 1, pp. 77-81
January 1986

LAWTON, R. A.; ONDREJKA, A. R.
Standards for the Measurement of Impulsive Fields Radiated by a TEM Horn Antenna
1977

ANDREWS, J. R.
Impulse Generator Spectrum Amplitude Measurement Techniques
December 1976

ANDREWS, J. R.; GANS, W. L.
Time Domain Automatic Network Analyzer
L'Onde Electrique, Vol. 55, No. 10, pp. 569-574
December 1975

ANDREWS, J. R.; BALDWIN, E. E.
Baseband Impulse Generator Useful to 5 GHz
October 1975

GANS, W. L.; ANDREWS, J. R.
Time Domain Automatic Network Analyzer for Measurement of RF and Microwave Components
NBS TN 672
September 1975

NAHMAN, N. S.; JICKLING, R. M.
Frequency Domain Measurement of Baseband Instrumentation
NBSIR 73-330
July 1973
Time Domain (cont.)

NAHMAN, N. S.; JICKLING, R. M.; HOLT, D. R.
Reference-Waveform Generation Using Debye Dielectric Dispersion
NBSIR 73-304
December 1972
WAVEFORM METROLOGY

CHESNUT, S. M.; PAULTER, N. G., Jr.
NISTIR 3978
December 1991

TOFANI, S.; ONDREJKA, A. R.; KANDA, M.
A Time-Domain Method for Characterizing the Reflection Coefficient of Absorbing Materials from 30 to 1000 MHz
August 1991

ONDREJKA, A. R.; KANDA, M.
A Time-Domain Method for Measuring the Reflection Coefficient of Microwave Absorbers at Frequencies Below 1 GHz
June 1991

PAULTER, N. G., Jr.; MAJUMDAR, A.
A New Triple Correlation Technique for Measuring Ultrashort Laser Pulses
March 1991

PAULTER, N. G., Jr.; MAJUMDAR, A.
A New Proposed Triple Correlator for the Measurement of Ultrashort Laser Pulses
Opt. Comm., Vol. 81, No. 1,2, pp. 95-100
February 1991

GANS, W. L.
Dynamic Calibration of Oscilloscopes and Waveform Recorders Using Pulse Standards
February 1990

LAWTON, R. A.; MEYER, K.
Waveform Standards for Electro-Optics: A Pulse Duration Comparison
IEEE Trans. Microwave Theory Tech., Vol. MTT-35, No. 4, pp. 450-453
April 1987

NAHMAN, N. S.
Software Correction of Measured Pulse Data
1986

GANS, W. L.
Picosecond Pulse Waveform Error Analysis at NBS
January 1986

RIAD, S. M.
The Deconvolution Problem: An Overview
January 1986
LAWTON, R. A.  
An Efficient Antialiasing Filter  
December 1985

GANS, W. L.  
Picosecond Pulse Measurements at NBS  
March 1985

LAWTON, R. A.  
Pulse Waveform Standards for Electro-Optics  
March 1985

LAWTON, R. A.  
Status Report Transient Waveform Recorder Standard  
March 1985

LAWTON, R. A.; NAHMAN, N. S.; BIGELOW, J. M.  
A Solid State Reference Waveform Standard  
September 1984

LAWTON, R. A.  
An Efficient Antialiasing Filter  
August 1984

LAWTON, R. A.; NAHMAN, N. S.; BIGELOW, J. M.  
A Solid State Reference Waveform Standard  
January 1984

ANDREWS, J. R.; BELL, B. A.; BALDWIN, E. E.  
Reference Flat Pulse Generator  
NBS TN 1067  
October 1983

LAWTON, R. A.  
Photoconductive Switches Used for Waveform Generation at the National Bureau of Standards  
August 1983

ANDREWS, J. R.; BELL, B. A.; NAHMAN, N. S.; BALDWIN, E. E.  
Reference Waveform Flat Pulse Generator  
March 1983

106
Waveform Metrology (cont.)

GANS, W. L.
The Measurement and Deconvolution of Time Jitter in Equivalent-Time Waveform Samplers
March 1983

NAHMAN, N. S.
Picosecond Domain Waveform Measurements; Status and Future Directions
March 1983

LAWTON, R. A.
Performance Standards for Waveform Recorders
February 1983

ANDREWS, J. R.; BELL, B. A.; NAHMAN, N. S.; BALDWIN, E. E.
Reference Waveform Flat Pulse Generator

ANDREWS, J. R.; NAHMAN, N. S.; BELL, B. A.
Status of Reference Waveform Standards Development at NBS
June 1982

LAWTON, R. A.
Measurement Needs and Techniques for Evaluation/Calibration,
June 1982

LAWTON, R. A.
Precision Picosecond-Microsecond Electromagnetic Waveform Measurement at NBS
NBS SP 628, pp. 392-407
June 1982

NAHMAN, N. S.
Some Generic Waveform Recorder Problems
June 1982

KANDA, M.
Time Domain Sensors and Radiators
January 1982

GANS, W. L.; NAHMAN, N. S.
Shielded Balanced and Coaxial Transmission Lines - Parametric Measurements and Instrumentation Relevant to Signal Waveform Transmission in Digital Service
NBSIR 81-1042
June 1981
Waveform Metrology (cont.)

ANDREWS, J. R.; BALDWIN, E. E.
Amplitude Calibrator for Oscilloscopes
NBSIR 81-1646
April 1981

NAHMAN, N. S.
Error Criteria and the Use of Reference Waveforms
Electron. Test, Vol. 4, No. 2, pp. 72-76
February 1981

ANDREWS, J. R.
The Estimation of the Pulse Waveform in the Calibration of Impulse Generators
January 1981

ANDREWS, J. R.
Pulse Reference Waveform Standards Development at NBS
January 1981

NAHMAN, N. S.
Error Criteria and the Use of Reference Waveforms
January 1981

NAHMAN, N. S.; GUILLAUME, M. E.
Deconvolution of Duration Limited Waveforms
January 1981

GANS, W. L.
Present Capabilities of the NBS Automatic Pulse Measurement System
Dig., Conf. on Prec. Electromagn. Meas., pp. 25-26
1976

NAHMAN, N. S.
Picosecond Domain Waveform Measurements (Japanese translation)
Nikkei Electron., Nikkei-McGraw Hill
April 1979

YOUNG, M.; LAWTON, R. A.
Measurement of Pulsed-Laser Power
NBS TN 1010
February 1979

NAHMAN, N. S.
Picosecond-Domain Waveform Measurements
Proc., IEEE, Vol. 66, pp. 414-423
April 1978
Waveform Metrology (cont.)

ANDREWS, J. R.; NAHMAN, N. S.
The Measurement of Pulse Transition Duration
Proc., Union Radio Scientifique Internationale Symp., 3-7 October, 1977, Lannion, France, pp. 159-164
October 1977

LAWTON, R. A.; YOUNG, M.
Laser-Mode Beating Used for Detector Frequency-Response Measurements
October 1977

ANDREWS, J. R.
Impulse Generator Spectrum Amplitude Measurement Techniques
Dig., Conf. on Prec. Electromagn. Meas., pp. 23-24
1976

RIAD, S. M.; NAHMAN, N. S.
Application of the Homomorphic Deconvolution for the Separation of TDR Signals Occurring in Overlapping Time Windows
Dig., Conf. on Prec. Electromagn. Meas. pp. 27-29
1976

GANS, W. L.
Present Capabilities of the NBS Automatic Pulse Measurement System
December 1976

RIAD, S. M.; NAHMAN, N. S.
Application of the Homomorphic Deconvolution for the Separation of TDR Signals Occurring in Overlapping Time Windows
December 1976

LAWTON, R. A.; ANDREWS, J. R.
Electrical Strobing of Photoconductor Cuts Sampling Oscilloscope's Risetime
Laser Focus, pp. 62-65
November 1976

ANDREWS, J. R.; LAWTON, R. A.
Electrically Strobbed Optical Waveform Sampling Oscilloscope
Rev. Sci. Instrum., Vol. 47, pp. 311-313
March 1976

ANDREWS, J. R.
Measurement on Pulses and Pulse Transmission Media, Circuits and Components
1975-1977

ANDREWS, J. R.
Directional-Coupler Technique for Triggering a Tunnel Diode
September 1975
Waveform Metrology (cont.)

LAWTON, R. A.; ANDREWS, J. R.
Pulsed-Laser Application to Sampling Oscilloscope
April 1975

ANDREWS, J. R.; GANS, W. L.
Pulsed Waveform Timing Reference for Sampling Oscilloscope Calibration
March 1975

LAWTON, R. A.; SCAVENNEC, A.
Photoconductive Detector of Fast-Transition Optical Waveforms
Electron. Lett., Vol. 11, pp. 74-75
February 1975

ANDREWS, J. R.
Precision Picosecond-Pulse Measurements Using a High Quality Superconducting Delay Line
December 1974

ANDREWS, J. R.; LAWTON, R. A.
Pico-second Pulse Research at NBS
November 1974

ANDREWS, J. R.
Precision Picosecond-Pulse Measurements Using a High Quality Superconducting Delay Line
July 1974

SCAVENNEC, A.; NAHMAN, N. S.
Active and Passive Mode Locking of Continuously Operating Rhodamine 6G Dye Lasers
NBSIR 73-347
February 1974

ANDREWS, J. R.
Inexpensive Laser Diode Pulse Generator for Optical Waveguide Studies
January 1974

HONDA, T.; NAHMAN, N. S.
Application of Ultrashort Optical Pulses to Electrical Pulse Measurements
Proc., Symp. on New Instrum., 28-29 January 1974, IEE of Japan, Hokkaido University, pp. 29-38
January 1974

ANDREWS, J. R.
Random Sampling Oscilloscope for the Observation of Mercury Switch Closure Transition Times
December 1973

110
Waveform Metrology (cont.)

GANS, W. L.; NAHMAN, N. S.
Pulse Testing of RF and Microwave Components
NBSIR 1973
July 1973

ANDREWS, J. R.
Random Sampling Oscilloscope Time Base
NBSIR 73-309
June 1973

HOLT, D. R.; NAHMAN, N. S.
Coaxial Line Pulse-Response Error Due to a Planar Skin Effect Approximation
November 1972

HONDA, T.; NAHMAN, N. S.
A Dye Modelocked Nd:3 Glass Laser for Generating Electrical Reference Waveforms
NBSIR 74-360
September 1972

NAHMAN, N. S.; HOLT, D. R.
Transient Analysis of Coaxial Cables Using the Skin Effect Approximation A + B (the square root of s)
September 1972

BOUILLE, R.; ANDREWS, J. R.
Measurement of Broadening of Pulses in Glass Fibers
June 1972

HOLT, D. R.; NAHMAN, N. S.
Coaxial Line Pulse-Response Error Due to a Planar Skin Effect Approximation
June 1972

LAWTON, R. A.; NAHMAN, N. S.
Pyroelectric Detector Application to Baseband Pulse Measurements
June 1972

ANDREWS, J. R.
A Frequency Calibrator for UHF Using an Avalanche Transistor
QST, Vol. 56, pp. 16-18
May 1972

Survey of Present Waveform Sampling System Limitations
NBS Rept. 10731
February 1972

ANDREWS, J. R.
An Interfacing Unit for a 28 psec Feedthrough Sampling Oscilloscope
December 1971
Waveform Metrology (cont.)

ANDREWS, J. R.
Horizontal Time Base Sweep Generator for a Traveling Wave Oscilloscope
IEEE Trans. Nucl. Sci., NS-18, pp. 3-18
October 1971

EKSTROM, M. P.; MCCAA, W. D. Jr.; NAHMAN, N. S.
The Measured Time and Frequency Response of a Miniature Superconducting Coaxial Line
October 1971

ANDREWS, J. R.; NAHMAN, N. S.
Electron-Beam Deflection in Traveling-Wave Oscilloscopes
Record of Symp. on Electron, Ion, and Laser Beam Technol. (11th), 12-14 May 1971, Boulder, CO
May 1971

MCCAA, W. D. Jr.; NAHMAN, N. S.
Generation of Reference Waveforms by Uniform Lossy Transmission Lines
November 1970

ANDREWS, J. R.
Improved Bias Supply for Tunnel-Diode Picosecond Pulse Generators
August 1970

NAHMAN, N. S.; EKSTROM, M. P.; MCCAA, W. D. Jr.
Measured Time and Frequency Response of a Miniature Superconducting Coaxial Line
June 1970
MISCELLANEOUS

LYONS, R. M.
A Bibliography of the NIST Electromagnetic Fields Division Publications
NISTIR 5039
August 1995

REEVE, G. R.; FRIDAY, D. S.
NIST and the Navy - Past, Present and Future
December 1994

WITTMANN, R. C.; ALPERT, B. K.
An Integral Occurring in Coherence Theory
SIAM Review, Vol 36, No. 4, p. 655
December 1994

LYONS, R. M.; GIBSON, K. A.
A Bibliography of the NIST Electromagnetic Fields Division Publications
NISTIR 5028
September 1994

WEIL, C. M.
Electromagnetic Properties of Materials: The NIST Metrology Program
October 1993

YOUNG, M.; WITTMANN, R. C.
Optics Letters, Vol. 18, No. 20, pp. 1715-1717
October 1993

LYONS, R. M.; GIBSON, K. A.
A Bibliography of the NIST Electromagnetic Fields Division Publications
NISTIR 5009
September 1993

LYONS, R. M.; GIBSON, K. A.
A Bibliography of the NIST Electromagnetic Fields Division Publications
NISTIR 3993
August 1992

LYONS, R. M.; GIBSON, K. A.
A Bibliography of the NIST Electromagnetic Fields Division Publications
NISTIR 3973
August 1991

LYONS, R. M.; GIBSON, K. A.
A Bibliography of the NIST Electromagnetic Fields Division Publications
NISTIR 3945
August 1990
LYONS, R. M.; GIBSON, K. A.
A Bibliography of the NIST Electromagnetic Fields Division Publications
NISTIR 89-3920
September 1989

FITZGERRELL, R. G.
Mobile Antennas
National Institute of Justice Std. - 0205.01
May 1989

VANZURA, E. J.
Creating CSUBs in Basic, Part II
HP Design and Automation Magazine, p. 25
November 1988

VANZURA, E. J.
Creating CSUBs in BASIC, Part I
HP Design and Automation Magazine, pp. 18-21
October 1988

REIDY, A. R.; GIBSON, K. A.
A Bibliography of NIST Electromagnetic Fields Division Publications
NISTIR 88-3900
September 1988

VANZURA, E. J.
Creating CSUBs Written in FORTRAN That Run in BASIC
Proc., INTEREX Technical Computer Users Conf., 7-12 August 1988, Orlando, FL, paper 20,
pp. 1-18
August 1988

JESCH, R. L.
Fixed and Base Station FM Receivers
National Institute of Justice Std. - 0206.01
July 1988

JESCH, R. L.
Fixed and Base Station FM Transmitters
National Institute of Justice Std. - 0201.01
September 1987

BENSEMA, W. D.
Mobile FM Transceivers
National Institute of Justice Std. - 0210.00
May 1986

JESCH, R. L.
Personal/Mobile FM Transceivers
National Institute of Justice Std. - 0224.00
May 1986
Miscellaneous (cont.)

GIBSON, K. A.; PAGE, J. M.; MILLER, C. K. S.
A Bibliography of the NBS Electromagnetic Fields Division Publications
NBSIR 85-3040
February 1986

KU, H. H.; JUDISH, R. M.
Fundamentals of Error Analysis
January 1986

BENSEMA, W. D.
Personal FM Transceivers
National Institute of Justice Std.- 0209.01
September 1985

JESCH, R. L.
Measured Vehicular Antenna Performance
May 1985

GIBSON, K. A.; MILLER, C. K. S.
A Bibliography of the NBS Electromagnetic Fields Division Publications
NBSIR 85-3022
April 1985

LARSEN, N. T.; VECCHIA, D. F.; SUGAR, G. R.
VOR Calibration Services
NBS TN 1069
April 1985

KUFFEL, J.; MALEWSKI, R.; VAN HEESWIJK, R.; LAWTON, R. A.
Dynamic Performance of Digital Recorders Used for Monitoring High Voltage Impulse Tests
March 1985

HILL, D. A.
Book Review - Leaky Feeders and Subsurface Radio Communications
June 1983

JESCH, R. L.
Dielectric Measurements of Oil Shale as Functions of Temperature and Frequency
NBSIR 83-1683
January 1983

HILL, D. A.
HF Ground Wave Propagation over Forested and Built-up Terrain
NTIA Report 82-114
December 1982

CHEW, H.
Electromagnetic Modeling of Oil Shale Retorts for Remote Sensing Purposes
October 1982
Miscellaneous (cont.)

GIBSON, K. A.; MILLER, C. K. S.
Bibliography of the Electromagnetic Fields Division Publications
NBSIR 82-1673
August 1982

STOLTENBERG, R. E.; WITTMANN, R. C.
NBSIR 82-167 (Restricted)
June 1982

ROE, K. C.; WITTMANN, R. C.
Improved Coal Interface Detector
NBSIR 82-1663
May 1982

HILL, D. A.; WAIT, J. R.
Ground Wave Propagation over a Mixed Path with an Elevation Change
January 1982

NELSON, R. E.; JICKLING, R. M.
Control Cable Assemblies Used with Mobile FM Receivers
National Institute of Justice Std. - 0216.00
December 1981

CHEW, H.
Modeling of Oil Shale Retorts for Electromagnetic Sensing Techniques
NBSIR 81-1653
November 1981

YAGHJIAN, A. D.
Augmented Electric- and Magnetic-Field Integral Equations
Radio Sci., Vol. 16, No. 6, pp. 987-1001
November-December 1981

HILL, D. A.; WAIT, J. R.
HF Ground Wave Propagation over Mixed Land, Sea, and Sea-Ice Paths
October 1981

HILL, D. A.; WAIT, J. R.
HF Radio Wave Transmission over Sea-Ice and Remote Sensing Possibilities
October 1981

WAKEFIELD, J. P.
Addendum to Earth Terminal Measurement System Maintenance Manual
NBSIR 81-1641
October 1981

CLARK, H. E.
Requirements for an Effective National Nonionizing Radiation Measurement System
NBS SP 613
June 1981
LEWIS, R. L.
Spherical Scanning Data Processing: An Algorithm for Halving the Data Processing Effort When the Radiation into the Back Hemisphere is Negligible
June 1981

YAGHJIAN, A. D.
A Delta-Distribution Derivation of the Electric Field in the Source Region
June 1981

HILL, D. A.; WAIT, J. R.
HF Ground Wave Propagation over Sea Ice for a Spherical Earth Model
May 1981

YAGHJIAN, A. D.
Reply to Criticism on Electric Dyadic Functions in the Source Region
Proc., IEEE, Vol. 69, No. 2
February 1981

BOWMAN, R. R.
A Temperature Probe for Radio-Frequency Heated Material
NBSIR 81-1634
January 1981

ELLERBRUCH, D. A.; BOYNE, H. S.
Active Microwave Water Equivalence Measurements
Proc., Ft. Collins Snow Workshop
1980

HILL, D. A.; WAIT, J. R.
Electromagnetic Characteristics of a Coaxial Cable with Periodic Slots
November 1980

MILLER, C. K. S.
A Bibliography of Publications in the NBS Electromagnetic Fields Division
NBSIR 80-1635
November 1980

JONES, R. N.
Evaluation of Three-Terminal and Four-Terminal Pair Capacitors at High Frequencies
NBS TN 1024
September 1980

WAIT, J. R.; HILL, D. A.
Fields of a Horizontal Loop of Arbitrary Shape Buried in a Two-Layer Earth
Radio Sci., Vol. 15, No. 5, pp. 903-912
September-October 1980
Miscellaneous (cont.)

YAGHJIAN, A. D.
Augmented Electric- and Magnetic-Field Integral Equations
Dig., Union Radio Scientifique Internationale Symp. on EM Waves, Munich Germany
August 1980

DRIVER, L. D.; RIES, F. X.
A Wideband RF Voltage Comparator
June 1980

HILL, D. A.; WAIT, J. R.
On the Excitation of the Zenneck Surface Wave Over the Ground at 10 MHz
Annales des Telecommunications, Vol. 35, Nos. 5-6, pp. 1-4
May-June 1980

HILL, D. A.; WAIT, J. R.
Ground Wave Attenuation Function for a Spherical Earth with Arbitary Surface Impedance Radio Sci.
Radio Sci., Vol. 15, No. 3, pp. 637-643
May-June 1980

HILL, D. A.; WAIT, J. R.
Electromagnetic Theory of the Loosely Braided Coaxial Cable: Part II - Numerical Results
IEEE Trans. Microwave Theory Technol., Vol. MTT-28, No. 4, pp. 326-331
April 1980

HILL, D. A.; WAIT, J. R.
Propagation Along a Coaxial Cable with a Helical Shield
IEEE Trans. Microwave Theory Technol., Vol. MTT-28, No. 2, pp. 84-89
February 1980

WYSS, J. C.; STWALLEY, W. C.; KOCH, M. E.; VERMA, K. K.
Laser Fluorescence Diagnostics of Lithium Vapor for Inertial Confinement Applications
Topical Meeting on Inertial Confinement Fusion, February 1980, San Diego, CA
February 1980

YAGHJIAN, A. D.
Electric Dyadic Green's Functions in the Source Region
Proc., IEEE, Vol. 68, No. 2
February 1980

HAMILTON, C.; LLOYD, F.; PETERSON, R.; ANDREWS, J. R.
A Superconducting Sampler for Josephson Logic Circuits
November 1979

WHARTON, M. J.; FRUSH, C. L.; NAHMAN, N. S.
A Video Recorder for Coherent Doppler Radar
October 1979

118
ARNHARDT, M. G.; REEVES, G. R.
Modulation Factor Standards
NBS TN 1016
September 1979

NAHMAN, N. S.; ALLRED, C. M.; ANDREWS, J. R.; HOER, C. A.; LAWTON, R. A.
Radar Absorber Measurement Techniques at Frequencies Above 20 GHz
NBSIR 79-1613
August 1979

MONTGOMERY, J. P.; CHANG, D. C.
Electromagnetic Boundary-Value Problems Based Upon a Modification of Residue Calculus and Function Theoretic Techniques
NBS MN 164
June 1979

JONES, R. N.
A Comparison of Centrifuge and Freezing Calorimeter Methods for Measuring Free Water in Snow
NBSIR 79-1604
April 1979

KING, J.; PEISER, H. S.; SANGSTER, R. C.
Guidelines for Specification and Procurement of Measurement Instrumentation
NBSIR 78-891
June 1978

SANGSTER, R. C.
Collected Executive Summaries: Studies of the National Measurement System
NBSIR 75-947-Rev. S.
February 1978

YAGHJIAN, A. D.
A Direct Approach to the Derivation of Electric Dyadic Green's Functions
NBS TN 1000
January 1978

JESCH, R. L.
Evaluation of Low-Loss/Low-Reflection Two-Port Devices or Adapters by Automated Measurement Techniques
NBSIR 78-870
December 1977

JICKLING, R. M.; SHAFER, J. F.
FM Repeater Systems
National Institute of Justice Std. - 0213.00
November 1977

YOUNG, M.; LAWTON, R. A.
Saturation of Optical Detectors at High Modulation Frequency
October 1977
ZAPF, T. L.; HARVEY, M. E.; LARSEN, N. T.; STOLTENBERG, R. E.
Ultrasonic Calorimeter for Beam Power Measurements from 1 to 15 Megahertz
September 1977

NELSON, R. E.
A Guide to Voice Scramblers for Law Enforcement Agencies
NBS SP 480-8
December 1976

SANGSTER, R. C.
Study of the National Measurement System. Final Summary Report, 1972-75
NBSIR 75-925
December 1976

YAGHJIAN, A. D.
A Direct Approach to the Derivation of Electric Dyadic Green's Functions
Dig., AP Symp., October 1976, pp. 76-156
October 1976

SANGSTER, R. C.
Collected Executive Summaries: Studies of the National Measurement System 1972-75
NBSIR 75-947
September 1976

ZAPF, T. L.; HARVEY, M. E.; LARSEN, N. T.; STOLTENBERG, R. E.
Ultrasonic Calorimeter for Beam Power Measurements from 1 to 15 Megahertz
NBS TN 686
September 1976

SANGSTER, R. C.
Transactions Matrix Description of the National System of Physical Measurements
NBSIR 75-943
August 1976

LAWTON, R. A.; ANDREWS, J. R.
Optically Strobed Sampling Oscilloscope
March 1976

KANDA, M.; MAY, W. G.
Reflection Beam Isolator for Submillimeter Wavelength
NASA-CR-140761
June 1975

KERNS, D. M.
Scattering-Matrix Description and Near-Field Measurements of Electroacoustic Transducers
February 1975
Jesch, R. L.; Hoer, C. A.
Characterization of a High Frequency Probe Assembly for Integrated Circuit Measurements
NBS TN 663
January 1975

Rogers, G. J.; Sawyer, D. E.; Jesch, R. L.
Semiconductor Measurement Technology: Measurement of Transistor Scattering Parameters
NBS SP 400-5
January 1975

Kanda, M.; May, W. G.
Hollow-Cylinder Waveguide Isolators for use at Millimeter Wavelengths
NASA-CR-140760
November 1974

Jickling, R. M.; Shafer, J. F.
Repeaters for Law Enforcement Communication Systems-Law Enforcement Standard Program
National Institute of Justice Std. - 0206.00
October 1974

Little, W. E.
Automated Computer Controlled Measurements
July 1974

Bussey, H. E.; Larsen, E. B.
Buried Antenna Performance: Development of Small Resonant Buried Antennas
RADC-TR-74-169M, AD 783274
June 1974

Jesch, R. L.; Bailey, R. A.; Tausch, H. J.
Characterization of A H.F. Probe for Integrated Circuits Measurements
June 1974

Weitzel, D. H.; Lowe, L. T.; Ellerbruch, D. A.; Cruz, J. E.; Sindt, C. F.
Hydrogen Slush Density Reference System
NASA-CR-124764
June 1974

Yaghjian, A. D.
Direct Integration of the Field Equations for Electroacoustic Transducers
IEEE Lett., Vol. 62, No. 6, pp. 858-859
June 1974

Stoltenberg, R. E.
Detection of Human Intruders by Low Frequency Sonic Interferometric Techniques
NBSIR 74-364
May 1974
MILLER, C. K. S.
Millimeter Wave Metrology Capabilities at NBS
March 1974

YAGHJIAN, A. D.
Theory of Adjoint Reciprocity for Electroacoustic Transducers
NBSIR 73-329
February 1974

SCAVENNEC, A.; NAHMAN, N. S.
A Simple Passively Mode-Locked CW Dye Laser
IEEE J. Quantum Electron., Vol. QE-10, pp. 95-96
January 1974

BERRY, L. A.; FITZGERRELL, R. G.; VOGLER, L. E.
Investigation of Effect of Antenna Site and Antenna Type on LF Non-Directional Beacon Performance
FAA-RD-73-174
1973

WAIT, D. F.; BEATTY, R. W.
The 1973 Int'l. Microwave Symp.
December 1973

ELLERBRUCH, D. A.
Test Results for the Mooring Line Data Line
NBSIR 73-341
October 1973

HALFORD, D.; SHOAF, J. H.; RISLEY, A. S.
1973 Annual Symp. on Frequency Control (27th), 12-14 June 1973, Cherry Hill, NJ, pp. 421-431
June 1973

SCOTT, W. W., Jr.
Batteries Used with Law Enforcement Communications Equipment: Chargers and Charging Techniques
NBS Rept. 10732
June 1973

STOLTENBERG, R. E.
RF Null Detector NBS/SND
NBSIR 73-302
June 1973

ELLERBRUCH, D. A.
Application of Measurements of Electromagnetic Phenomena to Oceanography
Proc., 1972 UJNR/MEC Symp. (1st), Record of the U.S.-Japan UJNR Joint Symp. on Marine Electronics, (Japanese Electrical Industrial Committee, Tokyo, Japan), 9 October 1972, Tokyo, Japan, pp. 23-30
October 1972

122
HALFORD, D.
Infrared-Microwave Frequency Synthesis Design: Some Relevant Conceptual Noise Aspects
Proc., 1971 Frequency Standards and Metrology Seminar, 30 August-1 September 1971, Quebec, Canada, pp. 431-466
   August 1972

SANGSTER, R. C.
Relevancy of Measurements by a Systems Approach
   June 1972

MANNEY, C. H.
Applicability of Speech Bandwidth Compression Techniques in Mine Electromagnetic Communications
NBS Rept. 10728
   February 1972

ENGEN, G. F.
An Extension to the Sliding Short Method of Connector and Adaptor Evaluation
NBS JRES, Vol. 75C, pp. 177-183
   1971

JESCH, R. L.; BERRY, I. S.
Batteries Used with Law Enforcement Communications Equipment
NBS Rept. 10722
   October 1971

KANDA, M.
Non-Reciprocal Devices Using Solid State Magnetoplasmas at Millimeter and Submillimeter Wavelengths
NASA-CR-122923
   August 1971

COLLIER, R. S.; CRUZ, J. E.; ELLERBRUCH, D. A.; LOWE, L. T.; WEITZEL, D. H.
Instrumentation for Hydrogen Slush Storage Containers
NASA-CR-119241
   June 1971

COLLIER, R. S.; CRUZ, J. E.; ELLERBRUCH, D. A.; LOWE, L. T.; WEITZEL, D. H.
NBS Rept. 9793
   June 1971

Hydrogen Slush Density Reference System
NBS Rept. 9796
   June 1971
BRANDENBERGER, H.; HADORN, F.; HALFORD, D.; SHOAF, J. H.
High Quality Quartz Crystal Oscillators: Frequency Domain and Time Domain Stability
226-234
April 1971

TAGGART, H. E.; WORKMAN, J. L.; NELSON, R. E.
Emergency Locator Transmitters: Effective Radiated Power Levels and Techniques of Determining
Effective Radiated Power
NBS Rept. 9769
February 1971

ELLERBRUCH, D. A.
Microwave Methods for Cryogenic Liquid and Slush Instrumentation
November 1970

SCOTT, W. W., Jr.
New Coaxial RF-DC Ammeter
November 1970

LEWIS, R. L.
The Wave-Hop Fields for an Inclined Dipole Over a Spherical Earth with an Anisotropic Ionosphere
OT-ITR-RR5
October 1970

WEIDMAN, M. P.; CAMPBELL, E.
A Method for Designing Multi-Screw Waveguide Tuners
NBS TN 393
October 1970

FOOTE, W. J.
A New Flange Design for O-Ring Seals
August 1970

HAYES, R. E.; KANDA, M.; MASCLET, G.; MAY, W. G.
The Application of Semiconductors to Quasi-Optical Isolators for use at Submillimeter Wavelengths
NASA-CR-86379
April 1970

WACKER, P. F.; CORD, M. S.; BURKHARD, D. G.; PETERSEN, J. D.; KUKOL, R. F.
Microwave Spectral Tables, Volume III, Polyatomic Molecules with Internal Rotation
NBS MN 70, Vol 3
June 1969
AUTHOR INDEX

<table>
<thead>
<tr>
<th>Author</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADAIR, R. T.</td>
<td>75-79, 85</td>
</tr>
<tr>
<td>ADAMS, J. W.</td>
<td>34-38, 41-43, 46-48, 52, 55, 61, 62, 64-67, 101, 103</td>
</tr>
<tr>
<td>AGEE, D. A.</td>
<td>7</td>
</tr>
<tr>
<td>AGY, D. L.</td>
<td>88, 89</td>
</tr>
<tr>
<td>ALLEN, J. W.</td>
<td>72</td>
</tr>
<tr>
<td>ALLEN, O. E.</td>
<td>102</td>
</tr>
<tr>
<td>ALLRED, C. M.</td>
<td>78, 84, 87-89, 119</td>
</tr>
<tr>
<td>ALPERT, B. K.</td>
<td></td>
</tr>
<tr>
<td>ALSPACH, W. J.</td>
<td></td>
</tr>
<tr>
<td>ANDERSON, L. R.</td>
<td></td>
</tr>
<tr>
<td>ANDERSON, W. T.</td>
<td></td>
</tr>
<tr>
<td>ANDREWS, J. R.</td>
<td>22, 61-64, 103, 106-112, 119, 120</td>
</tr>
<tr>
<td>ANSON, W. J.</td>
<td>13, 41, 52</td>
</tr>
<tr>
<td>ARTHUR, M. G.</td>
<td>56, 59, 62, 66, 81, 97, 98, 119</td>
</tr>
<tr>
<td>AULD, B. A.</td>
<td>28</td>
</tr>
<tr>
<td>BABU, T.</td>
<td>15, 54</td>
</tr>
<tr>
<td>BACHMAN, D. D.</td>
<td></td>
</tr>
<tr>
<td>BAILEY, R. A.</td>
<td>121</td>
</tr>
<tr>
<td>BAIRD, R. C.</td>
<td>8, 11, 12, 15, 17, 19, 23, 66</td>
</tr>
<tr>
<td>BAKER-JARVIS, J. R.</td>
<td>25-29</td>
</tr>
<tr>
<td>BALDWIN, E. E.</td>
<td>61, 63, 103, 106-108</td>
</tr>
<tr>
<td>BEAN, J. L.</td>
<td>45</td>
</tr>
<tr>
<td>BEATTY, R. W.</td>
<td>89, 122</td>
</tr>
<tr>
<td>BELL, B. A.</td>
<td>106, 107</td>
</tr>
<tr>
<td>BELQUIN, J.</td>
<td>68</td>
</tr>
<tr>
<td>BELSHER, D. R.</td>
<td>59, 64, 99-101</td>
</tr>
<tr>
<td>BENNETT, W. S.</td>
<td>30</td>
</tr>
<tr>
<td>BENSEMA, W. D.</td>
<td>14, 17, 40, 44, 45, 50, 54, 56, 62, 65-67, 114, 115</td>
</tr>
<tr>
<td>BEREUTER, W. A.</td>
<td>100</td>
</tr>
<tr>
<td>BERRY, I. S.</td>
<td>123</td>
</tr>
<tr>
<td>BERRY, L. A.</td>
<td>122</td>
</tr>
<tr>
<td>BIGELOW, J. M.</td>
<td>106</td>
</tr>
<tr>
<td>BLACKBURN, D.</td>
<td>74</td>
</tr>
<tr>
<td>BLEJER, D. J.</td>
<td>102</td>
</tr>
<tr>
<td>BORSERO, M.</td>
<td>48</td>
</tr>
<tr>
<td>BOUILLE, R.</td>
<td>111</td>
</tr>
<tr>
<td>BOWMAN, R. R.</td>
<td>58, 61, 63, 64, 66, 67, 117</td>
</tr>
<tr>
<td>BOYLE, D. R.</td>
<td>97</td>
</tr>
<tr>
<td>BOYNE, H. S.</td>
<td>30, 100, 117</td>
</tr>
<tr>
<td>BRANDENBERGER, H.</td>
<td>124</td>
</tr>
<tr>
<td>BREMER, T. H.</td>
<td>95</td>
</tr>
<tr>
<td>BUCHHOLZ, F. IM.</td>
<td>92</td>
</tr>
<tr>
<td>BUDLONG, A.</td>
<td>38</td>
</tr>
<tr>
<td>BURKHARD, D. G.</td>
<td>124</td>
</tr>
<tr>
<td>BURNS, J. G.</td>
<td>73</td>
</tr>
<tr>
<td>BUSSEY, H. E.</td>
<td>23, 30, 31, 99, 100, 121</td>
</tr>
<tr>
<td>CAMELL, D. G.</td>
<td>32-34, 38, 39, 41</td>
</tr>
<tr>
<td>CAMPBELL, E.</td>
<td>86, 89, 98, 124</td>
</tr>
<tr>
<td>CANALES, S.</td>
<td>3-6</td>
</tr>
<tr>
<td>CAPOBIANCO, T. E.</td>
<td>28</td>
</tr>
<tr>
<td>CAVCEY, K. H.</td>
<td>10, 33, 34, 36, 40, 43, 103</td>
</tr>
<tr>
<td>Name</td>
<td>Pages</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>CEREMUGA, J.</td>
<td>25</td>
</tr>
<tr>
<td>CHAKOUMAKOS, B. C.</td>
<td>25</td>
</tr>
<tr>
<td>CHANG, A. T. C.</td>
<td>100</td>
</tr>
<tr>
<td>CHANG, D. C.</td>
<td>14, 16, 40-42, 44, 49, 53, 56-61, 63, 64, 100, 119</td>
</tr>
<tr>
<td>CHANG, S. M.</td>
<td>105</td>
</tr>
<tr>
<td>CHEW, H.</td>
<td>99, 100, 116</td>
</tr>
<tr>
<td>CLAGUE, F. R.</td>
<td>68-72, 74, 75, 77, 97</td>
</tr>
<tr>
<td>CLARK, A. V.</td>
<td>27, 28</td>
</tr>
<tr>
<td>CLARK, H. E.</td>
<td>57, 117</td>
</tr>
<tr>
<td>COLLIER, R. S.</td>
<td>101, 123</td>
</tr>
<tr>
<td>COOK, C. C.</td>
<td>88</td>
</tr>
<tr>
<td>CORD, M. S.</td>
<td>124</td>
</tr>
<tr>
<td>CRAWFORD, M. L.</td>
<td>26</td>
</tr>
<tr>
<td>CRUSE, D.</td>
<td>13, 35, 38, 40, 45, 49, 51, 55, 56, 101, 103, 121, 123</td>
</tr>
<tr>
<td>DAMBRINE, G.</td>
<td>68</td>
</tr>
<tr>
<td>DAVIDSON, A.</td>
<td>73</td>
</tr>
<tr>
<td>DAY, G. W.</td>
<td>20</td>
</tr>
<tr>
<td>DAYWITT, W. C.</td>
<td>10, 11, 14, 19-22, 29, 69, 92-98</td>
</tr>
<tr>
<td>DECKER, W. F.</td>
<td>60</td>
</tr>
<tr>
<td>DOBROSKI, H.</td>
<td>65</td>
</tr>
<tr>
<td>DOMICH, P. D.</td>
<td>26-28</td>
</tr>
<tr>
<td>DOUGHERTY, H. T.</td>
<td>19</td>
</tr>
<tr>
<td>DRIVER, L. D.</td>
<td>36, 39-42, 44, 46, 47, 49, 52, 54, 55, 81, 118</td>
</tr>
<tr>
<td>DUNGAN, D. F.</td>
<td>25</td>
</tr>
<tr>
<td>EBBESEN, H.</td>
<td>80</td>
</tr>
<tr>
<td>EHRET, R. L.</td>
<td>7, 39</td>
</tr>
<tr>
<td>EKSTROM, M. P.</td>
<td>112</td>
</tr>
<tr>
<td>ELLERBRUCH, D. A.</td>
<td>30, 89, 100, 101, 117, 121-124</td>
</tr>
<tr>
<td>ELWELL, L. B.</td>
<td>90</td>
</tr>
<tr>
<td>ENGEN, G. F.</td>
<td>70, 76, 77, 79-89, 91, 92, 97, 98, 123</td>
</tr>
<tr>
<td>ESTIN, A. J.</td>
<td>6, 11, 15, 16, 19, 83, 88, 95</td>
</tr>
<tr>
<td>FEDOR, L. S.</td>
<td>3, 4</td>
</tr>
<tr>
<td>FENTON, R.</td>
<td>68</td>
</tr>
<tr>
<td>FITZGERRELL, R. G.</td>
<td>10, 11, 14, 15, 21, 39, 42, 48, 49, 52, 53, 55, 56, 64, 114, 122</td>
</tr>
<tr>
<td>FLANIGAN, W. F. Jr.</td>
<td>61</td>
</tr>
<tr>
<td>FLEMING R. W.</td>
<td>100</td>
</tr>
<tr>
<td>FOOTE, W. J.</td>
<td>87, 98, 124</td>
</tr>
<tr>
<td>FRANCIS, M. H.</td>
<td>3-15</td>
</tr>
<tr>
<td>FREDERICK, N. V.</td>
<td>90</td>
</tr>
<tr>
<td>FREE, G. M.</td>
<td>70, 72</td>
</tr>
<tr>
<td>FREYER, G. J.</td>
<td>32</td>
</tr>
<tr>
<td>FRIDAY, D. S.</td>
<td>41, 43, 47, 48, 113</td>
</tr>
<tr>
<td>FRUSH, C. L.</td>
<td>119</td>
</tr>
<tr>
<td>FURLOW, R.</td>
<td>73</td>
</tr>
<tr>
<td>GALLIANO, P. G.</td>
<td>15, 48, 54</td>
</tr>
<tr>
<td>GANS, W. L.</td>
<td>99, 102, 103, 105-111</td>
</tr>
<tr>
<td>GARY, J. M.</td>
<td>4</td>
</tr>
<tr>
<td>GATTERER, L. E.</td>
<td>76, 78</td>
</tr>
<tr>
<td>GEYER, R. G.</td>
<td>25-29, 93, 99, 102, 103</td>
</tr>
<tr>
<td>GIBSON, K. A.</td>
<td>113-116</td>
</tr>
<tr>
<td>Author</td>
<td>Pages</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>GILLILAND, D.</td>
<td>33, 34</td>
</tr>
<tr>
<td>GINLEY, R. A.</td>
<td>70, 78</td>
</tr>
<tr>
<td>GIERTSON, W.</td>
<td>33, 34</td>
</tr>
<tr>
<td>GODFARB, R. B.</td>
<td>25</td>
</tr>
<tr>
<td>GREENE, F. M.</td>
<td>63, 64, 66</td>
</tr>
<tr>
<td>GREENLEE, D. H.</td>
<td>14, 16</td>
</tr>
<tr>
<td>GRIMM, K. R.</td>
<td>3, 4, 12</td>
</tr>
<tr>
<td>GROSVENOR, J. H.</td>
<td>25-28, 103</td>
</tr>
<tr>
<td>GUERRIERI, J. R.</td>
<td>3-7</td>
</tr>
<tr>
<td>GUILLAUME, M. E.</td>
<td>108</td>
</tr>
<tr>
<td>GUPTA, K. C.</td>
<td>73</td>
</tr>
<tr>
<td>HADORN, F.</td>
<td>124</td>
</tr>
<tr>
<td>HAMILETON, C.</td>
<td>94, 97, 122-124</td>
</tr>
<tr>
<td>HARVEY, M. E.</td>
<td>120</td>
</tr>
<tr>
<td>HATFIELD, M. O.</td>
<td>32</td>
</tr>
<tr>
<td>HAYDEN, L. A.</td>
<td>102</td>
</tr>
<tr>
<td>HAYES, R. E.</td>
<td>124</td>
</tr>
<tr>
<td>HAZEN, D. A.</td>
<td>3, 4</td>
</tr>
<tr>
<td>HEM, L</td>
<td>84</td>
</tr>
<tr>
<td>HIEISTER, A. E.</td>
<td>101</td>
</tr>
<tr>
<td>HILL, D. A.</td>
<td>7, 8, 10-14, 18, 28, 29, 32-40, 42, 45-50, 53, 58, 59, 80, 99, 102, 115-118</td>
</tr>
<tr>
<td>HINKEN, J</td>
<td>26</td>
</tr>
<tr>
<td>HOOER, C. A.</td>
<td>75-85, 87, 88, 119, 121</td>
</tr>
<tr>
<td>HOFFMAN, J</td>
<td>3, 4</td>
</tr>
<tr>
<td>HOLT, D. R.</td>
<td>74-76, 78, 79, 104, 111</td>
</tr>
<tr>
<td>HONDA, T</td>
<td>110, 111</td>
</tr>
<tr>
<td>HUANG, D. X</td>
<td>71</td>
</tr>
<tr>
<td>HUANG, Q</td>
<td>25</td>
</tr>
<tr>
<td>HUDSON, P. A</td>
<td>65, 66, 80, 84-86, 88, 89</td>
</tr>
<tr>
<td>HUNTER, R. D.</td>
<td>87</td>
</tr>
<tr>
<td>HUNTLEY, L. E.</td>
<td>89, 90</td>
</tr>
<tr>
<td>JACOBSON, M. D.</td>
<td>3, 4</td>
</tr>
<tr>
<td>JANEZIC, M. D.</td>
<td>6, 25-29</td>
</tr>
<tr>
<td>JARGON, J. A.</td>
<td>68-72, 102</td>
</tr>
<tr>
<td>JARVIS, J. R.</td>
<td>26</td>
</tr>
<tr>
<td>JESCH, R. L.</td>
<td>12, 13, 29, 30, 41, 43, 45, 47, 78, 82, 83, 85, 90, 100, 114, 115, 119, 121, 123</td>
</tr>
<tr>
<td>JICKLING, R. M.</td>
<td>103, 104, 116, 120, 121</td>
</tr>
<tr>
<td>JOHNK, R. T.</td>
<td>32-34, 36, 102</td>
</tr>
<tr>
<td>JOHNSON, R. B.</td>
<td>100</td>
</tr>
<tr>
<td>JONES, C. A.</td>
<td>25, 26</td>
</tr>
<tr>
<td>JONES, R. N.</td>
<td>30, 72, 79-81, 86, 89, 90, 100, 118, 119</td>
</tr>
<tr>
<td>JUDISH, R. M.</td>
<td>70, 73, 76-79, 115</td>
</tr>
<tr>
<td>JUROSEK, J. R.</td>
<td>70, 72, 75, 76, 78, 79</td>
</tr>
<tr>
<td>KAISER, R. K. F.</td>
<td>75</td>
</tr>
<tr>
<td>KAMPER, R. A.</td>
<td>79-81, 83</td>
</tr>
<tr>
<td>KANDA, M.</td>
<td>10, 11, 13, 14, 16, 18-23, 32-51, 53-62, 64-66, 85, 96, 97, 102, 105, 107, 121, 123, 124</td>
</tr>
<tr>
<td>KERN, D. M.</td>
<td>17, 23, 24, 90, 121</td>
</tr>
<tr>
<td>KESSEL, W.</td>
<td>92</td>
</tr>
<tr>
<td>KING, J.</td>
<td>119</td>
</tr>
<tr>
<td>KISSICK, W. A.</td>
<td>28, 29</td>
</tr>
<tr>
<td>KLEMPERER, W. K.</td>
<td>99, 102</td>
</tr>
<tr>
<td>KOCH, M. E.</td>
<td>118</td>
</tr>
<tr>
<td>Author</td>
<td>Pages</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>KOEPKE, G. H.</td>
<td>11, 12, 32-34, 36, 39, 40, 43-50, 52, 54, 55</td>
</tr>
<tr>
<td>KOMAREK, E. L.</td>
<td>81-86</td>
</tr>
<tr>
<td>KREMER, D. P.</td>
<td>3-8, 12, 13, 16, 18</td>
</tr>
<tr>
<td>KRUPKA, J.</td>
<td>25, 26</td>
</tr>
<tr>
<td>KU, H. H.</td>
<td>115</td>
</tr>
<tr>
<td>KUFFEL, J.</td>
<td>48, 115</td>
</tr>
<tr>
<td>KUHN, M.</td>
<td>26</td>
</tr>
<tr>
<td>KUKOL, R. F.</td>
<td>124</td>
</tr>
<tr>
<td>LADBURY, J. M.</td>
<td>32, 38, 41, 43</td>
</tr>
<tr>
<td>LARSEN, E. B.</td>
<td>10, 13, 22, 23, 37-41, 45, 46, 48, 49, 51, 57, 58, 61, 63, 66, 121</td>
</tr>
<tr>
<td>LARSEN, N. T.</td>
<td>76, 77, 82, 84, 115, 120</td>
</tr>
<tr>
<td>LARSON, T. R.</td>
<td>96, 97</td>
</tr>
<tr>
<td>LARSON, W.</td>
<td>86, 87, 90</td>
</tr>
<tr>
<td>LAUBER, W.</td>
<td>33, 34</td>
</tr>
<tr>
<td>LAWTON, R. A.</td>
<td>19, 29, 31, 48, 60, 67, 89, 103, 105-111, 115, 119, 120</td>
</tr>
<tr>
<td>LEWIS, R. L.</td>
<td>3, 4, 6-9, 17, 21, 117, 124</td>
</tr>
<tr>
<td>LITTLE, W. E.</td>
<td>30, 84, 121</td>
</tr>
<tr>
<td>LIU, B. H.</td>
<td>53</td>
</tr>
<tr>
<td>LIVINGSTON, E. M.</td>
<td>75, 78, 79</td>
</tr>
<tr>
<td>LLOYD, F.</td>
<td>119</td>
</tr>
<tr>
<td>LOUGHRY, T. A.</td>
<td>32</td>
</tr>
<tr>
<td>LOWE, L. T.</td>
<td>121, 123</td>
</tr>
<tr>
<td>LOWELL, W. R.</td>
<td>61</td>
</tr>
<tr>
<td>LUFT, P. E.</td>
<td>101</td>
</tr>
<tr>
<td>LYONS, R. M.</td>
<td>113, 114</td>
</tr>
<tr>
<td>MA, M. T.</td>
<td>14, 16, 18, 21, 32-44, 46-60</td>
</tr>
<tr>
<td>MACREYNOLDS, K.</td>
<td>3-6</td>
</tr>
<tr>
<td>MADSEN, W. B.</td>
<td>3, 4</td>
</tr>
<tr>
<td>MAJOR, J. R.</td>
<td>75, 78, 79</td>
</tr>
<tr>
<td>MAJUMDAR, A.</td>
<td>105</td>
</tr>
<tr>
<td>MALEWSKI, R.</td>
<td>48, 115</td>
</tr>
<tr>
<td>MANNEY, C. H.</td>
<td>84, 87, 123</td>
</tr>
<tr>
<td>MANTESE, J.</td>
<td>26</td>
</tr>
<tr>
<td>MANTESE, J. F.</td>
<td>25</td>
</tr>
<tr>
<td>MARKS, R. B.</td>
<td>68-74, 102</td>
</tr>
<tr>
<td>MARLER, F. E.</td>
<td>75</td>
</tr>
<tr>
<td>MARTZLOFF, F. D.</td>
<td>44</td>
</tr>
<tr>
<td>MASCLET, G.</td>
<td>124</td>
</tr>
<tr>
<td>MASTERSON, K. D.</td>
<td>34, 36, 38-40, 45</td>
</tr>
<tr>
<td>MAY, W. G.</td>
<td>85, 121, 124</td>
</tr>
<tr>
<td>MCCAA, W. D. Jr.</td>
<td>111, 112</td>
</tr>
<tr>
<td>MCFARLANE, E. J.</td>
<td>7</td>
</tr>
<tr>
<td>McINERNEY, M.</td>
<td>33, 34</td>
</tr>
<tr>
<td>MCLAUGHLIN, R. G.</td>
<td>99</td>
</tr>
<tr>
<td>MEDLEY, H. W.</td>
<td>45, 103</td>
</tr>
<tr>
<td>MELQUIST, D. G.</td>
<td>16, 35, 40, 42, 43, 56, 65, 66, 86</td>
</tr>
<tr>
<td>METZKER, R. F.</td>
<td>30</td>
</tr>
<tr>
<td>MEYER, K.</td>
<td>105</td>
</tr>
<tr>
<td>MICHELLI, A. L.</td>
<td>25</td>
</tr>
<tr>
<td>MIERS, T.</td>
<td>74</td>
</tr>
<tr>
<td>MILLER, C. K. S.</td>
<td>53, 55, 56, 58, 60, 79, 94, 97, 115-117, 122</td>
</tr>
<tr>
<td>MODELSKI, J.</td>
<td>25</td>
</tr>
<tr>
<td>MONTGOMERY, J. P.</td>
<td>100, 119</td>
</tr>
<tr>
<td>MORGAN, J. M.</td>
<td>71</td>
</tr>
</tbody>
</table>

128
<table>
<thead>
<tr>
<th>Name</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>MORGAN, W. L.</td>
<td>19</td>
</tr>
<tr>
<td>MORRIS, D.</td>
<td>30</td>
</tr>
<tr>
<td>MUTH, L. A.</td>
<td>3-13</td>
</tr>
<tr>
<td>NAHMAN, N. S.</td>
<td>48, 49, 51, 67, 87, 103-112, 119, 122</td>
</tr>
<tr>
<td>NELSON, R. E.</td>
<td>16, 89, 116, 120, 124</td>
</tr>
<tr>
<td>NEWELL, A. C.</td>
<td>3-13, 15, 16, 21-24, 65</td>
</tr>
<tr>
<td>NORR, J. D.</td>
<td>42</td>
</tr>
<tr>
<td>NOVOTNY, D. R.</td>
<td>34</td>
</tr>
<tr>
<td>ONDREJKA, A. R.</td>
<td>16, 19, 32-34, 36, 37, 42, 43, 52, 56, 60, 65, 66, 86, 89, 90, 102, 103, 105</td>
</tr>
<tr>
<td>ORR, R. D.</td>
<td>10, 11, 13, 36, 37, 39-41, 46, 50, 52, 54-56</td>
</tr>
<tr>
<td>PAGE, J. M.</td>
<td>115</td>
</tr>
<tr>
<td>PAO, C. K.</td>
<td>68, 69</td>
</tr>
<tr>
<td>PAULTER, N. G., Jr.</td>
<td></td>
</tr>
<tr>
<td>PEISER, H. S.</td>
<td>119</td>
</tr>
<tr>
<td>PERERA, S.</td>
<td>11, 91, 92, 94</td>
</tr>
<tr>
<td>PERSINGER, R. R.</td>
<td>7</td>
</tr>
<tr>
<td>PETERSSEN, J. D.</td>
<td>124</td>
</tr>
<tr>
<td>PETERSON, R.</td>
<td>119</td>
</tr>
<tr>
<td>PHILLIPS, K. R.</td>
<td>73, 74</td>
</tr>
<tr>
<td>PINKASI, M.</td>
<td>4</td>
</tr>
<tr>
<td>PUCIC, S. P.</td>
<td>69, 91</td>
</tr>
<tr>
<td>RAKOSKI, B.</td>
<td>32</td>
</tr>
<tr>
<td>RANDA, J.</td>
<td>33-38, 40, 42-44, 46, 50, 51</td>
</tr>
<tr>
<td>REBULDELA, G.</td>
<td>71, 72, 81</td>
</tr>
<tr>
<td>REEVE, G. R.</td>
<td>17, 41, 47, 50, 52, 53, 56, 57, 63, 66, 73, 74, 76, 78, 79, 81, 97, 113, 119</td>
</tr>
<tr>
<td>REIDY, A. R.</td>
<td>114</td>
</tr>
<tr>
<td>REIPAR, A. G.</td>
<td>5, 6, 8-12, 15, 16, 18, 22, 99</td>
</tr>
<tr>
<td>RETTIG, J. B.</td>
<td>102</td>
</tr>
<tr>
<td>RIAD, S. M.</td>
<td>103, 105, 109</td>
</tr>
<tr>
<td>RICHMOND, J. H.</td>
<td>30</td>
</tr>
<tr>
<td>RIDDLE, B. F.</td>
<td>32-35, 37, 38</td>
</tr>
<tr>
<td>RIES, F. X.</td>
<td>54-56, 58, 59, 81, 84, 118</td>
</tr>
<tr>
<td>RISLEY, A. S.</td>
<td>122</td>
</tr>
<tr>
<td>ROE, K. C.</td>
<td>84, 85, 100, 116</td>
</tr>
<tr>
<td>ROGERS, E. H.</td>
<td>101</td>
</tr>
<tr>
<td>ROGERS, G. J.</td>
<td>121</td>
</tr>
<tr>
<td>ROGERS, J. E.</td>
<td>28</td>
</tr>
<tr>
<td>ROSE, C.</td>
<td>4</td>
</tr>
<tr>
<td>ROTH, R. S.</td>
<td>25</td>
</tr>
<tr>
<td>RUMFELT, A. Y.</td>
<td>90</td>
</tr>
<tr>
<td>RUSSELL, D. H.</td>
<td>75, 76, 90</td>
</tr>
<tr>
<td>RUSYN, T.</td>
<td>4</td>
</tr>
<tr>
<td>SANGSTER, R. C.</td>
<td>119, 120, 123</td>
</tr>
<tr>
<td>SANTORO, A.</td>
<td>25</td>
</tr>
<tr>
<td>SAULSBERY, L. F.</td>
<td>77, 88</td>
</tr>
<tr>
<td>SAWYER, D. E.</td>
<td>121</td>
</tr>
<tr>
<td>SCAVENNEC, A.</td>
<td>110, 122</td>
</tr>
<tr>
<td>SCHAPPACHER, J. B.</td>
<td>68</td>
</tr>
<tr>
<td>SCHAPS, S. R.</td>
<td>27, 28</td>
</tr>
<tr>
<td>SCHRANK, H. E.</td>
<td>3, 4</td>
</tr>
<tr>
<td>SCOTT, W. W., Jr.</td>
<td>65, 89, 90, 122, 124</td>
</tr>
<tr>
<td></td>
<td>129</td>
</tr>
<tr>
<td>Author</td>
<td>Pages</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>WEIL, C. M.</td>
<td>25, 27-29, 75, 113</td>
</tr>
<tr>
<td>WEITZEL, D. H.</td>
<td>121, 123</td>
</tr>
<tr>
<td>WEN, C. P.</td>
<td>68, 69</td>
</tr>
<tr>
<td>WERNER, P. E.</td>
<td>65, 66, 86</td>
</tr>
<tr>
<td>WHARTON, M. J.</td>
<td>119</td>
</tr>
<tr>
<td>WHITTEMORE, T.</td>
<td>111</td>
</tr>
<tr>
<td>WILLIAMS, D. F.</td>
<td>27, 68-75</td>
</tr>
<tr>
<td>WILLIAMS, F.</td>
<td>102</td>
</tr>
<tr>
<td>WILSON, P. F.</td>
<td>16, 38, 41-44, 46-53, 56, 58</td>
</tr>
<tr>
<td>WILSON, W. A.</td>
<td>60</td>
</tr>
<tr>
<td>WITTMANN, R. C.</td>
<td>3-9, 12, 14, 100, 102, 113, 116</td>
</tr>
<tr>
<td>WONG-NG, W.</td>
<td>25</td>
</tr>
<tr>
<td>WOODRUFF, J. J.</td>
<td>19</td>
</tr>
<tr>
<td>WORKMAN, J. L.</td>
<td>16, 58, 60-62, 124</td>
</tr>
<tr>
<td>WU, D. I.</td>
<td>35, 36, 38-42, 44</td>
</tr>
<tr>
<td>WU, Y.</td>
<td>62</td>
</tr>
<tr>
<td>WYSS, J. C.</td>
<td>13, 16, 45, 50, 52, 56, 118</td>
</tr>
<tr>
<td>YAGHJIAN, A. D.</td>
<td>6, 12, 15-18, 20-22, 100, 102, 116-120, 122</td>
</tr>
<tr>
<td>YATES, B. C.</td>
<td>75, 78, 84, 86, 87</td>
</tr>
<tr>
<td>YODOSHIMA, I.</td>
<td>48</td>
</tr>
<tr>
<td>YOUNG, M.</td>
<td>108, 109, 113, 120</td>
</tr>
<tr>
<td>ZALTSMAN, E. B.</td>
<td>30</td>
</tr>
<tr>
<td>ZAPF, T. L.</td>
<td>84, 120</td>
</tr>
</tbody>
</table>