

Index

Editor's Note: Except for commonly used phrases and abbreviations, topics are indexed by their noun names. Many topics are also cross-indexed, especially when noun modifiers appear (such as "Voltage, back" and "Back voltage"). Numerous terms and abbreviations pertaining to Amateur Radio but not contained in the index may be found in the glossaries indexed herein. The letters "ff" after a page number indicate coverage of the indexed topic on succeeding pages.

10-GHz converter:	10.43
120-V ac chassis connector wiring:	3.11
1200C modes:	9.34
144-MHz 3CX1200Z7 amplifier:	18.40ff
144-MHz amplifier example:	18.23ff
15-meter HVD:	22.30
16P4A (16PSM+ASM):	9.20
16QAM:	9.10, 9.31, 9.55
300-Ω TV ribbon line:	21.1
3B9C:	2.2
3CX1200Z7:	18.40
3XC1500D7:	18.29
3XC800A7:	18.16, 18.17, 18.26
450-Ω ladder line:	21.1
4CX1600B:	18.37
4CX250:	18.23
555 timer:	5.50, 5.51
60-Meter Transceiver:	15.15ff
DDS:	15.15
Electromechanical shaft encoder:	15.15
RIT:	15.15
Spurious free dynamic range (SFDR):	15.15
6061-T6 aluminum rods:	22.64
6063-T832 aluminum tubing:	22.15, 22.64
64QAM:	9.55
802.11:	24.3
802.11b:	24.3
802.11g:	24.3
8877:	18.19ff, 18.26
8P2A (8PSM+2-level Amplitude-Shift Modulation):	9.20
8PSM (8-level PSM):	9.20

A

A 10-GHz Preamplifier:	14.40
A index:	20.10, 20.18
AA6JR:	9.54
AA8DX:	19.1, 19.3, 19.41
AB5K:	24.11
Absorption:	20.2ff
Atmospheric:	20.19
D layer:	20.3, 20.11
Ionospheric:	20.24
AC (See Alternating Current)	
Neutral:	17.2
Power:	17.2ff

Theory and reactive components:	4.12
AC Instruments:	25.8ff
Average vs peak-reading:	25.9
Bridges:	25.13
Calorimetric meters:	25.8
Directional wattmeters:	25.13
Measure inductance and capacitance with	
DVM:	25.21ff
RF Power:	25.11
RF Voltage:	25.11
Scale linearity:	25.10
Academy of Model Aeronautics:	9.23
Access points:	9.49
Accuracy:	9.1
Acid-core solder:	8.3
Acoustic waves:	10.22
Active device	
Modeling:	18.3
Active filter:	12.27
Active region:	5.21
AD4TB:	9.21
Adair, Robert, KAØCKS:	9.21
Adams, Chuck, K7QO:	8.1
Adaptive	
Beamforming:	16.31
Filtering:	16.17
Interference canceller:	16.17, 16.18
Modeling system:	16.17
Predictor:	16.18, 16.19
Signal processing:	16.8
Adaptive networking:	9.16
ADC:	16.3, 16.4
Nonlinearity in:	16.3, 16.4
Sigma-delta, over-sampling and:	16.3
Adcock antenna (RDF):	13.18
Adder	
4-bit schematic:	16.42
Admittance (Y):	4.11, 4.44
AE1X:	25.27
AFSK:	9.8, 9.13
Demodulator:	9.9, 9.14
AG6K:	19.57
AGC:	9.3, 9.8, 9.26, 10.5, 10.9, 10.14, 15.3, 26.17
Audio-derived:	14.26
Circuits:	14.26
Digital system for:	16.26
Hang:	9.3
Loop:	14.24
Loop problems:	14.24ff
Time constants:	14.24
AH7R:	9.54
Air drag:	10.2
Air-core	
Inductor:	4.32
Transformer:	4.58
Airplane:	20.3
AK1A:	24.11
Albania:	2.2
ALC:	9.4, 15.5
AM:	16.16
In solid-state power amplifiers:	14.49
Loop:	10.26

Speech processing with ALC:	14.49
ALE	
Bibliography:	9.21
Waveform:	9.21
Algonquin Radio Observatory:	20.9
Algorithms for radio (DSP):	16.5ff
Alignment:	26.12
Receiver:	26.17
Transceiver:	26.19
Alkaline battery:	17.21
Alpha Delta Communications:	3.7
Alta Vista:	24.1
Alternating current (ac) (Also see AC):	4.1
And Reactive Components:	4.12
In capacitance:	4.23
In inductance:	4.31
Line filter:	13.6
Measuring voltage, current, power:	4.15
Alternator:	4.13
ALU:	5.60
Aluminum	
Finishing:	8.25
Grade 6061-T6:	22.36
Grade 6063-T832:	22.64
Tubing:	22.36
AM:	9.3, 9.26ff
Limiterless detector:	9.9
AM (Amplitude Modulation):	9.8, 9.9, 10.5
ALC:	16.16
AM-to-PM conversion:	10.6
Broadcasting:	9.2
Carrier:	11.5, 16.17
Demodulation of:	16.12ff
Demodulation of (detection):	11.8, 14.29, 16.12ff
Equivalent (compatible AM, CAM):	11.7
Many faces of:	11.7
Sidebands:	11.5
Transmitter, ideal:	11.6
AM demodulation:	11.8, 11.9
Direct conversion:	11.8
Envelope detection:	11.8
Product detection:	11.8, 11.9
Superheterodyne:	11.8
AM signal types	
Double-sideband (DSB) full carrier:	11.7
Double-sideband, suppressed-carrier:	11.7
Independent sideband (ISB):	11.8
Single-sideband, full carrier AM:	11.7
Single-sideband, suppressed-carrier AM:	11.7
Vestigial-sideband (VSB), full-carrier AM:	11.7
Amateur Auxiliary:	2.4
Amateur Extra-class license:	1.3
Amateur Radio:	1.1ff, 2.1, 3.1, 3.14
ARIS program:	2.4
Bands, US:	1.4
Building a station for:	1.8
Computers in (Ham):	1.5
Education:	2.1, 2.4
Glossary (in general):	1.16ff
Governing Regulations:	1.11ff
Hams at the forefront:	1.6

Hams in Space:	1.7	Signal processing:	5.2ff	Switched for RDF:	13.21
International:	1.9	Signals and components:	5.1ff	SWR and SWR bandwidth:	22.31ff
Operator:	1.2	vs Digital:	5.38	Three-element beams:	22.34
Operators:	2.5	Analog-to-Digital converter (<i>see</i> ADC)		Three-wire unipole:	22.26
Resources:	1.15	Analytic		Through the glass:	15.25
School presentations:	2.4	Signals and modulation:	16.9ff	Time difference of arrival for RDF:	13.22
Service:	1.11, 2.5	AND gate:	5.42	Top loading of tower:	22.25
Study guides:	1.8	Angle		Trap verticals:	22.26
US License:	1.3	Modulation:	11.9	Traps:	22.27
Amateur television (ATV)		Oblique:	20.8	Tuner:	21.10, 21.13
(<i>see also</i> FMATV):	2.5, 2.7	Angle Modulation:	9.5ff	Two-element beams:	22.34
ATV repeater:	2.8	Antenna:	21.1	Vertical:	22.23ff
American National Standards Institute		Adcock:	13.18	Vertical ground plane:	22.24
(ANSI):	3.15, 3.16	Azimuth patterns:	22.9	Vertical, full-size:	22.24
American Physical Society:	3.16	Balanced:	21.14	Vertical, top loading:	22.26
American Radio Relay League (<i>see</i> ARRL)		Bandwidth:	22.1	VHF/UHF:	22.53
American Red Cross:	2.5	Boom material:	22.37, 22.38	Wire:	22.5, 22.6
Ampere:	4.1	Center insulator:	22.7	Wire antenna construction:	22.5ff
Amplification		Center-fed Zepp:	21.1, 22.5	Wire pruning:	22.4
Logarithmic:	5.4	Conductor size:	22.2	Yagi:	21.10, 22.33
Amplifier:	26.13	Construction, Yagi:	22.36ff	Yagi and Quad directive antennas:	22.33ff
3CX1500D7:	18.29ff	Coupler:	15.1	Antenna construction	
6-meter 4CX1600B:	18.37ff	Couplers (<i>see</i> Tuner, antenna):	21.13	6061-T6 preferred aluminum alloy:	22.38
Brick:	9.28, 9.30	Cubical quad:	22.33ff	Boom-to-element plate:	22.38
Broadband HF solid state:	18.24ff	Currents:	21.14	Boom-to-mast plate:	22.38
Buffer:	10.18, 10.21	Delta loop:	22.6, 22.38	Composite spreaders (quad):	22.41
Common emitter:	26.14	Dipole:	22.4, 22.5	Gamma rod:	22.41
Cooling:	18.15ff	Directivity:	22.2ff	Grounding guidelines:	3.6
DC coupled:	26.14	Director:	22.33	Stainless steel, importance of using:	22.38
Design with transistor:	5.26, 5.27	Doppler for RDF:	13.23	Antenna matching:	22.35
Differential:	5.35	Driven elements:	22.33ff	Gamma match:	22.35ff
Double-brick L-band:	23.11, 23.13ff	Electronic rotation for RDF:	13.20	Gamma match capacitor:	22.40
Efficiency:	18.2	Element insulators:	22.40	Hairpin match:	22.60, 22.61
External RF power; standards:	1.14	Elevation angle (vertical):	22.3	Q-section transformer:	22.38
High power:	3.11	Elevation patterns:	22.3, 22.9	T match:	22.35ff
High-power vacuum tube, example:	18.19ff	Feed methods:	22.5	Tuning adjustments:	22.36, 22.42
Instability:	18.19	Ferrite rod for RDF:	13.18	Tweaking (fine tuning):	22.36
Linear:	9.28, 18.11	Flat-top T vertical:	22.28	Antenna modeling by computer:	22.12, 22.13
Linearity:	18.2	Folded unipole:	22.25	"Correct ground":	3.18
Loop compensation:	10.37	Gain:	22.2ff	"Hot spots":	3.18
Medium-Power 144-MHz example:	18.23ff	Ground plane:	15.25, 22.24	Computer-optimized Yagis:	22.36
Microphone, Omni VI Plus:	15.5	Half-sloper:	22.28, 22.29	Coordinate system:	22.12
Neutralization:	18.28	Half-wave dipole:	21.4	Method of Moments algorithm:	22.12, 22.13
Operational:	5.33ff	Half-wave resonant length:	22.4	MININEC:	3.18
RF power:	18.1ff	Half-wave vertical dipole:	21.1, 22.9, 22.30	Model:	22.12, 22.13
Single-brick L-band:	23.13	Height gain:	22.53	Numerical electromagnetics Code	
Solid-state VHF/UHF oscillations:	18.27	HF mobile:	22.45ff	(NEC):	3.18, 22.12
Stabilization:	18.25ff	Insulators:	22.6	Origin, coordinate system:	22.12
Summing:	5.3	Inverted L:	22.28	Segments:	22.12, 22.13
Summing operational:	5.35	Inverted-V dipole:	22.6	Wingspread:	22.12
Synthesizer loop compensation:	10.38, 10.41	Isotropic radiator:	22.3	Antenna pattern terminology	
Testing for VHF/UHF oscillations:	18.27	Loaded:	22.8	Backlobe:	22.33
Transistor configurations:	5.22	Marconi vertical:	22.24, 22.25	Circular polarization:	22.56
Types:	5.6	Matching to the line:	21.10	Front-to-rear ratio (F/R):	22.33
Amplitude		Mobile antenna tuning:	22.52	Main lobe:	22.33
Demodulation:	5.4	Mobile, radiation patterns:	22.52	Sidelobes:	22.33
Distortion:	26.10	Modeled data, 100 ft-dipole:	21.9	Antenna projects	
Modulation (AM):	5.4, 9.5ff, 9.26ff, 11.3	Modeling by computer:	22.12, 22.13, 22.60	1.8-MHz Inverted L:	22.29
Sidebands:	11.5	Optimal designs, practicality of:	22.34	3 And 5-Element Yagis for 6 M:	22.60
Modulation and demodulation:	5.4	Optimized wide-band (OWA):	22.61	A 135-Ft Multiband Center-Fed Dipole:	22.11
Operating:	10.3	Parabolic dish:	23.34	A 40-M and 15-M Dual-Band	
Stable:	10.3	Parabolic dish, dual-band:	23.26ff	Dipole:	22.11, 22.13
Variation:	10.6	Parasitic elements:	22.33	A Five-Band, Two-Element HF Quad:	22.39ff
Amplitude-Shift Keying (ASK):	9.7	Parasitic excitation:	22.33	A Medium Gain 2-M Yagi:	22.61
AMPS:	24.4	Parasitic for RDF:	13.21	A Quick Antenna for 223 MHz:	22.58
AMSAT:	9.25	Patch:	23.27ff	A Remotely Tuned Analog Antenna Coupler:	22.48ff
AMTOR:	9.12ff	Pattern distortion:	21.15	A Simple Loop Antenna for 28 MHz:	22.45
Bibliography:	9.12ff	Performance issues:	22.31	A Simple Quad for 40 Meters:	22.42, 22.43, 22.44
FSK:	15.8	Phased array for RDF:	13.18, 13.21	All Wire 30-M CVD:	22.32
An "Ugly Transformer" for Heavy-Load		Physically short vertical:	22.25	An All-Copper 2-M J-Pole:	22.58, 22.59
Stations:	19.57ff	Plumbers delight construction:	22.36, 22.38	Dual-Band Antenna for 146/446 MHz:	22.57
An Expandable Headphone Mixer:	19.25	Polarization:	22.1	Dual-Band Verticals for 17/40 or	
An External Automatic Antenna Switch for		Quad:	22.33ff	12/30 M:	22.27
Yaesu/ICOM:	19.37ff	Radiation efficiency:	22.31	Simple, Portable Groundplane Antenna:	22.56
An SWR Detector Audio Adapter:	19.28ff	Radiation patterns:	22.11, 22.12, 22.53	The Compact Vertical Dipole (CVD):	22.31
Analog		Radio direction finding (RDF):	13.17	The Half-Wave Vertical Dipole (HVD):	22.30
Approximation (of analog waveform):	5.38	Reflector:	22.33ff	The K8SYL 75 and 10-M Dipole:	22.14
Building blocks:	5.4ff	Sense for RDF:	13.18	The W4RNL Inverted-U Antenna:	22.14ff
Devices:	5.6ff	Slant-wire feed:	22.25	Two W8NX Multiband, Coax-Trap	
AD834:	11.14	Sloper:	22.28	Dipoles:	22.19ff
Signal:	5.38	Stacking Yagis:	22.55		
		Standard:	22.3		

Antenna, VHF/UHF:	22.53ff	Asymmetrical wave forms:	25.9	Backscatter:	20.16
Circular polarization:	22.56	Asynchronous:	9.12	Backwards wave oscillator (BWO):	10.31
Gain:	22.53	Atmosphere		Balanced	
Height gain:	22.53	Attenuation:	20.2	Mixer:	5.36
Physical size:	22.53	Earth:	20.2	Modulator:	11.3, 11.7, 14.44, 15.5
Polarization:	22.53	Earth's structure:	20.6	Ball races:	10.15
Radiation pattern:	22.53	Layers:	20.2	Ball, Bob, WB8WGA:	9.16
Transmission lines:	22.53	Noise:	9.3	Baluns:	21.15, 22.5ff
Antheil, George:	9.43	Scattering:	20.15	"Bead" choke:	21.17
Anti-aliasing filter:	16.2	Atom:	4.1	Bazooka:	21.15, 21.16
Anti-virus program:	9.53	Attenuation:	20.2, 20.15	Broadband:	21.15, 21.16
Anticyclone:	20.22	Free space:	20.2	Choke balun:	22.31
Antistatic products:	8.8ff	Rain:	20.19	Common-mode choke:	22.31
AO-27 (OSCAR 27):	23.5	Attenuator:	15.1, 25.51	Construction:	21.17
Apparent power:	4.46	Frequency selective:	18.25	Current (choke):	21.15, 21.16
Appleton, Edward:	20.6	Shielding:	10.8	Ferrite-core:	21.17
Applications programming interface		ATV:	9.1, 9.38ff	Quarter-wave:	21.14, 21.15
(API):	16.31	Amplifiers:	9.41	W2DU bead:	21.16
APRS:	2.6ff, 9.22	Communications distances:	9.38	Band-stop filter design:	12.16
AR Cluster:	24.11	DSB & VSB transmission:	9.40	Bandpass	
ARC-5 series transmitters:	22.50	FM:	9.42	Filter design:	12.7, 12.16
Architecture, Harvard:	16.32	Frequencies:	9.40	Filter for 144 or 222 MHz:	12.30
Arcing:	6.13, 26.12	Identification:	9.40	Bands	
Arcs:	18.14	Repeaters:	9.41	US Amateur:	1.4
ARES:	1.6, 2.5	ATX and power systems:	5.70	Bandwidth:	9.1, 9.11, 25.51
Argon:	20.3	Audio:	4.13	Efficiency, SSB:	9.27
ARRIS program:	1.7, 2.7	Break-Out Box:	19.26ff	Front-to-back ratio:	22.1
Arithmetic logic unit (ALU):	5.60	Compression:	16.16, 16.17	Gain:	22.1
Armstrong, Edwin:	9.30	Filter:	12.1	Necessary:	9.2
ARPH-10:	9.47	Frequency Shift Keying (AFSK):	9.8	Occupied:	9.1
ARQ:	9.12	Phase shifters:	14.19ff	Parallel resonant circuit:	4.53
ARRL:	1.9, 3.11	Sidetone oscillator:	10.28	Resolution:	16.20
Field and Educational Services:	2.4	Speech clipping:	14.43ff	Series resonant circuit:	4.48
Field Day:	2.2, 2.3, 3.2, 22.11, 22.14	Speech compression:	14.44	Synthesizer closed loop:	10.38
Field Organization:	2.1, 2.4	Wide range audio oscillator:	25.20	Barkhausen:	10.3, 10.38
Headquarters:	1.10	Aurora		Barnes, Graeme, MØCSH:	2.10
Lab:	10.10	Australis:	2.11, 20.12	Bartholomew, Wayne S., K3MF	
Logbook of The World:	2.2	Borealis:	2.11, 20.12	(ex WA3WMG):	22.57
Membership services:	1.10	Auroral:	2.11, 20.6ff	BASIC Stamp:	5.58
National Contest Journal (NCJ):	2.2	Auroral E Propagation:	20.11, 20.13	Battery	
National Traffic System (NTS):	2.3, 2.4	Propagation:	2.11	Alkaline:	17.21
Organization chart:	1.9	Zones:	9.1	Capacity:	6.4, 17.22, 17.23
Radio Design software:	16.1ff	Autek RF-1 antenna analyzer:	22.44	Charging:	17.20ff
Radio Designer:	3.11, 6.22, 6.27	Autocorrelation:	16.17	Charging/Discharging:	17.23
Radio Designer 1.0:	3.11, 6.22, 6.27, 11.22, 11.23	Automatic Gain Control (AGC):	9.26, 14.24ff	Chemical hazards of types:	17.22
RF Exposure and You:	3.19	Automatic Level Control (ALC)		Discharge curves:	6.4
RF Safety Committee:	3.15, 3.19	Automatic Link Establishment (ALE):	9.21, 22.48	Internal resistance:	17.22
RF-exposure news page:	3.19	Automatic Position Reporting System (APRS):	9.22	Lead acid:	17.21
Simple and Fun Antennas for Hams:	22.30	Automatic Repeat reQuest (ARQ):	9.12	Lithium:	17.21
Technical Advisor:	3.1	Automobile EMC:	13.14	Mercury:	17.21
Technical Information Service (TIS):	7.11	Autopatch:	2.7, 15.21, 15.27	Nickel Cadmium (NiCd):	17.21
The ARRL Antenna Book:	3.2, 3.7, 20.18, 21.9ff, 22.3ff, 23.19, 23.26, 23.31, 23.34	Autotransformer:	4.58	Nickel Metal Hydride (NiMH):	17.21, 17.22
The ARRL Antenna Compendium, Vol 5:	22.42, 22.57	Avalanche		Primary:	17.21
The ARRL Antenna Compendium, ol. 4:	22.58	Current:	10.19	Rechargeable or secondary:	17.21
The ARRL Electronics Data Book:	7.9	Diode:	10.16	Sensing:	17.43
The ARRL Operating Manual:	2.2, 2.8, 15.25, 20.16, 20.19	Average		Shelf life:	17.21
The ARRL Repeater Directory:	2.7, 2.8, 9.39, 15.22, 15.24, 15.27, 15.28	Current:	4.16	Silver oxide:	17.21
The ARRL RFI Book:	19.14	Value:	25.51	Solar charging systems:	17.23
The ARRL UHF/Microwave Experimenter's Manual:	23.23, 23.34	Voltage:	4.16	Baud:	9.8, 9.12
TISfind:	7.11	vs peak-reading:	25.9	Baudot:	9.7, 9.8, 9.9
UHF/Microwave Experimenter's Handbook:	2.11	Averaging:	9.3	Code:	9.3
UHF/Microwave Experimenter's Manual:	2.11, 15.19, 20.19	Awards:	2.1	Baudot Radioteletype (RTTY):	9.8
Volunteer Consulting Engineer:	3.2	5BDXCC:	2.2	BayCom:	9.15
Web:	20.18	And contests:	1.5	BCD:	5.40
Art of Electronics, 2nd ed.:	10.16	DX Century Club (DXCC):	2.1ff	Beacon frequencies:	20.18
ASAPS:	20.18, 20.20	Endorsements:	2.2	Beam tetrodes:	5.10
Asbrink, Leif, SM5BSZ:	16.30	WAZ:	2.6	Belrose, John S., VE2CV:	22.28
ASCII:	9.7, 9.9	Worked All Continents (WAC):	2.1	Bench equipment:	26.2
Bibliography:	9.12	Worked All States (WAS):	2.2, 2.6	Bending metal:	8.25
Data rates:	9.12	AX.25:	9.14, 9.15, 9.19	Bermuda high:	20.22
Radioteletype:	9.9	Az-El:	23.36ff	Bessel functions:	9.6ff, 11.10
Ask Jeeves:	24.1	Rotor:	23.9	Beyond the horizon:	20.1
Astronomical Almanac:	23.36	Azimuth and Elevation:	23.36ff	Bias, grid:	18.14
		Azimuth/Elevation rotator:	23.9	Bias, transistor:	18.15
				Biasing:	5.7
				Of transistors:	5.22, 5.23
				Bibliography	
				ALE:	9.21
				AMTOR:	9.12ff
				ASCII:	9.12
				Baudot RTTY:	9.9
				CLOVER:	9.21

DSP:	16.35	COG:	10.13, 10.15	Ray tube (see CRT)	
Internetworking:	9.22	Cables, lacing:	8.23	Cavity resonator:	10.30, 10.31
Packet:	9.16	Calculus:	10.2	CB operators:	1.14
PACTOR:	9.18	Calibration— <i>Philosophy and Practice</i> :	25.5	CCK:	9.46
PSK31:	9.13	Call sign:	1.3	CCS (Continuous Commercial Service): ...	18.11
RDFT:	9.21	Calorimetric meters:	25.8	CD-ROM:	5.64
Satellite TT&C:	9.25	Cameron, Bruce, WA4UZM:	22.58	CD4046:	10.46
SCAMP:	9.21	Cameron, Dave, VE7LTD:	2.10, 9.21	CDMA:	9.5, 9.45, 24.4
SSTV:	9.37	Campbell, Rick, KK7B:	14.66	Cebik, L. B., W4RNL:	22.14, 22.61
Bifilar (coils, turns):	8.23, 8.24, 21.16	Capacitance:	4.11, 4.18	Cellular:	24.4
Bilateral diode switch:	5.14	Hats:	22.13	Air interfaces:	24.7
Binary:	5.39, 5.40	Inter-electrode:	6.11	AMPS:	24.7
Coded decimal (BCD):	5.40	Minimum:	18.6	Bands:	24.7
States (Physical Representation of):	5.41, 5.42	Package:	6.11	CDMA:	24.8
Binaural I-Q Receiver:	14.66ff	Parasitic:	6.10	TDMA:	24.8
Biphase-shift keying (BPSK):	11.25	Stray:	6.11, 18.6	Technology:	24.6ff
Bipolar Transistors:	5.13, 5.20ff	Tube, output:	18.6	Ceramic	
Bit rate:	9.3	Capacitor:	4.18, 6.1	Band pass filter:	15.5
BITE:	10.45	Air variable:	18.6	Coil form:	10.15, 10.18
Bits:	5.39, 9.8	Blocking:	18.13	Resonator:	10.24
Black-body radiator:	23.35	Bypass:	13.1, 13.6	Cesium clock:	25.2
Blackburn, Wally, AA8DX:	19.1, 19.41	Construction:	4.19	CFM:	18.15
Bleeder resistor:	17.11	Dielectric breakdown:	6.5	Champa, John, K8OCL:	2.1, 9.43, 9.47, 9.54, 24.1
Block diagram:	26.7	Dielectric layer:	6.4	Channelized:	15.20, 15.21, 15.23
Blocking capacitor:	18.13	Dielectrics:	6.5	Chaotic system:	10.5
BNC:	19.8, 25.51	Doorknob:	18.13	Characteristic	
Bobbin for winding toroids:	8.23	Effective series resistance (ESR):	6.5	Curves:	5.6, 5.7
Bodson, Dennis, W4PWF:	9.32, 9.37	Electrolytic:	3.21	Impedance:	21.1ff
Body fade for RDF:	13.27	End effect:	6.4	Charge coupled devices:	5.36
Bonding conductors:	3.6	Failure:	26.22	Charging and discharging batteries:	17.23
Boolean		Feedthrough:	10.21	Chassis	
Algebra:	5.42	Ideal:	6.4	Construction:	8.25
Theorems:	5.44	Identification:	7.3	Pressurized:	18.17
Boothe, F. Barry, W9UCW:	22.26	Input filters:	17.11, 17.12	Chat mode:	9.21, 9.47
BPSK (Binary Phase-Shift Keying):	11.25	Leakage current:	6.5	Chebyshev filter	
BPSM (Binary Phase-Shift Modulation):	9.20	Loss:	4.49	Design:	12.9
Brain, Charles, G4GUO:	9.21, 9.31	Loss angle:	6.5	Design normalized table:	12.11
Bramwell, Denton, K7OWJ:	25.11	Markings:	7.2	Response:	12.5
Brick amplifier:	9.28, 9.30	Output tank ratings:	18.1ff	Chimneys, tube:	18.16
Bridge:	9.15, 25.51	Polystyrene:	10.15	Chinook wind:	20.23
Broadband		Reactance:	4.24	Chip components:	8.11ff
HF Amplifier example:	18.24ff	Series and parallel:	4.21	Resistors:	7.4
HF Amplifier Using Low-Cost Power		Silver mica:	10.15	Choke	
MOSFETs:	14.72	Standard value filter design:	12.8	Common mode:	13.7
RF transformer:	4.59	Tank, plate spacings table:	18.12	Resonance:	10.14
Broadcast band		Temperature coefficients:	6.5	Resonances:	18.12ff
AM band:	11.7	Tolerances:	6.5	RF:	18.12ff
Energy-rejection filter:	12.35	Tuning:	10.15	Chordal hop:	20.15
Wave trap:	12.36	Types and uses:	4.20	Circuit	
Brone, Jeff, WB2JNA:	9.22	Vacuum variable:	18.6	And Components:	4.8
Brown, Jerry, K5OE:	23.7, 23.31	Voltage rating:	4.20	Breakers and fuses:	17.3
Bruninga, Bob, WB4APR:	9.22	Working voltage rating:	6.5	Control:	26.15
Bryce, Mike, WB8VGE:	17.41	Capacity, battery:	17.22, 17.23	Design, CAD tools:	6.21
Bucher, T. T. N.:	11.22	CAPMan:	20.18, 20.20	Digital:	26.16
Buffer:	5.3, 5.4, 5.43	Capture effect:	11.13, 15.23	Dissipated power:	6.16
Amplifier:	10.18, 10.21	Carcia, Joe, NJ1Q:	19.37	Distributed elements:	6.1
Buffering:	5.3, 5.4	Cardiopulmonary Resuscitation (CPR):	3.21	Layout:	8.14, 8.18ff
Cascode and cascaded:	5.5	Training:	3.1	Lumped elements:	6.1, 6.2
Inverting:	5.42	Carrier:	9.26	Modeling:	6.1
Noninverting:	5.43	AM:	16.17	Norton-equivalent:	6.4
Building		Exalted:	9.27	Parallel resonant:	4.49
Codes:	3.1ff	Main:	9.5	Paths:	8.18
Permit:	3.2	Operated relay (COR):	15.21	Resonant:	4.47
Built-in-test equipment (BITE):	10.45	Shift, DSP prevention of:	16.16, 16.17	Series and Parallel:	4.8
Burdick, Wayne, N6KR:	15.10	Suppression:	11.7	Stray reactances:	18.8
Burger, Michael, AH7R:	9.54	Carroll, R. W.:	11.24	Tank:	18.4
Burr-Brown:	11.14	Cascade-form IIR filter:	16.7	Tank Q:	18.5ff
MPY600:	11.14	Cascaded		Thermal considerations:	6.16
Bus structure (local busses):	5.62	Buffers:	5.5	Thevenin-equivalent:	6.4
Butler oscillator:	10.26, 10.27, 10.53	Stages:	5.5	Circular polarization:	20.24, 22.56, 23.17, 23.19, 23.34
Butterfly computation:	16.22	Stages, distortion:	14.12	Circulating	
Butterworth filter response:	12.5	Stages, gain:	14.10	Current:	18.21
Buying parts:	8.24	Stages, noise factor:	14.11	Tank current:	4.52
BWO:	10.31	Stages, noise figure:	14.11	Clark:	10.4
Bypass		Stages, properties:	14.10	Class	
Capacitor:	13.1, 13.6	Stages, selectivity:	14.10ff	A:	18.2
RF:	8.20ff	Cascode		AB:	18.2, 18.11
Byte register:	5.50	Buffer:	5.5	AB1:	18.2
		Pair:	5.5	AB2:	18.19
		Case Study: Amplifier Distortion:	6.22, 6.23	B:	18.2, 18.11
		Cathode:	5.8		
		Follower:	5.3, 5.10		

C:	18.2	Values:	7.1	Cosmic	
D:	18.2	Compression:	10.10, 11.21	Noise:	20.24
of operation:	18.2ff	1-dB compression point:	11.21	Sources:	20.25
Clicks, key:	9.1	Second-order intercept point:	11.21	Costas, John, W2CRR:	9.43
Clip-on mount:	15.25	Third-order intercept point:	11.21	Coulomb:	4.1
Clipping:	5.4, 10.4	Computer		Counter	
Clock		Aided-design:	6.11, 6.13	Divide-by-m:	5.49
Frequency:	5.46	Antenna-modeling programs:	3.18	Flip-flops forming a:	5.48, 5.49
Mechanism:	10.2	Architecture:	5.59	Frequency:	25.19
Period:	5.46	Connecting to amateur equipment:	19.11	Three-bit binary:	5.49
Tick or pulse:	5.46	Connectors:	19.10ff	Up/down:	5.49
Closed loop gain, operational amplifier:	5.34	Control unit:	5.59, 5.60	Coupled	
CLOVER		Controlled Two-Radio Switchbox:	19.44ff	Filter:	12.26
2000:	9.20, 9.33	CSMA/CD bus:	19.11	Lightly:	10.3
ARQ:	9.20	Hardware:	5.58ff	Networks:	10.3
Bibliography:	9.21	Memory (Cache vs. Main):	5.62	Coupling	
CLOVER-II:	9.19ff	Memory types:	5.60	Coefficient of:	4.28
Data compression algorithms:	9.20	Parallel-port interfacing:	5.66, 5.67, 19.11	Network:	10.4
Diversity:	9.20	Sound card:	5.65	Courtesy	
Efficiency choices:	9.19	Timing:	5.60	Beep:	15.21
FEC:	9.19	TNC connection:	19.12	Tones:	15.24
Waveform:	9.19	Uses with Amateur Radio:	1.5	CP (Circularly Polarized):	23.17, 23.19
Cluster:	9.14	What is a:	5.59	CPFSK:	9.9
CME:	20.10	Conductance (G):	4.2, 4.3, 4.11, 4.44	CPR training:	3.1
CMOS:	5.31, 5.55, 5.56, 25.51	Conducted signal:	13.1	CPU:	5.59
Circuits:	5.55, 5.56	Conductive grease:	22.37	Cravey, Ed, KF4HPY:	2.5
Driving TTL:	5.58	Dow Corning Molykote 41:	22.37	Critical frequency:	20.7, 20.8
Inverter; internal structure of:	5.55	Noalox:	22.37	Cronkite, Walter, KB2GSD:	1.5
Subfamilies:	5.55	Penetrox:	22.37	Crosstalk:	21.8
To TTL interface:	5.57	Conductors		Crowbar:	17.1
CMRR:	5.34	Center:	21.1	Circuits:	17.16
Coaxial		Outer:	21.1	CRT:	5.11
Lines (cable):	21.1, 21.8	Perfect:	6.1	Crystal	
Semi-rigid:	10.30	Conjugate match:	21.10	Aging:	10.23
Transmission line:	21.4	Connectors:	19.5	AT cut:	10.22
Code Division Multiple Access (CDMA):	9.5	Construction:	8.1ff, 26.5	Cold welding:	10.23
CODEC:	2.7	Ground-plane (PCB):	8.8	Equivalent series resistance (ESR):	10.25
Coded PPM (PCM):	9.24	Hints:	8.20ff	Filter:	14.28
Coefficient of coupling:	4.28, 4.54	Microwave:	8.22	Evaluation:	12.27
Coil		Notes:	8.26	Multielement:	14.28
Tank:	18.12	Painting:	8.26	Gravity:	10.23
Transmitter conductor sizes:	18.12	Terminal-and-wire:	8.10	Monolithic filter:	12.18
Cold		Contest:	2.1, 2.2	Motional capacitance:	10.24
Front:	20.23	And awards:	1.5	Motional inductance:	10.24
Oven:	10.21	ARRL Sweepstakes:	2.3	Oscillator circuits:	10.24ff
Welding:	10.23	EME:	2.11	Overtone:	10.22, 10.22ff, 10.24, 10.25, 10.27
Collins Radio Company:	10.14	Field Day:	2.2	Quartz, filter:	12.16
Color SSTV history:	9.34	Multioperator:	10.7	Resonance:	10.22
Colpitts:	10.13, 10.15	QSO Parties:	2.3	Series mode:	10.25
Combinational logic:	5.42ff	VHF, UHF and Microwave:	2.3	Set:	14.14
Commander:	24.11	Continuous Phase FSK (CPFSK):	9.9	Spurious response:	10.24
Common		Continuous wave (see also CW):	10.3	Standard load:	10.26
Base/Collector/Emitter amplifiers:	5.22	Control		Thickness shear:	10.22
Emitter amplifier:	26.14	Circuitry:	26.15	Unwanted modes:	10.24
Emitter switch:	26.14	Grid:	5.9	CSMA/CA:	24.3
Mode choke:	13.7	Microprocessor:	26.15	CSMA/CD:	24.4
Mode signals:	13.1	Conventional current:	4.1	CTCSS:	15.21, 15.21ff, 15.24, 15.27, 15.28
Communications		Conversion		Current:	4.11
Circuits: Analysis and Design:	10.4	Loss:	11.15	Baluns:	21.16
Receivers: Principles and Design:	11.22	Products:	11.4	Circulating:	4.52
Community events (Hams in):	1.6	Techniques of numbers:	5.40, 5.41	Conventional:	4.1
Comparator:	5.35	Converter:	11.4	Eddy (in transformer):	4.57
Complimentary		Data:	16.33	Effective:	4.16
Code Keying (CCK):	9.46	DC-DC:	17.1	Inrush:	17.10
Sequence:	9.46	Resonant:	17.1	Instantaneous:	4.15
Component		Convolutional encoder:	9.13	Loop:	22.1
And Circuits:	4.8	Cooling		Node:	22.1
Arrays:	5.32, 5.33	Fan:	10.31	Peak:	4.16
At RF:	6.10	Transistor:	18.18	Peak-to-peak:	4.16
Data:	7.1ff	Tube amplifier:	18.15	Ratio of transformer:	4.55
Failure:	26.19ff	vacuum tubes:	18.2	Root mean square (RMS):	4.16
Fuse:	4.9	Coordination frequency:	15.20	Sources:	6.3
Ideal:	6.1	Copperweld:	22.6	Curvature, Earth:	20.3
Markings:	7.1ff	Core		Cutoff region:	5.21
Models, low-frequency:	6.2	Construction (of transformer):	4.57	Cutting metal:	8.25
Nonideal:	6.1	Identification:	7.5, 7.6	CW:	9.1, 9.3, 9.7ff, 10.3, 11.6, 11.7
Nonlinear:	6.1	Inductor, properties:	4.26	Falltime:	9.7
Parasitic:	6.1	Saturation:	4.26	Mode at VHF/UHF:	14.47
Potentiometer:	4.10	Corona:	20.10, 20.25	Transmitter:	10.1
Protection:	8.7	Discharge:	20.25	Waveshaping:	11.7
Relay:	4.10	Noise:	20.25	Cyclone	
Switch:	4.8	Coronal Mass Ejection (CME):	20.10		

High pressure:	20.23	Digital AM and SSB:	16.11ff	Fast-recovery:	17.5
Wave:	20.23	Dual:	9.9	Gate to ground:	10.18
D		Phase:	9.6	Germanium:	17.5
D cell:	25.5	Synchronous, exalted-carrier:	16.13	Gunn:	10.30
D layer, nighttime:	20.11	DeMorgan's theorem:	5.44	Hot-carrier:	5.17, 11.16
D'Arsonval:	25.3ff, 25.51	Design example, 902 to 928-MHz receiver:	14.38ff	Ideal:	6.5
D-C transceivers:	16.29ff	Desoldering:	8.4	In series and parallel:	17.9
DAC:	10.23	Despreading:	9.44	Light emitting (LED):	5.28, 5.29
Glitches:	10.47	Destructive interference:	20.9	PN:	5.17
Programmable multiplying:	10.38	Detection		PN junction:	6.7
Damn-Fast Fourier transforms (DFFT):	16.25	Quadrature:	11.12, 11.13	PNPN:	5.14
Damped waves:	10.3	Slope:	11.12	Reference:	10.16
Danzer, Paul, N11I:	5.38, 5.58, 15.20, 19.29	Detector		Replacement:	26.24
Darlington		Digital quadrature:	16.13	Response curve of photo:	5.28
Transistor:	17.1	Phase-frequency:	10.36ff, 10.39	Reverse breakdown:	6.7
Transistor pair:	5.5, 17.14	PLL:	9.3	Ring mixer:	10.35
Data		Taylor:	16.30	Ring modulator:	10.6
Converters:	16.33	Deviation		Schottky:	5.17, 6.8, 11.16
Converters, quantization noise:	16.3	Frequency:	9.6	Semiconductor variety:	5.17ff
Rate:	5.68	Level:	9.15	Silicon:	17.5
Sheets (Manufacturers'):	5.7	Meter:	9.7	Switching time:	6.7, 6.8
Data modes:	9.13	DHCP:	24.4	Temperature compensated:	10.16
Daughters, George, K6GT:	18.38	Diagram, block:	26.7	The constant current:	5.19
Davidoff, Martin, K2UBC:	9.25	Diana, Gary M, Sr, N2JGU:	19.17	Tube:	5.8
Davies, Paul, M0ZPD:	2.10, 9.22	Dibit:	9.12	Tuning:	10.34
Dayside MUF:	20.16	Dielectric:	4.19	Tunnel:	10.30
dBc:	10.8	Breakdown:	6.13, 6.14	Turn-on voltage:	6.6
dBc/Hz:	10.8	Capacitor:	6.5	Varactor:	5.18, 10.34
dBm:	14.2	Capacitor, air:	6.5	Zener:	5.18, 6.7, 10.16, 17.12
DBM (double-balanced diode mixer):	11.17ff	Capacitor, ceramic:	6.5	Dip meter:	18.12, 21.10, 22.27, 26.3
Amplitude modulation with:	11.24	Capacitor, electrolytic:	6.5	Grid dip meter:	21.10
Biphase-shift keying modulation with:	11.25	Capacitor, mica:	6.5	Diplexer	
Conversion loss:	11.18	Capacitor, paper:	6.5	Bandpass:	11.24
Dynamic range:	11.18, 11.19	Capacitor, plastic film:	6.5	Filter:	12.39
First-order response:	11.19	Capacitor, vacuum:	6.5	High-pass/low-pass:	11.24
Noise figure:	11.19	Resonator oscillator (DRO):	10.31	Dipole antenna:	22.4
Phase detection with:	11.25	Strength:	6.13	Center insulator:	22.7
Second-order IMD:	11.19	Dieterich, Mark, N2PGD:	2.5	Construction:	22.7
Specifications:	11.18	Differential		Drooping:	22.8
Termination-insensitive:	11.23	Amplifier:	5.35	Feed method:	22.5
Termination-sensitive:	11.23	Mode signal:	13.1	Full sloper:	22.8
Third-order IMD:	11.19	Diffraction:	20.2	Inverted-V dipole:	22.8
DBPSK:	9.46	Knife-edge:	20.3	Orientation:	22.8
DC		Digipeater:	9.15, 15.21	Shortened:	22.8
Instruments:	25.3ff	Digital		Sloping dipole:	22.8
Accuracy:	25.4	Circuit:	26.16	Trap:	22.10
Basic meters:	25.3ff	Communications:	2.1, 2.9	Direct Conversion (D-C):	14.16ff
Current ranges:	25.4	Filters:	16.5ff	Direct Current (dc):	4.1, 4.12
DC power:	25.6	Fundamentals:	5.38ff	Pulsating:	4.12
Extending current range:	25.4	ICs:	5.51ff	Direct Digital Conversion (<i>see</i> DDC)	
Resistance measurement:	25.6	Meters (DVM):	25.3ff	Direct Digital Synthesis (Also <i>see</i> DDS): ..	10.32, 10.47ff
Shunts:	25.5	Modem:	9.7	Direct synthesizer:	10.32
Voltmeters:	25.5ff	Modes:	1.5	Direct-Conversion (<i>see</i> D-C)	
Level shift:	11.5	Multimeter (DMM):	26.2	Direct-sequence spread spectrum:	9.44, 9.46
Offset:	11.13	PLL Frequency Synthesizers—		Directio program:	24.11
DC-DC converter:	17.1	Theory and Design:	10.27	Direction finding (DF):	2.1, 2.5, 13.1ff, 13.17
DDC:	16.30, 16.31	Quadrature detector:	16.13	Directional wattmeter (<i>see also</i> Reflected power meter):	21.6, 25.12
Chips and coprocessors:	16.33	Signal Processing (<i>see</i> DSP)		Disabilities:	19.4
DDS (Direct Digital Synthesis):	10.32ff	Signals and components:	5.38ff	Discrete (components or circuitry):	5.29
Digital BFO generation and:	16.14	Speech processing:	16.16ff	Discriminator:	9.9, 11.12
Project; High-performance:	16.41	Tristate device:	26.17	Displacement current:	6.10
Typical output spectrum of:	16.41	Voice Working Group:	9.10	Display, video:	5.64
Dead bug construction:	8.8	vs. Analog:	5.38	Dissipation	
Deburring tool:	8.5	Digital Radio Mondiale (DRM):	9.31	Grid:	18.19
Decibel (dB):	13.1	Digital Signal Processing (DSP):	9.29	Plate:	18.10
Decimal system:	5.39	Digital Voice		Plate limit:	18.11
Decimation:	16.4	Amateur radio:	9.31	Transistor, power:	18.11
Project:	16.36	Modes:	9.31ff	Distortion:	9.1
Decision threshold:	9.3	Working Group:	9.31	Amplitude:	11.4, 26.10
Decoder		Digitally temperature compensated oscillator (DTCXO):	10.23	Cascaded stages:	14.12
Morse:	9.3	DIN plug:	19.6	Delay:	11.4
Viterbi:	9.13	Diode:	6.5ff	Frequency:	11.4, 26.10
Delay:	9.1	Avalanche:	10.16	Harmonic:	11.4
Group:	9.15	Bilateral switch:	5.14	Intermodulation:	18.19
DeMaw, Doug, W1FB:	10.28	Circuits:	5.20	Intermodulation (IMD):	11.4
Demodulation:	11.1ff	Common applications:	5.19	Measurement:	26.10
AM:	11.8	Depletion layer:	6.7	Nonlinear:	11.3, 11.4
FM and PM:	16.14	Diffusion capacitance:	6.7	Products:	11.3
Demodulator:	9.30, 11.1ff	Dynamic resistance:	6.7	Receiver:	26.17
AFSK:	9.9	Failure:	26.24	Second-harmonic:	11.4

Single stage:	14.7
Square-wave:	26.11
Distribution panel:	3.11
Dithering:	16.4, 16.30
Diurnal pumping:	23.17
Diversity reception:	9.9
Divider:	25.51
Programmable:	10.32
DL4KCK:	9.43
DL6WU:	23.33
DMM (digital multimeter):	25.51
<i>Dogpile</i> :	24.1
Doig, Al, W6NBH:	22.39ff
Dome, Robert, W2WAM:	9.29
Dominion Radio Astrophysical	
Observatory:	20.9
Doorknob capacitor:	18.13
Doppler:	9.1, 20.12, 20.13, 20.24, 23.6, 23.8, 23.9
Ionospheric:	9.3
Radar:	10.30, 20.13, 20.24
RDF antenna:	13.23
Shift:	9.3
Double	
Balanced diode mixer (DBM):	11.16, 15.2
Ball bearings:	10.18
Sided PC boards:	8.16ff
Downlink:	23.2
DQPSK:	9.46
DRAM:	5.61
Drift-Free VFO:	14.81ff
Drilling	
Bits:	8.5
Techniques:	8.17, 8.26
DRO:	10.31
Dry cells:	10.15
DSP:	9.29, 10.52, 15.1, 16.1ff
Algorithms for radio:	16.5ff
At baseband:	16.26
Bibliography:	16.35
Coproductors:	16.33, 16.34
Embedded, Hardware for:	16.32
Filter-design software:	16.34
IF:	23.17
Noise reduction:	16.18
Notch filter:	16.18
Other design tools for:	16.35
Projects:	16.36ff
Radio architectures for:	16.26ff
Software Radio Design and:	16.1ff
System software:	16.34
DSSS:	24.3
DTCXO:	10.23
DTMF:	15.21, 15.23, 15.24
Dual modulus division:	10.32
Ducting:	20.21
Dummy load:	25.51
Duntemann, Jeff, K7JPD:	9.54
Dupe sheet:	2.3
Duplex	
Crossband:	23.9
Full duplex:	15.21, 23.8
Duty cycle:	9.9
Satellite:	23.3
DVD:	5.64
DVM (digital voltmeter):	25.3ff, 25.4, 25.51
Measuring inductance and capacitance:	25.21ff
DX:	2.1
Awards:	2.1
Century Club (DXCC) award:	1.5, 2.1ff
DXpeditions:	1.5, 2.2
Nets:	2.2
PacketCluster:	2.2, 2.9, 9.14
<i>DXLab</i> :	24.10
Dynamic	
(edge-triggered) control:	5.46
RAM (DRAM):	5.61
Range:	9.3, 14.8, 25.43
Resistance:	14.4
Dynamic plate resistance:	18.3

E	
E layer:	20.14ff
Auroral:	20.11
Field aligned irregularities:	20.12
E-mail:	24.4
E. F. Johnson:	22.48
Earth	
Atmosphere:	20.2
Curvature:	20.3
Earth (ground):	3.9
Average real:	22.2
Functional:	3.9
Protective:	3.9
Earth-Moon-Earth (EME):	2.11, 20.24, 20.25, 23.32ff
Contests:	2.3, 2.11
Eastern Pacific High:	20.22
EasyTrak:	23.17, 23.18, 23.19
Ebers-Moll model, equation:	6.26, 6.27, 6.28
Echo (OSCAR 51):	23.5
Echolink:	9.22, 24.2
Eddy currents:	4.57, 6.9
Eddystone:	10.15
EEPROM:	5.61
Effective	
Current:	4.16
Value calibration:	25.9
Voltage:	4.16
Efficiency:	4.7, 9.1
Amplifier:	18.2
Bandwidth, SSB:	9.27
Power:	9.27
Tank circuit:	18.5
Eggbeater antenna:	23.6
Ehrhorn, Dick, W0ID (ex-W4ETO):	18.1
EIA-RS-232:	5.69, 19.10
Eimac Radio Club, W6HB:	2.11
Elecraft K2:	15.2
Electric field:	10.2, 20.1
Electrical	
Noise:	13.11, 13.15
Service entrance panel:	3.8
Shock:	3.21
Signals and components:	5.1ff
Wavelength:	21.3
Wiring around the shack:	3.3
Electromagnetic	
Compatibility (EMC):	13.1
Energy spectrum:	4.14
Field safety:	3.15
Interference (EMI):	13.1
Radiation:	20.1
Radiation (EMR):	3.15, 3.16
Radiation, athermal effects of:	3.15, 3.16
Wave:	20.1
Electromotive force (EMF):	4.1
Electron:	4.1, 20.2, 20.6, 20.7
Gun:	5.11
Electronic Industries Alliance (EIA):	3.1, 7.1
EIA-222 standard:	3.1
Electrostatic field:	4.18
Elevation	
And Azimuth:	23.36ff
Control:	23.18
Patterns:	22.15, 22.24, 22.44
Elliptical orbit:	23.3
Elmer (Mentor):	1.8, 2.4
<i>ELNEC</i> :	22.28
<i>ELSIE</i> filter design software:	12.9
EMC	
Automobile:	13.14
Fundamentals:	13.3
EmComm:	9.49
EME:	23.32ff
Calculating capabilities:	23.36
Contests:	2.3, 2.11
Earth-Moon-Earth:	2.11, 20.24, 20.25
Frequencies and Scheduling:	23.40
Net information:	23.40
Operating techniques:	23.39
Operating times:	23.39

Polarization effects:	23.34
Polarization misalignment:	23.35
Transmitter requirements:	23.35
<i>EME Tracker</i> program:	23.37
Emergency	
Communications:	2.1, 2.4
Coordinator (EC):	2.5
Helping in an:	1.6
Locator transmitter (ELT):	2.5
Operations:	15.23ff
EMI:	13.2
Common mode:	13.3
Cure:	13.5
Differential mode:	13.3
Direction Finding:	13.1ff
Filters:	17.31, 17.32
Source:	13.4
Emission:	13.1
Characteristics:	9.2ff
Classifications:	9.2
Designators:	1.13
Radiated:	13.1
Secondary:	5.10
Spurious:	1.13, 13.1, 13.4, 13.9
Standards:	1.13
Emitter follower:	5.3
Encoder, convolutional:	9.13
Encoding, luminance-chrominance:	9.34
Encryption:	24.4
End effect:	6.4, 22.1
Energetic protons:	20.10
Energy:	4.1, 4.6, 4.8
Storage in capacitor:	4.18
Storage in inductor:	4.28
England, Tony, W0ORE:	1.7
Envelope:	11.5
RF shaping:	14.48
Environmental Protection Agency:	3.18
EPROM:	5.61
eQSO:	9.22
Equatorial	
Belt:	20.12
Region:	20.13
Equipment	
Arranging:	19.3ff
Bench:	26.2
Homebrewing:	1.6
Interconnecting:	19.5ff
Stacking:	19.3
Test:	26.1
Equivalent series and parallel circuits:	4.45
Error detection:	5.68
Escapement:	10.2
ESN:	24.4
Esneault, Dick, W4IJC:	2.6
Etching techniques:	8.14
Ethernet:	24.5
Euler identity:	16.19, 16.20
Evaporation inversion:	20.24
Exalted carrier:	9.27
Exclusive-OR (XOR):	10.35
Exosphere:	20.7
Extra-class license:	1.3
Extraterrestrial propagation:	20.24
<i>EZNEC</i> modeling program:	22.44, 22.52

F	
F layer:	20.7, 20.11
F1 layer:	20.7, 20.14
F2 layer:	20.7ff
Nighttime:	20.14
Propagation:	20.14ff
Transequatorial spread F:	20.17
f/D:	23.21
Facsimile References:	9.34
Fading:	9.1, 9.31, 14.14, 20.9
Fast flutter:	20.24
Flutter:	20.17
Frequency selective:	9.3
Selective:	11.7
Wave Polarization rotation:	9.3

Failure of component:	26.19ff	EMI:	17.31, 17.32	Focal ratio:	23.21
Fall time, CW:	9.7	EMI cure:	13.5	Foehn wind:	20.23
Fan, Muffin:	18.17	FIR:	16.5, 16.6	Fog:	20.19
Fanout:	7.9	Frequency and impedance scaling:	12.5	Foldback current limiting:	17.15
Far-field ground losses:	22.23	Frequency response:	12.2	Forced air cooling:	6.19
Faraday rotation:	20.24, 23.34, 23.38	High-pass:	13.1, 13.6	Ford, Steve, WB8IMY:	9.12, 9.13, 9.14, 9.22, 9.54
Fast		High-pass, calculation:	12.14	Fordham, David, KD9LA:	9.54
Diodes:	5.17	High-pass, design table:	12.10	Forecast, ionospheric	
Fourier Transform (FFT):	10.8	IF:	14.26ff	Long range:	20.18
Fast-Scan Television (ATV):	9.38ff	IIR:	16.6ff	Propagation:	24.3
FAX:	9.9	Insertion loss:	12.25	Short range:	20.18
FAX480 program:	9.33	Intermediate frequency (IF):	12.1	Formula	
FCC, bandwidth rules:	9.1	LC:	12.3	Percent regulation:	17.11
FDM:	9.4	Low-pass:	11.11, 13.1, 13.6	Percent ripple:	17.11
FDMA:	9.4, 24.5	Low-pass, 2nd-harmonic optimized:	12.37	Recursion:	16.24
FEC:	9.12	Low-pass, calculation:	12.14	Signal-to-quantization-noise (SNR):	16.3
Federal Communications Commission		Low-pass, design table:	12.9	Forward	
(FCC):	1.9, 2.5, 3.18	Modern theory:	12.5	Direction (antenna pattern):	22.8
MPE regulations:	3.17	Monolithic crystal:	12.18	Error Correction (FEC):	9.12
Regulations and RFI:	13.2	Notch:	13.1	Scatter:	20.11
RF-Exposure regulations:	3.12, 3.13, 3.15	Output:	18.10	Wave:	21.4
Feedback:	5.3	Passive CW:	12.31	Fourier transform:	16.5, 16.19ff
Desired:	14.3	Poles and Zeros:	12.3	Discrete (DFT):	16.19
Loop oscillator:	10.1	Power supply:	17.11, 17.12	Inverse:	16.6
Negative:	5.3	Quartz crystal:	12.16	Fox hunting:	2.6
Positive:	5.3	Radio (RF):	12.1	Radiosport competitions:	2.6
Potentiometer:	9.24	RC high-pass:	10.38	Fox, Terry, WB4JFI:	9.16
Undesired:	14.32	RC low-pass:	10.38	Fractal images:	10.5
Feedthrough capacitor:	10.21	Simple digital notch:	16.8	Fractional N:	10.32
FEMA:	2.5	Skirt:	10.10	Synthesis:	10.49ff
Ferrite		Standard capacitor value design:	12.8	Franklin, Benjamin:	4.1
Bead:	10.30	Surface acoustic wave (SAW):	12.18	Free space:	20.2
Broadband RF transformer:	4.59	Switching:	14.28	E-plane pattern:	22.15
Rod antenna for RDF:	13.18	Synthesis:	12.5	Loss:	20.24
Toroidal inductor:	4.36	Synthesizer loop:	10.33	Frequency (f):	4.11, 4.13, 25.1ff
FET:	5.15, 5.23ff, 6.28, 18.3	Transmission line:	12.19	Accuracy:	26.15
Biasing:	6.28, 6.29	Transmission line, bandpass:	12.21	Calibration:	25.2
Biasing circuits:	5.25	Transmission line, emulating LC:	12.22	Coordinator:	15.21
GaAs:	23.16	Transmission line, quarter wave:	12.21	Counters:	25.19
Schematic symbols:	5.23	Filtering:	5.3, 17.11, 17.12	Critical:	20.7, 20.8
Voltmeter:	25.51	Filtration:	17.11, 17.12	Deviation:	9.6
FFT:	10.8, 16.20ff	Find What:	24.1	Difference:	11.3
Decimation-in-time:	16.23	FIR filters:	16.5, 16.6	Discrimination:	11.11
FHSP:	24.3	Design variations:	16.36ff	Distortion:	26.10
Fiber optics:	5.29	Fire extinguisher:	3.1	Divider:	10.33, 10.39
Fidelity:	9.1	CO ₂ type:	3.1	Division Multiple Access:	9.4
Field		Dry chemical, 'ABC type':	3.1	Division Multiplexing:	9.4
Aligned:	20.13	Water type, suitability:	3.1	Domain:	12.4
Aligned, ionization:	20.17	Firewall software:	9.53	Marker:	25.51
Aligned, irregularities:	20.11, 20.12	FireWire:	5.69	Marker generators:	25.14ff
Aligned, scattering:	20.2, 20.6	First carrier null:	9.6	Measurement:	25.14
Day:	1.5, 2.2, 2.3, 22.42, 22.64	First order product:	5.4	Meter:	26.5
Day sites:	3.2	Fisher, Reed E., W2CQH:	12.1, 24.1, 24.6	Modulation (FM):	9.6ff, 9.30ff, 10.6, 11.9ff
Electric:	10.2, 20.1	Fixed point DSPs:	16.4, 16.5, 16.32	Multipliers:	11.10
Electromagnetic (EM):	3.15	Flat line:	21.6	Multiply:	10.22
Electrostatic:	4.18	Flat-topping:	9.28	Plasma:	20.7
Magnetic:	4.25, 10.2, 20.1	Fletcher, Rick, KG6IAL:	23.30	Resonant:	18.4
Field-Effect Transistor (<i>see</i> FET)		Flip-flop:	5.46ff	Response of filter:	12.2
FIGS code:	9.8	D:	5.47	Sampling:	16.1
Filament:	18.1, 18.13	J-K:	5.48	Scaling for filter:	12.5, 12.10
File Transfer Protocol (FTP):	9.16	Master/Slave:	5.47	Selective fading:	9.3
Filter:	13.1	Triggering of a:	5.46	Synthesizer:	10.6, 10.6ff, 10.8, 10.15, 10.32
AC line:	13.6	Unlocked S-R:	5.46	Frequency Division Multiple Access	
Active:	12.27	Floating point DSPs:	16.4, 16.5, 16.32, 16.33	(FDMA):	9.4
Anti-aliasing:	16.2	Floppy disk drive:	5.63	Frequency Division Multiplexing	
Audio (AF):	12.1	Fluorescent lamp:	20.24	(FDM):	9.4
Audio filter supplement:	14.26ff	Flux:	4.25, 8.3	Frequency-hopping spread spectrum:	9.44, 9.45ff
Bandpass:	12.14	Density:	17.3	Frequency-Shift Keying (FSK):	9.3, 9.30
Bandpass design:	12.7	Density (B):	4.11, 17.3	Friction:	10.2
Bandpass, 144 or 222 MHz:	12.30	Leakage of transformer:	4.56	Front	
Broadcast band energy reject:	12.35	Flywheel effect:	18.3, 18.4, 18.19	Cold:	20.23
Butterworth:	12.5	FM (Frequency Modulation):	9.3, 9.6ff, 9.26ff, 9.30ff, 10.5	Warm:	20.23
Capacitor-input:	17.11, 17.12	And PM:	10.27	Front end	
Chebyshev:	12.5	And PM Demodulation:	16.14	Circuit:	10.7
Chebyshev, design table:	12.11	Birds (satellites):	23.6ff	Selectivity:	10.11
Choke-input:	17.12	Data ports:	9.15	FSK:	9.3, 9.24, 9.30
Coupling:	12.26	Narrowband:	9.30	FT-243:	10.23
Crystal:	14.28	Service Monitor:	9.7	FTP:	9.16, 9.47
Crystal, evaluation:	12.27	True FM, the truth about:	11.10	Fuji OSCAR (FO-29):	23.8
Design software, DSP:	16.34	Wideband:	9.30	Full	
Digital:	16.5ff	FO-29 (OSCAR 29):	23.5	Quieting:	15.21
Duplexer:	12.39				

Sloper: 22.8
 Wave rectifier: 10.29, 17.6, 17.7
Fundamental
 Mode: 10.22
 Overload: 13.1, 13.9
 Fuse: 3.21, 4.9, 26.19
 And circuit breakers: 17.3

G

G-TOR
 Data compression: 9.18
 Golay coding: 9.18
 Protocol: 9.18
 G1PVZ: 9.45
 G3 Fax Over Radio: 9.33
 G3PDM: 10.17
 G3PLX: 9.13
 G3RUH: 23.21, 23.22, 23.23
 G3SEK: 8.1
 G4GUO: 9.21, 9.31
 G4JNT: 9.31
 G4YNN: 19.26, 19.28
 G6JP: 10.30
 G6TTL: 17.46
 GaAs (Gallium arsenide): 5.28
 GaAs FET: 23.16, 23.35
 Preamp for 430 MHz: 14.36
Gain: 26.13
 -Bandwidth product (F_T): 5.3, 6.24
 Actual power gain: 14.1
 And stability: 14.6
 Available power: 14.2
 Cascaded stages: 14.10
 Compression: 14.8
 Distribution: 14.23
 Maximum available power: 14.2
 Stabilization: 10.3
 Transducer power: 14.2
 Voltage: 14.1
 Galactic noise: 9.3, 14.13
 Gallium Arsenide (GaAs): 10.31
 Gamma-Match (antenna): 21.11
 Gapped ring: 10.2
 Garriott, Owen, W5LFL: 1.7
 Gated (level-triggered) control: 5.46
 Gaussian: 10.12
 Generator: 19.14
 Filtered noise: 10.5
 Signal: 26.4
Geomagnetic
 Effects: 20.21
 Equator: 20.17
 Field, quiet: 20.18
 Storm: 20.9, 20.10, 20.13
 Germanium diode: 17.5
 Getter: 10.23
 GHA: 23.36
 Gilbert (Gb): 4.25
 Gilbert cell: 11.14
 Mixer: 11.14, 11.26
 Multiplier: 11.27
 Gilbert, Barrie: 11.13
 Gin pole: 3.2
 Glitch: 10.47
 Energy or area: 16.4
 Global Positioning System (GPS): 9.22
 Global System for Mobile Communications (GSM): 9.5
Glossary
 Amateur Radio (in general): 1.16ff
 Analog: 5.1
 Digital Communications: 9.10, 9.11
 Power Supplies: 17.1, 17.2
 Satellite terminology: 23.28, 23.29
 SS & HSMM: 9.48ff
 SSTV: 9.37
 GM4ZNX: 10.1
 Gold, Dr. Robert E., WB0KIZ: 3.15
 Google: 24.1
 GPS: 9.22, 9.44, 9.51, 10.52, 24.5
 Gradient: 20.21

Gravity: 10.23
 Gray line: 20.15, 20.16
 Grebenkemper, John, KI6WX: 10.9, 19.31
 Greenbaum, Don, N1DG: 24.1
 Greenwich Hour Angle (GHA): 23.36
 Grid: 5.9
 Bias: 18.14
 Dip meter: 21.10
 Dissipation: 18.19
 Ground-grid operation: 18.19ff
 Loading: 18.28ff
 Locators: 23.39
 Screen: 18.3
 Screen, stabilization: 18.28
 To plate transconductance: 5.9
 Ground: 3.9, 13.1, 13.7
 Clamps, copper plated: 3.8
 Earth: 3.8
 Effective: 3.8
 Far-field losses: 22.23
 Fault interrupter (GFI or GFCI): 3.5, 3.21, 17.1, 17.2
 Grounding straps: 3.8
 Grounds: 3.7
 Imperfect: 22.3
 Loop: 13.7, 19.2
 Noise: 19.2
 Perfect: 22.23
 Plane antenna: 15.25
 References: 3.8
 Return losses: 22.23
 RF: 3.7
 Rods: 3.6, 3.8
 Safety (of an AC circuit): 17.2
 Systems: 22.24, 22.27
 Wave: 9.3, 9.8, 20.3
 Wave losses: 20.3
 Ground-fault circuit interrupters: 3.5, 3.21
 Grounded-grid operation: 5.10, 18.19ff
 Group delay: 9.15
 GSM: 9.5
 Gumm, Linley, K7HFD: 10.18
 Gunn diode: 10.1, 10.30
 Guttadore, Larry, WB2SPF: 14.80

H

Hairpin match (antenna): 22.60, 22.61
 HAL Communications Corp: 9.20, 9.33
 Hale, Bruce, KB1MW: 8.1, 8.24
 Half duplex: 15.21
 Half-power beamwidth (HPBW): 23.11
 Half-wave rectifier: 17.5, 17.6
 Hallas, Joel, W1ZR: 9.31
 Ham Radio: 1.1ff
 Ham shack hazards: 3.19ff
 Chemicals: 3.19
 Energized circuits: 3.21
 Ergonomics: 3.20
HamDream: 9.31
 Hamming offset: 9.17
 Handheld: 15.22
 Handi-Ham: 1.2
 Hard disk drive: 5.62, 5.63
 Hardline: 21.1, 21.7
Hardware
 Aluminum rivets: 22.37
 Antenna: 22.37
 Computer: 5.58ff
 for embedded DSP systems: 16.32
 Stainless steel hose clamps: 22.37
 Hare, Ed, W1RFI: 8.1, 13.1, 26.1
 Harmonic: 11.6, 13.1
 Distortion: 6.24
 Sampling: 16.2
 Hartley oscillator: 10.13, 10.14, 10.29
 VFO: 10.19
 Harvard architecture: 16.32
 Hayward and Lawson
 Progressive Communications Receiver: 11.24
 Hayward, Roger, KA7EXM: 10.19

Hayward, Wes, W7ZOI: 8.8, 10.16, 10.19, 10.28, 11.21, 11.24, 19.57
Hazards
 Battery chemical: 17.22
 Floating (ungrounded) test equipment: 3.21
 High-voltage: 3.21
 Soldering: 8.3, 8.4
 HB9JNX/AE4WA: 9.43
 Heacock, Douglas, AA0MS: 7.1
Heat
 Dissipation: 6.16
 Rectifier protection from: 17.10
 Sink, design and use: 6.17, 6.18, 6.19
 Tube: 10.14
 Heat sink: 18.18
 Transistor: 18.11
 Heater: 18.13
 Heaviside, Oliver: 20.6
 Helical resonator: 12.23
 Helix antenna
 L-Band: 23.19ff
 Helix feed: 23.22, 23.24
 Offset dish: 23.24
 Hellschreiber (Hell): 2.10
 Feld-Hell: 2.10
 PSK Hell: 2.10
 Helms, Susan, KC7NHZ: 1.7
 HEMT: 23.35
 Henderson, Tommy, WD5AGO: 23.33
 Henry (H), inductance unit: 4.28
 Henry, Bill, K9GWT: 9.19
 Heron, George, N2APB: 8.13
 Hertz, Heinrich: 10.2
 Hess: 10.4
 Heterodyning: 9.5, 11.1
 Hewlett Packard: 25.2
 Hexadecimal: 5.40
 HF mobile: 9.1
 HF mobile antennas: 22.45ff
 Base loading: 22.46, 22.47
 Center loading: 22.47
 Continuously loaded: 22.47
 Screwdriver antenna: 22.47
 Tie down: 22.45
 Tuning wand: 22.47
HF Path
 Effect on analog signals: 9.4
 Effect on pulses: 9.3ff
 Hi-pot test: 18.22
 Hidden transmitter problem: 2.9
High pressure system
 Semi-permanent: 20.22
 Weather: 20.22
 High Speed CW (HSCW): 9.8
 High speed Morse: 20.14
 High Speed Multimedia (HSMM) Working Group: 9.47
 High tones: 9.9
 High-pass filter: 13.1, 13.6
 Design calculation: 12.14
 Design table: 12.10
High-voltage
 Power supply (3050-V/5400-V): 17.40, 17.41
 Techniques (power supplies): 17.20
 Hilbert transformers: 16.9ff
 Hill: 10.16
 Hinternet: 9.47
 Hints, construction: 8.20ff
 Hitch-pin clip: 22.17, 22.64
 Home, building techniques: 8.8ff
 Homebrewing equipment: 1.6
 Hood, Michael, KD8JB: 22.58
 Horizon, radio: 20.19
 Horowitz: 10.16
 Horrabin, Colin, G3SBI: 11.26, 11.27
 Horsepower: 4.7
 Horzempa, Stan, W1LOU: 9.16, 9.22
 Hot-carrier diode: 5.17
 HP-8563E: 10.10
 HP-8640B: 10.10, 10.12, 25.41
 HPBW (half-power beamwidth): 23.11
 HSCW: 9.8

HSMM Radio:	9.47	Immunity (to interference):	13.1	Reduction techniques with DSP:	16.17ff
Antennas:	9.51	Immunity, noise:	9.1	Wideband:	14.30
Applications:	9.47ff	Impairments, transmission:	9.3	Interflex:	10.45
Basic station:	9.50	Impedance:	4.11, 4.42	Intermodulation Distortion (IMD):	9.28, 10.1, 10.3, 10.7, 13.1, 15.22, 18.19
Circular polarization:	9.52	Antenna:	21.1	Products:	5.4
Circularly polarized space diversity:	9.52	Characteristic:	21.3, 21.10	Internal	
Emergency communications:	9.48ff	Discontinuity:	21.4	Impedance:	6.4
Frequencies:	9.54	Equivalent series and parallel circuit:	4.45	Resistance of batteries:	17.22
High Speed Multimedia (HSMM):	2.1, 2.7	Image:	18.7	International	
Higher power:	9.52	Internal:	6.4	Amateur Radio:	1.9
Mobile:	9.50	Matching:	14.52, 22.54	Amateur Radio Union:	2.1
References:	9.54	Delta match:	22.54	Communication Engineers, Ltd. (ICE):	3.7
Relay:	9.49	Folded dipole:	22.54	Electrotechnical Commission (IEC):	7.1, 11.3
Repeaters:	9.50	Gamma and T matches:	22.54	Reply Coupon (IRC):	2.2
Space diversity:	9.52	Normalized:	21.4	Space Station (ISS):	1.7
Surveys:	9.51	Ohm's Law for:	4.46	Internet	
Huffman coding:	9.18	Parallel circuit:	4.44	Useful sites:	24.2
Humidity:	20.21	Parallel equivalent:	18.5	World wide web:	24.1ff
Huntington, Howard S., K9KM:	24.1	Ratio of transformer:	4.56	Internetworking:	9.21ff
Hurricane Andrew (1992):	2.4	Scaling for filter:	12.5, 12.10	Bibliography:	9.22
Hutchinson, Chuck, K8CH:	22.1ff	Series circuit:	4.42	Interpolation:	16.4, 16.15
Hutchinson, Sylvia, K8SYL:	22.14	Series equivalent:	18.5	Interstage, load and Z matching:	5.5
Hybrid		Surge:	21.3	Intersymbol Interference (ISI):	9.5
-Pi model:	6.24	Terminating:	21.4	Introduction to RF Design:	6.23, 6.26, 11.21
Circuitry:	5.29	Transformation:	4.53, 14.52ff	Inverse Fourier transform:	16.6
Combiner:	25.51	Transformation, cascaded circuits:	14.52	Inversion:	20.23
Combiners:	25.34	Transformation, matching networks:	18.3ff	Evaporation:	20.24
Hysteresis:	4.26, 4.57, 6.9	Transforming networks:	14.58	Radiation:	20.22
Loop:	6.9	In-Band On-Channel (IBOC):	9.31	Temperature:	20.22
I		Index, refractive:	20.7	Inverted-V dipole:	22.8
IARU:	1.17	Indirect synthesizer:	10.32	Inverter (logic):	5.42
IC		Induced voltage:	4.27	Inverting buffer:	5.42
Advantages and disadvantages:	5.31, 5.32	Inductance and inductors:	4.11, 4.25, 6.1ff	ion:	4.1
Common linear types:	5.32ff	Alternating current in:	4.31	IONCAP program:	20.20
Digital:	5.51ff	Construction techniques:	6.15	Ionized column:	20.13
Header plugs:	8.11	Coupling:	6.13	Ionogram:	20.7
Hybrid:	5.29	Direct current through:	4.27	Ionosonde:	20.7
Layout:	5.30	Hysteresis:	6.9	Ionosphere:	9.3, 20.6, 20.7
Linear:	5.29	Magnetic core, construction:	6.9	Disturbance:	20.8
Master:	7.9	Markings:	7.5	Earth:	20.9
MMIC:	5.32	Mutual:	4.28	Layers:	20.9
Monolithic:	5.29ff	Of straight wire:	4.34	Propagation:	1.6, 20.6
Substrate:	5.29	Self:	4.27	Refraction:	20.7
ICAS (Intermittent Commercial & Amateur Service):	18.11	Series and Parallel:	4.29	Storm:	20.10
ICOM		Winding:	8.23ff	IP Videoconferencing (IPVC):	9.47
IC-706MKIIG:	15.2	Induction:	13.1	IrDA (Infrared Data Access):	5.69
IC-745:	10.11	Inductive reactance:	4.31	IRLP:	9.21ff, 24.2
IC-765:	10.49, 10.52, 11.26	Inductor:	4.25	Iron-core	
ICs		Air-core:	4.32	Inductor:	4.35
Header plugs:	8.11	Calculating practical:	4.32	Transformer:	4.55
Ideal (component):	6.1	Failure:	26.23	Iron-on resist:	8.16
IEEE:	24.3	Ferrite toroidal:	4.36	Isolation:	10.21
1394 (FireWire):	5.69	Iron-core:	4.35	Port-to-port:	10.8, 11.4
802.11 WLAN:	2.7	Powdered-iron toroidal:	4.35	Reverse:	10.21
IF		RF circuits:	4.28	Isotropic radiator:	22.3
Choosing the first IF:	14.31	Slug-tuned:	4.35	ITA2:	9.8
Filter:	12.1, 14.26ff, 14.45	Industrial Communications Engineers (ICE):	3.7	ITU:	1.9
Ultimate attenuation:	14.26	Information Receiving Station (IRS):	9.12	Radio Regulations:	9.3
Linearity and noise:	14.47	Information Sending Station (ISS):	9.12	Region 1:	10.7
Port:	11.4	Infrared:	20.1	IZ8BLY:	2.10
Rejection:	11.4	Input, devices:	5.64	J	
Speech clipper:	14.46	Input/Output (I/O) devices:	5.59	Jackscrew drive:	23.18
IF-DSP		Bidirectional:	5.62	Jackson Bros:	10.15
at a low IF:	16.27ff	Inrush current:	17.10	Jansson, Dick, WD4FAB:	6.17, 14.80, 23.26, 23.31
Conversion scheme:	16.28	Insertion loss:	12.25	Jarvis, Tony, G6TTL:	17.46
Receiver:	16.27ff	Instantaneous voltage and current:	4.15	JE3HHT:	9.36
IIR filters:	16.6ff	Institute of Electrical and Electronic Engineers (IEEE):	3.15, 3.16	Jennings vacuum relays:	22.48
Image		Insulators, Antenna:	22.6	Jessup, G.R., G6JP:	10.30
Advanced Digital Video (ADV):	2.7	Integrated circuit (Also see IC):	7.7	JFET:	5.15, 11.25
Communications:	2.1, 2.7	Failure:	26.26	Biasing:	6.28
Impedance:	18.7	Monolithic microwave (MMICs):	6.2	Large-signal operation:	6.29
Modes:	9.32ff	Integration:	9.3	Jitter:	10.34
Pixels:	2.8	Integrator:	10.38, 10.39, 10.42	Johnson, James, W8EUI:	22.28
Rejection:	11.3, 11.7	Intelligibility:	9.1	Jones, H. E.:	11.14
Response:	15.2	Intercept point:	14.8	Josephson Junction:	25.5
Response, D-C receiver:	14.19	Interface, standard busses (computer):	5.69	Joule:	4.1, 4.6
Slow-scan TV (SSTV):	2.8	Interference (Also see EMI):	9.3, 9.31, 13.1	Junction Field-Effect Transistor (see JFET)	
Imaginary number:	10.38	Destructive:	20.9	JVFAX program:	9.33
IMD ratio:	14.8	Intersymbol (ISI):	9.5		
		Locating:	2.6		
		Pattern:	20.3		

K			
K index:	20.10, 20.18		
K1JT:	2.9, 2.11		
K1OF:	9.16		
K1RFD:	2.10, 9.22, 24.2		
K1RO:	17.37, 19.25		
K1STO:	1.2		
K2UBC:	9.25		
K3BC:	9.38		
K4ERO:	9.26, 9.27		
K5GNA:	23.21, 23.26, 23.27, 23.30		
K5KVH:	24.1		
K5OE:	23.6, 23.7, 23.21, 23.28, 23.31		
K6GT:	18.38		
K6JEY:	25.1		
K6LVM:	2.7		
K6USW:	9.47		
K6XX:	5.58		
K7HFD:	10.18		
K7JPD:	9.54		
K7QO:	8.1		
K8OCL:	2.1, 9.43, 9.47, 9.54, 24.1		
K8RA:	18.29		
K9EK:	23.11, 23.13, 23.19, 23.21		
K9GWT:	9.19		
K9KM:	24.1		
KA1YVF:	2.5		
KA2PYJ:	9.38		
KA2WEU:	10.14, 10.14ff, 10.20, 10.26, 10.27, 10.28		
KA3JJJ:	9.54		
KA7EXM:	10.19, 10.20		
KA9FOX:	19.2		
KA9Q:	9.16		
Kansas City Tracker (KCT):	23.18		
Kantronics:	9.22		
KA0CKS:	9.21		
Karlquist, Rick, N6RK:	11.1		
Karn, Phil, KA9Q:	9.16		
Karty, Steven, N5SK:	9.32, 9.37		
Kay, Leonard, K1NU:	6.1		
KB1MW:	8.1, 8.24		
KB2GSD:	1.5		
KB2UAN:	24.1, 24.6		
KB9VAK:	9.21		
KC4WZK:	2.1		
KC6T:	22.39ff		
KC7NHZ:	1.7		
KD4HQV:	19.1		
KD6DUT:	2.3		
KD6OZH:	9.54		
KD9LA:	9.54		
KE7QF:	8.16		
Kennelly, Arthur E:	20.6		
Kenwood TS-870S:	15.3		
Keplerian elements:	23.6		
Kesteloot, André, N4ICK:	9.43, 9.45		
Key clicks:	9.1, 9.7		
Keying			
Rate:	9.7		
Speed:	9.3		
Transmitter:	9.8, 26.18		
KF4HPY:	2.5		
KF6DX:	16.1		
KG5OG:	2.9		
KG0GN:	5.38		
KH6UK:	23.32		
KI5PG:	17.44		
KI5TO:	9.22		
KI6WX:	10.11, 10.52, 19.31		
KI6YN:	2.3		
Killar, Larry, KC4WZK:	2.1		
Kinetic energy:	10.2		
Kirchhoff			
First (Current) Law:	4.4		
Second (Voltage) Law:	4.4		
KISS capability:	9.16		
Kitchin, Charles, N1TEV:	14.85ff		
KK7B:	14.66		
KI7IBA:	19.35		
Klystron:	5.12, 10.31		
KN6KB:	9.21		
Knife-edge diffraction:	20.3		
K0OV:	13.17		
K0RZ:	23.21		
Kp:	20.10		
KP4BPZ:	23.32		
Kramer, Klaus, DL4KCK:	9.43		
Krome, Ed, K9EK:	23.21		
Krugh, Paul, N2NS:	3.1		
KU7G:	8.16		
Kuecken, Jack, KE2QJ:	22.45ff		
L			
Ladder line:	21.8, 22.7		
Lamarr, Hedy:	9.43		
Lambert, Simone, KA1YVF:	2.5		
Lamp dimmer:	20.24		
LAN:	24.5		
Land breeze:	20.23		
Langner, J. WB2OSZ:	9.37		
Lapin, Greg, N9GL:	5.2		
Laplace:	10.38		
Larson, Elaine, KD6DUT:	2.3		
Latch:	5.46		
Lattice structures:	16.8		
Lau, Zack, W1VT:	10.11, 19.35		
Laws of motion:	10.2		
Lawson, John, K5IRK:	11.24		
Layout, circuit:	8.14, 8.18		
LC filter:	12.3		
LCD (Liquid Crystal Display):	25.51		
Lead acid battery:	17.21		
Leakage current:	6.4		
Least significant bit (LSB):	5.39		
LED (Light Emitting Diode):	5.28, 25.52		
Left hand circular polarization (LHCP):	20.24		
LEO:	23.3, 23.6		
Levels:	9.8		
Lewallen, Roy, W7EL:	10.16, 10.19		
LHA:	23.36		
LHCP:	23.17, 23.24		
Libration fading:	23.33, 23.34		
License			
Amateur Extra-class:	1.3		
Operator:	1.3		
Station:	1.3		
Technician:	1.3		
US Amateur Radio:	1.3		
Light emitting diode (see LED)			
Lightning:	20.24		
Arrestors:	3.7		
Coaxial cable arrestors:	3.7		
Protection:	3.4		
Protection equipment, suppliers of:	3.7		
Protection, construction guidelines:	3.6		
Transient protection:	3.5		
Limit switches:	22.49		
Limiter:	10.6, 10.27, 15.5		
Linden, Louis, KI5TO:	9.22		
Line of sight:	15.23, 20.3, 20.19, 22.1		
Line, strip:	18.8, 18.23		
Linear			
Amplifier:	9.28, 18.11		
Frequency shifter:	11.4		
Regulators:	17.12ff		
Transponder:	23.1ff		
Linearity:	5.2		
Amplifier:	18.2		
Lithium			
-Ion (Li-ion) cell:	17.22		
Battery:	17.21		
Tantalate:	10.24		
LNB:	10.44		
Load resistance:	18.3		
Loading:	22.24		
Local area network (LAN) card:	5.62		
Local Hour Angle (LHA):	23.36		
Local oscillator (LO):	10.1		
Feedthrough:	11.3		
Leakage:	10.8		
leakage:	10.8		
Port:	11.4		
Suppression:	11.7		
Locating sources for parts:	8.24		
Lock acquisition:	10.37		
Log book:	2.3		
Paper and computer logs:	2.3		
Logarithmic amplification:	5.4		
Logbook of the Word (LoTW):	24.11		
Logging software:	24.11		
Logic			
Bipolar families of:	5.52		
Combinational:	5.42ff		
Comparing families of:	5.51ff		
Gate:	26.17		
Gate crystal oscillator:	10.28		
Gates (common):	5.42, 5.43		
Interfacing families of:	5.57		
Inverter:	5.42		
Levels:	26.16		
Positive and Negative:	5.44, 5.45		
Sequential:	5.45ff		
Logical operators:	5.42		
Long path:	20.15		
Long range forecast:	20.18		
Look Smart:	24.1		
Loop:	10.3		
Amplifier:	10.41		
Antenna for RDF:	13.17		
Closed loop bandwidth:	10.46		
Closed loop response:	10.45		
Compensation amplifier:	10.37		
Damping factor:	10.44		
Excessive gain:	10.4		
Gain:	10.4, 10.40		
Natural frequency:	10.44		
Phase characteristics:	10.40		
Phased lock:	10.33		
PLL instability:	10.33		
Summing:	10.51		
Loss			
Free space:	20.24		
Transformer:	4.56		
Low tones:	9.9		
Low-Earth orbiting (LEO):	23.3ff, 23.4		
Operation:	2.1, 2.6		
OSCAR:	1.7, 2.6		
Packet (Digital):	2.6		
PACSATS:	2.6		
Phase 3:	2.6		
RUDAK experiment:	2.7		
Voice/CW (Analog):	2.6		
Low-frequency			
Parasitics:	18.27		
Low-pass filter:	13.1, 13.6		
Design calculation:	12.14		
Design table:	12.9		
Second-harmonic-optimized:	12.37		
Lower Sideband (LSB):	9.9, 9.27		
Lowest Usable Frequency (LUF):	20.8		
LSB:	9.27		
LSI:	5.51		
LTRS code:	9.8		
Luminance-chrominance encoding:	9.34		
M			
M57762:	23.12ff		
Magnet wire:	22.6		
Magnetic			
Antenna mount:	15.22, 15.25		
Field:	4.25, 10.2, 20.1		
Materials:	6.8		
Materials, core hysteresis:	6.9		
Materials, core saturation:	6.8		
Materials, eddy currents:	6.9		
Mount:	15.22, 15.25		
Poles:	4.25		
Magnetometers:	20.10		
Magnetomotive force (Gilberts):	4.25		
Magnetosphere:	20.6, 20.7		
Magnetron:	5.12, 10.31		
Mahkinson, Jacob, N6NWP:	11.26		

Main carrier:	9.5	MFSK8 program:	2.10	Image:	9.32ff
Maintained resonance:	10.2	Micrometals:	10.15	Multi carrier:	9.3
Mallozzi, Dom, N1DM:	25.22	Toroid core color code:	7.6	Of propagation:	21.18
Man-made noise:	20.24	Microphone:	14.43	Operating:	9.7ff
Manhattan style:	8.12, 8.13	Amplifier:	14.43, 15.5	Satellite:	23.2ff
Marconi, Guglielmo:	20.6	Ceramic:	14.43	SSTV 1200C:	9.34
Marine boundary layer:	20.24	Connector:	19.6	Telegraphy:	9.7ff
Martin, Fred, KI6YN:	2.3	Dynamic:	14.43	Voice:	9.26ff
Martin, Peter, G3PDM:	10.17	Electret:	14.43	Wideband:	9.1
Martinez, Peter, G3PLX:	9.13	Microphonics:	10.38, 10.42	Modulation:	11.3
Master Station (MS):	9.12	Microprocessor control:	26.15	100%:	11.5
Matched		Microsats:	23.4	8P2A:	9.20
Condition:	21.6	Microsim Corp.:	6.22	8PSM:	9.20
Lines:	21.3ff	MicroSmith program:	21.9	Amplitude (AM):	9.5ff
Matched-line loss (<i>see also</i>		Microstrip lines:	6.11	Angle:	9.5ff, 11.7ff
Transmission line):	21.6, 21.8	Microwave:	20.21, 20.23	BPSM:	9.20
Matching		Cavity:	10.1	Characteristics:	9.2ff
Interstage load and Z:	5.5	Construction techniques:	8.22	Dibit:	9.12
Network:	10.3	Dielectric resonator:	10.1	Down:	9.24
Networks:	10.3, 18.3ff	Oscillators:	10.30ff	Factor:	11.5
Matching (antenna to feed line)		Projects:	15.19	Frequency:	9.30ff
Gamma-Match:	21.11	Surface acoustic wave (SAW):	10.1	Index:	9.6, 9.7, 11.9, 11.10
Hairpin match (aka Beta match):	21.12	YIG sphere:	10.1	Linearity:	11.6
Quarter-wave:	21.12	Milione, Ronnie P., KB2UAN:	24.1, 24.6	Major Systems:	9.5ff
T-Match:	21.11, 21.13	Military Affiliate Radio Service (MARS):	2.5	Multilevel phase:	9.4
Matching (transmitter to feed line)		Air Force MARS:	2.5	Orthogonal Frequency Division:	9.46ff
L network:	21.14	Army MARS:	2.5	Over:	11.5, 11.6
Materials, shop:	8.5	Navy/Marine Corps MARS:	2.5	Percentage:	11.5
Mathematics, complex signals:	16.9	Millar, Doug, K6JEY:	25.1	Phase:	9.6ff, 9.30
Maxim, Hiram Percy:	1.9	Millen:	10.15	Pulse-position:	9.24
Maximum		Miller, James, G3RUH:	23.21	QPSM:	9.20
Permissible exposure (MPE):	3.12, 3.15	Miller, Russ, N7ART:	18.40	R/C RF:	9.24
Usable Frequency (MUF):	20.8	Millihertz:	10.47	Modulator:	11.1ff
Usable frequency factor (MUFF):	20.8	Mini-Circuits SBL-1:	11.23	Angle:	11.10
Maxwell's equations:	6.10, 6.14	Miniductor:	10.15	Balanced:	11.24
Maxwell, M. Walter, W2DU:	21.17	Minimum Discernible Signal (MDS):	10.9, 25.42	Digital SSB and ISB:	16.10
McCaa, Bill, KØRZ:	23.21	Mitchell, Bradley S, WB8YGG:	19.17	PLL frequency:	11.11
McMasters-Carr:	22.15, 22.64	MITRE Corp:	9.21	Power-law:	5.4
MCPs:	9.8, 9.9	Mixer:	11.1ff	Reactance:	11.10
MDS:	10.9	After the mixer:	14.31	Square-law:	5.4
Measures, Rich, AG6K:	19.57	And amplitude modulation:	11.5	SSB; Hilbert transformers and:	16.9ff
Measuring		As a multiplier:	11.1, 11.2	Switching:	5.4
AC Power:	4.15	Balance:	11.3	Modules, in combination:	14.8
AC voltage:	4.15	Balanced:	5.36, 11.7	Moell, Joe, KØOV:	13.17
Alternating current:	4.15	Double-balanced diode (DBM):	11.16, 15.2	Monolithic	
Bearing and maps for RDF:	13.25	Microphone:	11.1	Crystal filter:	12.18
Distortion:	26.10	Multiplier:	11.15	IC:	5.29ff
Inductance and capacitance with		Reversing-switch:	11.14, 11.15	Montalbano, J., KA2PYJ:	9.38
DVM:	25.21ff	Spurious responses:	14.20ff	Monte Carlo analysis:	6.22
Mechanical		Terminating the mixer:	14.31	Montgomery, Christine, KGØGN:	5.38
Construction:	8.25	Mixing:	9.26	Moon:	20.24
Filter:	14.28	As combiners, summers or adders:	11.1	Locating:	23.36
Oscillator:	10.2	As multiplication:	11.1	Moonbounce (<i>see</i> EME):	2.11
Medium frequencies:	20.3ff	Non-linear:	9.5	Mornhinweg, Manfred, XQ2FOD:	17.28
Memory:	5.60	Products:	11.4	Morse (CW):	9.3, 11.6
Computer; addresses/chip size:	5.60	Reciprocal:	10.7, 10.8, 16.14	Decoder:	9.3
Computer; cache vs. main:	5.62	Versus adding:	11.1	Requirement for license:	1.3
Menold, Ronald, AD4TB:	9.21	MMIC:	5.32, 5.36, 5.37	Telegraphy (CW):	9.7ff
Mentor (Elmer):	1.8	MMSSTV program:	9.36	MOS:	5.55, 5.56
Mercury battery:	17.21	Mobile		MOSFET:	5.15, 5.16, 11.25
Mercury vapor rectifier:	17.4	And Portable:	19.13ff	Dual gate:	10.15
Metal-oxide semiconductor (<i>see</i> MOS)		Antennas (HF):	22.45ff	Gate protection:	5.25ff
Meteor		Computing:	24.9	In power supply designs:	17.14ff
Scatter:	2.1, 2.11, 20.6, 20.11, 20.13	Interference:	19.14	Level converters:	19.12
Shower:	20.14	IP security:	24.9	Power transistor protector:	6.20, 6.21
Trail:	20.14	RDF system:	13.23	Most significant bit (<i>see</i> MSB)	
Meteorology:	10.5	Mode A (ARQ):	9.12	Motional	
Meter		Model		Capacitance:	10.24
Deviation:	9.6	Aircraft:	9.23	Inductance:	10.24
Digital-multi (DMM):	26.2	Boats:	9.22	Motor, permanent magnet:	22.49
Dip:	26.3	Cars:	9.23	Motorboating:	10.15
Frequency:	26.5	Helicopters:	9.23	Motorola	
Internal resistance:	25.4	Modem:	5.64	MC1495 multiplier:	11.14
Multi-meter:	26.2	Digital:	9.7	MC1496:	11.14
RF power:	26.2	Disconnect header:	9.15	MC3359 FM subsystem IC:	11.13
SWR:	26.3	Modern filter theory:	12.5	Mouser Electronics, Inc.:	11.29
Vacuum-tube-volt (VTVM):	26.2	Modes		MØCSH:	2.10
Volt-Ohm (VOM):	26.2	And Systems:	9.1ff	MØZPD:	2.10, 9.22
Metero scatter software:	24.11	Chat:	9.21	Mraz, Kris, N5KM:	9.43, 9.54
MFJ:	9.22, 9.23, 22.48	Data:	9.13ff	MRF646:	18.25
MFJ-259 SWR Analyzer:	22.44	Digital:	1.5	MSB:	5.39
MFSK16 program:	2.10	Digital voice:	9.31ff	MSI:	5.51

MSI, LSI, VLSI circuits and controllers:	5.58	Ground-fault circuit interrupters (GCFI): ...	3.5	Distribution:	14.23
Mu-metal can:	10.31	Lead-ins:	3.4	Figure measurement:	25.30
Muething, Rick, KN6KB:	9.21	Lightning arrestors:	3.4	Galactic:	14.13
MUFF:	9.3, 20.8ff	National Institute of Standards and Testing		Galatic:	9.3
Dayside:	20.16	(NIST):	25.1	IC-765 phase noise:	10.52
Forecast:	20.18	National Radio Co:	10.15	Immunity:	9.1
Prediction:	20.17	National Traffic System (<i>see</i> ARRL)		Man-made:	9.1, 20.24
Prediction on the home computer:	20.20	Natural open-ended waveguide:	20.21	Narrow band filtered:	10.5
MUFF:	20.8	NBDP:	9.12	Phase:	9.3, 10.1
Muffin fan:	18.17	NBFM ICs:	14.36	Phase, transmitter:	10.10
Multi		Near vertical incidence skywave (NVIS): ..	20.15	PLL:	10.42ff
-loop synthesizer:	10.47	Neben:	25.21	PM:	10.5
-operator contest:	10.7	NEC-2 (<i>Numerical Electromagnetic Code</i>):	21.8	Quantization, data converter:	16.3
Multi-level phase modulation:	9.4	NEC-4 program:	22.62	Random AM:	10.5
Multimedia Systems:	9.47ff	Necessary bandwidth:	9.2	Random FM:	10.5
Multimeter:	26.2	Negative		Random noise sidebands:	10.47
Multimode Communications Processors		Feedback:	5.3, 14.4	Receiver thermal:	9.3
(MCPs):	9.8, 9.15	Feedback, topologies:	14.6	Sidebands:	10.7
Multipath:	9.3, 9.52, 20.10	Resistance:	10.15, 10.30, 10.31	Sky:	23.35
Propagation:	9.31	NEMA3:	23.18	Sources in ham shack:	13.15
Multiple access:	9.4	NEMA4:	23.18	SSB phase:	10.10
Multiple-hop sky wave:	9.3	Neon sign:	20.24	Statistical terms:	10.6
Multiplexing:	9.3, 9.4	Net gain:	10.3	Synthesizer:	10.38
Multipplier:	10.28, 25.52	Nets:	1.5, 2.1, 2.3	Synthesizer divider:	10.44
Multistage systems:	14.9ff	HF and Repeater:	2.3	Synthesizer phase detector:	10.44
Multivibrator:	5.33, 5.50, 5.51	Public service:	2.3	Synthesizer reference:	10.44
Astable (free-running):	5.50	Traffic:	2.3	Thermal:	10.34
Monostable:	5.50	Network		Thermal (Johnson):	5.6
Multewire windings:	8.23	3CX1500D7 amplifier input:	18.35	Transmitter:	14.13
Murray code:	9.8	Audio phasing, SSB:	9.29	VCO:	10.43, 10.44
Murray, Conard, WS4S:	19.1	Low-pass L:	18.6	Wideband:	14.48ff
Mutual inductance:	4.28, 4.54	Low-pass T:	18.6	Nonlinear:	13.1
		Mismatch in lossless networks:	14.53	Devices:	18.3
		Output:	18.3, 18.4	Distortion:	11.3
		Pi:	18.6ff	Operators:	5.4
		Pi output:	18.19	Nonlinearity:	10.3, 10.7
		Pi, values table:	18.7	Nonresonant RF transformer:	4.58
		Pi-L output:	18.19	N0NSV:	23.22, 23.24
		Pi-L values table:	18.9	Nonvolatile RAM (NVRAM):	5.61
		Tuned (resonant) networks:	14.56ff	NOR gate:	5.43
		Network Stumbler:	9.51	NORCAL Sierra:	15.9ff
		Networking		AGC detector:	15.11
		Adaptive:	9.16	AGC, audio derived:	15.10
		Packet:	9.15	BFO:	15.14
		Neutral of an AC circuit:	17.2	Break in keying:	15.14
		Neutralization:	18.28	Metering circuitry:	15.11
		Neutron:	4.1	Premixer:	15.11
		<i>New England Journal of Medicine</i> :	3.16	Receiver mixer weakness:	15.14
		Newell, Dick, AK1A:	24.11	RIT:	15.10
		Newkirk, David, ex W9VES:	11.1	Single conversion superhet:	15.10
		Newton:	10.2	Spectral purity:	15.14
		Nibble:	5.40	Spurious signals:	15.14
		Nibbling tool:	8.5	Transmit signal monitoring:	15.14
		Nichrome:	18.26	VFO:	15.11, 15.14
		Nickel Cadmium (NiCd) battery:	15.22, 17.21	Normalized	
		Nickel Metal Hydride (NiMH) battery:	17.21, 17.22	Impedance:	21.4, 21.5
		NIST:	25.1, 25.5	Reactance:	21.4, 21.5
		Nitrogen:	20.3, 20.11	Resistance:	21.4
		NJ1Q:	19.37	North pole:	4.25
		NMEA 0183:	9.51	Northern California DX Foundation:	20.18
		NMOS:	5.55	Norton's Theorem:	4.6
		NO-44 (OSCAR 44):	23.5	NOSNET:	9.16
		Node, Current:	22.1	NOT gate:	5.43
		Noise:	5.5, 5.6, 13.1, 13.4, 26.7	Notch	
		AM:	9.3, 10.6	Filter:	13.1, 15.5
		AM sidebands:	10.6	Filter, simple digital:	16.8
		And Propagation:	20.24	Notes	
		Aperture jitter:	16.3	Satellite:	23.30
		Atmospheric:	9.3	<i>Nova for Windows</i> program:	23.5, 23.17
		Band of:	10.7	NP0:	10.13, 10.15
		Bandwidth:	10.9	Null (nulling):	25.52
		Blanker:	15.2	Null modem:	19.11
		Composite phase:	10.11	Number	
		Density:	10.12	Conversion techniques:	5.40, 5.41
		DSB phase:	10.12	Representation of (in DSP):	16.4, 16.5
		Electrical:	13.11, 13.15	Systems:	5.39
		Factor:	14.3	NVIS:	20.15
		Passive device:	14.7	NVRAM:	5.61
		Figure:	14.3, 25.52	NW3Z:	22.61
		Cascaded stages:	14.11	Nyquist:	10.3, 10.38
				Nyquist sampling theorem:	16.3

O

O'Donnell, Adam, N3RCS:	14.80
O'Donnell, Laura, N2TDL:	14.80
O'Hara, Tom, W6ORG:	9.38
Oblique angle:	20.8
Scattering:	20.12
Occupied bandwidth:	9.1
Oersted (Oe):	4.25
OFDM:	9.5, 9.31, 9.46ff, 24.3
Official Observers (OO):	2.4
Offset:	15.28
OH1NL:	23.32
Ohm (Ω):	4.1
Ohm's Law:	4.2, 4.6
And Power Circle:	4.7
For impedance:	4.46
For reactance:	4.37
Ohmmeter:	3.3, 3.21, 25.6, 25.52
Olexa, Ron, KA3JII:	9.54
Omni VI Plus:	15.1
ALC:	15.5
AMTORFSK:	15.8
Audio notch filter:	15.5
Balanced modulator:	15.5
Band pass filters:	15.2, 15.5
CW break in:	15.7
CW hang time adjustment:	15.8
First IF:	15.2
FSK and AFSK:	15.9
Iambic keyer:	15.9
IF filter:	15.2
LO frequency management:	15.5
Microphone amplifier:	15.5
NBFM:	15.2
NBFM reception:	15.5
Noise blanker:	15.2
Optical encoder:	15.7
Output mixer:	15.5
PA:	15.5
Passband tuning:	15.2
PIN diode AGC:	15.3
Product detector:	15.3, 15.6
RIT:	15.7
Second mixer:	15.3
Speech processor:	15.5
VOX:	15.8
VOX hang time adjustment:	15.8
XIT:	15.7
On-Off-Keying (OOK):	9.3, 9.7
ON6UG:	23.22
Open	
Loop response:	10.39
Wire transmission lines:	21.1ff, 22.53
Operating	
Courteous SSTV:	9.34
Modes:	9.7ff
Table:	19.2
Operation	
Classes of:	18.2ff
Grounded-grid:	18.19
Special:	1.12
Operational amplifier:	5.33ff
Operator license:	1.3
Optical	
Encoder:	15.7
Semiconductor:	5.28, 5.29
Storage:	5.64
Optimized Wideband antenna (OWA):	22.61, 22.62
Optimum load resistance:	18.3
Optoisolator:	5.29
OR gate:	5.42
Orbit, elliptical:	23.3
Orthogonal Frequency Division Modulation (OFDM):	9.46ff
OSCAR:	23.4ff
OSCAR 27 (AO-27):	23.5
OSCAR 29:	23.7
OSCAR 29 (FO-29):	23.5, 23.8
OSCAR 44 (NO-44):	23.5
OSCAR 50 (SO-50):	23.5

OSCAR 51 (Echo):	23.5
OSCAR 52:	23.7
OSCAR 52 (VUSat):	23.5
Oscillation:	5.3, 26.10
Parasitic VHF/UHF:	18.25ff
Spurious:	10.14
Oscillator:	10.1, 26.14
Audio frequency:	25.20
Audio sidetone:	10.28
Backwards wave (BWO):	10.31
Beat-frequency (BFO):	11.7
Butler:	10.25, 10.25ff, 10.26, 10.27, 10.53
Cavity:	10.30, 10.44
Circuits:	10.1, 10.12
Colpitts:	10.15
Criterion:	10.3
Crystal:	10.8, 10.52
Crystal logic gate:	10.28
Crystal pulling range:	10.27
Dielectric resonator:	10.44
Dielectric resonator (DRO):	10.31
Feedback loop:	10.1
Free running:	10.29
Hartley:	10.14, 10.29
LC:	10.1, 10.12
Loop:	10.1
Low noise, K7HFD:	10.18
Microstrip:	10.1
Microwave:	10.30ff
Noise:	10.1, 10.4
Oscillator Q:	10.22
Overtone:	10.25
Parallel tuned Colpitts:	10.13
Parasitic oscillation:	10.25
Phase noise:	10.1
Phase shift:	10.28
Quartz crystal:	10.1, 10.22
RC:	10.28
Reference, tuning sensitivity:	10.46
RF for alignment:	25.20
Series mode crystal:	10.25
Series tuned Colpitts, crystal:	10.26
Start up:	10.4
Stripline:	10.1
Temperature compensation:	10.21
VHF/UHF:	10.28ff
Voltage controlled (VCO):	10.34
Voltage tuned (VTO):	10.34
YIG:	10.32, 10.44
Oscilloscope:	11.2, 25.22ff, 26.3
Analog:	25.22
Buying used:	25.26
Digital:	25.24
Dual-trace:	25.23
Probes:	25.25
Outlet strips, safety:	3.5
Output	
Devices:	5.64
Filtering:	18.10
Network:	18.3, 18.4
Network, class AB, B and C:	18.3ff
Oven:	10.23
Cold:	10.21
Controlled crystal oscillator (OCXO):	10.23
Over the horizon:	20.2
Paths:	20.20
Over-sampling:	16.30
Overcurrent protection:	17.15
Overload:	10.10
Fundamental:	13.1, 13.9
Overmodulation:	9.1, 9.26, 11.5, 11.6
Overtone:	10.22, 10.24, 10.27
Overture:	24.1
Oxley "Tempatrimmer":	10.18
Oxygen:	20.2ff
Ozone:	20.6
Ozonosphere:	20.6

P

P-channel MOS (see PMOS)	
PacComm:	9.22

Packet:	9.9, 9.20
Bibliography:	9.16
Bulletin-board systems (PBBSs):	9.14
Cluster:	9.14, 24.11
DX Cluster (see DX PacketCluster):	2.20
Networking:	9.15ff, 9.22
Radio:	2.2, 2.9, 9.14ff
Radio hidden transmitter:	2.9
Radio network:	2.3
Radio terminal node controller:	2.9
Radio transceiver requirements:	2.9
Store-and-forward:	23.1
Switching:	2.20
PACSATs:	23.4
PACTOR:	9.16ff
Bibliography:	9.18
Change of direction:	9.17
Contact flow:	9.17
PACTOR-I:	9.16
PACTOR-II:	9.16, 9.17
PACTOR-III:	9.16, 9.17
Link establishment:	9.17
Speed changes:	9.17
Status word:	9.16
Timing:	9.16
Transmission formats:	9.16ff
Paint	
Resist:	8.14
Techniques:	8.26
Parabolic dish:	23.23ff, 23.34
Dual-band:	23.26ff
Parabolic reflector antennas	
S-Band:	23.21ff
Parallel	
And series equivalent circuit:	4.45
Capacitors wired in:	4.21
Circuit impedance:	4.44
I/O interfacing:	5.68
Impedance, equivalent:	18.6
Inductors:	4.29
Port (Interfacing to):	5.66, 5.67
Reactance:	4.37
Resonant circuit:	4.49
Parasitic	
Inductance:	6.10
Oscillation, VHF/UHF:	18.25ff
Oscillations, low-frequency:	18.27
Remedies for:	6.14
Suppressor:	18.26
VHF:	10.17
VHF/UHF testing:	18.27
Parity:	9.9
Check:	5.69
Part 15 equipment:	9.45
Part 97:	1.12
Parts, Finding:	8.24
Pass transistor:	17.13ff
Passband:	13.1
Transponder:	23.1
Tuning:	15.2
Patch antenna:	23.27ff
Patterson, Dave, WB8ISZ:	2.9
PBBS:	9.14
PC	
Technology:	24.1ff, 24.10ff
Technology ergonomics:	24.10ff
Technology hardware:	24.10ff
Technology software:	24.11ff
Voltmeter and SWR Bridge:	19.29ff
PC board:	3.19
Cabinets:	8.26
Drilling:	8.17
Layout:	8.18
Materials:	8.16
Stock:	8.11
Techniques:	8.11ff
PCA:	20.10
PCI-X:	5.62
PCM:	9.24, 9.25
PCMCIA (PC-Card):	5.69, 5.70
PCS bands:	24.7

Index 15

Superregenerative VHF Receiver with Squelch:	14.72	Manager:	2.2	Rate multiplier synthesis:	10.33
The Tandem Match—an Accurate Directional Wattmeter:	19.31ff	QSLing:	2.8	Ray path:	20.7
The TICK-2—a Tiny CMOS Keyer 2: ..	19.17ff	QST:	2.2, 3.19, 6.22, 8.24, 22.39	RC	
TR Time-Delay Generator for VHF/UHF Systems:	19.48ff	Product reviews:	11.26	High-pass filter:	10.38
Universal power supply:	17.44, 17.45	Quad antenna:	21.8, 21.15, 22.33ff	Low-pass filter:	10.38
Vintage Radio T/R Adaptor:	19.20ff	Composite spreaders:	22.41	Low-pass pole:	10.42
Wave Trap for BC Stations:	12.36	Driven element feeding:	22.41	Oscillator:	10.28
Wide range audio oscillator:	25.20	Element-to-spreader attachment:	22.40	Time constant (τ):	4.22
PROM:	5.61	Fiberglass spreaders:	22.39	RDF	
Propagation:	20.1ff	Guy wires:	22.43, 22.44	Active attenuator project:	13.30
And noise:	20.24	Tag-line stay ropes:	22.43	Adcock antenna:	13.18
Delay:	5.41, 5.42, 10.34	Wingspread:	22.42	Antenna:	13.17
E layer:	20.11	Quadrature:	9.28, 10.35	Body fade:	13.27
Extraterrestrial:	20.24	Detection:	11.12, 11.13	Doppler antenna:	13.23
Forecasting:	24.3	Detector:	15.5	Ferrite rod antenna:	13.18
Ionospheric:	1.6, 20.6, 22.1	Phase-shift keying:	11.25	Loop antenna:	13.18
Long distance:	20.2	Quadrifilar		Loop vs. phased array:	13.20
Medium:	20.1, 20.2	Antenna:	23.7	Map and bearing measurement:	13.25
Multipath:	9.31	Coils:	8.24	Mobile system:	13.23
Sky wave:	20.3ff, 22.1	Quality:	9.1	Parasitic array:	13.21
Summary by band:	20.3ff	Of power for computers:	5.71	Phased array:	13.18
Propagation by band		Quality factor (Q):	18.5	Sense antenna:	13.18
10 m:	20.4	Quantization		Simple seeker project:	13.28
12 m:	20.4	Error:	16.3	Skywave bearings:	13.27
135 cm:	20.5	Noise:	16.3	Skywave considerations:	13.20
15 m:	20.4	Quarter-wave		Switched antenna:	13.21
160 m:	20.4	Matching section:	21.12, 22.55	Time difference of arrival antenna:	13.22
17 m:	20.4	Stub:	21.10	Triangulation technique:	13.26
2 m:	20.5	Quartz crystal filter:	12.16	VHF/UHF:	13.20
20 m:	20.4	Quick and Easy CW With Your PC:	19.22ff	RDFT & SCAMP:	9.21
30 m:	20.4	R		Reactance:	4.11
33 cm and higher:	20.6	R/C		And complex waveforms:	4.41
40 m:	20.4	Model aircraft:	9.23	Capacitive:	4.24
6 m:	20.5	Model boats:	9.23	In series and parallel:	4.37
70 cm:	20.6	Model cars:	9.23	Inductive:	4.31
80 m:	20.4	Model helicopters:	9.23	Leakage of transformer:	4.56
Properties, cascaded circuits:	14.10	RF Modulation:	9.24	Unlike in series and parallel:	4.39
<i>PropLab Pro</i> program:	20.21	Race hazard:	10.37	Reactive power:	4.41, 4.46
Proportional driving:	17.29	RACES:	2.5	Read-only memory (ROM):	5.61
Protection, tube:	18.35	RadCOM:	9.13	Real power:	4.46
Protocols:	9.1	Radial system:	22.27	<i>RealTrak</i> program:	23.37
Radio link:	24.8	Radiated emission:	13.1	Receive	
Proton:	4.1, 20.10	Radiation		Converters:	23.15ff
Prototype boards:	8.10	Electromagnetic:	20.1	Preamplifiers:	23.15ff
pseudo-noise generator (PN):	9.44	Inversion:	20.22	Receivers:	21.7
Pseudo-random number generator:	5.50	Ionizing:	3.15	10 GHz, block diagram:	14.40
PSK (Phase-Shift Keying):	9.31	Nonionizing:	3.15	50 kHz IF:	14.33
PSK31:	9.1, 9.3, 9.13	Resistance:	22.1, 22.24	Alignment:	26.17
Bibliography:	9.16	Radiative losses:	6.14	And Transmitters:	14.1ff
<i>PSK31</i> program:	24.11	Radio		Antenna directivity:	14.12
Pulling range:	10.27	Architectures for DSP:	16.26ff	Design techniques:	14.14ff
Pulse-Code Modulation (PCM):	9.25	Direction finding (RDF):	13.17	Direct conversion:	14.16ff
Pulse-Position Modulation (PPM):	9.24	Direction finding antenna:	13.17	Dynamic range:	10.1, 25.42
Pulses		Horizon:	20.19	Effective selectivity:	10.1
Effects of HF path:	9.3ff	ITU Regulations:	9.3	Front end:	15.1
Feedback servo:	9.24	Propagation:	20.1	Gain:	14.13
Smearing:	9.3	Teletype:	9.3	Image rejection, D-C receiver:	14.19
Punches, socket:	8.5	Waves:	20.1	Intercept point:	11.19
Q		<i>Radio Communication Handbook</i> :	10.17	Intermodulation:	10.1
Q (Quality factor):	4.11, 4.32, 4.48, 25.52	Radio Control (R/C):	9.22ff	Intermodulation distortion, calculating:	11.20, 11.21
Effects on:	6.13	Radio entrance panel:	3.7	Intermodulation distortion, testing:	11.20, 11.21
Loaded:	18.5	Radio Frequency (<i>see</i> RF)		Narrowband FM:	14.34
Loaded circuit:	4.52	Interference (RFI):	13.1	Noise levels:	14.12
Parallel resonant circuit:	4.50	Spectrum:	4.14	Performance tests:	25.41ff
Unloaded:	18.5	Radio Society of Great Britain		Regenerative:	9.30, 14.15
Q Signals:	9.8	(Also <i>see</i> RSGB):	10.17	Requirements:	23.34ff
Q-section (<i>see</i> Quarter-wave matching section)		Radioteletype (RTTY):	9.8	Sensitivity:	25.42
QPSK (quadrature phase-shift keying):	9.13, 11.25	Radioteletype, ASCII:	9.9	Subsystems:	5.36
QPSM (Quadrature PSM):	9.20	Ragchewing:	2.1, 2.4	Super-regenerative:	9.30
QRP:	1.5, 9.1	Rain		Superheterodyne:	9.30, 14.20ff
QRP L-Match ATU:	19.54ff	Attenuation:	20.19	Superregenerative:	14.16
QRP T-Match ATU:	19.56ff	Scatter:	20.20	Third-order intercept:	25.43
QSL		Rainbow:	20.2	TRF:	14.14
Bureau:	2.2	Ramp waveform:	4.12	Triple conversion:	14.33
Cards:	2.1, 2.2, 2.8	Randel, Harry, WD2AID:	14.80	Two-tone IMD test:	25.43
Green stamps (dollar bills):	2.2	Random noise FM:	10.5	VHF/UHF:	14.34ff
		Random-access memory (RAM):	5.61	VLF IF:	14.28ff
		Rate		Reception, diversity:	9.9
		Bit:	9.3	Reciprocal mixing:	10.7, 10.8, 16.14
		Symbol:	9.3	Recombination:	20.6, 20.11

Rectification:	5.4	Access code:	15.21	Resonator	
Rectifier		Autopatch:	2.7, 15.21, 15.27	Cavity:	10.1, 10.1ff, 10.29, 10.30, 10.31
Circuits:	17.5ff	Carrier operated relay (COR):	15.21	Helical:	12.23
Fast recovery:	17.1, 17.5	Channelized:	15.20	Resources for Amateur Radio:	1.15
Full wave:	10.29	Closed:	2.7, 15.21, 15.24	Return loss:	21.6
Full-wave center-tap:	17.6	Closed repeaters:	15.21, 15.24	Bridges:	25.32
Half-wave:	17.5, 17.6	Control operator:	15.21	Reverse isolation:	10.21
Heat and the:	17.10	Coordinated:	15.20	Reynolds, Dave, KE7QF:	8.16
Instruments:	25.8	Courtesy beep:	15.21	RF	
Protection:	17.9	Courtesy tones:	15.24	Ammeters:	25.8
Ratings vs. operating stress:	17.9	Coverage:	15.21	Ammeters, copper-top testers:	25.10
Selenium:	17.4, 17.5	CTCSS:	15.21	Ammeters, sources:	25.10
Strings or stacks:	17.9	Digipeater:	15.21	Ammeters, substitutes:	25.10
Types:	17.4, 17.5	DTMF:	15.21	Burns:	3.14, 3.15
Recursion formula:	16.24	Duplex:	15.21	Chokes:	6.14, 7.5
Reduction drive:	10.15	Emergency transmissions:	15.24	Compression, Digital:	16.16
Redundant Digital File Transfer (RDFT):	9.21	FCC rules:	15.24	Energy, thermal effects of:	3.15
Reed relay:	10.8	FM voice:	15.20	Filter:	12.1
Reed, Dana G., W1LC:	17.40, 24.1	Frequency coordinator:	15.21, 15.28	Heating:	6.21
Reed, Shawn, N1HOQ:	2.1, 2.6	Full quieting:	15.21	Interference (RFI):	13.1
Reed-Solomon forward error correction		Hang time:	15.22	Port:	11.4
(FEC):	9.19	Input frequency:	15.22	Probe:	26.4
Reference:	7.1ff	Key up:	15.22	Radiation safety:	3.15
Diode:	10.16	Offset:	15.28	Reed relay:	22.48
Facsimile (FAX):	9.34	Open:	2.7	Small-signal design:	6.26
Frequency sidebands:	10.33, 10.45	Open repeater:	2.7, 15.22	Transformer:	4.58
Frequency suppression:	10.38	Operating techniques:	15.24	RF power amplifier:	18.1ff
HSMR Radio:	9.54	Output frequency:	15.22	External; Certification and Standards:	1.14
Oscillator tuning sensitivity:	10.46	Separation (split):	15.20, 15.22	Stability:	8.20ff
Satellite:	23.31	Telephone link:	15.20	RF-Exposure Regulations (FCC):	3.12, 3.13
Spread spectrum:	9.47	Time out:	15.22	Determining RF power density:	3.18
Reference Data for Radio Engineers:	6.13	Timer:	15.23, 15.24	Environments - controlled and	
Reflected power meter:	21.6	Tones:	15.27	uncontrolled:	3.12
Reflection:	20.2, 20.7	VHF/UHF link:	15.20	Low-frequency fields:	3.18
Coefficient:	12.12, 21.4, 21.5, 21.10	Resist		Maximum permissible exposure	
Equivalent:	20.7	Etchant:	8.14ff	(MPE):	3.12, 3.15
Reflectometer (see also Reflected power meter):	21.6	Pens:	8.14	MPE limits, Table A:	3.12
Refraction:	20.2, 20.21, 20.24	Resistance:	4.2, 4.11	Power threshold table:	3.13
Gradual:	20.7	Bridge circuits:	25.7	RF Exposure and You:	3.13
Ionospheric:	20.7	Distributed:	6.2	Station evaluations:	3.12
Tropospheric:	20.20	Dynamic plate:	18.3	RFI:	13.1, 21.14
Refractive index:	20.2, 20.7	Four-wire resistance measurement:	25.7	RHCP:	23.17
Regeneration:	5.3	Internal:	6.4	Rhododendron Swamp VHF Society,	
Regenerative receiver:	9.30, 14.15	Lumped:	6.2	ex W1BU:	2.11
Register:	5.49, 5.50, 5.60	Negative:	10.15	RIC (Radio Interface Card):	9.51
Byte:	5.50	Ohmic loss:	22.1	Right hand polarization:	20.24
Eight-bit storage:	5.49	Ohmmeter:	25.6	Rinaldo, Paul, W4RI:	9.54
Shift:	5.50	Optimum load:	18.3	Ripple (or ripple-carry):	5.49
Storage:	5.50	Optimum plate load:	18.19	Ripple frequency and voltage:	17.11
Universal shift:	5.50	Parallel:	4.3	Rise time, CW:	9.7
Word:	5.50	Plate:	5.9	RIT:	15.7, 15.10
Regulation		Radiation:	22.1	RL time constant (τ):	4.30
Of power-supply voltage:	17.11ff	Series:	4.3	RMS (voltage or current):	4.11, 25.52
Voltage, of power supplies:	17.12ff	Resistivity:	4.2	Robustness:	9.1
Regulations governing Amateur Radio:	1.11ff	Resistor:	6.3	Rock-Bending Receiver for 7 MHz:	14.58
Regulator		Bleeder:	17.11	Rodriguez Island (3B9C):	2.2
IC voltage:	17.16ff	Carbon composition:	6.3	Rohm, Al, W2OBJ:	14.80
Linear power-supply:	17.12ff	Carbon film:	6.3	Rohde, Ulrich, KA2WEU:	10.14, 10.27,
Precision series loop design:	17.18ff	Failure:	26.20	10.28, 11.21, 11.22, 11.25	
Series and shunt linear:	17.12ff	Markings:	7.1ff	Rohre, Stuart, K5KVH:	24.1
Specifications of a voltage:	17.16, 17.17	Metal film:	6.3	ROM:	5.61
Three-terminal:	17.16	Parallel:	4.4	Root mean square (RMS), voltage and current:	
Regulatory		Power ratings:	7.2	4.16	
Power Limit:	9.1	Series:	4.4	Rotators, Az-El:	23.9
Restrictions:	9.1	Series-parallel:	4.5	Rotolo, Don, N2IRZ:	9.54
Reh, John J., K7KGP:	22.27	Standoff:	8.9	Roznoy, Rich, K1OF:	9.16
Reinhardt, Jeff, AA6JR:	9.54	Wire-wound:	6.3	RS-422:	5.69
Relaxation oscillation:	10.15	Resolution bandwidth:	16.20	RSGB:	3.9, 3.11, 10.17, 22.61
Relay:	4.10	Resonance:	4.11, 4.40	The VHF/UHF DX Book:	22.61
Exposed antenna:	23.17	Choke:	10.14	RTTY (Radio Teletype):	2.9, 9.3, 9.8, 9.30
Failure:	26.24	Dipole, in free space:	22.4	Software:	24.11
Reliability:	9.1	Self:	6.11	Rub-on transfer:	8.14
Reluctance:	4.25, 4.26	Resonant		Rubber ducky:	15.25, 23.6
Repair and Troubleshooting:	26.1ff	Antenna:	21.1	Rubidium clock:	25.2
After repair:	26.27	Circuit:	4.40, 4.47	Run-length coding:	9.18
Component:	26.19ff	Circuit, parallel:	4.49		
Professional repair:	26.28	Circuit, series:	4.47		
Receiver:	26.17	Circuit, VHF:	18.26		
Transceiver:	26.19	Converter:	17.1		
Transmitter:	26.18	Frequency:	18.4		
Repeaters:	2.1, 2.7, 9.30, 15.1ff, 15.20ff, 23.2	RF transformer:	4.59		
		Self:	6.12		

S

S meter:	10.9
S-parameters:	25.48
S-plane:	10.39

Sabin, William E., W0IYH:	6.20, 6.21, 11.25, 11.26, 14.1, 14.48, 17.18, 25.27
Safe exposure levels:	3.16
Controlled environment:	3.16
Uncontrolled environment:	3.16
Safety:	3.1ff, 26.1
Antenna and tower:	3.1ff
Cardiac pacemakers and RF:	3.17
Emergency disaster operations:	3.1
Ground (of an AC circuit):	17.2
Outlet strips:	3.5
RF radiation:	3.15
Safe homebrewing:	3.14
Shop:	8.1
Soldering:	3.14
SAM:	5.61
Sampling:	16.1ff
Frequency:	16.1
Function spectrum:	16.3
Harmonic:	16.2
Theorem, Nyquist:	16.3
Sanborn, Herman R., ex W1LC (SK):	2.5
Sanderson, Barry, KB9VAK:	9.21
SAREX:	1.7
Satellite:	20.9
Active amateur:	23.7
Amateur:	23.1ff
AO (AMSAT OSCAR):	2.6
Easy Sats:	2.7
Finding:	23.3
FM repeater:	23.3
FM repeater satellites:	2.7
FO (Fuji OSCARs):	2.6
Ground stations:	23.10ff
Modes	23.3
Phase 3E:	23.10, 23.15
Phase I:	23.4
Phase II:	23.4
Phase III:	23.4
Store-and-forward:	23.4
Satellite TT&C	
Amateur TT&C:	9.25ff
Bibliography:	9.25
Satellites (Specific)	
AMSATEAGLE:	2.6
AMSAT-ECHO:	2.7
AO-27:	2.7
AO-7:	2.6
OSCAR 1:	2.6
OSCAR 40:	2.6
PHASE 3-E:	2.6
SO-41:	2.7
SO-50:	2.7
VUSAT:	2.7
Saturation	
Point:	5.8
Region:	5.21
SAUDISAT-1C (SO-50):	23.5
SAW:	10.1
SCAMP & RDFT:	9.21
Bibliography:	9.21
SCAMP (Sound Card Amateur Message Protocol):	9.21
Scan converter:	9.35
Scatter	
Atmospheric:	20.15
Aurora:	20.13
Backscatter:	20.16
D layer forward:	20.11
Field aligned:	20.2, 20.7
Meteor:	20.6, 20.11, 20.13
Oblique angle:	20.12
Rain:	20.20
Sidescatter:	20.16
Tropospheric:	20.19
Schetzen, Bob, KU7G:	3.14, 8.16
Schottky	
Diode:	5.17, 11.17
Quad rings:	11.16, 11.17
Schuster, Jack, W1WFF:	24.11
Scope:	25.52
SCR:	5.14
Screen grid:	5.9, 18.3
Stabilization:	18.28
Voltage:	18.14
Screwdriver antenna:	22.47
Screwdrivers:	8.4
SCSI:	5.70
Secondary	
Emission:	5.10
Winding (transformer):	4.54
Section	
Assistant Section Manager (ASM):	2.4
Managers (SM):	2.4
Technical Coordinator (TC):	2.4
Technical Specialist (TS):	2.4
Seiler, Thomas, HB9JNX/AE4WA:	9.43
Selective fading:	11.7
Selectivity:	26.17
Cascaded stages:	14.10ff
Selenium rectifier:	17.4, 17.5
Self inductance:	4.27, 4.54
Semi-rigid cable:	10.30
Semiconductors:	7.6ff
Bipolar transistor failure:	26.25
CMOS:	5.31
Diodes:	5.17ff
Diodes, failure:	26.24
Doped:	6.3
Failure:	5.16
Integrated circuit failure:	26.26
JFET failure:	26.26
Markings:	7.6ff
MOSFET failure:	26.26
Multiple junctions:	5.13
Optical:	5.28, 5.29
Physical electronics of the:	5.12ff
PN junction:	5.13
Practical:	5.17ff
Substitution:	26.26
Temperature effects:	5.16
Sense antenna for RDF:	13.18
Sensitivity:	9.1, 9.3, 14.7, 26.17
Sequential logic:	5.45ff
Sequential-access memory (SAM):	5.61
Serial I/O interfacing:	5.68
Series	
And parallel equivalent circuit:	4.45
And parallel resistance:	4.3
Capacitor wired in:	4.21
Circuit impedance:	4.42
Impedance, equivalent:	18.5
Inductors:	4.29
Pass transistor:	17.2
Reactance:	4.37
Resonant circuit:	4.47
Servocontrol:	10.5
Servos:	9.24
Settling time:	16.4
Sevick, Jerry, W2FMI:	4.62
Seydler, Bob, K5GNA:	23.26, 23.30
SFDR:	16.4
Shadow zone:	20.3
Shannon, Claude:	9.43
Shannon-Hartley theorem:	9.44
Sharpening tools:	8.2
Shelf life (battery):	17.21
Shew, John, N4QQ:	2.9
Shielded compartment:	18.25
Shielding:	10.21
Attenuator:	10.8
Transformer:	4.58
Shields:	8.20ff
Shift register:	5.50
Shop	
Materials:	8.5
Safety:	8.1
Short skip:	20.11
Short-wave listener (SWL):	1.18, 2.8
Shorting stick:	3.21
Shulman, MD, Ivan, WC2S:	3.19
Shultz:	25.21
Shunt:	25.52
SID (Sudden Ionospheric Disturbance):	20.10
Side lobes:	23.34
Sidebands:	9.5, 11.3ff
FM/PM:	10.27
Lower (LSB):	11.5
Reference frequency:	10.33
Upper (USB):	11.5
Sidescatter:	20.16
Sidetone:	15.5
Siemens (S):	4.3
Signal	
2101-MHz source:	23.17
Analog:	5.38
Common mode:	13.1
Conducted:	13.1
Differential mode:	13.1
Effect of HF path on analog:	9.4
Generator:	10.1, 10.8, 21.1, 25.31ff, 26.4
Injection:	26.7
Scaling:	5.2
Superposition:	5.2
Tracer:	26.4
Tracing:	26.7
Signaling	
Parallel vs. serial:	5.65ff
R/C techniques:	9.24
Rate:	9.8, 9.12
Speed:	9.7
Silicon Controlled Rectifier (<i>see</i> SCR)	
Silicon diode:	17.5
Siliconix SD5000 DMOS FET quad switch IC:	11.27
Silver	
Mica capacitor:	10.15
Oxide battery:	17.21
Solder:	8.3
Simple	
10-Minute ID Timer:	19.26
QRP Transmit/Receive Changeover: ...	19.53ff
Regenerative HF Receiver for Beginners:	14.85ff
Simplex:	15.20, 15.22
Simulated Emergency Test (SET):	2.5
SINAD:	25.42
Sine wave:	4.12, 10.5
Multiplication:	11.2
Single Sideband (SSB):	9.26ff
Sinusoidal waveform:	4.13, 25.52
Sirocco:	20.23
SITOR:	9.12
Skin effect:	4.32, 6.12, 21.1, 22.6
Skip zone:	20.8, 20.16
Sky noise:	23.35
Sky wave:	9.3, 22.1
Bearing for RDF:	13.27
Propagation:	20.3ff
SKYWARN:	9.22
Slave Station (SS):	9.12
Slew rate:	5.3
Slingshot hint:	3.2
Sloping dipole:	22.8
Slow motion drives:	10.15
Slow-Scan Television (SSTV):	9.33, 9.34ff
Slug-tuned inductor:	4.35
SM5BSZ:	16.30
Small signal models:	6.25
Smith Chart:	21.4, 21.5, 21.9, 25.48
<i>MicroSmith</i> :	21.9
Smith, Douglas, KF6DX:	16.1
Smith, Philip H.:	21.5
SMT protocol:	9.16
Sniffer utility:	9.51
Snubbers:	17.31, 17.32
SO-239 connector:	22.6, 22.44
SOAR (Safe Operating ARea):	17.2
Socket	
Punches:	8.5
Tube:	18.16
Software	
ARRL Radio Design:	16.1ff
Circuit analysis:	10.3
Defined radio:	9.53

DSP filter-design:	16.34	Signals:	18.1	Subharmonic:	10.22
ELNEC:	22.28	Signals (spurs):	11.4	Subsidence:	20.22
ELSI filter design:	12.9	Square wave:	4.12	Substrate of an IC:	5.29
Radios:	16.31	Distortion:	26.11	Sudden Ionospheric Disturbance (SID):	20.10
Solar		Signals:	11.13	Summing	
Charging of batteries:	17.23	Switching:	10.6	Amplifier:	5.3
Cycle:	20.9	Squegging:	10.15	Loop:	10.51
Cycle, maximum:	20.13	Squelch:	9.30, 15.5	Sun:	20.25
Eclipse:	20.10	Squint angle:	23.11	11-year cycle:	20.9
Flare:	20.10	SRAM:	5.61	27-day rotation:	20.9
Flux:	20.9	SSB:	9.26ff, 11.7	Sunrise:	20.9, 20.16
Ionospheric disturbance:	20.9	Demodulation of:	16.12	Sunset:	20.9ff
Maxima:	20.9	Filter method:	9.28	Sunspot:	20.9
UV:	20.8	Lower sideband (LSB):	11.7	Superheterodyne receiver:	9.30, 14.20ff
Wind:	20.6	Modulator; Hilbert transformers:	16.9ff	Multiple conversions:	14.29ff
Soldering:	8.3	Phasing Method:	9.28	Up conversion:	14.30
Bridges:	26.12	Sideband rejection:	11.7	Superregenerative:	10.15
Iron, temperature controller:	8.7	Unwanted sideband:	11.7	Receiver:	9.30, 14.16
PC boards:	8.18	Upper sideband (USB):	11.7	VHF Receiver with Squelch:	14.72
Silver-bearing:	8.3	SSI:	5.51	Suppressor	
Station project:	8.6	SSID:	24.3	Grid:	5.10
Solderless construction:	8.10	SSTV:	9.9, 9.33, 9.34ff	Parasitic:	18.26
Solid State Design for the Radio		1200C modes:	9.34	Surface acoustic wave (SAW) filter:	12.18
Amateur:	10.18, 10.19, 10.28	Bibliography:	9.37	Surface mount technology (SMT):	8.12
Solid state vs vacuum tubes:	18.1ff	Courteous operating:	9.34	Assembling SMT parts:	8.12, 8.13
Sound card:	5.65, 9.9, 9.21, 9.28, 9.31, 10.46	Digital:	9.37	Component markings:	7.4
Source		Glossary:	9.37	Construction:	8.11ff
Follower:	5.3	History, color:	9.34	Construction techniques:	8.12, 8.13
For Tools:	8.1	Interface:	9.36	DDS Daughtercard:	8.12, 8.13
Ideal:	6.4	Scan converter:	9.35	K8IQY Audio Amp:	8.13
Of EMI:	13.4	Transmission characteristics:	9.35	SMT components:	8.12, 8.13
Tool:	8.1	With a computer:	9.35	SOIC package:	8.12
Voltage and frequency:	17.3	Stability:	9.1	Surge:	17.2
South pole:	4.25	Channel:	9.1	Impedance:	21.3
Space communications:	23.1ff	Receiver:	26.17	Protection:	19.2
Space, hams in:	1.7	RF:	8.20	Susceptance (B):	4.11, 4.24, 4.44
Spark:	20.24	Stabilization, amplifier:	18.25ff	Susceptibility (to RFI):	13.1
Transmitter:	10.3	Stacking equipment:	19.3	Switch:	4.8
Special		Standard capacitor value filter design:	12.8	Common emitter:	26.14
Operations:	1.12	Standard frequency stations:	25.1	LO, using PIN diodes:	16.29
Tools:	8.5	Standards		Switched	
Specific absorption rate (SAR):	3.15	And traceability history:	25.1ff	Attenuator:	19.52ff
Spectral leakage:	16.20	Emission:	1.13	Capacitor filter (SCF):	12.31
Spectrum:	25.52	Station operation:	1.12	Capacitor notch filter:	15.5
Analog sine wave:	16.2	Technical:	1.12	Switching	
Analyzer: ... 9.6, 9.40, 10.8, 10.10, 11.2, 15.14		Transmitter power:	1.14	Power supplies:	17.28ff, 26.13
Analyzer applications:	25.46	Standing wave ratio (SWR):	21.4ff, 21.6	Speed:	10.38
Analyzer performance specs:	25.45	Standoffs:	8.9	SWL (Short-wave listener):	1.18
Analyzers:	25.44ff	Resistors:	8.8	SWR (Also see VSWR):	21.4ff, 22.4ff
OFDM:	9.5	Stanley, John, K4ERO:	9.26, 22.23	Bandwidth:	22.1
Sampling function:	16.3	Static:	20.24	Curves:	22.18
Spread:	9.43ff	Precipitation:	20.25	Indicator:	21.10
Speech processing, digital:	16.16ff	RAM (SRAM):	5.61	Meter:	26.3
Speed		Station		Myths:	21.14
Keying:	9.3	Building a ham radio:	1.8	Symbol rate:	9.3
Of light:	4.14	Ground:	19.2	Synchronicity and sequential logic: ... 5.45, 5.46	
Signaling:	9.7	Layout:	19.2	Synchronous:	9.12
Signaling Rate:	9.8	Layout and accessories:	19.1ff	Synergy Microwave	
Spencer, Ben, G4YNM:	19.26, 19.28	License:	1.3	CLP-4A3 DBM:	11.17
SPICE:	6.13ff	Operation standards:	1.12	S-1:	11.23
HSPICE:	6.22	Power:	3.11, 19.2	Synthesized speech:	9.13
Input files, case study:	6.25	Selecting a location:	19.1	Synthesizer: ... 10.1ff, 10.16, 10.29, 10.38, 10.52	
PSPICE:	6.22	Statistical terms:	10.6	Closed loop bandwidth:	10.33, 10.38
Spikes:	17.2	Stein, William A., KC6T:	22.39ff	Closed loop characteristics:	10.38
Voltage:	17.10	Stephens, John, KD6OZH:	9.54, 10.44	Closed loop performance:	10.34
Splatter:	9.1, 9.28	Stevens, Dick, W1QWJ:	18.38	Closed loop response:	10.33
Split frequency:	15.20	Stockton, David, GM4ZNX:	10.1	Critically damped loop:	10.45
Sporadic E:	20.6, 20.11, 20.12	Storm		Damping factor:	10.44
Spot (also see DX PacketCluster):	9.14	Geomagnetic:	20.9, 20.10, 20.13	DDS:	10.47ff
Spread spectrum:	9.1, 9.5, 9.43ff	Ionospheric:	20.10	DDS/PLL hybrid:	16.14
Amateur radio:	9.45	Tropical:	20.25	Direct:	10.32
Direct-sequence:	9.44, 9.46	Stratosphere:	20.6, 20.7	Fractional N:	10.32, 10.32ff, 10.49ff
Frequency-hopping:	9.44, 9.45ff	Straw, Dean, N6BV:	19.44, 21.1, 22.3ff	Frequency:	10.32
References:	9.47	Streaming audio:	9.47	IC-765:	10.49
Spurious		Street lighting:	20.24	Indirect:	10.32
Discrete:	10.10	Stringham, Kenneth Jr, AE1X:	25.27	Instability:	10.33
Emissions: . 1.13, 13.1, 13.4, 13.7, 13.9, 25.52		Strip line:	18.8, 18.23	LO:	15.1
Free dynamic range (SFDR):	15.15, 16.4	Stripline:	10.30	Loop compensation amplifier:	10.38
Oscillation:	10.14, 10.16	Stuart, Ken, W3VNN:	17.2	Loop gain:	10.40
Response (spur):	15.2	Stubs:	21.10	Loop phase:	10.40
Responses (spurs):	15.2	Study guides for Amateur Radio:	1.8	Loop, natural frequency:	10.44
Responses in mixers:	14.20ff	Subaudible:	15.24, 15.27	Modulation:	10.38

Multiloop:	10.47	IF transformer slug codes:	7.7	Transmission line parameters:	7.48
Noise:	10.38, 10.38ff, 10.42ff	IF transformer wiring codes:	7.7	Transmitter Problems:	26.21
Noise, divider:	10.44	Impedance, 2-conductor lines:	7.47	Trap Loss Analysis: 80, 40, 17, 12-Meter Antenna:	22.22
Noise, phase detector:	10.44	Inductance factor, large coils:	7.45	Trap Loss Analysis: 80, 40, 20, 15, 10-Meter Antenna:	22.22
Noise, reference:	10.44	Inductance factor, small coils:	7.45	Trap Q:	22.22
Open loop response:	10.39	Inductance, #12 windings:	7.46	TTL and CMOS Subfamily:	5.52
Phase shift:	10.38	International call sign allocations:	7.53, 7.54	Tube, base diagrams:	7.35
PLL ICs:	10.46	Inverted-U Drooping Wire Lengths:	22.17	Tube, tetrode and pentode:	7.33
Rate multiplier:	10.33	ITU recommended phonetics:	7.59	Tube, triode:	7.32
Settling time:	10.34	ITU regions:	7.53	Tube, TV deflection:	7.34
Stable reference:	10.33	KC6T/W6NH 5-band quads:	22.40	Typical 60-Hz Magnetic Fields Near Amateur Radio Equipment & AC-Powered Appliances:	3.18
Switching speed:	10.38	Logic IC families:	7.28	Typical RF Field Strengths Near Amateur Radio Antennas:	3.18
System, chaotic:	10.5	Matched line loss:	21.8	Typical Temperature Coefficients and Leakage Conductances for Various Capacitors:	6.6
T		Measured Front-to-Rear Ratios:	22.42	US customary units:	7.39
T-Match (antenna):	21.11	Message checking:	7.66	US/Canada map:	7.61
Tables		Message form:	7.63	Values of L and C for Fig 22.83:	22.47
10-m Optimized Yagis:	22.34	Metric units:	7.38	VCO Coils:	12.29
10.5-Foot Whip Antenna:	22.45	Miniature lamp guide:	7.12, 7.13, 7.14	VHF+ calling frequencies:	7.52
12-m Optimized Yagis:	22.34	Mode abbreviations:	7.60	Voltage regulators:	7.29
15-m Optimized Yagis:	22.35	Morse code characters:	7.50	Voltage-power conversion:	7.44
17-m Optimized Yagis:	22.35	Morse cut numbers:	7.51	Voltage-variable capacitance diodes:	7.15
2-m OWA Yagi:	22.62	MOV transient suppressors:	7.14	W1AW schedule:	7.56
20-m Optimized Yagis:	22.35	Node-to-Node Resistance for CW Filter:	12.33	Waveguide formulas:	21.18
Abbreviations:	7.40, 7.41, 7.42	Noise figure/temp:	7.46	Wire, standard vs AWG:	7.47
AC Component Summary:	4.32	Noise Readings near household items:	13.16	Zener diodes:	7.15, 7.16, 7.17
Aluminum alloy:	7.9	NTS formal message:	7.64	Taggart, Ralph, WB8DQT:	9.32, 9.43, 19.22
Amplifiers, monolithic (50 Ω):	7.21, 7.22	Number System Conversions:	5.41	Talbot, Andy, G4JNT:	9.31
Amplifiers, RF power:	7.23	Op amp ICs:	7.30, 7.31	Tank circuit:	10.2, 18.4ff
Antenna modeled data:	21.9	Optimized 6-m Yagi Designs:	22.60	Coils:	18.12
Antenna wire strength:	7.46	Optimum Elevation Angles to Europe:	22.2	Efficiency:	18.5
ARL Numbered Radiograms:	7.65	Optimum Elevation Angles to Far East:	22.2	Harmonic suppression:	18.5
ARRL Grid Locator Map:	7.62	Optimum Elevation Angles to South America:	22.2	Losses:	10.2
ARRL Log:	7.60	Optimum Ground-System Configurations:	22.23	Output:	18.5ff
ARRL Member QSL Card:	7.60	Parameter for AT-Cut Quartz Resonator:	12.17	Output capacitor plate spacings:	18.12
ARRL Operating Awards:	7.60	Parts List for the 2-Meter OWA Yagi:	22.62	Output capacitor ratings:	18.11ff
ARRL Prosigns:	7.57	Parts List for the Inverted-U:	22.15	Q:	18.5ff
ASCII character set:	7.51	Performance of Parallel Resonant Circuit:	4.52	Tape etchant resists:	8.14
Attenuation, twisted lines:	7.48	Pi-Network attenuators:	7.47	Tape memory-storage:	5.64
Audio transformer wiring:	7.7	Powdered iron core properties:	7.5	TAPR:	9.21, 9.45, 23.18, 23.19
BCD Number Conversion:	5.40	Power FETs:	7.28	EasyTrak:	23.17
Chebyshev Low-Pass Filter:	12.11, 12.12	Power transformer wiring codes:	7.7	Taylor, Joe, K1JT:	2.9, 2.11
Chemicals used in the Shack:	3.20	Properties of Some High-Permeability Materials:	4.26	Taylor, Jonathan, K1RFD:	2.10, 9.22
Coax cable connectors:	7.37	Q signals:	7.57, 7.58	Taylor, Roger, K9ALD:	4.1
Coil specs, large:	7.45	R and C color codes:	7.2	TCP/IP:	9.16
Coil specs, small:	7.45	R and C values:	7.1	TCXO:	10.19, 10.19ff, 10.23, 10.51, 10.52
Components List		Radio Frequency Spectrum:	4.14	TDM:	9.5
Noise source detector:	13.15	Receiver Problems:	26.22	TDMA:	9.5, 24.5
Components list:	3.9	Recommended tools & materials:	8.2	Technical	
Computer connector pinouts:	7.43	Relative Dielectric Constants:	4.19	Coordinator (TC):	26.1
Conversion Factors for AC:	4.17	Relative Resistivity of Metals:	4.2	Specialist (TS):	26.1
Copper wire specifications:	7.8	RF Awareness Guidelines:	3.19	Standards:	1.12
Crystal holders:	7.10	RST system:	7.58	Technician license:	1.3
CVD Loading Wires:	22.31	Safety Rules:	26.2	Technology Task Force (TTF):	9.47
CW abbreviations:	7.59	Selectivity of Resonant Circuit:	4.49	Telecommand:	1.18
CW Filter Using 85-mH Inductor Stack:	12.32	Semiconductor diodes:	7.18	Telemetry:	1.18, 9.5
CWAZ Low-Pass Filter:	12.37	Shop tools and materials:	8.2	Telemetry, Tracking & Command (TT&C) Amateur satellite:	9.25ff
Data for the 40 μ H Coils:	22.50	Small-signal FETs:	7.19	Telemetry, Tracking & Telecommand (TT&T):	9.22
Decimal and Binary Number Equivalents:	5.39	SMT capacitor multipliers:	7.4	Telenet protocol:	9.16
Decimal Numbers:	5.39	SMT capacitor significant figures:	7.4	Telephone	
DeMorgan's Theorem:	5.44	SMT resistor tolerance:	7.4	Accessories:	13.12
Dielectric Constants and Breakdown Voltages:	6.15	Specifications for Dual-Band Verticals:	22.28	Cordless:	13.13
Dipole Dimensions for Amateur Bands:	22.7	Standard Flip-Flops:	5.48	Interference:	13.12
Disc capacitor temp codes:	7.4	Standard Sizes of Aluminum Tubing:	22.37	Television	
Drill sizes, numbered:	8.4	Symptoms and Causes for Electronic Equipment:	26.21	Cable TV:	13.11
DX Operating Code:	7.55	T-Network attenuators:	7.47	Interference (TVI):	13.1, 13.8
EIA capacitor temp codes:	7.4	Temperature Coefficients for Various Resistor Compositions:	6.3	Preamplifier:	13.12
EIA capacitor tolerances:	7.4	Thermal Conductivities of Various Materials:	6.17	Teleski, Frederick J., WA7TZY:	10.1
Electromagnetic Energy Spectrum:	4.14	Thermoplastics properties:	7.36	Telnet:	2.2
EMI Survival Kit:	13.3	Tips, NTS packet radio:	7.67	Temperature	
FCC prefixes outside US:	7.55	Transceiver Problems:	26.22	Coefficient:	10.15, 10.19
Ferrite cores, A _L enameled wire:	7.7	Transistors for new designs:	7.27		
Filter Bandwidth for Signals:	12.5	Transistors, general purpose:	7.22		
Good net habits:	7.66	Transistors, low-noise:	7.20		
Guy wire lengths to avoid:	7.49	Transistors, RF power:	7.25, 7.26		
Handling instructions:	7.64	Transistors, silicon power:	7.24		
HF band plans:	7.52	Transmission line characteristics:	21.2, 21.3		
Hookup wire color codes:	7.9				
HVD Dimensions:	22.30				

Compensated crystal oscillator (TCXO): 10.19, 10.23	Toroidal inductors Winding: 8.23ff	Transmission line: 21.1ff
Compensation: 6.19	Towers: 3.2	300-Ω TV line: 21.3
Effects on resistance: 4.3	Cables and control wires on: 22.26	As impedance transformers: 21.9
Inversion: 20.21, 20.22	Design load limitations: 3.2	Bandpass filter: 12.21
Soldering: 8.3	Grounding, construction guidelines: 3.6	Bargain coax, risks: 22.54
Stability: 6.19	Selection factors: 3.2	Choosing a: 21.8
Ten-Tec: 10.14, 22.48	Tips for selection, installation and use: 3.2	Coaxial cable: 22.5, 22.53
Omni VI Plus: 15.1	Tr Time-Delay Generator for VHF/UHF	Common-mode currents: 21.15
Orion (Model 565): 15.3	Systems: 19.48ff	Connectors, home-brewed: 22.53
Teoma: 24.1	Tracking preselector: 10.7	Decouple: 21.14
Terminal node controller (TNC): 9.14	Transceivers: 15.1ff	Filter: 12.19
Terminal program: 9.9	Alignment: 26.19	Filter emulating LC filter: 12.22
Terminal Units (TUs): 9.9	D-C (Direct Conversion): 16.29ff	Hardline (coax): 22.53
Terminate: 21.3	Switching: 26.19	Hardline, end runs: 22.53
Test	Troubleshooting and repair: 26.19	Imbalances: 21.14
Equipment: 26.1	VOX: 26.19	Ladder line: 22.5, 22.7
Lead: 26.2	Transducer: 4.11, 4.13	Loss: 21.6
Procedures: 25.1ff	Transequatorial	Lossless: 21.3
Procedures, Glossary: 25.51	Field aligned irregularities: 20.17	Matched-line loss: 21.6
Tester	Path: 20.15	Mismatched: 21.4
Transistor: 26.5	Spread F: 20.17	Open-wire line: 21.2ff, 22.5
Vacuum tube: 26.5	Transfer	Quarter-wave filter: 12.21
Tetrode: 5.9, 18.3	Function: 10.38	Table of Characteristics: 21.2, 21.3
Beam: 5.10	I/O: 5.62	Transformers: 4.61
Texas Potato Masher: 23.6	Transformation, impedance: 18.3ff	Twin lead: 22.5, 22.53
Texas Towers: 22.15, 22.64	Transformer: 4.11, 4.54, 6.9, 7.6, 18.10ff	Waveguide: 21.1
<i>The Radio Amateur's Satellite Handbook</i> : 9.25, 23.4, 23.16	Auto: 4.58	Transmit Gain Control (TGC): 14.49ff, 16.29
The Tandem Match—an Accurate Directional Wattmeter: 19.31ff	Broadband: 14.53ff	Transmitter: 21.1, 21.7
The Wireman: 3.7	Broadband RF: 4.59	AM, ideal: 11.6
Theory of gravity: 10.2	Conventional: 18.10	Automatic level control (ALC): 14.49
Thermal	Core construction: 4.57	Carrier and unwanted sideband suppression: 25.49
Conductivity: 6.16	Current ratio: 4.55	Coil conductor sizes: 18.12
Effects: 3.15	Failure: 26.23	Design: 14.42ff
Greases: 6.18	Hilbert: 16.9ff	Doorknob capacitor: 18.13
Noise: 5.6, 9.3, 10.34	Impedance ratio: 4.56	Frequency multipliers: 14.51
Resistance: 6.16	Iron core: 4.55	Keying: 26.18
Runaway: 6.26	Leakage reactance: 6.9	Low output power: 26.18
Time constant: 10.21	Line transformers: 14.55ff	Mixer spurious signals: 14.49
Thermalloy: 6.18	Loss: 4.56	NBFM: 14.57f
Thermionic theory: 5.8	Nonresonant: 4.58	Noise: 14.13
Thermistor: 6.20, 10.19	Power: 17.3	Output load and impedance: 14.51f
In homebrew projects: 6.20, 6.21	Power ratio: 4.56	Performance tests: 25.49ff
Thermocoupler meters: 25.8, 25.52	Resonant RF: 4.59	Phase noise: 25.49
Thevenin's Theorem: 4.5	RF: 4.58	Power requirements: 14.13
Thompson, Darwin, K6USW: 9.47	Shielding: 4.58	Power standards: 1.14
Three-wire power circuits: 17.2	Transmission-line: 4.61, 18.10, 18.25	RF chokes: 18.12ff
Through the glass antenna: 15.25	Turns ratio: 4.55	RF envelope shaping: 14.48
Throughput: 24.5	Voltage ratio: 4.55	Spurious emissions: 25.49
Thunderstorm: 20.25	Transient: 17.2	Subsystems: 5.36
TiCK-2—a Tiny CMOS Keyer 2: 19.17ff	Protection: 3.5	Tests in the time domain: 25.49
Tie points: 8.23	Transistor: 5.12	Troubleshooting and repair: 26.18
Tilt, Earth: 20.16	Amplifier configurations: 5.22	Two-tone IMD: 25.49
Time: 25.1ff	Amplifier design: 5.26, 5.27	Transpolar: 20.10
Calibration: 25.2	Basic common-emitter model: 6.23, 6.24	Transponder
Constant (τ): 4.11, 4.22	Biasing: 5.22, 5.23, 18.15	Linear: 23.1ff, 23.2
Constant (τ), RL circuits: 4.30	Bipolar: 5.13, 6.23	Passband: 23.1
Distributed processing: 16.34	Bipolar failure: 26.25	Transverters: 15.1ff, 15.19ff
Division Multiple Access (TDMA): 9.5	Bipolar, biasing: 6.26	Microwave: 15.19ff
Division Multiplex (TDM): 9.5, 9.24	Cooling: 18.18	Signal path switching: 15.19
Domain: 4.14, 12.4, 25.52	Darlington: 17.1	T/R switching: 15.19
Timer, 555: 5.50, 5.51	Darlington-connected pair: 17.14	TransZorbs: 5.19
Timing	Derating: 6.19	Traps: 22.27
Jitter: 10.34	JFET failure: 26.26	Losses: 22.22
Of a computer: 5.60	Large-signal operation: 6.27	Resonance: 22.27
Tin plating: 8.17	Maximum ratings: 18.11	Traveling-wave tube: 5.12
Tips	Models, low frequency: 6.23	Tri-State gate: 5.43
Toroids and coils: 14.55ff	MOSFET: 17.14ff	Triac: 5.14
<i>TLA.EXE</i> (Transmission Line, program): 21.9, 21.14	MOSFET failure: 26.26	Triangulation for RDF: 13.26
TNC: 9.14, 9.22	Pass: 17.13ff	Skywave: 13.27
Card: 9.15	Power dissipation: 18.11	Trifilar coil windings: 8.24, 11.17
Toggle: 5.46	Ratings: 17.14	Trifilar coils: 8.24
Tolerance: 6.2, 7.1	Response curve: 5.21	Triggered Control (logic): 5.46
Tone pad: 15.23	Series pass: 17.2	Trio of Transceiver/Computer Interfaces: 19.41ff
Tones	Small signal: 6.23	Triode: 5.8, 5.9
High: 9.9	Tester: 26.5	High-mu: 18.19
Low: 9.9	Transistor-transistor logic (<i>see</i> TTL)	Tropical storm: 20.25
Tools: 8.1ff	Transition time: 5.41	Troposcatter: 20.19, 20.20
Toroid: 4.11	Transmatch: 22.4ff	Troposphere: 20.6, 20.7, 20.19
	Transmission characteristics: 9.2ff	Ducting: 20.21
	Transmission Control Protocol/Internet Protocol (TCP/IP): 9.16	Refraction: 20.20, 20.21
		Scatter: 20.19

Troubleshooting and Repair:	26.1ff	Vacuum variable capacitor:	18.6	Regulation:	17.12ff
After repair:	26.27	Van Allen belts:	20.6	Regulation of power supplies:	17.11
EMI:	13.5	Varactor:	10.19, 10.34	Regulator, tube:	10.15
Professional repair:	26.28	Diode:	5.18	Regulator, Zener diode:	10.16
Receiver:	26.17	Variable crystal oscillator (VXO):	10.27	Root mean square (RMS):	4.16
Systematic approaches:	26.7	Variable frequency oscillator (VFO):	10.12	Sources:	6.3
Transceiver:	26.19	Varistor:	17.2	Spikes:	17.10
Transmitter:	26.18	VCO:	10.20, 10.20ff, 10.34, 10.40, 10.52	Standing Wave Ratio (VSWR):	21.6
TVI flow chart:	13.8	Gain:	10.44, 10.45	Tripler and quadrupler:	17.8
True rms:	10.8	Low noise:	10.53	Voltmeter:	25.5
Trunk lid mount:	15.25	Noise performance:	10.43	AC:	3.3
Truth table:	5.45	Nonlinear tuning curve:	10.38	Compensated, modular RF:	25.35ff
TTF:	9.47	Switched:	10.34	Current measurement:	25.5
TTL:	5.52ff, 25.52	Tuning diode:	10.42	DC voltage standards:	25.5
Circuits:	5.53, 5.54	Voltage-to-frequency gain:	10.40	Impedance:	25.9
Driving CMOS:	5.57	VCR:	13.12	Multipliers:	25.5
Subfamilies:	5.52	VXCO:	10.53	RF probe:	25.36
Tube		Pulling:	10.24	RF probe multipliers:	25.37ff
Cooling:	18.15	VE3ONT:	2.9	Sensitivity:	25.5
Filament:	18.13	VE5FP:	23.18	Volunteer Examiners (VEs):	1.8, 2.4
Heater:	18.13	VE6AFO:	19.2	VE Coordinators (VECs):	2.4
High-power amplifier example:	18.19ff	VE7LTD:	2.10	VOM (volt-ohm-meter):	25.1, 25.52
Output capacitance:	18.6	Velocity:	20.1ff	Von Neumann model:	16.34
Plate voltage:	18.14	Factor (VF):	21.1, 21.3, 21.10	VOX:	15.8
Protection circuit:	18.35	Vernier dial:	25.52	VPN:	24.5
Screen voltage:	18.14	Vertical antennas:	22.23ff	VSWR (<i>see also</i> SWR):	21.6
Screen-grid stabilization:	18.28	Optimum ground systems for:	22.23	VTVM (vacuum tube voltmeter):	25.52
Sockets & Chimneys:	18.16	Vertical incidence:	20.7, 20.8	VuSat (OSCAR 52):	23.8
Tester:	26.5	Ionogram:	20.7	VXO:	10.27
Tuned		Vester, Ben, K3BC:	9.38		
Circuit:	4.47, 10.2	VFO:	10.6, 10.13, 10.52	W	
Radio frequency (TRF):	14.14	Components and construction:	10.15	W1AW:	1.9
RF (TRF):	10.1	Low drift:	10.13	W1BU:	23.32
Tuner, antenna:	21.10	VHF/AFSK:	9.9	W1FB:	10.28
Tuning capacitors:	10.15	VHF parasitic:	10.17	W1GHZ:	23.21, 23.24
Tunnel diode:	10.1, 10.30	VHF/UHF link, repeater:	15.20	W1LC:	2.5, 17.40, 24.1
Turn-around time:	25.1	Video		W1OBJ:	14.80
Turn-over:	25.9	Display terminals (VDTs):	3.20	W1QWJ:	18.38
Turns		Displays:	5.64	W1RFI:	8.1, 13.1, 26.1
Counting:	8.23	Vidicon:	5.11	W1VT:	10.11, 19.35
Ratio of transformer:	4.55	Vincent, James, G1PVZ:	9.45	W1WEF:	24.11
TVI:	13.1, 13.8, 21.14	Vintage Radio T/R Adaptor:	19.20ff	W1ZR:	9.31
Cable TV:	13.11	Virtual height:	20.7, 20.14	W2CQH:	12.1, 24.1, 24.6
TVRO:	23.21, 23.22, 23.34	Virtual private network (VPN):	24.9	W2CRR:	9.43
Twilight region:	20.15	Visible light:	20.1	W2DU:	21.17, 22.62
Two-tone IMD:	25.43, 25.49	Viterbi decoder:	9.13	W2EWL:	9.27
Type N:	19.9	VK3UM EME Planner program:	23.37	W2FNA:	23.38
		VLF IF receiver:	14.28ff	W2WAM:	9.29
		VLF phase comparator:	25.2	W3DZZ antenna:	22.19
		VLSI:	5.51	W3EP:	20.1
		VOACAP program:	20.18, 20.20	W3GKP:	23.32
		Voice		W3KH:	23.7
		Digital modes:	9.31ff	W3NQ:	12.1
		Digital, amateur radio:	9.31	W3PM:	23.24
		Modes:	9.26ff	W3VVN:	17.2
		Voice over Internet Protocol (VoIP):	2.10, 9.21, 9.47, 9.48, 24.2	W4AO:	23.32
		eQSO:	2.10	W4IJC:	2.6
		iLink:	2.10	W4PWF:	9.32, 9.37
		Internet Radio Linking Project (IRLP):	2.10	W4RI:	9.54
		WIRES-II:	2.10	W4RNL:	22.14
		Volt:	4.1	W4WSR:	23.21
		Volt Ohm milliammeter (VOM):	26.2	W5FG:	18.6
		Volt-Ampere rating:	17.3	W5LFL:	1.7
		Volt-Ampere reactive (VAR):	4.46	W6DNG:	23.32
		Voltage:	4.11	W6ELProp:	20.18, 20.20
		Back:	4.27	W6HB:	2.11, 23.32
		Breakdown rating of capacitor:	4.20	W6NBH:	22.39ff
		Comparator:	5.35	W6ORG:	9.38
		Controlled oscillator (VCO):	10.20	W7EL:	10.16, 10.20
		Doubler (Full-wave):	17.7, 17.8	W7GHM:	9.19
		Doubler (Half-wave):	17.7	W7ZOI:	8.8, 10.16, 10.16ff, 10.19, 10.20, 10.28, 15.11, 19.57
		Effective:	4.16	W8IAH:	9.22
		Follower:	5.3, 5.35	W8NX:	22.19ff
		IC regulators:	17.16ff	W8NX coaxial-cable trap:	22.19ff
		Induced:	4.27	WAILOU:	9.16, 9.22
		Instantaneous:	4.15	WA2SPF:	14.80
		Multipliers:	17.7	WA4FET:	22.61
		Peak:	4.16	WA7LYI:	19.16
		Peak-to-peak:	4.16	WA7TZY:	10.1
		Ratio of transformer:	4.55	Wakefield Thermal Solutions, Inc.:	6.18, 6.30
		Reflection coefficient:	21.4		

Model 441 heat sink:	6.19	WE7LTD:	9.21	Wolfgang, Larry, WR1B:	17.28
WAN:	24.5	Weak signal operating:	2.1, 2.10	W0LMD:	23.21, 23.22, 23.27
Warm front:	20.23	Weather, high pressure system:	20.22	Woods, James N., W7PUP:	3.1
Warship operation:	10.7	Weatherfax:	9.32	W0ORE:	1.7
WAS (Worked All States):	1.5	<i>Weatherman</i> :	9.33	Word register:	5.50
Water		Weatherproofing:	22.27	Worked All States (WAS) award:	1.5
Droplets:	20.2	Polystyrene Q Dope:	22.27	Worked All VE award:	1.5
Vapor:	20.2, 20.3, 20.19	Web:	24.1ff	Workstation:	8.8
Vapor, absorption:	20.24	Search engines:	24.1ff	<i>World Radio TV Handbook</i> :	20.18
Vapor, content:	20.24	Search tips:	7.11	World War II:	21.8
Watson-Watt, Robert:	20.6	Weinreich, Richard, K0UVU:	11.24	WR1B:	17.28
Watt:	4.1, 4.6	WEP:	9.53, 24.3	Wrist strap, ESD:	8.7
Waveform:	4.12	Wetherhold, Ed, W3NQN:	12.1	WS4S:	19.1
Complex:	4.17	Wheatstone bridge:	3.9, 3.10, 25.7, 25.52	<i>WSJT</i> program:	23.37
Ramp:	4.12, 4.13	Whitaker, Robert, K15PG:	17.44	<i>WSJT</i> software package:	2.11
Reactance, and complex:	4.41	White, Ian, G3SEK:	8.1, 22.61	FSK441:	2.11
Sine:	4.12, 4.13	White, Rosalie, K1STO:	1.2	JT6M:	2.11
Square:	4.12, 4.13	Wi-Fi:	24.1ff	WWV:	20.9, 20.10, 20.18
Triangle:	4.12, 4.13	Computer connections by radio:	24.3	WWVH:	20.9, 20.10, 20.18
Waveguide:	21.1, 21.17	Glossary:	24.3	WXSat:	9.33
Coupling to:	21.18, 21.19	Wideband			
Cutoff frequency:	21.18	FM:	9.30	X	
Dimensions:	21.18	MMIC Preamp:	14.64	X-ray:	20.1ff
Dominant mode:	21.18	Modes:	9.1	Long:	20.11
Field distribution in:	21.18	Transmitter noise:	14.48ff	Short:	20.11
Modes of propagation:	21.18	Wilson, Mark, K1RO:	17.37, 19.25	XIT:	15.7
TE (transverse electric) mode:	21.18	WinCAP Wizard 2:	20.18, 20.20	XOR:	10.35
TM (transverse magnetic) mode:	21.18	Wind:	20.23	Gate:	5.43
Wavelength formulas for:	21.18	Chinook:	20.23	XQ2FOD:	17.28
Wavelength:	20.1, 20.2	Foehn:	20.23	Y	
Waves		Solar:	20.6	Yaesu FT-1000MP Mark V Field:	15.3
Acoustic:	10.22	Winding coils:	8.23ff	Yagi (Yagi-Uda)	
Cyclone:	20.23	Bobbins with toroids:	8.23	Antenna:	21.8ff, 22.28
Electromagnetic:	20.1	Window function:	16.20	Antenna, tuning and construction	
Forward (incident):	21.4	Windowing:	16.20	techniques:	22.36ff
Ground:	9.3	Wingfield, Elmer, W5FG:	18.6	Crossed:	23.17
Light:	20.1	Winlink 2000:	9.21	Stacked Yagis:	21.11
Multi-hop sky:	9.3	WinSmith 2.0:	21.5	Yahoo:	24.1
Radio:	20.1	Wire		Yankee Network:	9.30
Reflected:	21.4	Cutters:	8.4	YIG:	10.31
Sky:	9.3	Wrap:	8.11	Oscillator:	10.32
Standing:	21.4	Wired Equivalent Protection (WEP):	9.53	Sphere:	10.31, 10.32
Trap for BC stations:	12.36	Wired-trace construction:	8.9	Youngblood, Gerald, AC5OG:	16.30
WB2JNA:	9.22	Wireless:	24.1ff	Yttrium-iron garnet (YIG):	10.31
WB2OSZ:	9.37	Glossary:	24.4	Z	
WB4APR:	9.22	Keeping current:	24.9	Zant, Frank Van, KL7IBA:	19.35
WB4JFI:	9.14	LAN(WLAN):	9.45	Zener diode:	5.18, 6.7, 17.12
WB8DQT:	9.32, 9.38, 9.43, 19.22	Technology:	24.6ff	Avalanche:	6.7
WB8IMY:	9.13, 9.14, 9.22, 9.54	Wiring techniques:	8.8, 8.21	Breakdown:	6.7
WB8ISZ:	2.9	WK8H:	19.3	Zener voltage:	6.7
WB8VGE:	17.41	WLAN:	9.45	Zero Surge Inc.:	3.7
WB8WGA:	9.16	New generation:	24.4	Zeroes:	10.38ff
WB8YGG:	19.17	Security:	24.4		
WD2AID:	14.80	W0ID:	18.1		
WD4FAB:	14.80, 23.10, 23.11, 23.18,	W0IYH:	14.1, 14.48, 17.18, 25.27		
	23.22, 23.26, 23.27, 23.29, 23.30, 23.31	Wolbert, Bob, K6XX:	5.58		

FEEDBACK

Please use this form to give us your comments on this book and what you'd like to see in future editions, or e-mail us at **pubsfdbk@arrl.org** (publications feedback). If you use e-mail, please include your name, call, e-mail address and the book title, edition and printing in the body of your message. Also indicate whether or not you are an ARRL member.

Where did you purchase this book?

☐ From ARRL directly ☐ From an ARRL dealer

Is there a dealer who carries ARRL publications within:

☐ 5 miles ☐ 15 miles ☐ 30 miles of your location? ☐ Not sure.

License class:

☐ Novice ☐ Technician ☐ Technician with code ☐ General ☐ Advanced ☐ Amateur Extra

Name _____ ARRL member? ☐ Yes ☐ No
_____ Call Sign _____

Daytime Phone () _____ Age _____

Address _____

City, State/Province, ZIP/Postal Code _____

If licensed, how long? _____ e-mail address: _____

Other hobbies _____

Occupation _____

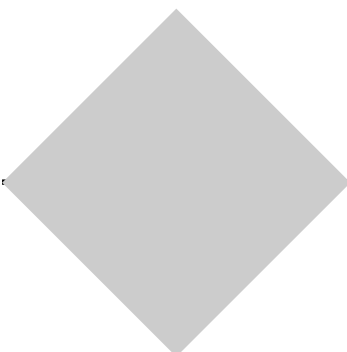
For ARRL use only	2006 HBK
Edition	83 84 85 86 87 88 89
Printing	1 2 3 4 5 6 7 8 9 10 11 12

From _____

Please affix
postage. Post
Office will not
deliver without
postage.

EDITOR, ARRL HANDBOOK
ARRL—THE NATIONAL ASSOCIATION FOR AMATEUR RADIO
225 MAIN STREET
NEWINGTON CT 06111-1494

----- please fold and tape -----



About the ARRL

The national association for Amateur Radio

The seed for Amateur Radio was planted in the 1890s, when Guglielmo Marconi began his experiments in wireless telegraphy. Soon he was joined by dozens, then hundreds, of others who were enthusiastic about sending and receiving messages through the air—some with a commercial interest, but others solely out of a love for this new communications medium. The United States government began licensing Amateur Radio operators in 1912.

By 1914, there were thousands of Amateur Radio operators—hams—in the United States. Hiram Percy Maxim, a leading Hartford, Connecticut inventor and industrialist, saw the need for an organization to band together this fledgling group of radio experimenters. In May 1914 he founded the American Radio Relay League (ARRL) to meet that need.

Today ARRL, with approximately 170,000 members, is the largest organization of radio amateurs in the United States. The ARRL is a not-for-profit organization that:

- promotes interest in Amateur Radio communications and experimentation
- represents US radio amateurs in legislative matters, and
- maintains fraternalism and a high standard of conduct among Amateur Radio operators.

At ARRL headquarters in the Hartford suburb of Newington, the staff helps serve the needs of members. ARRL is also International Secretariat for the International Amateur Radio Union, which is made up of similar societies in 150 countries around the world.

ARRL publishes the monthly journal *QST*, as well as newsletters and many publications covering all aspects of Amateur Radio. Its headquarters station, W1AW, transmits bulletins of interest to radio amateurs and Morse code practice sessions. The ARRL also coordinates an extensive field organization, which includes volunteers who provide technical information and other support services for radio amateurs as well as communications for public-service activities. In addition, ARRL represents US amateurs with the Federal Communications Commission and other government agencies in the US and abroad.

Membership in ARRL means much more than receiving *QST* each month. In addition to the services already described, ARRL offers membership services on a personal level, such as the ARRL Volunteer Examiner Coordinator Program and a QSL bureau.

Full ARRL membership (available only to licensed radio amateurs) gives you a voice in how the affairs of the organization are governed. ARRL policy is set by a Board of Directors (one from each of 15 Divisions). Each year, one-third of the ARRL Board of Directors stands for election by the full members they represent. The day-to-day operation of ARRL HQ is managed by an Executive Vice President and his staff.

No matter what aspect of Amateur Radio attracts you, ARRL membership is relevant and important. There would be no Amateur Radio as we know it today were it not for the ARRL. We would be happy to welcome you as a member! (An Amateur Radio license is not required for Associate Membership.) For more information about ARRL and answers to any questions you may have about Amateur Radio, write or call:



ARRL—The national association for Amateur Radio

225 Main Street

Newington CT 06111-1494

Voice: 860-594-0200

Fax: 860-594-0259

E-mail: hq@arrl.org

Internet: www.arrl.org/

Prospective new amateurs call (toll-free):

800-32-NEW HAM (800-326-3942)

You can also contact us via e-mail at newham@arrl.org

or check out *ARRLWeb* at <http://www.arrl.org/>

About the Included CD-ROM

On the included CD-ROM you'll find this entire *Handbook*, including text, drawings, tables, illustrations and photographs—many in color. Using the industry-standard Adobe *Reader* (included), you can view and print the text of the book, zoom in and out on pages, and copy selected parts of pages to the clipboard. A powerful search engine—Acrobat Search—helps you find topics of interest. Also included are Template Packages for many of the projects in this book, the companion software mentioned throughout, the short videos *Amateur Radio Today* and *ARRL goes to Washington*, and the free Adobe *Reader* 7.0 to view the *Handbook* files.

INSTALLING YOUR ARRL HANDBOOK CD

Windows

1. Close any open applications and insert the CD-ROM into your CD-ROM drive. (Note: If your system supports “CD-ROM Insert Notification,” the *ARRL Handbook CD* may automatically run the installation program when inserted.)
2. Select **Run** from the *Windows Start* menu.
3. Type **d:\setup** (where d: is the drive letter of your CD-ROM drive; if the CDROM is a different drive on your system, type the appropriate letter) and press **Enter**.
4. Click “Install the ARRL Handbook CD” and follow the instructions that appear on your screen.

Macintosh

No installation procedure is needed for the Macintosh. To install so the CD is not required, drag the “ARRL Handbook CD 10.0” icon onto your hard drive.

USING YOUR ARRL HANDBOOK CD

Windows

Note: If your systems supports “CD-ROM Insert Notification,” the *ARRL Handbook CD* may run automatically when inserted.

1. To run the program after installation, start *Windows* and place the disc in your CD-ROM drive. (Not required if a “complete” installation was chosen during setup.)
2. From the **Start** menu select **Programs**, then select **ARRL Software** and the **2006 ARRL Handbook CD 10.0** item.

Macintosh

To run the program after installation, place the disc in your CD-ROM drive. Adobe *Reader* should launch automatically to view the book.