

# **2021 Antennas Design and Measurement International Conference (ADMInC 2021)**

**Saint Petersburg, Russia  
24 – 26 November 2021**



**IEEE Catalog Number: CFP21U43-POD  
ISBN: 978-1-6654-1756-3**

**Copyright © 2021 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP21U43-POD
ISBN (Print-On-Demand):	978-1-6654-1756-3
ISBN (Online):	978-1-6654-1755-6

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# Content

## I. Emitters and Elements of Antenna Paths

<i>Development and Experimental Study of Coplanar Transmission Line on Polyimide Substrate Fabricated by Laser Micromachining</i> Ozhogin I.S., Kozhevnikov I.O., Pavlov A.M., Serdobintsev A.A., Starodubov A.V., Chistyakov I.A. ....	3
<i>Study of the Ultra-Wideband Band-Pass Filter with a Variable Number of Frequency-Selective Elements and the Possibility of Vertical Design</i> Fomin D.G., Dudarev N.V., Darovskikh S.N. ....	6
<i>Implementation of Laser Micromachining as a Promising Technique for Designing the Miniature ISM-band Flexible Coplanar Waveguide-fed Antennas</i> Chistyakov I.A., Ozhogin I.S., Kozhevnikov I.O., Pavlov A.M., Serdobintsev A.A., Starodubov A.V. ....	10
<i>Narrow-Beam Waveguide Antenna for Surface Movement Radar</i> Suchkov A.V., Rizhov D.A. ....	13
<i>Research of E-band Waveguide Switches Transient Characteristics based on Faraday-effect</i> Skovorodnikov S.V., Sinyaev Yu.A. ....	16
<i>Antenna-applicator for Non-invasive Detection of Internal Tissues Anomalies of Biological Objects</i> Sedelnikov Yu.E., Sadykov A.R., Skachkov V.A. ....	19

## II. Lens Antennas and Antenna Arrays

<i>Unit-Cell versus Finite Array Approaches for Antenna Array Design</i> Litun V.I., Hawal Rashid, Komissarova E.V. ....	23
<i>Reflectarray Antenna with Mechanical Beam Steering</i> Ballandovich S.V., Sugak M.I., Kostikov G.A., Antonov Yu.G., Liubina L.M. ....	27
<i>Low-profile Antenna Array Based on Fabry–Perot Cavity with Mechanoelectrical Beam Steering</i> Litinskaya Ye.A., Polenga S.V., Salomatov Yu.P., Baskova A.A. ....	31
<i>Development of a Multipath Antenna System based on a Dielectric Lens Using the Method of Quasi-conformal Optical Transformations</i> Lazarev A.V., Kiselev A.Y., Bobreshov A.M., Uskov G.K. ....	35

## III. Simulation in Antenna Technology

<i>Comparative Modeling of FH-band Antennas</i> Dorogov A.Yu. ....	38
<i>The Magnetic Component Structure of Extremely Low Frequency Band of the Electromagnetic Field in the Wave Zone</i> Tereshchenko P.E. ....	41
<i>HF-band Packet Radio Networks Modeling Complex</i> Dorogov A.Yu., Podranyuk E.P. ....	44
<i>Eigenmode Analysis for Periodic Transmission Lines Characterization</i> Litun V.I., Tharp Jeffrey, Chernyshev S.L. ....	48
<i>Patch Antennas Characteristics Design Using RWG Functions</i> Bezgin A.A., Savochnik A.A. ....	51

## IV. Antenna Measurements

<i>The Impact of the Sizes of a Planar Sample to Methodical Errors in Measuring the Specular Reflection Coefficient</i> Balabukha N.P., Fedorov S.A., Gilmutdinov R.V., Menshikh N.L., Sapozhnikov D.V. ....	54
<i>Analysis of Methods for Reconstructing the Amplitude-phase Distribution of Antennas Measured in near Radiated Field Zone</i> Sedelnikov Yu.E., Shagvaliev T.R. ....	58
<i>Application of Higher-order Wave Modes Filter for Measurement of Phased Antenna Array Elements</i> Skovorodnikov S.V., Sinyaev Yu.A. ....	61

## V. Smart Antennas and Signal Processing

<i>Phase Modulation of Radar Signals by the Radiation Pattern of the Radar Receiving Antenna</i> Rukavishnikov V.M., Kryachko A.F., Sinitsyn E.A. ....	64
<i>Applying Virtual Antenna Array Technology to Minimize DOA Errors</i> Ishchenko E.A., Pasternak Yu.G., Pendyurin V.A., Fedorov S.M. ....	68
<i>Application of MUSIC and ESPRIT Methods in Adaptive Smart Antennas</i> Shevchenko M.E., Malyshev V.N., Gorovoy A.V., Soloviev S.N., Kelian A.H. ....	71