

RCA REVIEW

a technical journal

INDEX

VOLUME XXVII

TABLE OF CONTENTS

	PAGE
March	
The TIROS IX Wheel Satellite	3
A. SCHNAPP	
Camera Tubes for Recording Stratoscope II Telescope Images	41
A. D. COPE AND E. LUEDICKE	
Vidicon Performance Characteristics at Slow Scan Rates	57
R. E. JOHNSON	
Monolithic Ferrite Memories	77
I. ABEYTA, M. M. KAUFMAN, AND P. LAWRENCE	
The Acoustoelectric Effects and the Energy Losses by Hot Electrons— Part I	98
A. ROSE	
Adsorption-Type Reservoir for Gas Tubes	140
K. G. HERNQVIST AND J. D. LEVINE	
Solar-Pumped Modulated Laser	149
C. W. RENO	
Low-Power Long-Range Digital Communications System	158
J. G. ARNOLD, D. M. CHAUVIN, J. C. JOHNSON, AND J. K. OLIVER, JR.	
June	
Multiple-Access Considerations for Communication Satellites	179
F. ASSADOURIAN AND D. L. JACOBY	
Microwave Power Generation Using Overlay Transistors	199
H. C. LEE	
The Langmuir Current Limit for Differing Axial and Radial Electron- Beam Temperatures in High-Resolution Image Devices	216
J. LURIE	
Demodulator Threshold Performance and Error Rates in Angle- Modulated Digital Signals	226
J. KLAPPER	



LAIMONS OZOLINS obtained the EE Degree in 1931 from the University of Latvia. From 1932-1949, in Europe, he did design and development work on broadcast, power-transmitting, receiving, and test equipments, and on audio systems. He joined the Reiner Electronics Co., New York City, in 1950. From 1952-1956, he worked at Elsin Electronics Co., New York City. Mr. Ozolins joined RCA in 1956, where he has had project responsibilities in a variety of programs, including a time-division data link employing FM modulation and detection, wide-frequency-range universal ECM system, investigation of

FDM intermodulation distortion in solid-state systems, development work on a microwave FM system based on the phase-lock principle, and the Lunar Orbiter Satellite program.



EDWARD G. RAMBERG received the A.B. degree from Cornell University in 1928 and the Ph.D. degree in theoretical physics from the University of Munich in 1932. After working on the theory of x-ray spectra as research assistant at Cornell, he joined the Electronic Research Laboratory of the RCA Manufacturing Company in Camden in 1935. He has been associated with the RCA Laboratories in Princeton since their establishment in 1942. He has worked primarily on electron optics as applied to electron microscopy and television, various phases of physical electronics, thermoelectricity, and

optics. In 1949 he was visiting professor in physics at the University of Munich and, in 1960 and 1961 Fulbright Lecturer at the Technische Hochschule, Darmstadt.

Dr. Ramberg is a Fellow of the Institute of Radio Engineers and the American Physical Society and a member of Sigma Xi and the Electron Microscope Society of America.

A. ROSE (See *RCA Review*, Vol. XXVII, March 1966, p. 174.)

FRED STERZER received the B.S. degree in physics from the College of the City of New York in 1951, and the M.S. and Ph.D. degrees in physics from New York University in 1952 and 1955, respectively. From 1952 to 1953 he was employed by the Allied Control Corporation, New York, New York. During 1953 and 1954 he was an instructor in physics at the Newark College of Engineering, Newark, New Jersey, and a research assistant at New York University. He joined the RCA Electron Tube Division in Harrison, New Jersey, in October, 1954, and transferred to the Princeton, New Jersey branch in 1956, where he is now Manager of the Microwave Applied Research Group. His work has been in the field of microwave spectroscopy, microwave tubes, parametric amplifiers, tunnel-diode microwave amplifiers, frequency converters and oscillators, microwave computing circuits, and light modulators and demodulators.



Dr. Sterzer is a member of Phi Beta Kappa, Sigma Xi, the American Physical Society, and the Institute of Electrical and Electronics Engineers.

The Generalized Transfer Function and Pole-Zero Migrations in Switched Networks	245
A. ACAMPORA	
Microwave Generation from Photoconductive Mixing of Amplified Spontaneous Radiation	263
M. C. STEELE	
Analysis of Noncoherent FSK Systems with Large Ratios of Frequency Uncertainties to Information Rates	272
A. B. GLENN	
September	
Gallium-Arsenide Electro-Optic Modulators	323
T. E. WALSH	
Avalanche and Tunneling Currents in Gallium Arsenide	336
R. WILLIAMS	
Automatic Display of MIS Capacitance Versus Bias Characteristics	341
K. H. ZAININGER	
Vidicon Performance in Extreme Thermal Environments	360
R. E. JOHNSON	
Measurements on the Properties of Microstrip Transmission Lines for Microwave Integrated Circuits	377
M. CAULTON, J. J. HUGHES, AND H. SOBOL	
Efficient Sequential Detection in the Presence of Strong Localized Signal Interference	392
H. M. FINN AND R. S. JOHNSON	
Response of Low-Power Nuvisors to Pulsed Nuclear Radiation	408
I. F. STACY AND F. J. FEYDER	
Analysis of Multiple-Signal FM Detection System	425
T. MURAKAMI	
December	
The Hologram—Properties and Applications	467
E. G. RAMBERG	
Analysis of Parametric Action in Back-Biased P-N Junctions Carrying Injected Current	500
F. STERZER	
Threshold Performance of Analog FM Demodulators	521
J. FRANKLE	
The Frequency Modulation Feedback System for the Lunar-Orbiter Demodulator	563
F. LEFRAK, H. MOORE, A. NEWTON, AND L. OZOLINS	
Use of Phase Subtraction to Extend the Range of a Phase-Locked Demodulator	577
A. ACAMPORA AND A. NEWTON	

The Acoustoelectric Effects and the Energy Losses by Hot Electrons— Part II	600
A. ROSE	
Synchronization During Biased PCM Conditions	632
E. D. BLOEDEL	

AUTHORS, VOLUME XXVII

	ISSUE	PAGE
Abeyta, I. (Coauthor)—“Monolithic Ferrite Memories”	Mar.	77
Acanpora, A.—“The Generalized Transfer Function and Pole-Zero Migrations in Switched Networks”	June	245
(Coauthor)—“Use of Phase Subtraction in an Extended Range Phase-Locked Demodulator”	Dec.	576
Arnold, J. G. (Coauthor)—“Low-Power Long-Range Digital Communications System”	Mar.	158
Assadourian, F. (Coauthor)—“Multiple-Access Considerations for Communication Satellites”	June	179
Bloedel, E. D.—“Synchronization During Biased PCM Conditions”	Dec.	631
Caulton, M. (Coauthor)—“Measurements on the Properties of Microstrip Transmission Lines for Microwave Integrated Circuits”	Sept.	377
Chauvin, D. M. (Coauthor)—“Low-Power Long-Range Digital Communications System”	Mar.	158
Cope, A. D. (Coauthor)—“Camera Tubes for Recording Stratoscope II Telescope Images”	Mar.	41
Feyder, F. J. (Coauthor)—“Response of Low-Power Nuvisors to Pulsed Nuclear Radiation”	Sept.	408
Finn, H. M. (Coauthor)—“Efficient Sequential Detection in the Presence of Strong Localized Signal Interference”	Sept.	392
Frankle, J.—“Threshold Performance of Analog FM Demodulators”	Dec.	521
Glenn, A. B.—“Analysis of Noncoherent FSK Systems with Large Ratios of Frequency Uncertainties to Information Rates”	June	272
Hernqvist, K. G. (Coauthor)—“Adsorption-Type Reservoir for Gas Tubes”	Mar.	140
Hughes, J. J. (Coauthor)—“Measurements on the Properties of Microstrip Transmission Lines	Sept.	377
Jacoby, D. L. (Coauthor)—“Multiple-Access Considerations for Communication Satellites”	June	179
Johnson, J. C. (Coauthor)—“Low-Power Long-Range Digital Communications System”	Mar.	158
Johnson, R. E.—“Vidicon Performance Characteristics at Slow Scan Rates”	Mar.	57
—“Vidicon Performance in Extreme Thermal Environments”	Sept.	360
Johnson, R. S. (Coauthor)—“Efficient Sequential Detection in the Presence of Strong Localized Signal Interference”	Sept.	392
Kaufman, M. M. (Coauthor)—“Monolithic Ferrite Memories”	Mar.	77
Klapper, J.—“Demodulator Threshold Performance and Error Rates in Angle-Modulated Digital Signals”	June	226
Lawrence, P. (Coauthor)—“Monolithic Ferrite Memories” ..	Mar.	77
Lee, H. C.—“Microwave Power Generation Using Overlay Transistors”	June	199
Lefrak, F. (Coauthor)—“The Frequency Modulation Feedback System for the Lunar-Orbiter Demodulator” ...	Dec.	563

Levine, J. D. (Coauthor)—“Adsorption-Type Reservoir for Gas Tubes”	Mar.	140
Luedicke, E. (Coauthor)—“Camera Tubes for Recording Stratoscope II Telescope Images”	Mar.	41
Lurie, J.—“The Langmuir Current Limit for Differing Axial and Radial Electron-Beam Temperatures in High-Resolution Image Devices”	June	216
Moore, H. (Coauthor)—“The Frequency-Modulation Feedback System for the Lunar-Orbiter Demodulator”	Dec.	563
Murakami, T.—“Analysis of Multiple-Sign F'M Detection System”	Sept.	425
Newton, A. (Coauthor)—“The Frequency Modulation Feedback System for the Lunar-Orbiter Demodulator”	Dec.	563
(Coauthor)—“Use of Phase Subtraction in an Extended-Range Phase-Locked Demodulator”	Dec.	576
Oliver, J. K., Jr. (Coauthor)—“Low-Power Long-Range Digital Communications System”	Mar.	158
Ozolins, L. (Coauthor)—“The Frequency-Modulation Feedback System for the Lunar-Orbiter Demodulator”	Dec.	563
Ramberg, E. G.—“The Hologram—Properties and Applications”	Dec.	467
Reno, C. W.—“Solar-Pumped Modulated Laser”	Mar.	149
Rose, A.—“The Acoustoelectric Effects and the Energy Losses by Hot Electrons—Part I”	Mar.	140
—“The Acoustoelectric Effects and the Energy Losses by Hot Electrons—Part II”	Dec.	599
Schnapf, A.—“The TIROS IX Wheel Satellite”	Mar.	3
Sobol, H. (Coauthor)—“Measurements on the Properties of Microstrip Transmission Lines for Microwave Integrated Circuits”	Sept.	377
Stacy, I. F. (Coauthor)—“Response of Low-Power Nuvistors to Pulsed Nuclear Radiation”	Sept.	408
Steele, M. C.—“Microwave Generation from Photoconductive Mixing of Amplified Spontaneous Radiation”	June	263
Sterzer, F.—“Analysis of Parametric Action in Back-Biased P-N Junctions Carrying Injected Current”	Dec.	500
Walsh, T. E.—“Gallium-Arsenide Electro-Optic Modulators”	Sept.	323
Williams, R.—“Avalanche and Tunneling Currents in Gallium Arsenide”	Sept.	336
Zaininger, K. H.—“Automatic Display of MIS Capacitance Versus Bias Characteristics”	Sept.	341

