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A Computer Oriented Toward Spatial Problems, <i>S. II. Unger</i>	1744	"Switching Circuits and Logical Design," by S. II. Caldwell, <i>Reviewed by R. W. Stuart</i>	1887
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A Further Note on Differentiability of Autocorrelation Functions, <i>D. G. Brennan, F. J. Bentler, and N. Wiener</i>	1758	Volume 46, Number 12, December, 1958	
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"The Solid State for Engineers," by Maurice J. Sinnott, <i>Reviewed by J. S. Saby</i>	1769	Frequency Variations in Short-Wave Propagation, <i>T. Ogawa</i>	1934
"Circuit Analysis of Transmission Lines," by J. L. Stewart, <i>Reviewed by H. A. Wheeler</i>	1769	IRE Standards on Recording and Reproducing: Methods of Calibration of Mechanically-Recorded Lateral Frequency Records, 1958	1940
"Piezoelectricity," by the General Post Office Research Station, <i>Reviewed by H. Jaffe</i>	1770	Correspondence:	1947
"Nonlinear Control Systems," by R. L. Cosgriff, <i>Reviewed by T. M. Stoult</i>	1770	D-Day in Engineering Education, <i>C. E. Hendrix and G. W. Hann</i>	1947
"Television in Science and Industry," by V. K. Zworykin, E. G. Ramberg, and L. E. Flory, <i>Reviewed by R. D. Chipp</i>	1770	Current Build-Up in Semiconductor Devices, <i>W. Shockley and J. Gibbons</i>	1947
"Principles of Noise," by J. J. Freeman, <i>Reviewed by W. D. White</i>	1771	On the Need for Revision in Transistor Terminology and Notation, <i>H. L. Armstrong</i>	1949
"Introduction to Electromagnetic Fields," by Samuel Seely, <i>Reviewed by A. B. Haines</i>	1771	Antipodal Reception of Sputnik III, <i>O. K. Garriott and O. G. Villard, Jr.</i>	1950
"Le Calcul Analogique par Courants Continus," by Danloux Dunensils, <i>Reviewed by B. Lippel</i>	1771	WWV Standard Frequency Transmissions, <i>W. D. George</i>	1950
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Electronic Composites in Modern Television, <i>R. C. Kennedy and F. J. Gaskins</i>	1798	Effect of Beam Coupling Coefficient on Broad-Band Operation of Multicavity Klystrons, <i>S. V. Yadavalli</i>	1957
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A Quartz Servo Oscillator, <i>N. Leo</i>	1835	AM Transmitters As SSB Jammers, <i>J. P. Costas</i>	1960
Some Generalized Scattering Relationships in Transhorizon Propagation, <i>A. T. Waterman, Jr.</i>	1842	Taper Sections in Circular Waveguides, <i>G. Gerro</i>	1961
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Nomographs for Designing Elliptic-Function Filters, <i>K. W. Henderson</i>	1860	Resonance-Probability and Entropy-Evolution Relationships, <i>G. H. Amber</i>	1962
The Annular Geometry Electron Gun, <i>J. W. Schwartz</i>	1864	The Dependence of Minority Carrier Lifetime on Majority Carrier Density, <i>D. M. Evans</i>	1962
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Undersea and Underground "Atmospherics," <i>T. Powell</i>	1871	Theory of Diode and Transistor Noise, <i>H. F. Mataré</i>	1964
On the Choice of Frequencies for Meteor-Burst Communication, <i>M. L. Meeks and J. C. James</i>	1871	Dispersion of High-Frequency Elastic Waves in Thin Plates, <i>D. L. Arenberg</i>	1965
The Superconductive-Transition Radio-Frequency Mixer and the Problem of Cryotron Switching Time, <i>J. B. Woodford, Jr., and D. Feucht</i>	1871	Computer Fabrication and Circuit Techniques, <i>F. Herzfeld</i>	1965
Amplitude Scintillation of Extraterrestrial Radio Waves at Ultra-High Frequency, <i>H. C. Ko</i>	1872	Radiometer Circuits, <i>M. Graham</i>	1966
Statistical Design and Analysis of Closed-Loop Control Systems with Error Sampling, <i>R. M. Stewart</i>	1873	Application of Inductive Probability to Communications, <i>L. S. Schwartz</i>	1966
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Electron-Density Profiles in the Ionosphere During the IGY, <i>R. L. Smith-Rose</i>	1874	Tropospheric Effects on 6-MC Pulses, <i>R. Silberstein</i>	1968
The Current Amplification of a Junction Transistor as a Function of Emitter Current and Junction Temperature, <i>W. W. Gärtner, R. Hanel, R. Stampfli, and F. Caruso</i>	1874	A New Type of Fading Observable on High-Frequency Radio Transmissions Propagated over Paths Crossing the Magnetic Equator, <i>K. C. Yeh and O. G. Villard, Jr.</i>	1968
Alternative Detection of Co-Channel FM Signals, <i>H. W. Farris</i>	1875	A Note Concerning Instantaneous Frequency, <i>D. A. Linden</i>	1970
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WWV Standard Frequency Transmissions, <i>D. M. Kerns</i>		"English-Russian, Russian-English Electronics Dictionary," compiled by Department of the Army, <i>Reviewed by P. E. Green, Jr.</i>	1974
A Communication Technique for Multipath Channels, <i>G. D. Hulst</i>		"Magnetic Tape Recording," by H. G. M. Spratt, <i>Reviewed by A. Meyerhoff and K. McIlwain</i>	1974
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