



# INDEX

1946 - 1956



RCA Industry Service Laboratory Bulletins

RADIO CORPORATION OF AMERICA

RCA LABORATORIES

INDUSTRY SERVICE LABORATORY

# **INDEX**

1946 -- 1956

**RCA Industry Service Laboratory Bulletins**

**RCA LABORATORIES**

**INDUSTRY SERVICE LABORATORY**

**RADIO CORPORATION OF AMERICA**



	Page
<b>A. CHRONOLOGICAL INDEX</b> .....	5-10
LABORATORY BULLETINS .....	5
RESEARCH BULLETINS .....	9
PATENT BULLETINS .....	10
<b>B. SUBJECT INDEX</b> .....	10-20
<b>1. TELEVISION</b> .....	10-13
AGC .....	10
Antennas .....	10
Color .....	10
Deflection .....	11
IF .....	11
Noise .....	11
Picture Tubes .....	11
Cameras and Camera Tubes .....	12
Receivers .....	12
Receiver Radiation .....	12
Signal Generators .....	12
Sound .....	12
Test Equipment .....	12
Tuners .....	13
UHF .....	13
Video Amplifiers .....	13
General .....	13
<b>2. BROADCAST</b> .....	14
Amplitude Modulation .....	14
Frequency Modulation .....	14
<b>3. ACOUSTICS AND AUDIO</b> .....	14
<b>4. SOLID STATE PHENOMENA</b> .....	15
Luminescence .....	15
Electroluminescence .....	15
Cathodoluminescence .....	15
Photoluminescence .....	15

# Index Of RCA Industry Service Laboratory Bulletins

	Page
Electron Emission . . . . .	15
Thermionic Emission . . . . .	15
Photo Emission . . . . .	15
Secondary Emission . . . . .	15
Semiconduction (See Section 5) . . . . .	16-17
Photoconductivity . . . . .	15
Ferromagnetism . . . . .	15
<b>5. SEMICONDUCTORS . . . . .</b>	<b>16-18</b>
Physics, Materials, and Laboratory Techniques . . . . .	16
Physics and Properties of Materials . . . . .	16
Laboratory Equipment and Techniques . . . . .	16
Devices . . . . .	16-17
Transistors . . . . .	16
Diodes and Switches . . . . .	17
Other . . . . .	17
Transistor Applications . . . . .	17
<b>6. DEVICES AND COMPONENTS . . . . .</b>	<b>18-19</b>
Amplifiers . . . . .	18
Antennas (See Section 1. Television Antennas) . . . . .	10
Computer Elements and Switching Devices . . . . .	18
Electrofax . . . . .	18
Electron Tubes . . . . .	18-19
General . . . . .	18
Magnetrons and Traveling Wave Tubes . . . . .	18
Gas Tubes and Gaseous Electronics . . . . .	19
Filters . . . . .	19
Light Amplifiers . . . . .	19
Oscillators . . . . .	19
Video Tape Recording . . . . .	19
<b>7. TEST EQUIPMENT AND SPECIAL TECHNIQUES . . . . .</b>	<b>19</b>
<b>8. MISCELLANEOUS . . . . .</b>	<b>20</b>

**1946** **LB**

Capacitance-Temperature Characteristics of Some  
Typical Components.....660

Input Impedance of Several Receiving Type  
Pentodes at FM and Television Frequencies...661

Detent Station Selection Systems.....662

Frequency Converter Considerations at 100 Mc.....665

Balanced Phase Shift Discriminators.....666

Television High Voltage R-F Supplies.....675

Electronic Transducers.....677

A New Synchronizing and Blanking Signal Generator.678

Electronic Counters.....679

Stagger-Tuned I-F Amplifiers.....682

An m-Type Band-Pass Television I-F Amplifier.....687

The Use of Powdered Iron in Television Deflecting  
Circuits.....688

A Bar-Signal Generator for Testing Television  
Apparatus.....689

Recent Developments in Television Deflection  
Systems.....694

Audio-Noise Reduction System.....696

Television R-F Tuners.....697

Transformerless Output System.....700

Electrostatic Deflection for 7GP4 Kinescope.....701

Simultaneous All-Electronic Color Television.....702

**1947** **LB**

Table Model Television Receiver (630TS).....704

The Ratio Detector.....710

Dipole Antennas for Television Reception.....712

Compensation of Frequency Drift.....715

Frequency-Range Preference for Speech and Music...716

A Precision Device for Television Pulse Width  
and Slope Measurement.....717

Projection Screens for Home Television  
Receivers.....718

Means for Improving the Low-Frequency Response  
of Table Model Radio Receivers.....719

New Features in Table Model Radio Receivers.....720

Multi-Band Permeability Tuning System.....721

Degenerative I-F Amplifiers.....722

Class B Output for Automobile Receivers.....726

Intercarrier Sound System for Television.....727

An Experimental Simultaneous Color Television  
System.....729

Laboratory Antenna Distribution System.....730

Transformerless Seven-Inch Television Receiver...731

10.7-Mc FM I-F Signal Generator.....737

Effects of Radiation from Oscillators in  
Television Receivers.....739

**1948** **LB**

The Television DC Component.....745

High Efficiency Loud Speakers for Personal  
Radio Receivers.....746

Preamplifiers for Television Receivers.....748

Dynamic Operating Conditions in Video  
Amplifiers.....750

Incidental Phase Modulation in Television  
Picture Transmitters.....755

A Permeability-Tuned Television Tuner.....756

Automatic Gain Control for Television Receivers...757

Vapor Pressure Data for Various Substances.....759

Ultra-High-Frequency Television Converters.....760

A Novel Ten-Inch Television Receiver.....761

Spurious Multiple Responses in FM Sets.....762

**1949** **LB**

Television Tuner Analysis and Design  
Considerations.....764

Overall Fidelity of Standard Broadcast and FM  
Receivers Manufactured in 1948.....765

RCA Labs. Demonstration for Licensees,  
January 11-14, 1949.....767

12-Channel Reversible Beam Television Antenna  
Array.....768

Supplement to LB-768, A Simplified Diplexer for  
Use with the Reversible Beam Television  
Antenna.....768A

A Simple Keyed AGC System for Television  
Receivers.....769

Some Novel Circuits for the Three-Terminal  
Semiconductor Amplifier.....770

Mechanical Filters for Radio Frequencies.....773

Sound Co-Channel Interference Measurements on  
Conventional and Intercarrier Television  
Receivers.....774

Noise Factor and its Measurement.....775

A Television and FM Noise Generator.....776

Calculation of Noise Factor of Conventional  
Amplifiers and Converters.....778

Improvement of FM Receiver Tuning Characteristics.779

An Analysis of Absorption Traps.....780

Problems of Television Deflection and High-  
Voltage Supply.....781

A Fluosilicic Acid Solution Process for  
Producing Low-Reflection Films on Glass.....782

An Improved Method of Testing for Residual Gas  
in Electron Tubes and Vacuum Systems.....783

Receiving Tubes Employing Secondary Electron  
Emitting Surfaces Exposed to the Evaporation  
from Oxide Cathodes.....784

Sensitivity, Directivity and Linearity of Direct  
Radiator Loudspeakers.....786

A Functional Sound Reproducing System.....787

A Direct-Drive Deflection and High-Voltage  
System for Television Receivers.....789

**1950** **LB**

Design of 41.25-Mc Video I-F Amplifiers.....790

Characteristics of High-Efficiency Deflection  
and High-Voltage Supply Systems for  
Kinescopes.....791

A 5-Inch Television Oscilloscope.....793

Shielded Low-Capacitance Video-Frequency  
Oscilloscope Probes.....794

A Reflectometer for Measuring the Efficiency of  
Low-Reflection Films on Glass.....796

The Trigger-Grid Thyatron.....797

Circuit Diagrams and Description of a Receiver  
Sampler for Dot-Sequential Color Television..799

RF Test and Noise Measurements on Secondary-  
Emission Tubes of the Directly-Exposed Dynode  
Type.....800

Some Design Considerations of UHF Converters.....801

Open-Field Test Facilities for Measurement of  
Incidental Receiver Radiation.....802

Gaseous Discharge Noise Sources for SHF.....803

A High-Performance Transistor with Wide Spacing  
Between Contacts.....804

Effects of Contact Pressure on Transistor Gain...805

Application of Organic Films to Cathode-Ray Tube  
Screens by Flotation Methods.....807

Characteristics and Operation of an RCA  
Developmental Three-Gun Tri-Color Kinescope..808

Geometrical Considerations of an RCA Tri-Color  
Kinescope.....809

Developmental Tri-Color Kinescope Receivers for the RCA Color Television System.....811  
 An Automatic Non-Linear Distortion Analyzer.....812  
 Improved Sync Separation in Television Receivers in the Presence of Impulse Noise.....813  
 A Cathode-Controlled Multivibrator for the Production of Square Waves.....814

**1951** **LB**

A Center-Tuning Circuit for FM Detectors.....815  
 Coaxial-Line Triple-Tuned UHF Tuner.....816  
 Long-Line Stabilization of UHF Oscillators.....817  
 An Unobtrusive Dynamic Pressure Microphone.....818  
 A Color Television Test-Signal Generator.....819  
 A Laboratory Approach to the Reduction of TV Chassis Radiation from the Local Oscillator..820  
 Manufacture of an RCA Developmental Three-Gun Tri-Color Kinescope.....822  
 A Noise-Inversion Circuit for Improved Noise Immunity in Television Receivers.....823  
 Use of New Low-Noise Twin Triode in Television Tuners.....824  
 Columbate Dielectrics.....825  
 A Tristimulus Photometer.....826  
 A High-Voltage Cold-Cathode Rectifier.....827  
 Remote Control for Television Receivers.....828  
 A Mechanical Bandpass Filter for 100 KC.....829  
 A 45-degree Reflection Type Color Kinescope.....830  
 On Extending the Operating Voltage Range of Electron Tube Heaters.....831  
 High-Speed Ten-Volt Effect.....833  
 Luminescence of 3 Forms of Zinc Orthophosphate: Manganese.....834  
 An Electronic Thickness Gauge for Very Thin Metal Foils.....835  
 Television Receiver Signal Circuit and AGC Considerations for Impulse Noise Immunity...836  
 Tests of Means for Reducing Visibility of Line Structure on Television Receivers.....837  
 A Color Synchronization Circuit for RCA Color System Television Receivers.....838  
 A Calibrated Continuously-Variable Sampling-Wave Phase Shifter.....840  
 Direct-View Color Kinescopes.....841  
     (a) Methods Suitable for Television Color Kinescopes.  
     (b) A Three-Gun, Shadow-Mask Color Kinescope.  
     (c) A One-Gun, Shadow-Mask Color Kinescope.  
     (d) A 45-Degree Reflection-Type Color Kinescope.  
     (e) A Grid-Controlled Color Kinescope.  
     (f) Development and Operation of a Line-Screen Color Kinescope.  
     (g) Phosphor Screen Application in Color Kinescopes.  
     (h) Three-Beam Guns for Color Kinescopes.  
     (i) Mechanical Design of Aperture Mask, Tri-Color Kinescopes.  
     (j) Effects of Screen Tolerances on Operating Characteristics of Aperture-Mask, Tri-Color Kinescopes.  
     (k) Deflection and Convergence in Color Kinescopes.  
 Some Antenna Systems for UHF Reception.....842  
 AFC Color Synchronization Circuits.....843  
 The Plasmatron, A Continuously-Controllable Gas-Discharge Developmental Tube.....844  
 Compound Direct Radiator Loudspeaker.....845  
 A Novel High Performance Miniature Broadcast Receiver.....846  
 Elimination of Moire Effects in Tri-Color Kinescopes.....848

A Method of Improving The Electrical and Mechanical Stability of Point-Contact Transistors.....849  
 The Decay and Recovery of the Pulsed Emission of Oxide-Coated Cathodes.....850  
 An Industrial Television System.....851  
 Electronic Overload Protection Circuit for Sensitive Current Meters.....852  
 Interlaced Sampling-Signal Generator.....853  
 Performance of the Vidicon, a Small Developmental Television Camera Tube.....854

**1952** **LB**

Frequency Control of Modulated Magnetrons by Resonant Injection System.....855  
 Design Data for Horizontal Rhombic Antennas.....856  
 A Video Test Signal Generator.....859  
 The Preparation of Single and Multiple P-N Junctions in Single Crystals of Germanium...860  
 Heater-Cathode Leakage Hum Reduction by Means of a Shielded Heater.....861  
 A Survey of Transistor Development.....862  
 A Crystal-Ringing Circuit for Color Synchronization.....863  
 Transistor Oscillators.....865  
 Noise Factor Considerations and Measurement Techniques at UHF.....866  
 The Control of Frequency Response and Stability of Point-Contact Transistors.....867  
 Germanium P-N-P Junction Transistors.....868  
 P-N- Junctions by Impurity Introduction Thru an Intermediate Metal Layer.....869  
 Junction Transistor Equivalent Circuits and Vacuum Tube Analogy.....870  
 Dynamic Test Set for Transistors.....871  
 Balance Measurements on Balun Transformers.....872  
 One-Channel UHF Converter.....874  
 Transistor Trigger Circuits.....875  
 Noise Factor Measurements of Transistors.....876  
 Deflection Systems with Regulated Kickback High-Voltage Supplies For Tri-Color Kinescopes.....877  
 Vestigial Sideband Filter.....878  
 Rhombic Antennas for UHF Television.....879  
 An Automatic Level-Setting Sync and AGC System.....880  
 Determination of Orientation and Deformation of Germanium Crystals.....881  
 A Transistor Curve Tracer.....882  
 A Sweep Method for Measuring Envelope Delay.....883  
 Some Applications of Permanently Magnetized Ferrite Magnetostrictive Resonators.....884  
 Electrical Measurements on Germanium.....885  
 Low-Temperature Electrical Measurements on Semiconductors.....886  
 Reflected Inter-carrier Sound.....887  
 Miniature High-Performance Personal Radio Receivers.....888  
 Application of Linear Active Four-Terminal Networks to Transistors.....889  
 Purification of Germanium by Gradient Freezing...890  
 Laboratory Equipment for Germanium Purification...891  
 Preparation of Single Crystals of Germanium and Silicon.....892  
 Experimentally Determined Radiation Characteristics of Conical and Triangular Antennas...893  
 Ceramic-Metal Seals of the Tungsten-Iron Type....894  
 Resistivity Striations in Single-Crystal Germanium.....896  
 Methods of Processing Silver-Magnesium Secondary Emitters for Electron Tubes.....897  
 Progress Report on Transistor Research and Circuit Applications.....898

Theoretical Resistivity and Hall Coefficient of Impure Germanium Near Room Temperature.....899  
 Equipments for Measurement of Junction Transistor Small-Signal Parameters for a Wide Range of Frequencies.....900

1953

LB

A Keyed Minimum-Signal Detector for Television Receiver Impulse-Noise Immunity.....901  
 Design Considerations for Series Heater Strings in Television Receivers.....902  
 A Germanium N-P-N Junction Transistor by the Alloy Process.....903  
 Power Junction Transistors by the Alloy Process...905  
 Symmetrical Properties of Transistors and Their Application.....906  
 A Study of Transistor Circuits for Television Receivers.....907  
 Factors in the Design of Point-Contact Transistors.....908  
 The Application of Transistors to an Industrial Television Synchronizing Generator.....909  
 Circuits for Reception of NTSC (Feb. 2, 1953) Color Television Signals.....910  
 A UHF Balun.....911  
 A Vidicon Camera Adaptor for Television Receivers.....913  
 A Symmetrical Transistor Phase Detector for Horizontal Synchronization.....914  
 A P-N-P Triode Alloy Junction Transistor for Radio Frequency Amplification.....915  
 The Variation of Current Gain with Junction Shape and Surface Recombination in Alloy Transistors.....916  
 On the Variation of Junction Transistor Current-Amplification Factor with Emitter Current...917  
 Circuit Diagram, RCA Developmental Color Television Receiver.....918  
 An Experimental Transistor Personal Broadcast Receiver.....919  
 A Capacitive Tuned UHF Tuner.....921  
 Modification of Interlaced Sampling-Signal Generator.....853A  
 Continuous-Process Apparatus for Growing Single-Crystal Germanium.....922  
 Supplemental Information on a Color Television Test-Signal Generator.....819A  
 Modulated Transistor Oscillators and Their Applications.....923  
 A Delay Equalizer for Color Television.....924  
 RCA Developmental Color Television Receiver.....925  
 Recrystallization of Germanium from Indium Solution.....926  
 A Series Noise Inverter for Television Receiver Impulse-Noise Immunity.....927  
 Improving the Transient Response of Television Receivers!.....928  
 Design of Video Amplifier Peaking Circuits for Optimum Transient Response.....930  
 Miniature IF Transformers.....931  
 A Colorplexer for the Generator of Color TV Signals in Conformance with NTSC Specifications of July 21, 1953.....932  
 Measurement and Evaluation of Sweep and Video Circuit Interference Influence of TV Receivers on AM Receivers.....933  
 Supplemental Information on RCA Developmental Color Television Receiver.....925A  
 Measurement of Minority Carrier Lifetime and Surface Effects in Junction Devices.....934  
 A Transformerless 25-Watt Audio Amplifier for Use with Conventional Loudspeakers.....935  
 Investigation of UHF Television Amplifier Tubes...936

1954

LB

A System for Recording and Reproducing Television Signals by Means of Magnetic Tape.....937  
 The Tacitron, A Developmental Thyatron Capable of Current Interruption by Grid Action.....939  
 High-Frequency Operation of P-Type Point-Contact Transistors.....940  
 A Switched-Zone Furnace for Germanium Purification.....941  
 The Complete Specification of a Network by a Single Parameter.....943  
 Studies of the Interface Layer in Oxide Cathodes.....944  
 A Bridge for the Measurement of Cathode Impedance.....945  
 Factors in the Design of Keyed Clamping Circuits..946  
 A Study of the Etching Rate of Germanium.....947  
 Microscopic Examination of Germanium Crystals and Transistors.....948  
 Some Properties of Germanium-Silicon Alloy Semiconductors.....949  
 The Design of IF Amplifiers for Color Television Receivers.....950  
 Color Subcarrier Frequency Measurement Equipment..951  
 A Silicon N-P-N Junction Transistor by the Alloy Process.....952  
 The Effective Surface Recombination of a Germanium Surface with a Floating Barrier...953  
 Saturation Current in Alloy Junctions.....956  
 A Developmental Pocket-Size Broadcast Receiver Employing Transistors.....957  
 An Experimental Automobile Receiver Employing Transistors.....958  
 High-Level Triode Color Demodulator.....959  
 A Convergence Circuit for the RCA Developmental Color Kinescope.....960  
 An Analysis of the Bridged-T Trap Circuit.....961  
 A Simplified High-Performance Developmental 21-Inch Color Television Receiver.....962  
 Comparative High-Frequency Operation of Junction Transistors Made of Different Semiconductor Materials.....963  
 Investigations of Noise in Audio Frequency Amplifiers Using Junction Transistors.....964

1955

LB

The Variation of Current Gain with Junction Shape and Surface Recombination in Alloy Transistors.....966  
 Large-Area High-Current Photoconductive Cells Using Cadmium Sulfide Powder.....967  
 Selectivity and Transient Response Synthesis.....968  
 A New Method for Magnifying Electron Beam Images..970  
 Methods for Revealing p-n Junctions and Inhomogeneities in Germanium Crystals.....971  
 Unusual Assembly Methods Used in Developing a New Thyatron.....972  
 Technique for Fabricating Small Cylindrical Grids of Novel Design for Use in Pencil Tubes.....973  
 Transistorized Sync Separator Circuits for Television Receivers .....974  
 Class B Operation of Audio-Frequency Junction Transistors.....975  
 An Immittance Chart.....976  
 An Experimental High-Speed Photo-Resist Technique for Printed Circuits.....978  
 Temperature Effects in Circuits Using Junction Transistors.....979  
 Frequency Characteristics of Local Oscillators...980



Electromechanical Filters for 100kc Carrier and Sideband Selection.....	981	Design Considerations in Class B Complementary Symmetry Circuits.....	1021
The Model 21CT662U RCA 21-Inch Color TV Receiver.....	982	Transistor Audio Amplifiers.....	1022
Electrical Characteristics of Electrofax Coatings on Metallic and Paper Supports.....	983	Etch Pits and Dislocation Studies in Silicon Crystals.....	1023
Bias and Drive Considerations for Three-Gun Color Kinescopes.....	984	Reduction of Power-Line-Conducted Interference Output of Television Receivers.....	1024
Transistor Fabrication by the Melt-Quench Process.....	985	Equipment for Displaying Transistor Characteristics.....	1025
A Test Set for Transistor Performance Measurements at 455Kc.....	986	Focusing-Grill Color Kinescopes.....	1026
Alloyed Junction Type n-p-n Germanium-Silicon Transistors.....	988	A Transistor Phonograph Amplifier Using a Quasi-Complementary Circuit.....	1027
Performance of a Radio-Frequency Alloy Junction Transistor in Different Circuits.....	989	Theoretical Junction Capacitance and Related Characteristics Using Graded Impurity Semiconductors.....	1028
Uniform Planat Alloy Junctions for Germanium Transistors.....	990	Recent Improvements in the 21AXP22 Color Kinescope.....	1029
Surface Treatment of Silicon for Low Recombination Velocity.....	991	Corner Reflector Antennas With Arbitrary Dipole Orientation and Apex Angle.....	1030
Grounded-Green-Grid Kinescope Adding System.....	992	A Circularly-Polarized Corner Reflector Antenna.....	1031
A Noise-Clipping AGC Circuit for High-Gain Video Amplifiers.....	993	Design Considerations in the First Stage of Transistor Receivers.....	1032
A Synchronous Color Killer and Balanced Phase Detector.....	994	Field-Intensity Measurements on Induction-Heating Equipment.....	1033
A Parabolic Tubeless Convergence Circuit for the RCA 21-Inch Color Kinescope.....	995	Growth of Silicon Crystals for Transistor Applications.....	1034
A High-Gain Video-Amplifier Peaking Circuit.....	996	Transistorized High Voltage Oscillator Power Supply.....	1035
High-Level Triode Demodulator Design Considerations.....	997	Crystal Puller of Czochralski Type for Germanium or Silicon With 60-Cycle 3-Phase Heater.....	1036
Color Television IF Amplifiers.....	998	The Soldered Transistor.....	1037
A DC Stabilized Color Difference Amplifier.....	999	A Simple Paper Coating Method.....	1038
A Low-Cost Sound Detector for Television Receivers.....	1000	Practical Aspects of Local Oscillator Stabilization.....	1039
Peak Brightness Considerations in Color Television Receivers.....	1001	Intermediate Frequency Transistor Construction and Production.....	1040
Improvement in Color Kinescopes.....	1002	Some Characteristics of Avalanche Operation of Junction Transistors.....	1041
Experimental High-Transconductance Gun for Cathode-Ray Tubes.....	1003	Transistor Input Stage for Phonograph Pickups.....	1042
Miniature Loudspeakers for Personal Radio Receivers.....	1004	The Tricolor Vidicon -- A Developmental Camera Tube for Color Television.....	1043
A Variable-Capacitance Germanium Junction Diode for UHF.....	1005	Simultaneous Signal Separation in the Tricolor Vidicon.....	1044
'Electrofax' - A New Tool for the Graphic Arts.....	1006	A Drift Transistor for High Frequency Applications.....	1045
Cross Modulation in Transistor RF Amplifiers.....	1008	Wide-Range Impedance Transformer.....	1046
A Double-Corona Charging Unit and Its Utilization in The Electrofax Process.....	1009	A UHF Diode-Mixer Test Set.....	1047
Recent Advances in Power-Junction Transistors.....	1010	The Design, Construction and High Frequency Performance of Developmental Drift Transistors.....	1048
A Hermetic Enclosure for Power Transistors.....	1011	A Miniature Vidicon of High Sensitivity.....	1049
A 20-Watt Transistor Audio Amplifier.....	1012	Transistorized Television Cameras Using The Miniature Vidicon.....	1050
High Emitter Efficiency Alloy Materials for P-N-P Transistors.....	1013	An Improved Low-Capacitance Probe.....	1051
Stability Considerations in Transistor IF Amplifiers.....	1014	Large-Area Germanium Power Transistors.....	1052
A Method for Salvaging Components of Brazed Assemblies.....	1015	Uni-Pressure Microphone.....	1053
Junction Transistor Designed for Iterative Operation at Low Frequencies.....	1016	A Six-Transistor Portable Receiver Employing A Complimentary Symmetry Output Stage.....	1054
		Reduction of Co-Channel Television Interference by Precise Frequency Control of Television Picture Carriers.....	1055
		Thermal Stability of Junction Transistors and Its Effect on Maximum Power Dissipation.....	1056
		Concentric-Shear Mode 455 KC Electromechanical Filter.....	1057
		Microwave Noise Source Modulator and Power Supply.....	1058
		Electrofax Papers and Developers.....	1059

1956

LB

AFC of Television Receivers Using Junction Diodes.....	1017
The Drift Transistor.....	1018
The Transfluxor.....	1019
The Omnidirectional Antenna; An Omnidirectional Wave Guide Array for UHF-TV Broadcasting.....	1020



1955

RB

Electrolytic Etching at Small-Angle Grain Boundaries in Germanium.....1  
 Some Aspects of Thermal Conversion in Germanium.....2  
 The Direct Conversion of Radiation into Electrical Energy.....3  
 Radiative Transitions in Semiconductors.....4  
 Photoconductivity of the Sulfide, Selenide, and Telluride of Zinc or Cadmium.....5  
 The Noise Factor of Junction Transistors.....6  
 Heterodyne Mixer Cross Modulation Tests.....7  
 Speculations on the Energy Band Structure of Zinc-Blende-Type Crystals.....8  
 Initial Permeability in Ferrimagnetic Spinel.....9  
 Minority Carrier Lifetime in CdS.....10  
 Periodic Magnetic Field Focusing for Low-Noise Traveling-Wave Tubes.....11  
 Plasma Oscillations at Extremely High Frequencies.....12  
 Magnetoresistance of Germanium-Silicon Alloys.....13  
 An Electroluminescent Light-Amplifying Picture Panel.....14  
 Vapor Pressure Data on Metals and Alloys.....15  
 Edge Emission from ZnS Single Crystals.....16  
 Television Vertical Aperture Compensation.....17  
 Preparation, Properties, and Applications of a New Oxide Permanent Magnet Material.....18  
 Photoconduction in Germanium and Silicon.....19  
 Noise Considerations for P-N-P Junction Transistors.....20  
 Electron and Ion Motion in Oxide Cathodes.....21  
 Optical Factors in the Photo-Emission of Thin Films.....22  
 Calculations of Alloying Depth of Indium in Germanium.....23  
 Instantaneous Light Output and Buildup Effects in Electro-Luminescent Phosphors.....24  
 New Alignment and Constructional Techniques for the Bode Linear Phase-Shift Filter.....25  
 Two Bridged-T Equivalents of the Bode Low-Pass Lattice Filter.....26  
 The Electronic Energy Band Structure of Silicon and Germanium.....27

1956

RB

Basic Transistor Device Concepts.....28  
 A Determination of I/F Noise Sources in Semiconductor Diodes and Triodes.....29  
 Equipment for Measuring Junction Temperature of an Operating Transistor.....30  
 Phase Angle Distortion and Differential Phase Shift in Traveling-Wave Tubes.....31  
 Spectral Distribution of Photoconductivity.....32  
 Effect of Magnetic Deflection on Electron Beam Convergence.....33  
 Discharge Mechanism of Mercury Pool Arcs.....34  
 Comparison of Surface-Excited and Volume-Excited Photoconduction in Cadmium Sulfide Crystals.....35  
 Luminescence in Electronically Active Solids.....36  
 Video Transformers.....37  
 Theoretical and Practical Considerations for Determining the Optimum Semiconductor for Photovoltaic Solar Energy Converters.....38  
 Metal-Based Photoconducting Cells for Controlling High Power.....39  
 Molecular Ringing.....40

Space Charge Limitation on the Focus of Electron Beams.....41  
 The Electron-Voltaic Effect in Ge and Si P-N Junctions.....42  
 Determination of Crystal Axis Orientation by Etch Pit Observation.....43  
 Multi-Alkali Photocathodes.....44  
 A Simplified Theory of Space-Charged-Limited Currents in An Insulator with Traps.....45  
 The Galvanomagnetic Effects in a Semiconductor With Two Sets of Spheroidal Energy Surfaces..46  
 Photoconductivity Speed of Response for High-Intensity Excitation in Cadmium Sulfide and Selenide.....47  
 Thermionic Current in a Parallel-Plane Diode.....48  
 Printing of Three-Color Phosphor Patterns on Flat Glass by Offset Letter Press.....49  
 Pressure Microphone Using the XS7834 2-1/8-Inch Diameter Loudspeaker Mechanism.....50  
 A Magnetic Tape System for Recording and Reproducing Standard FCC Color Television Signals.....51  
 Viewing Storage Tubes.....52  
 Electrolytic Transport Phenomena in the Oxide Cathode.....53  
 On the Growth of Germanium Crystals.....54  
 Recording Fluxmeter.....55  
 Trends in Thinking About Thermionic Emitters.....56  
 Coherent Spontaneous Microwave Emission by Pulsed Resonance Excitation.....57  
 A New Ferrite Isolator.....58  
 The Electron Donor Centers in The Oxide Cathode...59  
 Kinescope Electron Guns for Producing Non-Circular Spots.....60  
 Current Steering in Magnetic Circuits.....61  
 Low Noise Traveling-Wave Tubes -- Verification of Fundamental Theory and Explanation of Higher Order Effects.....62  
 Etch Pits and Slip Bands in Silicon.....63  
 Semiconductor Alloys.....64  
 On The Stability of Periodic-Field Beam Focusing..65  
 The Determination of Unit cells From X-Ray Powder Patterns:  $BaBeF_4$  and  $\alpha Zn_3(PO_4)_2$ .....66  
 Associative Machine Languages.....67  
 Effect of Annealing in Various Gases on The Bulk Lifetime of Germanium.....68  
 Multi-Band Luminescence in Boron Nitride.....69  
 The Lifetimes of Free Electrons and Holes in Solids.....70  
 Analysis of Photoconductivity Applied to CdS-Type Photoconductors.....71  
 Alloying Properties of Germanium Free of Edge Dislocations.....72  
 The Conduction Band Structure of Germanium-Silicon Alloys.....73  
 Viewing Storage Tubes for Large Displays.....74  
 The Apparent Contact Potential of A Pseudo-Abrupt Junction.....75  
 The Lateral Photoeffect and Its Application to A New Type of Semiconductor Photocell.....76  
 Alloying of Indium to Germanium.....77  
 Low Field Electroluminescence in Insulating Crystals of CdS.....78  
 Withdrawn.....79  
 Ionization Energies of Gold Impurity in Germanium-Silicon Alloys.....80  
 Photoelectric Emission.....81  
 Electroluminescence of Zinc Sulfo-Selenide Phosphors With Copper Activator And Halide Co-Activators.....82  
 A Method of Accurate Thickness Determination of Germanium Wafers Suitable For Transistor Production.....83  
 Ferrite Apertured Plate For Random Access Memory..84  
 The Dissolution of Germanium by Molten Indium....85

PATENT BULLETINS

NO.	SERIES	NO.	SERIES
LB-680,	Series 46-1	LB-832,	Series 51-1
LB-691,	Series 46-2	LB-839,	Series 51-2
LB-698,	Series 46-3	LB-847,	Series 51-3
LB-708,	Series 46-4	LB-857,	Series 51-4
LB-723,	Series 47-1	LB-858,	Transistors
LB-734,	Series 47-2	LB-864,	Series 52-1
LB-741,	Series 47-3	LB-873,	Series 52-2
LB-749,	Farnsworth	LB-895,	Series 52-3
LB-754,	Series 47-4	LB-904,	Series 52-4
LB-758,	Series 48-1	LB-912,	Series 53-1
LB-763,	Series 48-2	LB-920,	Series 53-2
LB-766,	Series 48-3	LB-929,	Series 53-3
LB-772,	Series 48-4	LB-938,	Series 53-4
LB-777,	Series 49-1	LB-942,	Series 54-1
LB-785,	Series 49-2	LB-954,	Farnsworth (IT&T)
LB-788,	Series 49-3	LB-955,	Series 54-2
LB-792,	Series 49-4	LB-965,	Series 54-3
LB-795,	Series 50-1	LB-969,	Series 54-4
LB-798,	Series 50-2	LB-977,	Series 55-1
LB-806,	Series 50-3	LB-987,	Series 55-2
LB-821,	Series 50-4	LB-1007,	Series 55-3



1. TELEVISION

<b>AGC</b>	<b>LB</b>	12-Channel Reversible Beam Television Antenna Array.....	768
A Noise-Clipping AGC Circuit for High-Gain Video Amplifiers.....	993	Laboratory Antenna Distribution System.....	730
An Automatic Level-Setting Sync and AGC System.....	880	Dipole Antennas for Television Reception.....	712
Television Receiver Signal Circuit and AGC Considerations for Impulse Noise Immunity....	836		
A Simple Keyed AGC System for Television Receivers.....	769	<b>COLOR</b>	<b>LB</b>
Automatic Gain Control for Television Receivers....	757	Simultaneous Signal Separation in the Tricolor Vidicon.....	1044
		The Tricolor Vidicon -- A Developmental Camera Tube for Color Television.....	1043
		Recent Improvements in the 21AXP22 Color Kinescope.....	1029
<b>ANTENNAS</b>	<b>LB</b>	Focusing-Grill Color Kinescopes.....	1026
A Circularly-Polarized Corner Reflector Antenna...	1031	Improvement in Color Kinescopes.....	1002
Corner Reflector Antennas With Arbitrary Dipole Orientation and Apex Angle.....	1030	Peak Brightness Considerations in Color Television Receivers.....	1001
The Omnidirectional Wave Guide Array for UHF-TV Broadcasting.....	1020	A DC Stabilized Color Difference Amplifier.....	999
Experimentally Determined Radiation Characteristics of Conical and Triangular Antennas....	893	Color Television IF Amplifiers.....	998
Rhombic Antennas for UHF Television.....	879	High-Level Triode Demodulator Design Considerations.....	997
Design Data for Horizontal Rhombic Antennas.....	856	A High-Gain Video-Amplifier Peaking Circuit.....	996
Some Antenna Systems for UHF Reception.....	842	A Parabolic Tubeless Convergence Circuit for the RCA 21-Inch Color Kinescope.....	995
Supplement to LB-768, A Simplified Diplexer for Use with the Reversible Beam Television Antenna.....	768A	A Synchronous Color Killer and Balanced Phase Detector.....	994
		A Noise-Clipping AGC Circuit for High-Gain Video Amplifiers.....	993

Grounded-Green-Grid Kinescope Adding System.....992  
 Bias and Drive Considerations for Three-Gun Color  
 Kinescopes.....984  
 The Model 21CT662U RCA 21-Inch Color TV Receiver...982  
 A Simplified High Performance Developmental 21-  
 Inch Color Television Receiver.....962  
 A Convergence Circuit for the RCA Developmental  
 Color Kinescope.....960  
 High-Level Triode Color Demodulator.....959  
 Color Subcarrier Frequency Measurement Equipment...951  
 The Design of IF Amplifiers for Color Television  
 Receivers.....950  
 Factors in the Design of Keyed Clamping Circuits...946  
 A Colorplexer for the Generation of Color TV  
 Signals in Conformance with NTSC Specifica-  
 tions of July 21, 1953.....932  
 Supplemental Information on RCA Developmental  
 Color Television Receiver.....925A  
 RCA Developmental Color Television Receiver.....925  
 A Delay Equalizer for Color Television.....924  
 Circuit Diagram, RCA Developmental Color Television  
 Receiver.....918  
 Circuits for Reception of NTSC (Feb. 2, 1953) Color  
 Television Signals.....910  
 Deflection Systems with Regulated Kickback High-  
 Voltage Supplies for Tri-Color Kinescopes....877  
 A Crystal-Ringing Circuit for Color Synchroniza-  
 tion.....863  
 AFC Color Synchronization Circuits.....843  
 Some Antenna Systems for UHF Reception.....842  
 Direct-View Color Kinescopes.....841  
 (a) Methods Suitable for Television Color  
 Kinescopes.  
 (b) A Three-Gun, Shadow-Mask Color Kinescope.  
 (c) A One-Gun, Shadow-Mask Color Kinescope.  
 (d) A 45-Degree Reflection-Type Color  
 Kinescope.  
 (e) A Grid-Controlled Color Kinescope.  
 (f) Development and Operation of a Line-Screen  
 Color Kinescope.  
 (g) Phosphor Screen Application in Color  
 Kinescopes.  
 (h) Three-Beam Guns for Color Kinescopes.  
 (i) Mechanical Design of Aperture Mask, Tri-  
 Color Kinescopes.  
 (j) Effects of Screen Tolerances on Operating  
 Characteristics of Aperture-Mask Tri-Color  
 Kinescopes.  
 (k) Deflection and Convergence in Color  
 Kinescopes.  
 A Calibrated Continuously-Variable Sampling-Wave  
 Phase Shifter.....840  
 A Color Synchronization Circuit for RCA Color  
 System Television Receivers.....838  
 A Tristimulus Photometer.....826  
 Manufacture of an RCA Developmental Three-Gun Tri-  
 Color Kinescope.....822  
 Supplemental Information on a Color Television  
 Test-Signal Generator.....819A  
 A Color Television Test-Signal Generator.....819  
 Developmental Tri-Color Kinescope Receivers for  
 the RCA Color Television System.....811  
 Geometrical Considerations of an RCA Tri-Color  
 Kinescope.....809  
 Characteristics and Operation of an RCA  
 Developmental Three-Gun Tri-Color Kinescope...808  
 Circuit Diagrams and Description of a Receiver  
 Sampler for Dot-Sequential Color Television...799  
 An Experimental Simultaneous Color Television  
 System.....729  
 Simultaneous All-Electronic Color Television.....702

**RB**

A Magnetic Tape System for Recording and Re-  
 producing Standard FCC Color Television  
 Signals.....51

**DEFLECTION**

**LB**

Deflection Systems with Regulated Kickback High-  
 Voltage Supplies for Tri-Color Kinescopes....877  
 Characteristics of High-Efficiency Deflection and  
 High-Voltage Supply Systems for Kinescopes...791  
 A Direct-Drive Deflection and High-Voltage System  
 for Television Receivers.....789  
 Problems of Television Deflection and High-  
 Voltage Supply.....781  
 Electrostatic Deflection for 7GP4 Kinescope.....701  
 Recent Developments in Television Deflection  
 Systems.....694  
 The Use of Powdered Iron in Television Deflecting  
 Circuits.....688  
 Television High-Voltage RF Supplies.....675

**RB**

Effect of Magnetic Deflection on Electron Beam  
 Convergence.....33  
 Preparation, Properties, and Applications of a  
 New Oxide Permanent Magnet Material.....18

**IF**

**LB**

Color Television IF Amplifiers.....998  
 The Design of IF Amplifiers for Color Television  
 Receivers.....950  
 Design of 41.25-Mc Video IF Amplifiers.....790  
 Degenerative IF Amplifiers.....722  
 An m-Type Band-Pass Television IF Amplifier.....687  
 Stagger-Tuned IF Amplifiers.....682  
 An Analysis of Absorption Traps.....780

**NOISE**

**LB**

Microwave Noise Source Modulator and Power Supply.1058  
 A Noise-Clipping AGC Circuit for High-Gain Video  
 Amplifiers.....993  
 Transistorized Sync Separator Circuits for  
 Television Receivers.....974  
 Measurement and Evaluation of Sweep and Video  
 Circuit Interference Influence of TV Receivers  
 on AM Receivers.....933  
 A Series Noise Inverter for Television Receiver  
 Impulse-Noise Immunity.....927  
 A Keyed Minimum-Signal Detector for Television  
 Receiver Impulse-Noise Immunity.....901  
 Noise Factor Considerations and Measurement  
 Techniques at UHF.....866  
 Television Receiver Signal Circuit and AGC  
 Considerations for Impulse Noise Immunity....836  
 A Noise-Inversion Circuit for Improved Noise  
 Immunity in Television Receivers.....823  
 Improved Sync Separation in Television Receivers  
 in the Presence of Impulse Noise.....813  
 Calculation of Noise Factor of Conventional  
 Amplifiers and Converters.....778  
 A Television and FM Noise Generator.....776  
 Noise Factor and its Measurement.....775

**PICTURE TUBES**

**LB**

Recent Improvements in the 21AXP22 Color  
 Kinescope.....1029  
 Focusing-Grill Color Kinescopes.....1026

Experimental High-Transconductance Gun for  
 Cathode-Ray Tubes.....1003  
 Improvement in Color Kinescopes.....1002  
 Peak Brightness Considerations in Color  
 Television Receivers.....1001  
 Grounded-Green-Grid Kinescope Adding System.....992  
 Bias and Drive Considerations for Three-Gun Color  
 Kinescopes.....984  
 A New Method for Magnifying Electron Beam Images...970  
 Elimination of Moire Effects in Tri-Color  
 Kinescopes.....848  
 Direct-View Color Kinescopes.....841  
 (a) Methods Suitable for Television Color  
 Kinescopes.  
 (b) A Three-Gun, Shadow-Mask Color Kinescope.  
 (c) A One-Gun, Shadow-Mask Color Kinescope.  
 (d) A 45-Degree Reflection-Type Color Kinescope.  
 (e) A Grid-Controlled Color Kinescope.  
 (f) Development and Operation of a Line-  
 Screen Color Kinescope.  
 (g) Phosphor Screen Application in Color  
 Kinescopes.  
 (h) Three-Beam Guns for Color Kinescopes.  
 (i) Mechanical Design of Aperture-Mask, Tri-  
 Color Kinescopes.  
 (j) Effects of Screen Tolerances on Operating  
 Characteristics of Aperture-Mask, Tri-Color  
 Kinescopes.  
 (k) Deflection and Convergence in Color  
 Kinescopes.  
 A 45-Degree Reflection Type Color Kinescope.....830  
 Manufacture of an RCA Developmental Three-Gun  
 Tri-Color Kinescope.....822  
 Geometrical Considerations of an RCA Tri-Color  
 Kinescope.....809  
 Characteristics and Operation of an RCA  
 Developmental Three-Gun Tri-Color Kinescope...808  
 Application of Organic Films to Cathode-Ray  
 Tube Screens by Flotation Methods.....807  
 An Improved Method of Testing for Residual Gas in  
 Electron Tubes and Vacuum Systems.....783

**RB**

Viewing Storage Tubes for Large Displays.....74  
 On the Stability of Periodic-Field Beam  
 Focusing.....65  
 Kinescope Electron Guns for Producing Non-  
 Circular Spots.....60  
 Viewing Storage Tubes.....52  
 Printing of Three-Color Phosphor Patterns on Flat  
 Glass by Offset Letter Press.....49  
 Video Transformers.....37  
 Effect of Magnetic Deflection on Electron Beam  
 Convergence.....33  
 Television Vertical Aperture Compensation.....17

**CAMERAS AND CAMERA TUBES**

**LB**

Transistorized Television Cameras Using the  
 Miniature Vidicon.....1050  
 A Miniature Vidicon of High Sensitivity.....1049  
 Simultaneous Signal Separation in the Tricolor  
 Vidicon.....1044  
 The Tricolor Vidicon -- A Developmental Camera  
 Tube for Color Television.....1043  
 A Vidicon Camera Adaptor for Television Receivers..913  
 Performance of the Vidicon, A Small Develop-  
 mental Television Camera Tube.....854  
 An Industrial Television System.....851

**RECEIVERS**

**LB**

The Model 21CT662U RCA 21-Inch Color TV Receiver...982  
 A Simplified High-Performance Developmental 21-  
 Inch Color Television Receiver.....962  
 Supplemental Information on RCA Developmental  
 Color Television Receiver.....925A  
 RCA Developmental Color Television Receiver.....925  
 Circuit Diagram, RCA Developmental Color  
 Television Receiver.....918  
 Circuits for Reception of NTSC (Feb. 2, 1953)  
 Color Television Signals.....910  
 Developmental Tri-Color Kinescope Receivers for  
 the RCA Color Television System.....811  
 A Novel Ten-Inch Television Receiver.....761  
 Transformerless Seven-Inch Television Receiver....731  
 An Experimental Simultaneous Color Television  
 System.....729  
 Table Model Television Receiver (630TS).....704

**RECEIVER RADIATION**

**LB**

Reduction of Power-Line-Conducted Interference  
 Output of Television Receivers.....1024  
 Measurement and Evaluation of Sweep and Video  
 Circuit Interference Influence of TV  
 Receivers on AM Receivers.....933  
 A Laboratory Approach to the Reduction of TV  
 Chassis Radiation from the Local Oscillator...820  
 Open-Field Test Facilities for Measurement of  
 Incidental Receiver Radiation.....802  
 Effects of Radiation from Oscillators in  
 Television Receivers.....739

**SIGNAL GENERATORS**

**LB**

A Colorplexer for the Generation of Color TV  
 Signals in Conformance with NTSC  
 Specifications of July 21, 1953.....932  
 A Video Test Signal Generator.....859  
 Modification of Interlaced Sampling-Signal  
 Generator.....853A  
 Interlaced Sampling-Signal Generator.....853  
 Supplemental Information on a Color Television  
 Test-Signal Generator.....819A  
 A Color Television Test-Signal Generator.....819  
 A Bar-Signal Generator for Testing Television  
 Apparatus.....689  
 A New Synchronizing and Blanking Signal Generator..678

**SOUND**

**LB**

A Low-Cost Sound Detector for Television  
 Receivers.....1000  
 Reflexed Intercarrier Sound.....887  
 A Functional Sound Reproducing System.....787  
 Sound Co-Channel Interference Measurements on  
 Conventional and Intercarrier Television  
 Receivers.....774  
 Intercarrier Sound System for Television.....727

**TEST EQUIPMENT**

**LB**

An Improved Low-Capacitance Probe.....1051  
 Wide-Range Impedance Transformer.....1046

A UHF Diode-Mixer Test Set.....1047  
 An Immittance Chart.....976  
 Selectivity and Transient Response Synthesis.....968  
 Color Subcarrier Frequency Measurement Equipment...951  
 A Colorplexer for the Generation of Color TV  
 Signals in Conformance with NTSC Specifica-  
 tions of July 21, 1953.....932  
 A Sweep Method for Measuring Envelope Delay.....883  
 A Video Test Signal Generator.....859  
 Modification of Interlaced Sampling-Signal  
 Generator.....853A  
 Interlaced Sampling-Signal Generator.....853  
 A Calibrated Continuously-Variable Sampling-Wave  
 Phase Shifter.....840  
 A Tristimulus Photometer.....826  
 Supplemental Information on a Color Television  
 Test-Signal Generator.....819A  
 A Color Television Test-Signal Generator.....819  
 A Cathode-Controlled Multivibrator for the  
 Production of Square Waves.....814  
 An Automatic Non-Linear Distortion Analyzer.....812  
 Shielded Low-capacitance Video-Frequency  
 Oscilloscope Probes.....794  
 A 5-Inch Television Oscilloscope.....793  
 An Improved Method of Testing for Residual Gas  
 in Electron Tubes and Vacuum Systems.....783  
 A Precision Device for Television Pulse Width  
 and Slope Measurement.....717

**TUNERS**

**LB**

A Constant-Input-Impedance RF Amplifier for VHF  
 Television Receivers.....1067  
 AFC of Television Receivers Using Junction Diodes.1017  
 Cross Modulation in Transistor RF Amplifiers.....1008  
 A Capacitive Tuned UHF Tuner.....921  
 Use of New Low-Noise Twin Triode in Television  
 Tuners.....824  
 Coaxial-Line Triple-Tuned UHF Tuner.....816  
 Television Tuner Analysis and Design Considera-  
 tions.....764  
 A Permeability-Tuned Television Tuner.....756  
 Preamplifiers for Television Receivers.....748  
 Television R-F Tuners.....697

**UHF**

**LB**

Microwave Noise Source Modulator and Power Supply.1058  
 A UHF Diode-Mixer Test Set.....1047  
 Wide-Range Impedance Transformer.....1046  
 The Omnidirectional Antenna; An Omnidirectional Wave  
 Guide Array for UHF-TV Broadcasting.....1020  
 A Variable-Capacitance Germanium Junction Diode  
 for UHF.....1005  
 Investigation of UHF Television Amplifier Tubes...936  
 A Capacitive Tuned UHF Tuner.....921  
 A UHF Balun.....911  
 Experimentally Determined Radiation Characteristics  
 of Conical and Triangular Antennas.....893  
 Rhombic Antennas for UHF Television.....879  
 One-Channel UHF Converter.....874  
 Balance Measurements on Balun Transformers.....872  
 Noise Factor Considerations and Measurement  
 Techniques at UHF.....866  
 Some Antenna Systems for UHF Reception.....842  
 Long-Line Stabilization of UHF Oscillators.....817  
 Coaxial-Line Triple-Tuned UHF Tuner.....816  
 Some Design Considerations of UHF Converters.....801  
 Ultra-High-Frequency Television Converters.....760  
 Frequency Converter Considerations at 100 Mc.....665

**VIDEO AMPLIFIERS**

**LB**

A High-Gain Video-Amplifier Peaking Circuit.....996  
 A Noise-Clipping AGC Circuit for High-Gain Video  
 Amplifiers.....993  
 Design of Video Amplifier Peaking Circuits for  
 Optimum Transient Response.....930  
 Design of 41.25-Mc Video IF Amplifiers.....790  
 Dynamic Operating Conditions in Video Amplifiers...750

**RB**

Video Transformers.....37

**GENERAL**

**LB**

A Constant-Input-Impedance RF Amplifier for VHF  
 Television Receivers.....1067  
 Reduction of Co-Channel Television Interference  
 by Precise Frequency Control of Television  
 Picture Carriers.....1055  
 Wide-Range Impedance Transformer.....1046  
 AFC of Television Receivers Using Junction Diodes.1017  
 Cross Modulation in Transistor RF Amplifiers.....1008  
 An Immittance Chart.....976  
 Transistorized Sync Separator Circuits for  
 Television Receivers.....974  
 An Analysis of the Bridged-T Trap Circuits.....961  
 Factors in the Design of Keyed Clamping Circuits...946  
 Investigation of UHF Television Amplifier Tubes...936  
 Improving the Transient Response of Television  
 Receivers.....928  
 A Symmetrical Transistor Phase Detector for  
 Horizontal Synchronization.....914  
 The Application of Transistors to an Industrial  
 Television Synchronizing Generator.....909  
 A Study of Transistor Circuits for Television  
 Receivers.....907  
 Design Considerations for Series Heater Strings  
 in Television Receivers.....902  
 An Automatic Level-Setting Sync and AGC System...880  
 A Crystal-Ringing Circuit for Color Synchroniza-  
 tion.....863  
 An Industrial Television System.....851  
 Tests of Means for Reducing Visibility of Line  
 Structure on Television Receivers.....837  
 Remote Control for Television Receivers.....828  
 An Analysis of Absorption Traps.....780  
 Sound Co-Channel Interference Measurements on  
 Conventional and Intercarrier Television  
 Receivers.....774  
 Incidental Phase Modulation in Television Picture  
 Transmitters.....755  
 Preamplifiers for Television Receivers.....748  
 The Television DC Component.....745  
 Projection Screens for Home Television Receivers...718  
 A Precision Device for Television Pulse Width  
 and Slope Measurement.....717  
 Television High Voltage R-F Supplies.....675  
 Input Impedance of Several Receiving Type Pentodes  
 at FM and Television Frequencies.....661

**RB**

Two Bridged-T Equivalent of the Bode Low-Pass  
 Lattice Filter.....26  
 New Alignment and Constructional Techniques for  
 the Bode Linear Phase-Shift Filter.....25  
 Television Vertical Aperture Compensation.....17  
 Heterodyne Mixer Cross Modulation Tests.....7

## 2. BROADCAST

## AMPLITUDE MODULATION

	LB
Concentric-Shear Mode 455 KC Electromechanical Filter.....	1057
A Six-Transistor Portable Receiver Employing a Complementary Symmetry Output Stage.....	1054
Transistor Input Stage for Phonograph Pickups.....	1042
Design Considerations in the First Stage of Transistor Receivers.....	1032
A Transistor Phonograph Amplifier Using a Quasi-Complementary Circuit.....	1027
Transistor Audio Amplifiers.....	1022
Design Considerations in Class B Complementary Symmetry Circuits.....	1021
A 20-Watt Transistor Audio Amplifier.....	1012
Miniature Loudspeakers for Personal Radio Receivers.....	1004
Performance of a Radio-Frequency Alloy Junction Transistor in Different Circuits.....	989
Electromechanical Filters for 100 KC Carrier and Sideband Selection.....	981
Class B Operation of Audio-Frequency Junction Transistors.....	975
Investigations of Noise in Audio Frequency Amplifiers Using Junction Transistors.....	964
An Experimental Automobile Receiver Employing Transistors.....	958
A Developmental Pocket-Size Broadcast Receiver Employing Transistors.....	957
A Transformerless 25-Watt Audio Amplifier for Use with Conventional Loudspeakers.....	935
Measurement and Evaluation of Sweep and Video Circuit Interference Influence of TV Receivers on AM Receivers.....	933
Miniature IF Transformers.....	931
Modulated Transistor Oscillators and Their Applications.....	923
An Experimental Transistor Personal Broadcast Receiver.....	919
A P-N-P Triode Alloy Junction Transistor for Radio Frequency Amplification.....	915
Miniature High-Performance Personal Radio Receivers.....	888
A Novel High Performance Miniature Broadcast Receiver.....	846

A Mechanical Bandpass Filter for 100 KC.....	829
Calculation of Noise Factor of Conventional Amplifiers and Converters.....	778
Noise Factor and Its Measurement.....	775
Mechanical Filters for Radio Frequencies.....	773
Overall Fidelity of Standard Broadcast and FM Receivers Manufactured in 1948.....	765
High Efficiency Loudspeakers for Personal Radio Receivers.....	746
Multi-Band Permeability Tuning System.....	721
New Features in Table Model Radio Receivers.....	720
Transformerless Output System.....	700

## RB

Heterodyne Mixer Cross Modulation Tests.....	7
--	---

## FREQUENCY MODULATION

	LB
Modulated Transistor Oscillators and Their Applications.....	923
A Center-Tuning Circuit for FM Detectors.....	815
Open-Field Test Facilities for Measurement of Incidental Receiver Radiation.....	802
Improvement of FM Receiver Tuning Characteristics..	779
Calculation of Noise Factor of Conventional Amplifiers and Converters.....	778
A Television and FM Noise Generator.....	776
Noise Factor and its Measurement.....	775
Overall Fidelity of Standard Broadcast and FM Receivers Manufactured in 1948.....	765
Spurious Multiple Responses in FM Sets.....	762
10.7 Mc IF Signal Generator.....	737
Multi-Band Permeability Tuning System.....	721
New Features in Table Model Radio Receivers.....	720
Compensation of Frequency Drift.....	715
The Ratio Detector.....	710
Balanced Phase Shift Discriminators.....	666
Frequency Converter Considerations at 100 Mc.....	665
Input Impedance of Several Receiving-Type Pentodes at FM and Television Frequencies.....	661

## 3. ACOUSTICS AND AUDIO

	LB
A Six-Transistor Portable Receiver Employing a Complementary Symmetry Output Stage.....	1054
Uni-Pressure Microphone.....	1053
Transistor Input Stage for Phonograph Pickups.....	1042
A Transistor Phonograph Amplifier Using a Quasi-Complementary Circuit.....	1027
Transistor Audio Amplifiers.....	1022
Design Considerations in Class B Complementary Symmetry Circuits.....	1021
A 20-Watt Transistor Audio Amplifier.....	1012
Miniature Loudspeakers for Personal Radio Receivers.....	1004
Class B Operation of Audio-Frequency Junction Transistors.....	975
Investigations of Noise in Audio Frequency Amplifiers Using Junction Transistors.....	964
An Experimental Automobile Receiver Employing Transistors.....	958
A Developmental Pocket-Size Broadcast Receiver Employing Transistors.....	957

A Transformerless 25-Watt Audio Amplifier for Use with Conventional Loudspeakers.....	935
Compound Direct Radiator Loudspeaker.....	845
An Unobtrusive Dynamic Pressure Microphone.....	818
A Functional Sound Reproducing System.....	787
Sensitivity, Directivity and Linearity of Direct Radiator Loudspeakers.....	786
High Efficiency Loudspeakers for Personal Radio Receivers.....	746
Class B Output for Automobile Receivers.....	726
Means for Improving the Low-Frequency Response of Table Model Radio Receivers.....	719
Frequency-Range Preference for Speech and Music....	716
Transformerless Output System.....	700
Audio-Noise Reduction System.....	696

## RB

Pressure Microphone Using the XS7834.....	50
2-1/8-inch diameter Loudspeaker mechanism	

## 4. SOLID STATE PHENOMENA

## LUMINESCENCE

**Electroluminescence**

	<b>RB</b>
Electroluminescence of Zinc Sulfo-Selenide Phosphors with Copper Activator and Halide Co-Activators.....	82
Low Field Electroluminescence in Insulating Crystals of CdS.....	78
Multi-Band Luminescence in Boron Nitride.....	69
Luminescence in Electronically Active Solids.....	36
Instantaneous Light Output and Buildup Effects in Electro-Luminescent Phosphors.....	24
Edge Emission from ZnS Single Crystals.....	16
An Electroluminescent Light-Amplifying Picture Panel.....	14

**Cathodoluminescence**

	<b>LB</b>
Luminescence of 3 Forms of Zinc Orthophosphate: Manganese.....	834

	<b>RB</b>
Multi-Band Luminescence in Boron Nitride.....	69
Edge Emission from ZnS Single Crystals.....	16

**Photoluminescence**

	<b>RB</b>
Multi-Band Luminescence in Boron Nitride.....	69

## ELECTRON EMISSION

**Thermionic Emission**

	<b>LB</b>
A Bridge for the Measurement of Cathode Impedance..	945
Studies of the Interface Layer in Oxide Cathodes..	944
The Decay and Recovery of the Pulsed Emission of Oxide-Coated Cathodes.....	850
High-Speed Ten-Volt Effect.....	833

	<b>RB</b>
The Electron Donor Centers in the Oxide Cathode....	59
Trends in Thinking About Thermionic Emitters.....	56
Electrolytic Transport Phenomena in the Oxide Cathode.....	53
Thermionic Current in a Parallel-Plane Diode.....	48
Electron and Ion Motion in Oxide Cathodes.....	21

**Photo Emission**

	<b>RB</b>
Photoelectric Emission.....	81
The Lateral Photoeffect and Its Application to a New Type of Semiconductor Photocell.....	76

Multi-Alkali Photocathodes.....	44
Optical Factors in the Photo-Emission of Thin Films.....	22

**Secondary Emission**

	<b>LB</b>
Methods of Processing Silver-Magnesium Secondary Emitters for Electron Tubes.....	897
High-Speed Ten-Volt Effect.....	833
RF Test and Noise Measurements on Secondary- Emission Tubes of the Directly-Exposed Dynode Type.....	800
Receiving Tubes Employing Secondary Electron Emitting Surfaces Exposed to the Evaporation from Oxide Cathodes.....	784

**Semiconduction (See Section 5)**

## PHOTOCONDUCTIVITY

	<b>LB</b>
Large-Area High-Current Photoconductive Cells Using Cadmium Sulfide Powder.....	967
	<b>RB</b>
Analysis of Photoconductivity Applied to CdS- Type Photoconductors.....	71
Photoconductivity Speed of Response for High- Intensity Excitation in Cadmium Sulfide and Selenide.....	47
Metal-Based Photoconducting Cells for Controlling High Power.....	39
Comparison of Surface-Excited and Volume-Excited Photoconduction in Cadmium Sulfide Crystals....	35
Spectral Distribution of Photoconductivity.....	32
Photoconduction in Germanium and Silicon.....	19
Minority Carrier Lifetime in CdS.....	10
Photoconductivity of the Sulfide, Selenide, and Telluride of Zinc or Cadmium.....	5

## FERROMAGNETISM

	<b>LB</b>
The Transfluxor.....	1019
Miniature IF Transformers.....	931
Some Applications of Permanently Magnetized Ferrite Magnetostrictive Resonators.....	884
	<b>RB</b>
Ferrite Apertured Plate for Random Access Memory....	84
Current Steering in Magnetic Circuits.....	61
Recording Fluxmeter.....	55
A New Ferrite Isolator.....	58
Initial Permeability in Ferrimagnetic Spinels.....	9





## 5. SEMICONDUCTORS

**PHYSICS, MATERIALS, AND LABORATORY TECHNIQUES**

<i>Physics and Properties of Materials</i>	LB
Theoretical Junction Capacitance and Related Characteristics Using Graded Impurity Semiconductors.....	1028
Etch Pits and Dislocation Studies in Silicon Crystals.....	1023
High Emitter Efficiency Alloy Materials for P-N-P Transistors.....	1013
Surface Treatment of Silicon for Low Recombination Velocity.....	991
Uniform Planar Alloy Junctions for Germanium Transistors.....	990
The Variation of Current Gain with Junction Shape and Surface Recombination in Alloy Transistors.....	966
Saturation Current in Alloy Junctions.....	956
The Effective Surface Recombination of a Germanium Surface with a Floating Barrier.....	953
Some Properties of Germanium-Silicon Alloy Semiconductors.....	949
Microscopic Examination of Germanium Crystals and Transistors.....	948
A Study of the Etching Rate of Germanium.....	947
Measurement of Minority Carrier Lifetime and Surface Effects in Junction Devices.....	934
Recrystallization of Germanium From Indium Solution.....	926
On the Variation of Junction Transistor Current-Amplification Factor with Emitter Current.....	917
The Variation of Current Gain with Junction Shape and Surface Recombination in Alloy Transistors.....	916
Theoretical Resistivity and Hall Coefficient of Impure Germanium Near Room Temperature.....	899
Resistivity Striations in Single-Crystal Germanium.....	896
Low-Temperature Electrical Measurements on Semiconductors.....	886
Electrical Measurements on Germanium.....	885
Determination of Orientation and Deformation of Germanium Crystals.....	881
P-N Junctions by Impurity Introduction Thru an Intermediate Metal Layer.....	869
The Preparation of Single and Multiple P-N Junctions in Single Crystals of Germanium.....	860
	RB
The Dissolution of Germanium by Molten Indium.....	85
Ionization Energies of Gold Impurity in Germanium-Silicon Alloys.....	80
Alloying of Indium to Germanium.....	77
The Lateral Photoeffect and Its Application to A New Type of Semiconductor Photocell.....	76
The Apparent Contact Potential of a Pseudo-Abrupt Junction.....	75
The Conduction Band Structure of Germanium-Silicon Alloys.....	73
Alloying Properties of Germanium Free of Edge Dislocations.....	72
The Lifetimes of Free Electrons and Holes in Solids.....	70
Effect of Annealing in Various Gases on the Bulk Lifetime of Germanium.....	68
Semiconductor Alloys.....	64
Etch Pits and Slip Bands in Silicon.....	63
On the Growth of Germanium Crystals.....	54

The Galvanomagnetic Effects in a Semiconductor with Two Sets of Spheroidal Energy Surfaces.....	46
A Simplified Theory of Space-Charged-Limited Currents in an Insulator with Traps.....	45
Determination of Crystal Axis Orientation by Etch Pit Observation.....	43
The Electron-Voltaic Effect in Ge and Si P-N Junctions.....	42
Theoretical and Practical Considerations for Determining the Optimum Semiconductor for Photovoltaic Solar Energy Converters.....	38
The Electronic Energy Band Structure of Silicon and Germanium.....	27
Calculations of Alloying Depth of Indium in Germanium.....	23
Magnetoresistance of Germanium-Silicon Alloys.....	13
Minority Carrier Lifetime in CdS.....	10
Speculations on the Energy Band Structure of Zinc-Blende-Type Crystals.....	8
Radiative Transitions in Semiconductors.....	4
Some Aspects of Thermal Conversion in Germanium.....	2
Electrolytic Etching at Small-Angle Grain Boundaries in Germanium.....	1

**Laboratory Equipment and Techniques**

	LB
Crystal Puller of Czochralski Type for Germanium or Silicon with 60-Cycle 3-Phase Heater.....	1036
Growth of Silicon for Transistor Applications.....	1034
Transistor Fabrication by the Melt-Quench Process.....	985
Methods for Revealing p-n Junctions and Inhomogeneities in Germanium Crystals.....	971
A Switched-Zone Furnace for Germanium Purification.....	941
Continuous-Process Apparatus for Growing Single-Crystal Germanium.....	922
Equipments for Measurement of Junction Transistor Small-Signal Parameters for a Wide Range of Frequencies.....	900
Preparation of Single Crystals of Germanium and Silicon.....	892
Laboratory Equipment for Germanium Purification.....	891
Purification of Germanium by Gradient Freezing.....	890
The Preparation of Single and Multiple P-N Junctions in Single Crystals of Germanium.....	860
	RB
A Method of Accurate Thickness Determination of Germanium Wafers Suitable for Transistor Production.....	83

**DEVICES****Transistors**

	LB
Thermal Stability of Junction Transistors and Its Effect on Maximum Power Dissipation.....	1056
Large-Area Germanium Power Transistors.....	1052
The Design, Construction and High Frequency Performance of Developmental Drift Transistors.....	1048
A Drift Transistor for High Frequency Applications.....	1045
Some Characteristics of Avalanche Operation of Junction Transistors.....	1041
Intermediate Frequency Transistor Construction and Production.....	1040

The Soldered Transistor.....1037  
 The Drift Transistor.....1018  
 High Emitter Efficiency Alloy Materials for  
 P-N-P Transistors.....1013  
 Recent Advances in Power-Junction Transistors.....1010  
 Uniform Planar Alloy Junctions for Germanium  
 Transistors.....990  
 Alloyed Junction Type n-p-n Germanium-Silicon  
 Transistors.....988  
 Temperature Effects in Circuits Using Junction  
 Transistors.....979  
 Comparative High-Frequency Operation of Junction  
 Transistors Made of Different Semiconductor  
 Materials.....963  
 A Silicon N-P-N Junction Transistor by the Alloy  
 Process.....952  
 Microscopic Examination of Germanium Crystals and  
 Transistors.....948  
 High-Frequency Operation of P-Type Point-Contact  
 Transistors.....940  
 Factors in the Design of Point-Contact Transistors.908  
 Symmetrical Properties of Transistors and Their  
 Application.....906  
 Power Junction Transistors by the Alloy Process...905  
 A Germanium N-P-N Junction Transistor by the Alloy  
 Process.....903  
 Progress Report on Transistor Research and Circuit  
 Applications.....898  
 A Transistor Curve Tracer.....882  
 Noise Factor Measurements of Transistors.....876  
 Dynamic Test Set for Transistors.....871  
 Junction Transistor Equivalent Circuits and  
 Vacuum Tube Analogy.....870  
 Germanium P-N-P Junction Transistors.....868  
 The Control of Frequency Response and Stability  
 of Point-Contact Transistors.....867  
 A Survey of Transistor Development.....862  
 A Method of Improving the Electrical and Mechanical  
 Stability of Point-Contact Transistors.....849  
 Effects of Contact Pressure on Transistor Gain....805  
 A High-Performance Transistor with Wide Spacing  
 Between Contacts.....804

A Determination of I/F Noise Sources in Semi-  
 conductor Diodes and Triodes.....29  
 Basic Transistor Device Concepts.....28  
 Noise Considerations for P-N-P Junction Transistors.20  
 The Noise Factor of Junction Transistors.....6

**Diodes and Switches**

Junction Transistor Designed for Iterative  
 Operation at Low Frequencies.....1016  
 A Variable-Capacitance Germanium Junction Diode  
 For UHF.....1005

A Determination of I/F Noise Sources in Semi-  
 Conductor Diodes and Triodes.....29

**Other**

Equipment for Displaying Transistor Character-  
 istics.....1025  
 AFC of Television Receivers Using Junction  
 Diodes.....1017  
 Junction Transistor Designed for Iterative  
 Operation at Low Frequencies.....1016  
 A Hermetic Enclosure for Power Transistors.....1011

Performance of a Radio-Frequency Alloy Junction  
 Transistor in Different Circuits.....989  
 A Test Set for Transistor Performance Measurements  
 at 455 Kc.....986  
 Transistor Fabrication by the Melt-Quench Process..985  
 Equipments for Measurements of Junction Transistor  
 Small-Signal Parameters for a Wide Range of  
 Frequencies.....900  
 Progress Report on Transistor Research and  
 Circuit Applications.....898  
 Application of Linear Active Four-Terminal Net-  
 works to Transistors.....889  
 A Transistor Curve Tracer.....882  
 Noise Factor Measurements of Transistors.....876  
 Dynamic Test Set for Transistors.....871  
 A Survey of Transistor Development.....862  
 Some Novel Circuits for the Three-Terminal Semi-  
 conductor Amplifier.....770

Equipment for Measuring Junction Temperature of  
 an Operating Transistor.....30

**TRANSISTOR APPLICATIONS**

Transistorized Television Cameras Using the  
 Miniature Vidicon.....1050  
 A Drift Transistor for High Frequency Applica-  
 tions.....1045  
 Transistor Input Stage for Phonograph Pickups....1042  
 Transistorized High Voltage Oscillator Power  
 Supply.....1035  
 Design Considerations in the First Stage of  
 Transistor Receivers.....1032  
 A Transistor Phonograph Amplifier Using a  
 Quasi-Complementary Circuit.....1027  
 Transistor Audio Amplifiers.....1022  
 Design Considerations in Class B Complementary  
 Symmetry Circuits.....1021  
 Stability Considerations in Transistor IF  
 Amplifiers.....1014  
 A 20-Watt Transistor Audio Amplifier.....1012  
 Cross Modulation in Transistor RF Amplifiers.....1008  
 Performance of a Radio-Frequency Alloy Junction  
 Transistor in Different Circuits.....989  
 Temperature Effects in Circuits Using Junction  
 Transistors.....979  
 Class B Operation of Audio-Frequency Junction  
 Transistors.....975  
 Transistorized Sync Separator Circuits for  
 Television Receivers.....974  
 Investigation of Noise in Audio Frequency  
 Amplifiers Using Junction Transistors.....964  
 Comparative High-Frequency Operation of Junction  
 Transistors Made of Different Semiconductor  
 Materials.....963  
 An Experimental Automobile Receiver Employing  
 Transistors.....958  
 A Developmental Pocket-Size Broadcast Receiver  
 Employing Transistors.....957  
 Modulated Transistor Oscillators and Their  
 Applications.....923  
 An Experimental Transistor Personal Broadcast  
 Receiver.....919  
 A P-N-P Triode Alloy Junction Transistor for  
 Radio Frequency Amplifications.....915  
 A Symmetrical Transistor Phase Detector for  
 Horizontal Synchronization.....914  
 The Application of Transistors to an Industrial  
 Television Synchronizing Generator.....909  
 A Study of Transistor Circuits for Television  
 Receivers.....907

Symmetrical Properties of Transistors and Their Applications.....906  
 Progress Report on Transistor Research and Circuit Applications.....898  
 Application of Linear Active Four-Terminal Networks to Transistors.....889

Transistor Trigger Circuits.....875  
 Transistor Oscillators.....865  
 Some Novel Circuits for the Three-Terminal Semiconductor Amplifier.....770

6. DEVICES AND COMPONENTS

AMPLIFIERS

LB

A Transistor Phonograph Amplifier Using a Quasi-Complementary Circuit.....1027  
 Design Considerations in Class B Complementary Symmetry Circuits.....1021  
 Stability Considerations in Transistor IF Amplifiers.....1014  
 A 20-Watt Transistor Audio Amplifier.....1012  
 Cross Modulation in Transistor RF Amplifiers.....1008  
 A DC Stabilized Color Difference Amplifier.....999  
 Color Television IF Amplifiers.....998  
 A High-Gain Video-Amplifier Peaking Circuit.....996  
 Investigations of Noise in Audio Frequency Amplifiers Using Junction Transistors.....964  
 A Transformerless 25-Watt Audio Amplifier for Use with Conventional Loudspeakers.....935  
 Design of 41.25-Mc Video I-F Amplifiers.....790  
 An Analysis of Absorption Traps.....780  
 Calculation of Noise Factor of Conventional Amplifiers and Converters.....778  
 Dynamic Operating Conditions in Video Amplifiers...750  
 Preamplifiers for Television Receivers.....748  
 Class B Output for Automobile Receivers.....726  
 Degenerative I-F Amplifiers.....722  
 An m-Type Band-Pass Television I-F Amplifier.....687  
 Stagger-Tuned I-F Amplifiers.....682

ANTENNAS (See Section 1. Television Antennas)

COMPUTER ELEMENTS AND SWITCHING DEVICES

LB

The Transfluxor.....1019  
 Junction Transistor Designed for Iterative Operation at Low Frequencies.....1016  
 Transistor Trigger Circuits.....875

RB

Ferrite Apertured Plate for Random Access Memory.....84  
 Current Steering in Magnetic Circuits.....61  
 Recording Fluxmeter.....55

ELECTROFAX

LB

Electrofax Papers and Developers.....1059  
 A Simple Paper Coating Method.....1038  
 A Double-Corona Charging Unit and Its Utilization in the Electrofax Process.....1009  
 'Electrofax' - A New Tool for the Graphic Arts....1006

Electrical Characteristics of Electrofax Coatings on Metallic and Paper Supports.....983  
 An Experimental High-Speed Photo-Resist Technique for Printed Circuits.....978

ELECTRON TUBES

General

LB

Experimental High-Transconductance Gun for Cathode-Ray Tubes.....1003  
 High-Level Triode Demodulator Design Considerations.....997  
 Technique for Fabricating Small Cylindrical Grids of Novel Design for Use in Pencil Tubes.....973  
 High-Level Triode Color Demodulator.....959  
 A Bridge for the Measurement of Cathode Impedance...945  
 Investigation of UHF Television Amplifier Tubes...936  
 Methods of Processing Silver-Magnesium Secondary Emitters for Electron Tubes.....897  
 Heater-Cathode Leakage Hum Reduction by Means of a Shielded Heater.....861  
 High-Speed Ten-Volt Effect.....833  
 On Extending the Operating Voltage Range of Electron Tube Heaters.....831  
 A High-Voltage Cold-Cathode Rectifier.....827  
 RF Test and Noise Measurements on Secondary-Emission Tubes of the Directly-Exposed Dynode Tube.....800  
 Receiving Tubes Employing Secondary Electron Emitting Surfaces Exposed to the Evaporation from Oxide Cathodes.....784  
 An Improved Method of Testing for Residual Gas in Electron Tubes and Vacuum Systems.....783  
 Input Impedance of Several Receiving Type Pentodes at FM and Television Frequencies.....661

RB

On the Stability of Periodic-Field Beam Focusing...65  
 Space Charge Limitation on the Focus of Electron Beams.....41  
 Discharge Mechanism of Mercury Pool Arcs.....34  
 Heterodyne Mixer Cross Modulation Tests.....7

Magnetrons and Traveling Wave Tubes

LB

Frequency Control of Modulated Magnetrons by Resonant Injection System.....855

RB

Low Noise Traveling-Wave Tubes -- Verification of Fundamental Theory and Explanation of Higher Order Effects.....62

A New Ferrite Isolator.....58  
 Coherent Spontaneous Microwave Emission by Pulsed  
 Resonance Excitation.....57  
 Phase Angle Distortion and Differential Phase  
 Shift in Traveling-Wave Tubes.....31  
 Preparation, Properties, and Applications of a New  
 Oxide Permanent Magnet Material.....18  
 Periodic Magnetic Field Focusing for Low-Noise  
 Traveling-Wave Tubes.....11

**Gas Tubes and Gaseous Electronics**

**LB**

Unusual Assembly Methods Used in Developing a  
 New Thyatron.....972  
 The Tacitron, A Developmental Thyatron Capable  
 of Current Interruption by Grid Action.....939  
 The Plasmatron, a Continuously-Controllable Gas-  
 Discharge Developmental Tube.....844  
 Gaseous Discharge Noise Sources for SHF.....803  
 The Trigger-Grid Thyatron.....797

**RB**

Discharge Mechanism of Mercury Pool Arcs.....34  
 Plasma Oscillations at Extremely High Frequencies...12

**FILTERS**

**LB**

Concentric-Shear Mode 455 Kc Electromechanical  
 Filter.....1057  
 Electromechanical Filters for 100 Kc Carrier and  
 Sideband Selection.....981  
 Selectivity and Transient Response Synthesis.....968  
 Some Applications of Permanently Magnetized  
 Ferrite Magnetostrictive Resonators.....884  
 Vestigial Sideband Filter.....878  
 A Mechanical Bandpass Filter for 100 Kc.....829  
 Mechanical Filters for Radio Frequencies.....773

Two Bridged-T Equivalents of the Bode Low-Pass  
 Lattice Filter.....26  
 New Alignment and Constructional Techniques for  
 the Bode Linear Phase-Shift Filter.....25

**RB**

**LIGHT AMPLIFIER**

An Electroluminescent Light-Amplifying Picture  
 Panel.....14

**RB**

**OSCILLATORS**

Practical Aspects of Local Oscillator Stabiliza-  
 tion.....1039  
 Frequency Characteristics of Local Oscillators....980  
 Modulated Transistor Oscillators and Their  
 Applications.....923  
 Some Applications of Permanently Magnetized  
 Ferrite Magnetostrictive Resonators.....884  
 Transistor Oscillators.....865  
 A Laboratory Approach to the Reduction of TV  
 Chassis Radiation from the Local Oscillator...820  
 Long-Line Stabilization of UHF Oscillators.....817

**LB**

**VIDEO TAPE RECORDING**

A System for Recording and Reproducing Television  
 Signals by Means of Magnetic Tape.....937  
 A Magnetic Tape System for Recording and Reproduc-  
 ing Standard FCC Color Television Signals.....51

**LB**

**RB**

**7. TEST EQUIPMENT AND SPECIAL TECHNIQUES**

**LB**

An Improved Low-Capacitance Probe.....1051  
 A UHF Diode-Mixer Test Set.....1047  
 Equipment for Displaying Transistor Character-  
 istics.....1025  
 A Test Set for Transistor Performance Measure-  
 ments at 455 Kc.....986  
 An Experimental High-Speed Photo-Resist Technique  
 for Printed Circuits.....978  
 Technique for Fabricating Small Cylindrical Grids  
 of Novel Design for Use in Pencil Tubes.....973  
 Color Subcarrier Frequency Measurement Equipment...951  
 A Bridge for the Measurement of Cathode Impedance..945  
 Equipments for Measurement of Junction Transistor  
 Small-Signal Parameters for a Wide Range of  
 Frequencies.....900  
 Ceramic-Metal Seals of the Tungsten-Iron Type....894  
 A Transistor Curve Tracer.....882  
 Balance Measurements on Balun Transformers.....872  
 Dynamic Test Set for Transistors.....871  
 Electronic Overload Protection Circuit for  
 Sensitive Current Meters.....852

A Calibrated Continuously-Variable Sampling-Wave  
 Phase Shifter.....840  
 An Electronic Thickness Gauge for Very Thin Metal  
 Foils.....835  
 A Tristimulus Photometer.....826  
 A Cathode-Controlled Multivibrator for the  
 Production of Square Waves.....814  
 An Automatic Non-Linear Distortion Analyzer.....812  
 A Reflectometer for Measuring the Efficiency of  
 Low Reflection Films on Glass.....796  
 A 5-Inch Television Oscilloscope.....793  
 An Improved Method of Testing for Residual Gas in  
 Electron Tubes and Vacuum Systems.....783

**RB**

A Method of Accurate Thickness Determination of  
 Germanium Wafers Suitable for Transistor  
 Production.....83  
 Recording Fluxmeter.....55

## 8. MISCELLANEOUS

## LB

Wide-Range Impedance Transformer.....	1046
Field-Intensity Measurements on Induction-Heating Equipment.....	1033
A Method for Salvaging Components of Brazed Assemblies.....	1015
An Immittance Chart.....	976
Selectivity and Transient Response Synthesis.....	968
The Complete Specification of a Network by a Single Parameter.....	943
Miniature IF Transformers.....	931
Design Considerations for Series Heater Strings in Television Receivers.....	902
Ceramic-Metal Seals of the Tungsten-Iron Type.....	894
Columbate Dielectrics.....	825
A Reflectometer for Measuring the Efficiency of Low-Reflection Films on Glass.....	796
A Fluosilicic Acid Solution Process for Producing Low-Reflection Films on Glass.....	782
RCA Labs. Demonstration for Licensees, January 11 - 14, 1949.....	767
Vapor Pressure Data for Various Substances.....	759
Frequency-Range Preference for Speech and Music.....	716

Electronic Counters.....	679
Electronic Transducers.....	677
Detent Station Selection System.....	662
Capacitance-Temperature Characteristics of Some Typical Components.....	660

## RB

Associative Machine Languages.....	67
The Determination of Unit Cells From X-Ray Powder Patterns: $\text{BaBeF}_4$ and $\text{aZn}_3(\text{PO}_4)_2$ .....	66
A Simplified Theory of Space-Charged-Limited Currents in An Insulator With Traps.....	45
Determination of Crystal Axis Orientation by Etch Pit Observation.....	43
Molecular Ringing.....	40
Theoretical and Practical Considerations for Determining the Optimum Semiconductor for Photovoltaic Solar Energy Converters.....	38
Vapor Pressure Data on Metals and Alloys.....	15
The Direct Conversion of Radiation into Electrical Energy.....	3