

GLOSSARY

OF RADIO TERMS

EIA Standard numbers that apply to Land Mobile Communications -

copies may be ordered from: **Electronic Industries Association**
2001 Eye Street, N. W.
Washington, D. C. 20006 ATTN: Engineering Department

1973 Price

\$ 4.30	RS 152B	Minimum Standards for Land-Mobile Communication - FM or PM Transmitters - 25-470 MHz.
2.90	RS 204	Minimum Standards for Land Mobile Communication-FM or PM receivers.
3.50	RS 220	Continuous Tone Controlled Squelch Systems (CTCSS).
4.00	RS 222A	Structural Standards for Steel Antenna Towers and Support Structures.
5.10	RS 232C	Interface between Data Terminal Equipment and Data Communication Equipment employing Serial Binary Data Interchange.
4.10	RS 237	Minimum Standards for Land-Mobile Communications Systems using FM or PM in the 25-470 MHz Frequency Spectrum.
4.40	RS 316	Minimum Standards for Portable/Personal Land-Mobile Communications-FM or PM Equipment-25-470 MHz.
3.00	RS 329	Minimum Standards for Land-Mobile Communication Antennas--Part 1 Base or Fixed Station Antennas.
4.30	RS 374	Land-Mobile Selective Signaling Standard
2.70	RS 388	Minimum Standards for Test Conditions Common to FM or PM Land-Mobile Communications Equipment-25-470 MHz.
1.40	TR 120	Minimum Standards for Land-Mobile Selective Signaling Equipment.

ABBREVIATIONS USED IN THIS GLOSSARY AND OUR INDUSTRY

A

A	ampere(s)
AAA	American Automobile Association
AAR	American Association of Railroads
AC	alternating current
acc.	accessory equipment
accd No	
acct.	account, accounting
adj.	adjust, adjusted, adjustment
adm.	administration, administrator
ADP	automatic data processing
AF	audio frequency
AFC	automatic frequency control
AFCEA	Armed Forces Communications and Electronics Assn.
AGC	automatic gain control
alt.	alternate
AM	amplitude modulated, Area Manager
a.m. or A.M.	ante meridian, before noon
* AMMS	Advanced Marketing Management Seminar
ANI	automatic number identification
ant.	antenna
APCO	Associated Public Safety Communications Officers, Inc.
approx.	approximate
ASCII	American Standard Code for Information Interchange
assoc. or Assn.	associates, association
assy.	assembly
* ASTYJ	Applying Salesmanship To Your Job
ATA	American Transit Association
AT&T	American Telephone and Telegraph Company
auto.	automatic
aux.	auxiliary
AVC	automatic volume control

AVI	automatic vehicle identification
AVL	automatic vehicle locator

B

B	Bel
balun	balanced-to-unbalanced line transformer
base	base station
BCD	binary coded decimal
BFO	beat frequency oscillator
BIPAC	Business and Industrial Paging and Control
bit(s)	binary digit(s)
B/L	bill of lading
B&P	Bids and Proposals
bps	bits per second
BTC	basic termination charge
Btu	British thermal unit
BUSH	Buy U. S. Here

C

C	centigrade, Celsius
°C	degrees Celsius, (centigrade)
cal.	calibrate
cap.	capacitor
CAP	Carroll Avenue Plant
CAS	carrier activity sensor
CATV	community antenna television
CB	citizen's band
C & C	Credit and Collections
* CDP	Career Development Program
ckt	circuit
CCTV	closed circuit television

CCU	common control unit
CD	circuit description or Civil Defense
CG	Channel Guard
cm	centimeter
CM	contribution margin
Co.	company
C of I	Certificate of Installation
c/o	care of
coax.	coaxial
COD	cash on delivery
comm.	communication(s)
COMSAT	Communication Satellite Corporation
conn.	connector
cont.	control, continuous
conv.	conversion, converter
CONUS	Continental United States
coord.	coordinate
COR	carrier operated relay
COS	carrier operate switch
CPFF	cost plus fixed fee
CPIF	cost plus incentive fee
cps	cycles per second (now hertz = Hz)
CSBD	Communications Systems Business Division
CTCSS	continuous tone-controlled squelch system (Channel Guard)
cu.	cubic
cu.ft.	cubic feet
cu.in.	cubic inches
CWO	cash with order

D

D	depth
D & B	Dun and Bradstreet
dB	decibel

dba	doing business as
dBm	decibels above or below one milliwatt
dBW	decibels referred to one watt
DC	direct current
DDD	direct distance dialing
de-emph.	de-emphasis
deg, °	degree(s)
dem.	demodulator
dia.	diameter
dist.	district
dly.	delay
DOC	Department of Communications (Canadian)
DOD	Department of Defense
DP	double pole, data processing
DPDT	double pole, double throw
DPST	double pole, single throw
DSM	District Sales Manager
DR	District Representative
DSO	drawing sign off
DSvcM	District Service Manager
DTMF	dual tone multi-frequency (Touch Tone)
DTW	delivery to warehouse
dwg.	drawing

E

ea.	each
EACOM	Emergency and Administrative Communications
E & CR	Employee and Community Relations
E & M	The recEive and transMit leads of a signaling system
EBI/LBI	Instruction, Maintenance, Installation and Users Manuals
ECR/ECX	coded literature available from Marketing Communications

EDP	electronic data processing
EE	electrical engineer
EF&I	engineer furnish and install
e.g.	exempli gratia, for example
EIA	Electronics Industries Association
elec.	electric, electrical
emer.	emergency
emf	electromotive force
encl.	enclosure
eng.,eng'g.	engineer, engineering
EOM	end of message
ERN	emergency radio network
ERP	effective radiated power
ESPRL	Eastern States Police Radio League
ESS	electronic switching system
est.	estimate(d)
ETA	estimated time of arrival
et al	et aliae, and others
etc.	et cetera, and so forth
ETV	educational television

F

F	Fahrenheit
°F	degrees Fahrenheit
FAB	Fort Avenue Building
fac.	facilities
fax.	facimile
FCC	Federal Communications Commision
FET	field effect transistor
fig(s)	figure(s)
fil.	filament
Fin.	Finance
FM	frequency modulation
* FMP	Financial Management Program
FMR	factory modernized radio

FO	Field Operations
FOB	freight on board
Fortran	Formula Translation (a computer language)
fpm	feet per minute
freq.	frequency
freq-mult.	frequency multiplier
fr.	front
FSK	frequency-shift keying
ft.	foot, feet
fy	fiscal year

G

g	gram(s)
G	force of gravity
gal(s)	gallon(s)
GE	General Electric
GEAPS	General Electric Automated Packaging System
GE-MRD	General Electric-Mobile Radio Department
* GEMS	General Electric Management Seminars
gen.	generator
GESS	General Electric Service Station
GFE	government furnished equipment
* GMC	General Management Course
GMT	Greenwich Mean Time (Zulu)
grd.	ground
GOAM	government owned and maintained
grp.	group
GSA	General Services Administration
GT&E	General Telephone and Electronics
H	
H	height
HB	high band
HEAR	Hospital Emergency Administrative Radio (Motorola's EACOM)

hex. hexagon, hexagonal
Hq. headquarters
hu hang up (box)
HV high voltage
hwy. highway
Hz hertz

I

I current in amperes
IAFC International Association of Fire Chiefs
IACP International Association of Chiefs of Police
IC integrated circuit
ICA International Communications Assn.
ICOM integrated circuit oscillator module
ID inside diameter
i.e. id est, that is
IEEE Institute of Electrical and Electronic Engineers
IF intermediate frequency
IMSA International Municipal Signal Association
IMTS Improved Mobile Telephone Service

in. inches
info. information
I/O input/output, instead of
ipm.(s) impulse(s)
ips inches per second
IRAC Interdepartmental Radio Advisory Committee
ISPERN Illinois State Police Emergency Radio Network
IT&T International Telephone and Telegraph Corporation

J

JAN Joint Army - Navy specifications

jct. junction

K

k kilo, one thousand
kbps kilo bits per second
kc kilocycle(s), now called kilohertz
kHz kilohertz
* K-T Kepner-Tregoe course in Problem Analysis & Solution

L

L inductance in henries
lat. latitude
lb. pound
LB low band
LEAA Law Enforcement Assistance Administration
LETS Law Enforcement Teletypewriter Service
lin.ft. linear feet
log_e material logarithm to the base e
log₁₀ natural logarithm to the base 10
LP liquified petroleum(gas), low pass(filter), log periodic(antenna)

M

m meter
"M" Motorola
mA milliampere(s)
MACS Microwave and Carrier Systems
MAM Major Account Manager
man. manual
math. mathematics
max. maximum
MBP # Mobile Bids and Props Project Number
Mc megacycles - see megahertz

* MDC	Manager Development Course
MEC	Mobile Equipment Catalog - See Mobile Radio Catalog
mech.	mechanical
med.	medium
μF	microfarad
mfg.	manufacturing
MHz	megahertz (megacycles per second)
mike	microphone
min.	minimum, minute
misc.	miscellaneous
mktg.	marketing
* MMC I or II	Modern Marketing Course I or II
* MMP	Manufacturing or Marketing Management Program
mod.	modification, modulator
mon.	monitor, monitoring
MOS	metal oxide semiconductor
MOSFET	metal oxide semiconductor field effect transistor
mph	miles per hour
* MPA	Management Problems Analysis
* MPC	Management Practices Courses I, II, III
MR	Manufacturer's Representative
MRC	Mobile Radio Catalog
MRD	Mobile Radio Department
MRN	Manufacturer's Representatives' News
ms	millisecond
MSS	Mobile System Sales, Motorola Service Station
msg.	message
MTBF	mean time between failure
mt.	mount
mtg.	mounting
MTS	Mobile Telephone Service
MTTF	mean time to failure

MTTR	mean time to repair
mult.	multiple
mx, MUX	multiplex
mV	millivolts
MVR	Mountain View Road
M/W	microwave
μs	microsecond
μV	micro volt

N

N	any number from 2 to 9,
NAB	National Association of Broadcasters
NARS	National Association of Radiotelephone Systems
NASA	National Aeronautics and Space Administration
NB	narrow band
NBFM	narrow band frequency modulation
NC	normally closed
NCIC	National Crime Information Center
NCR	no carbon required, National Cash Register
NEC	national electrical code
neg.	negative
NEMA	National Electrical Manufacturers Association
NO.	normally open
No.	number
nom.	nominal
NP	name plate

O

O & M	Operation and Maintenance
OD	outside diameter
OEM	original equipment manufacturer
off.	office or officer

OJT	on the job training
ok	all correct, all right, approved
O/R	orders received
osc.	oscillator
osc-mult.	oscillator multiplier
orig.	original, originating
O/S	outside
OT	overtime
OTP	Office of Telecommunication Policy
oz.	ounce

P

PA	power amplifier, public address
PABX	private automatic branch exchange
P & L	Power and Light
PB	push button
PBX	private branch exchange
pc(s).	piece(s)
PCB	printed circuit board
PCM	pulse code modulation
pct.	percent
perm.	permanent
pers.	personal
PERT	Program Evaluation and Reporting Technique
PL	Private Line (Motorola's Channel Guard)
PLCO	Power Line Carrier Operation
p.m., P.M.	post meridian, afternoon
PM	phase modulation
PN	part number
pnl.	panel
PO	power output, purchase order
P/O	part of
P.O.M.	Principles of Marketing
port.	portable

pos.	positive or position
pot.	potentiometer, potential
PP	Product Planning
ppm	parts per million
pps	pulses per second
pr.	pair
prep.	prepare, preparation
pri.	primary
PS	power supply, Public Safety
p/s	pulses per second
psi	pounds per square inch
PSIT	Public Safety Industrial and Transportation (Markets)
PSK	phase shift keying
PSLM	priority search lock monitor
P-T-T	push-to-talk
PVC	polyvinyl chloride
PWB	printed wire board
pwr.	power

Q

Q	quality of a resonant circuit
QA	quality assurance
QC	quality control
qt.	quart
qty.	quantity
quad.	quadruple, quadrangle, quadrant

R

R	resistance, receiver
R₁ or Rx₁	receiver frequency 1
RADA	random access discrete address
R & D	research and development
R & I	remove and install
RCA	Radio Corporation of America
RCC	Radio Common Carrier
rcvr.	receiver

re:	regarding
REA	Rural Electrification Administration (U.S. Dept. of Agriculture)
rec.	receiver
rect.	rectifier, rectified
ref.	reference, referred
reg.	regulate, regulator
Reg	region
reperf.	reperforator
repl.	replace
RF	radio frequency
RFI	radio frequency interference
RFP	request for proposal
RM	Regional Manager
RMA	Regional Marketing Administrator, return material authorization
rms	root mean square
RO	return order (for repair or replacement)
rpm	revolutions per minute
R & PP	Resource and Product Planning
rps, r/s	revolutions per second
RR	railroad
RSvcM	Regional Service Manager
RTTY	radio teletypewriter
RUS	receiver unscueled sensor
Rx	receiver, receive

S

*SAGE	Selling at General Electric
SAM	Systems Application Manual
S/B	sales billed
sch.	schedule
SCR	silicon controlled rectifier
S/D	sight draft

SD	schematic drawing
sec.	second(s), secondary
secty.	secretary
SFM	Sales Field Mailing
SICOM	small integrated circuit oscillator module
SIM	Sales Information Manual
SINAD	signal including noise and distortion
SLM	search lock monitor
SN	stock number
SOM	start of message
SOP	standard operating procedure
S.P.	state police
SP	single pole
SPA	State Planning Agency
SPDT	single pole double throw
spec(s).	specification(s)
spkr.	speaker
spl.	special
SPRINT	Special Police Radio Inquiry Network
sq.	square
SS	stainless steel, self supporting, solid state
* SSM	Sales Situation Management
* SSP	Sales Situation Practices
SSB	single side band
sta.	station
std.	standard
svc.	service
sw.	switch
SWR	standing wave ratio

syn. synchronous, synchronize

sys. system

T

T, Tx transmitter (see xmtr)

T₁ or Tx₁ transmitter frequency 1

tbl. trouble, table

TCA Telecommunications Assn.

TDM time division multiplex

*** TDP** Talent Development Program

tech. technician, technical

telco. telephone company

telcon. telephone conversation

temp. temperature

TIPO Telecommunications and Information Processing Operations

T & L travel and living (expense)

T/R or Tx/Rx transmitter receiver

tty teletypewriter

Tx transmitter

U

UHF ultra high frequency

UL Underwriters Laboratories, Inc.

undg. underground

UPS United Parcel Service

USITA United States Independent Telephone Association

USFS United States Forest Service

UTC Utilities Telecommunications Council

V

V volts

VAC volts, alternating current

var. variable

VDC volts, direct current

VE Value Engineering

vert. vertical

VF voice frequency

VHF very high frequency

viz. videlicet, namely, that is

V/m or Vpm volts per meter

VOM volt-ohm meter

VOR voice operated relay

VOX voice operated switch

*** VPC** Value Planning Course

vs. versus, against

VSWR voltage standing wave ratio

VTVM vacuum tube voltmeter

VU volume units

W

W width, watts,

WATS Wide Area Telephone Service

WECO Western Electric Company

*** WEP** Work Effectiveness Program

w/o without

W/P weatherproof

wpm words per minute

wt. weight

WU Western Union Co.

X

xcvr. transceiver

xfmr. transformer

xmit. transmit

xmtg transmitting

xmtr. transmitter

x tal crystal

Y
yr. year

Z

Zulu

Z

impedance

time zone at Greenwich
(0 meridian)

A

absorption The process of taking in and not reflecting.
A loss from the amount of input to the amount of output

absorption wavemeter A device to measure the wavelength or frequency of a radiowave. Usually consists of a tuneable device that shows when it is absorbing the maximum amount of energy from the circuit being tested

accelerated life test A test in which certain factors such as voltage, current, temperature, etc., to which an item is subjected are increased in magnitude above normal operating values to obtain observable deterioration in a short period of time

acceptance test A test made to determine or demonstrate the degree of compliance with specifications

accessories Those items that are not a part of the basic unit, but which may be required for operation

accounting The procedure of recording revenues and expenses for organizational units and functional areas

accuracy (1) The quality of freedom from mistake or error
(2) In conformity with the truth or a rule

acoustics The science of sound

acoustic feedback The transfer of soundwaves from a loudspeaker or end terminal to any previous component within the system, such as a microphone. Acoustic feedback may be audible (within hearing), sub-audible (below human hearing), or super-audible (above human hearing). When audible it may cause distortion in the audio output. When controlled it is sometimes used to strengthen weak audio frequencies

AC spectrum The lowest to the highest alternating current frequencies (1) 25, 50 and 60 hertz (formerly cps) are used for electrical power (2) 20 to 20,000 hertz are the audio frequencies (3) 10 kilohertz to 100,000 megahertz are the radio frequencies

activity The expenditure of time and resources

activity plan The arranging of activities in a timed sequence in such a way as to bring about the earliest or most efficient completion time

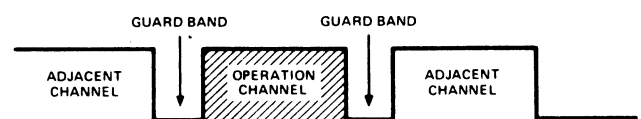
actuate To operate, causing the closure of electrical contacts

adapter A device used for changing the terminal connections of a circuit or part to connect to another circuit or part with unlike connections, also called "interface"

adapter kit A package of parts and instructions to modify an equipment to operate with another circuit or equipment

address The identifying number of an individual unit in a selective calling signal

adjacent channel Radio frequencies which are immediately next to, but not overlapping, one another



administration The management of functional affairs

Advertising and Sales Promotion (A&SP) The MRD marketing function responsible for all matters relating to the department's product or public image (advertising), and the material to support the sales organization in their selling efforts

aerial A system of wires or conductors used in the reception or transmission of radio signals. See: antenna

aging The term applied to electronic components that have been stored (sometimes under power) until their characteristics have become essentially stable and constant

air duct A passage designed to guide ventilating air

air filter A device used to remove suspended particles from air

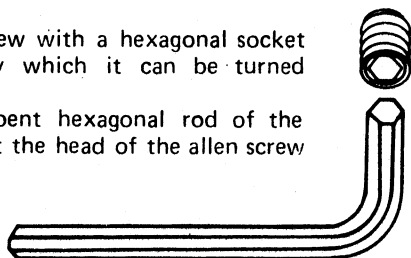
alarm A visual or audible signal that alerts personnel to the existence of an abnormal condition

alert signal (tone) A signal (tone) that is sent toward users to indicate a message follows

align To adjust the tuning of any multiple stage device to obtain optimum performance

allen screw A screw with a hexagonal socket in its head by which it can be turned

allen wrench A bent hexagonal rod of the dimension to fit the head of the allen screw



alnico An alloy of aluminum, nickel and cobalt with iron which retains magnetism well. Used in the manufacture of permanent magnets

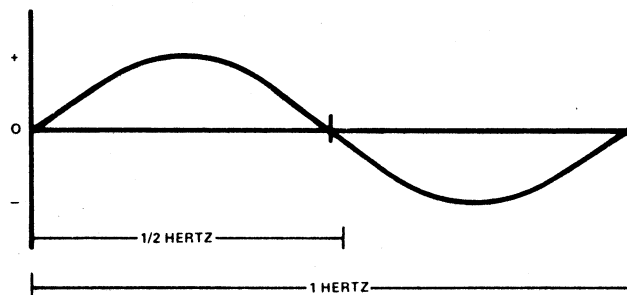
alphabet, phonetic A method of passing alphabetic information over a poor communication path with word substitution for letters. The most widely accepted phonetic alphabet is:

Alfa	Juliett	Sierra
Bravo	Kilo	Tango
Charlie	Lima	Uniform
Delta	Mike	Victor
Echo	November	Whiskey
Foxtrot	Oscar	X-Ray
Golf	Papa	Yankee
Hotel	Quebec	Zulu
India	Romeo	

alternate-channel interference Interference caused in one communication channel by a transmitter operating in a channel next beyond an adjacent channel

alternating current (AC) Electric current such as is usually supplied by power lines. Usually produced by rotating machines, and produced in a form that results in a surging back and forth of electrons in the lines

Current flow begins at a zero reference point, swings to its maximum level, then through zero, to its minimum level, and back to zero to complete one full cycle. The number of cycles per second (cps) is called hertz (Hz) and is the frequency. Power frequencies in the United States are in the order of 60 hertz. Off shore frequencies are some times 50 Hz



amateur A term applied specifically to the group of validly licensed radio operators whose interest is non-commercial. Amateurs are familiarly known as "hams"

amateur bands Those radio frequencies assigned to the amateur radio user by the FCC

amateur station A validly licensed radio transmitter station owned and operated by one or more amateurs

ambient conditions Characteristics of the environment; for example, temperature, humidity and pressure

ambient temperature The temperature surrounding an object; e.g., the temperature of the air surrounding an object. This term is used to qualify specifications given for temperature sensitive components such as transistors, capacitors, crystals, relays, etc.

ammeter An instrument to measure current flow in amperes in an electrical circuit

ampere A unit of electric current or rate of flow of electricity. One volt impressed across a resistance of one ohm causes a current of one ampere to flow

ampere hour A unit of electrical charge. Used to measure capacity of storage batteries. Specifically, one ampere of current flowing for one hour equals one ampere hour

amplification The process of increasing the strength of a signal

amplifier An electrical device used to increase the strength of a signal

amplifier, broadband An amplifier capable of amplifying a wide band of frequencies without significant distortion

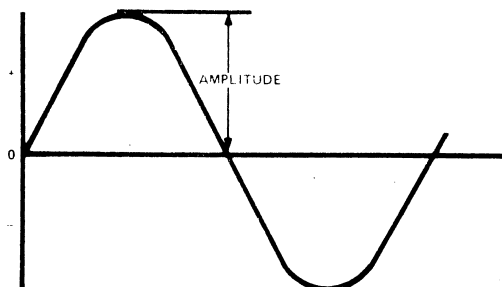
amplifier, compression An audio amplifier in which the input signal varies over a wide range and an output that varies over a smaller range. A typical input variation could be 50 dB which could produce a 20 dB variation in the output

amplifier, intermediate frequency (IF) That section of a radio receiver which is designed to amplify incoming signals of a predetermined frequency, called an intermediate frequency

amplifier, line An amplifier usually connected to a telephone line to compensate for telephone line losses

amplifier, reversible An amplifier which can increase signals applied from either of two directions

amplitude Term used to describe the maximum value of a sine wave (current flow). It is the largest (or crest) value measured from zero. See: alternating current

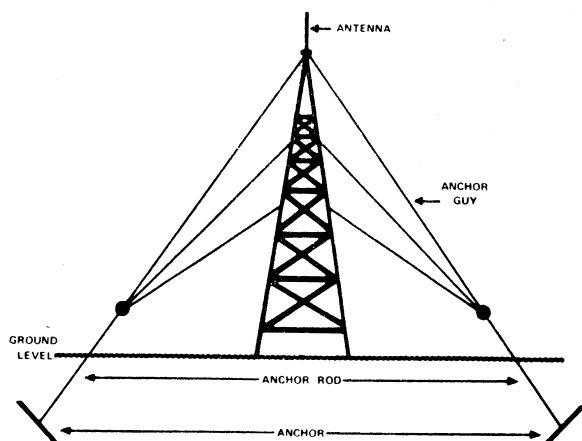


amplitude modulation One system of radio transmission. It is accomplished by modulating the carrier frequency (RF) by varying the amplitude above and below the normal values in step with the audio frequency being transmitted. Abbreviated as AM. See: modulation and amplitude



analog Pertaining to data in the form of continuously variable physical qualities

anchor (1) to hold secure (2) Any device which is used to hold something secure (3) A device buried in the ground to which anchor rods and guys are attached



answering service, telephone A service offered by an enterprise for telephone subscribers. This enterprise will answer telephone calls for their clients when they are not in their offices. Messages are recorded, information provided and appointments made. Frequently, there is an affiliation with Radio Common Carriers (RCC's). See: RCC

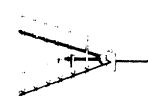
antenna An elevated device for radiating or receiving radio waves. It changes electrical currents into electromagnetic radio waves and vice versa

antenna, broadband A transmitting or receiving antenna that performs almost uniformly over a wide frequency band without needing adjustment

antenna, center fed A type of transmitting or receiving antenna having a transmission line attached to its exact center

antenna, collinear array A type of directional transmitting and receiving antenna consisting of two or more driven elements which are of equal length. The elements lie end to end in a straight line

antenna, corner reflector A type of directive antenna often used for directional transmitting and receiving

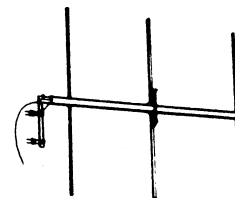


antenna coupler A device which permits two or more converters to be coupled to the same antenna

antenna cross polarization Receiving and transmitting antennas with different radiation polarities to control the radiation and reception

antenna current The current flowing in the antenna and associated circuits

antenna, dipole An antenna using a conductor one-half wavelength long at a specified frequency. The most common form of dipole antenna is separated exactly in the center by an insulator. The dipole is a straight ungrounded antenna



antenna, directional Any antenna which picks up or radiates signals better in one direction than another

antenna gain The increase of the power radiated by an antenna in a given direction compared to the power radiated in the same direction by a standard antenna (usually a dipole) — usually measured in decibels (dB)

antenna, harmonic An antenna whose length is a multiple of a wavelength or half-wave length with which it is used

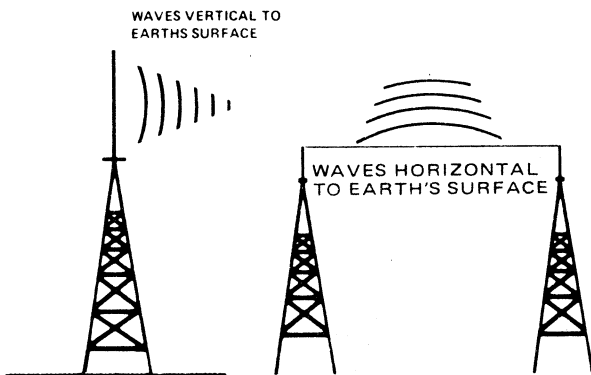


antenna, insulated spring or stub A covered flexible antenna designed for use with personal products

antenna, loop An antenna consisting of one or more complete turns of wire

antenna, multiband An antenna that responds to more than one frequency range

antenna polarization The direction of the radiated electric field in relation to the surface of the earth. Generally vertical in mobile radio use

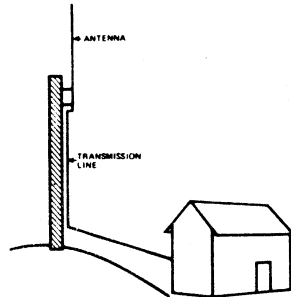


antenna, quarter-wave An antenna electrically equal to one-fourth of the wavelength of the signal to be transmitted or received

antenna termination or connector A type of connector unit which is part of the antenna (UHF connector shown)

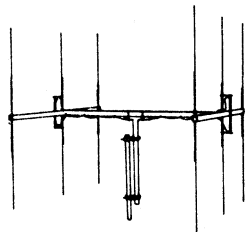


antenna transmission line Any conductors that connect the antenna to the receiver or transmitter

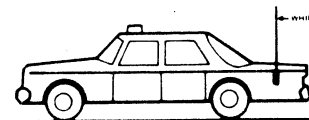


antenna, tuned An antenna that provides resonance at the desired operating frequency it is designed to accept

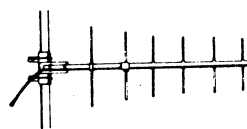
antenna, unidirectional An antenna designed to radiate with maximum strength or receive with maximum sensitivity in a particular direction, and with minimum radiation or reception in the opposite direction



antenna, whip A flexible metal pole or rod used as an antenna on mobile installations



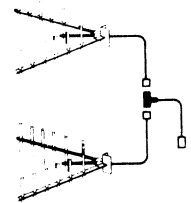
antenna, yagi A particular form of end-fire antenna array having maximum radiation in the direction of the array line



applique Applied or fastened on. A circuit element applied to a circuit or system to provide an additional function(s)

approval test The testing of one or more equipments under various controlled conditions to ascertain the performance characteristics of the type of which they are a sample

arc A discharge of electricity



array, antenna An arrangement of two or more antennas spaced and connected so that they are in phase and their effects are additive

arrestor, lightning A device designed to protect electrical equipment or property from damage by lightning

assembly A grouping of components to accomplish a function; i.e., transmitter assembly

assigned frequency That frequency which has been designated by the FCC for use by a particular radio station

asynchronous Not synchronous

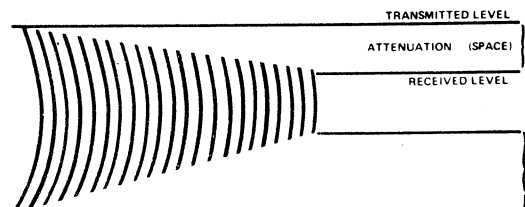
atmosphere The gaseous envelope surround the earth. The atmosphere is divided into several layers, as follows:

Troposphere	0 — 10 Miles
Stratosphere	10 — 50 Miles
Ionosphere	50 — 370 Miles
Exosphere	370 — Miles

atmosphere, explosive Air holding in suspension dust, metal particles or flammable gas in such proportions that they may ignite explosively

attack time The interval required after a sudden increase in input signal to a transducer (transmitter, receiver) to attain a percentage of final output level due to this increase

attenuation The reduction in energy which accompanies the passage of an electronic wave through lines, equipment or space. The amount is usually expressed in decibels (dB)



attenuator A device to reduce the energy of a wave without distortion. Attenuators are commonly known as pads, gain controls, level adjusters, volume control, variable resistors, etc.

audio Pertaining to frequencies corresponding to a normally audible sound wave. These frequencies are normally 15 to 20,000 hertz

audio frequency The frequency range from 15 to 20,000 hertz

aural

automatic volume control

aural Pertaining to the ear or sound

automatic frequency control (AFC) A receiver circuit that adjusts the frequency of the local oscillator to compensate for transmitter drift

automatic gain control (AGC) A receiver circuit that maintains the output constant with wide variations in the receiver input level

automatic volume control (AVC) A self-acting gain control which maintains the output of a receiver constant despite variations in received signal strength

B

backbone A point-to-point system utilizing several stations

background noise (1) Noise due to audible disturbances of periodic and/or random occurrence. (2) Total system noise in the absence of a signal

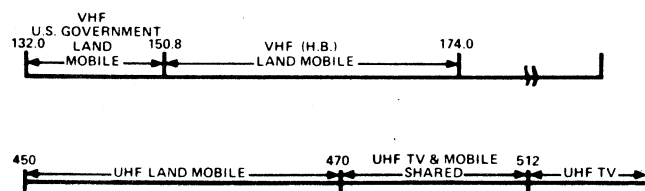
back-to-back connection Normally refers to the interconnection of a base station to some other control station or channel

balanced modulation A method of adding sound to the RF carrier whereby only the sidebands are transmitted, with the carrier being eliminated

balanced network An arrangement of impedances connected to one branch of a hybrid to match the impedance of a line connected to the opposite branch

balun An acronym meaning "balanced-unbalanced" — a device to connect an unbalanced (coaxial) transmission line to a balanced antenna or vice versa

band Frequencies which are within defined limits, and are used for a specified purpose



band elimination filter See: filter, band elimination

band, narrow (1) A small band of frequencies (2) In RF, the maximum deviation normally licensable by the FCC

band-pass coupling A type of coupling that is commonly used between stages in receiving and transmitting equipment. It is usually employed between the IF (intermediate frequency) stages in FM receivers to permit good reception of the full band width of transmission

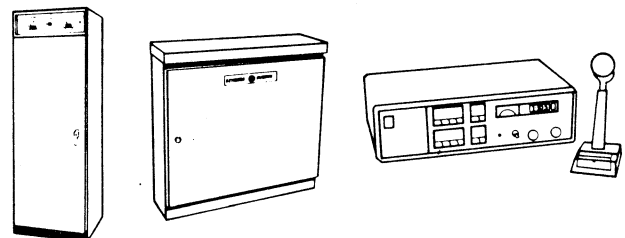
band-pass filter See: filter, band-pass

band splits See: splits, band

band, wide (1) Passing a wide range of frequencies without distortion (2) Having a bandwidth of 20 kHz or more

band width A section of the frequency spectrum required to transmit the desired information

base station A fixed land station in the mobile radio service used to communicate with mobile stations



basic termination charge (BTC) See: termination charge

bass Low audio frequencies (pronounced base)

battery A group of several cells connected together to furnish a direct current by conversion of thermal, chemical, solar or nuclear energy

baud A unit of transmission speed of digital signals

baudot code A five-unit code used for teletypewriter signals

bay A row of racks or frames or cabinets on or in which equipment in the form of panels or units are mounted

bayonet base A cylindrical lamp base having two locking pins spaced 180 degrees. Used in some mobile radio application

beacon A radio transmitter or lights designed to indicate exact geographical location or direction. Used for aircraft and ship navigation

bead chain connector See: connector, bead chain

beam A configuration of radiated energy whose rays are very sharply directional and parallel

BAUDOT CODE

A - SPACE	Q - MARK
A - ●●●●○	Q - ●●●●●
B - ●●●●○	R - ●●●●○
C - ●●●●○	S - ●●●●○
D - ●●●●○	T - ●●●●○
E - ●●●●○	U - ●●●●○
F - ●●●●○	V - ●●●●○
G - ●●●●○	W - ●●●●○
H - ●●●●○	X - ●●●●○
I - ●●●●○	Y - ●●●●○
J - ●●●●○	Z - ●●●●○
K - ●●●●○	NAK - ●●●●○
L - ●●●●○	CR M - ●●●●○
M - ●●●●○	LT H - ●●●●○
N - ●●●●○	ENQ - ●●●●○
O - ●●●●○	LT S - ●●●●○
P - ●●●●○	FIG - ●●●●○

beam antenna An antenna array that concentrates radio transmission into a narrow directional path, or receives radio signals only from a narrow sector of the total horizon

beat A regularly recurring pulsation from the combination of two-tone or frequency waves of different frequencies. Beats in sound waves may often be detected by the human ear

beat frequency The frequency produced when signals of two different frequencies are combined and refracted. The beat frequency is equal in value to the difference between the original frequencies

Bel A unit of relative power, named after Alexander Graham Bell, and used to express differences in power. Usually used in increments of 1/10 value, termed decibel. (See: decibel)

Bellboy A Bell System trademarked service which provides paging to subscribers via the telephone network

benefit A plus derived from an equipment or system feature

bias Voltage applied to a device to establish an operating characteristic

bid An offering or proposal

bid bond See: bond, bid

bidirectional Having equal effectiveness in two directions which are separated by 180 degrees

Bids and Proposals An MRD Marketing function

bilateral antenna An antenna having its maximum response in opposite directions (180° apart)

bill An invoice for equipment shipped or services rendered

billing, Class II Within General Electric components, an internal billing process through Corporate Finance

bill of lading A contract issued to a shipper by a transportation agency listing the goods shipped and acknowledging their receipt

binary Having two possible states or values

BIPAC A General Electric acronym for Business and Industrial Paging and Control Systems. Systems that are designed to reach key people quickly, via RF paging

bi-stable Having two stable conditions or states

bit The smallest subdivision of intelligence; a contraction of "binary digit"

bit rate The speed at which digital information is transmitted. Usually expressed in bits per second

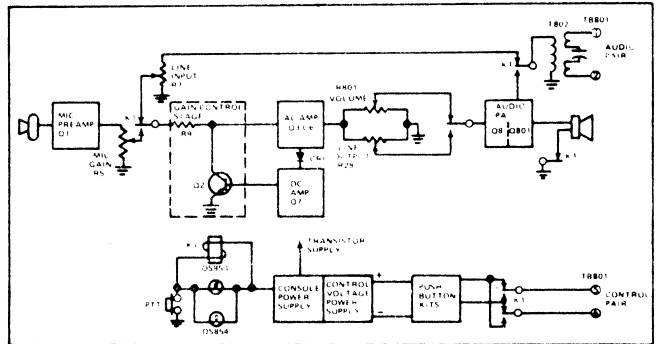
blackbox A unit of interface equipment specified only in performance characteristics

blanking The cutting off of a channel or device for a short time. Used in General Electric's "Noise Blanker" feature to remove objectionable noise at the receiver

blasting The overloading of an amplifier or loudspeaker resulting in distortion of loud sounds

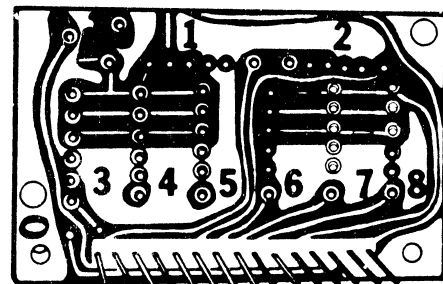
block and tackle An arrangement of pulleys and lines used for lifting heavy objects

block diagram A diagram in which the principal divisions or sections of a circuit are indicated by geometric figures and the path of the signal indicated by lines and arrows



blower A device which moves air; primarily used for cooling

board, printed circuit or wire A circuit manufactured so that many or all of the components are attached to a board, or a plane surface, with conductive media on one or both sides to replace wires. Permits construction of extremely compact circuits



body capacitance Capacitance to ground introduced into a circuit by the human body. This phenomenon is frequently observed as it affects RF propagation from personal radios

bond (1) A low resistance connection between two circuit elements. Used in reducing ignition noise pickup by "bonding" the hood and fenders of a vehicle to the chassis and each other (2) An insurance contract by which a bonding agency guarantees payment of a specified sum in the event of breach of contract

bond, bid A bond submitted with a bid or offering that guarantees to the buyer that the offering if accepted will result in a contract

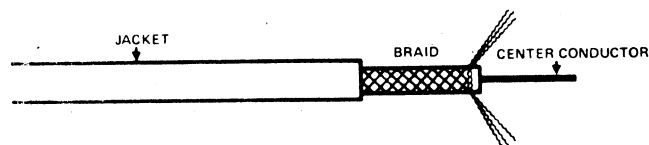
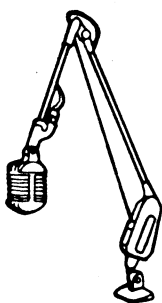
bond, performance A bond submitted by a contractor to guarantee that the contractor will fulfill his contractual obligations

bone conduction The process by which sound is conducted to the inner ear through the cranial bones

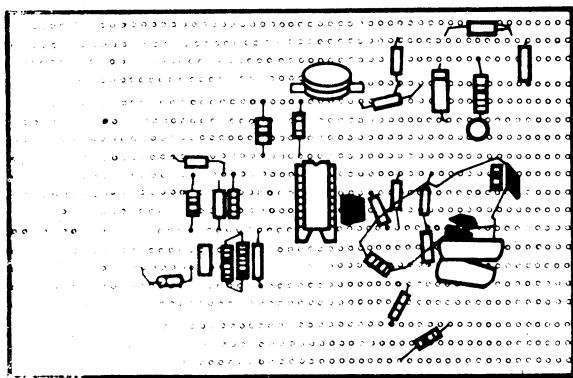
boom microphone A microphone arranged on an arm type mechanical support to permit better placement of the microphone

boost To amplify; amplification

braid A group of fibrous or metal filaments or threads woven into a cylindrical shape to form a covering over one or more wires

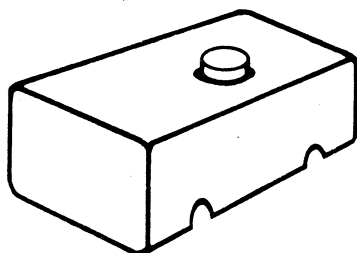


breadboard Laboratory idiom for an experimental circuit set up on an exposed board for portability and ease of assembly or disassembly



breakaway A design parameter that permits quick separation or breaking in the event of sudden impact. Used in modern mobile control head and speaker mounting to help protect the operator from injury in the event of impact

breaker, circuit (1) A device that interrupts the flow of current in a circuit when the current exceeds a pre-determined value (2) A device that interrupts the flow of current in a circuit when the current reverses direction, or when there is a pre-determined variation in voltage, current or impedance value



broadband The ability of a circuit or antenna to be useful over a wide frequency range

broadband amplifier See: amplifier, broadband

broadband antenna See: antenna, broadband

broadcast A radio transmission intended for reception by the general public

broadcast band Any of the special bands of radio frequencies allocated for broadcasting to the general public

broadside array A parallel antenna array which radiates in a plane perpendicular to the plane of the antenna elements

budget A program of work and services expressed in terms of their resources required

buffer (1) A device used as an interface to reduce undesirable interaction between electronic circuits (2) A circuit used to transfer data from one unit to another when temporary storage is required due to different operating speed or times of occurrence of events

bulb The glass envelope that encloses an electron tube or incandescent lamp

Bull Moose A slang term for MRD's computer

bus A heavy low-resistance conductor or group of conductors to which several units may be connected

Business Radio Service A subpart of the Industrial Radio Services section (Part 91 of FCC Rules). Eligible persons for authorization in this service are:

- a. any person engaged in a commercial activity
- b. educational and philanthropic organizations
- c. clergymen and ecclesiastical organizations
- d. hospitals, clinics and medical institutions
- e. a service providing nonprofit radio communication services to a parent organization

See: FCC Manual Part 91

busy (1) Not idle (2) In use (3) Not available for use

busy indicator An indicator provided at a control point to indicate the in use condition of a circuit or channel

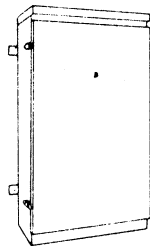
buyer (1) a purchasing agent (2) one who buys (a customer)

byte A group of binary digits which is the smallest addressable unit of information in memory

C

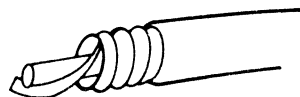
cabinet (1) An enclosure used in electronics to house apparatus. Frequently equipped with a mounting arrangement (frame) for mounting apparatus. (2) An equipment housing available in specific styles. General Electric styles are:

- (F) Table top (Low profile for desktop)
- (W) Wall Mount
- (D) Desk Mate (About 2 drawer filing cabinet size)
- (P) Pole Mount (weatherproofed for outside use)
- (V) Floor Mount (The tall one — lots of rack space)



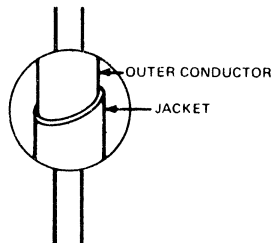
cable A stranded single conductor or a combination of conductors, insulated from one another, with a jacket surrounding all of the conductors

cable, air spaced coaxial A coaxial cable generally used as an antenna cable. The space between the inner and outer conductors is not filled with solid dielectric. Air spaced coaxial cable exhibits very low transmission loss characteristics



cable, buried Cable installed in the earth without conduit

cable, jacketed A cable protected by a covering of abrasion or corrosion resistant material, often polyvinyl chloride (PVC)



cable, loaded Telephone cable having loading coils inserted in its pairs at intervals for the reduction of transmission loss

calibrate (1) To adjust a measuring device so that it reads correctly. (2) To determine error by comparison with a known standard.

call, all The alerting of all decoder equipped units in a system by the transmission of a single coded signal

call, group The alerting of sub-divided selective call groups by function, type of vehicle, location, etc., by sending a single coded signal

call, individual The alerting of a specific coded decoder unit by sending a single coded signal

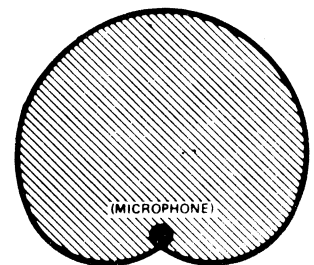
call letters FCC-assigned identifying letters and numbers for a radio station or transmitter

capacitance or capacity The property of a system of conductors and dielectrics that permits the storage of electrically separated charges when potential difference exists between the conductors

capture effect An effect occurring in FM reception when the stronger of two stations on the same frequency suppresses the weaker station

carbon microphone A microphone in which the pressure of the soundwaves against a diaphragm is transmitted to a mass of carbon granules causing the resistance of the mass to vary in accordance with the sound impressed on the diaphragm

cardioid microphone A microphone having a heart-shaped space response pattern of 180° in front, and minimum response in the rear



CARDIOID MICROPHONE PATTERN

carrier (1) A wave having at least one characteristic that may be varied from a known reference value by modulation

(2) That part of the modulated wave that corresponds in a specified manner to the unmodulated wave, having, for example, the carrier-frequency spectral components

carrier activity sensor A (solid-state) switch associated with the receiver squelch circuit that provides switch operation upon the presence of a carrier RF signal

Carrier Control Timer (CCT) A device that limits the length of time that the transmitter carrier is on

carrier-current A system in which several modulated signals may be sent over a telephone or power line, each signal utilizing its own carrier

carrier frequency The frequency of the original unmodulated radio wave produced by the transmitter. The carrier frequency must be maintained within very close tolerance of the FCC-assigned frequency

carrier frequency shift An RF carrier whose frequency is shifted in order to send intelligence (more often called FSK—frequency shift keying)

carrier operated relay A relay associated with the squelch circuit of a receiver that provides contact operation upon the presence of an on carrier RF signal

carrier operated switch A (solid state) switch operated by the squelch circuit that provides switch operation upon the presence of a carrier RF signal

carrier suppression A transmission system whereby the carrier wave is not transmitted. See: balanced modulation

Carterfone Decision A landmark decision by the FCC that allowed interconnection to telephone circuits

cascade connection A tandem arrangement of two or more similar components or devices in which the output of one is coupled to the input of the next

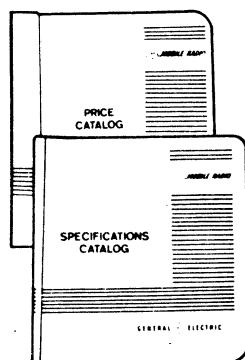
catalog A complete listing of products for sale

Catalog, Mobile Radio Price (MRC)

A complete listing of currently available General Electric mobile radio combinations and accessory equipment with ordering information, prices and a general description of each item

Catalog, Mobile Radio Specifications (MRC)

A complete display of General Electric specification sheets and other informational pages on currently available, standard, mobile radio combinations and accessory equipment



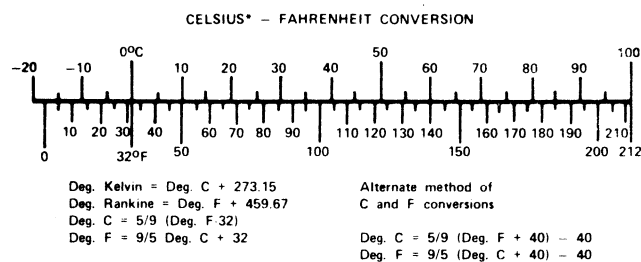
cathode (1) A source of electrons (2) A negatively charged pole or element from which the current (electrons) leave

cat whisker A small sharp-pointed wire used to make contact with a sensitive point on the surface of a semiconductor

cavity resonator A space enclosed by a metal conductor in which oscillating electromagnetic energy is stored and whose resonant frequency is determined by the geometry of the enclosure

cell One element (unit) of a battery which converts chemical energy into electrical energy

Celsius (°C) The metric scale of temperature in which water freezes at 0 degrees C and boils at 100 degrees C. Absolute zero is minus 273 degrees C. To convert a Celsius (centigrade) temperature to Fahrenheit, multiply by 9/5 and add 32. New name for centigrade



center fed antenna See: antenna, center fed

center frequency The assigned frequency of a radio station from which deviation is measured. Also called the resting frequency or carrier frequency

centigrade See: Celsius

ceramics Various claylike materials consisting mainly of aluminum, titanium, beryllium or magnesium oxides which, after molding and firing, may be used as an insulator or dielectric

change out To replace

channel (1) A band of frequencies (2) A single path for transmitting electric signals, usually distinct from other paths

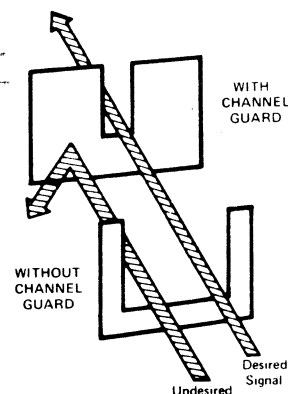
channel, adjacent See: adjacent channel

channel element A temperature-compensated crystal oscillator circuit. GE names are ICOM or SICOM

Channel Guard General Electric's trademark for continuous tone coded squelch system (CTCSS)

channel, point-to-point A radio channel used for radio communication between two definite fixed stations

channel, radio A single communication path. Can be one-way (paging) or two-way (mobile-base) may operate on one frequency (simplex) or two frequencies (one frequency base to mobile, the second frequency mobile to base)



channel, television A band of radio frequencies 6 MHz wide used for television broadcast. The principle channels are:

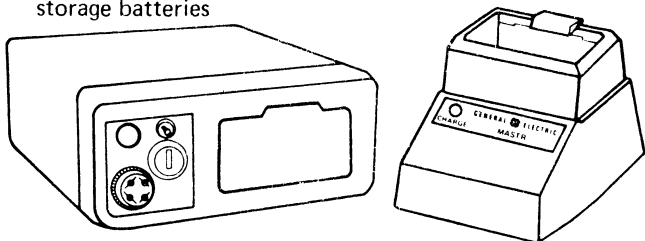
- | | |
|---------------|-----------------|
| (2) 54-60 MHz | (7) 174-180 |
| (3) 60-66 | (8) 180-186 |
| (4) 66-72 | (9) 186-192 |
| (5) 72-78 | (10) 192-198 |
| (6) 78-84 | (11) 198-204 |
| | (12) 204-210 |
| | (13) 210-216 |
| | (14-83) 470-890 |

channelization The assignment of circuits to channels, and the arrangement of those channels into groups

charge (1) To replenish the electrical potential in a battery
(2) To store electrical energy in a capacitor (3) To put down as a debt against a name or account

charge, fast or quick A method of quickly recharging nickel cadmium batteries under controlled conditions

charger A device, rectifier or DC generator which supplies direct current at a voltage and rate suitable for charging storage batteries

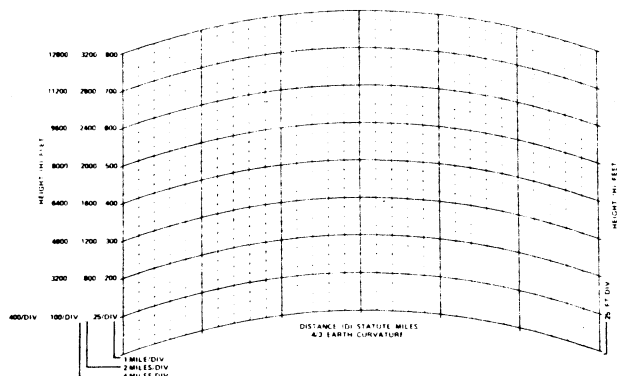


charge, termination See: termination charge

charge, trickle The continuous charge of a battery at a slow rate. This rate does not overheat the battery and therefore results in longer battery life

charging rate See: rate, charging

chart, 4/3 earth's radius A radio profile chart whose horizontal lines are curved to correspond to an earth having a radius 4/3 times larger than the actual earth radius. This provides an automatic correction for normal atmospheric refraction of the radio waves



chart, profile A chart showing the clearance of a radio wave over the terrain between two antennas. See: chart, 4/3 earth's radius

chassis The framework on which parts of a radio or other electronic circuits are mounted

check out The tests or observations made to determine the condition or status of an item or system

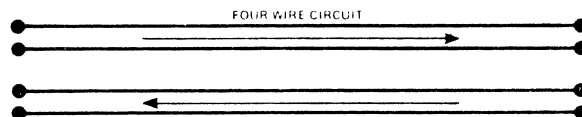
chip, semiconductor A small piece of thin semiconductor material upon which a transistor or integrated circuit is constructed

choke An inductor which presents a high impedance to alternating currents over a specified frequency range while allowing relatively free passage of the current at lower frequencies and of direct current

circuit (1) A path over which an electrical current can flow (2) A network providing one or more closed paths

circuit breaker See: breaker, circuit

circuit, four-wire A circuit using two one-way transmission paths which may be either two carrier paths or two pairs (4 wires) of metallic conductors

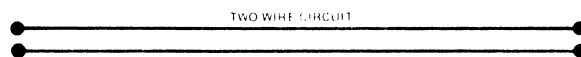


circuit merit A rating of overall circuit quality. Circuit merit "5" is a clear circuit. Merit "3" is readable with interference. Any rating below "3" is not readable and is generally unacceptable

circuit, metallic A circuit which is entirely in wire not via the earth, carrier or radio

circuit, tuned A circuit which is adjusted to be resonant at a particular frequency

circuit, two-wire A normal metallic circuit using two ungrounded wires



circulator A passive three-port device showing low impedance to RF energy in one direction, and high impedance in the other direction. Power applied to one port is transferred to the next port in the sequence. Usually made of ferrite material

class of pole A numerical classification for wooden poles used in telephony, power or antenna construction. The classification is from 1 to 10 which defines the minimum breaking strength and minimum top circumference of a pole

Class	Breaking Strength	Top Circumference
1	4500 lbs	27 Inches
2	3700 lbs	25
3	3000 lbs	23
4	2400 lbs	21
5	1900 lbs	19
6	1500 lbs	17
7	1200 lbs	15
8		18
9		15
10		12

Breaking strength is the horizontal load that can be applied two feet from the top of the pole with the base set at a normal depth in solid earth. The taper of class 1-7 is 0.63 inches per linear foot.

clear (1) To restore to idle condition (2) To rid of trouble (3) To restore a memory device to zero condition

clearance Separation or spacing

clip, alligator A test clip having long, narrow serrated jaws

clipper A circuit that limits the amplitude of signals or noise impulses by removing all the peaks above a predetermined level

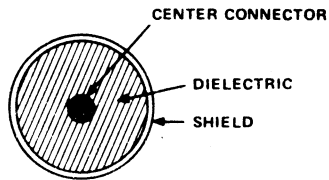
clock (1) A source of synchronizing signals (2) A device for measuring time

closure Completion of a circuit

coaxial Having a common axis

coaxial antenna An antenna that consists of a 1/4-wave-length extension of the center conductor of a coaxial cable, plus a 1/4-wavelength sleeve connected to the outer conductor of the cable

coaxial line A line used for transmission of RF energy consisting of a shield over an insulated tube surrounding a center core of conducting material



co-channel The same channel; usually applied to users (or interference) on the same channel or communication path

codan A carrier operated device, antinoise

code A system of abbreviations used in preparation of information for more efficient handling

Code, ASC II American Standard Code for information interchange. An 8-bit (level) code using one bit for parity check

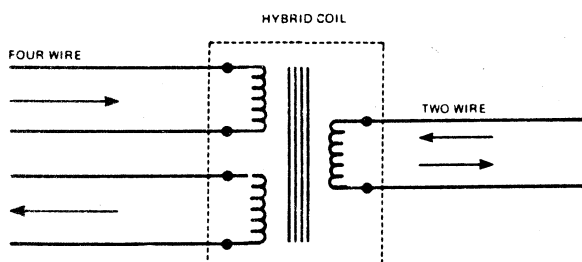
Code, BCD (1) An acronym for "Binary Coded Decimal". (2) An 8-bit code, one of which is used for odd parity check

Code 911 A planned universal emergency telephone number for reporting emergencies to emergency communications centers. Dialing of 9-1-1 from any telephone will automatically route the calling party to the emergency center

coil One or more turns of electrical conductor forming an inductor

coiled cord See: cord, retractable

coil, hybrid A transformer used as a connection device. The coil matches impedances between certain circuits and provides isolation between other circuits. A hybrid is often used to connect four-wire circuits to two-wire circuits so that both directions of transmissions on the four-wire line are isolated from each other but are connected to the two-wire line



cold joint A soldered connection (joint) that has been inadequately heated resulting in the wire being held in place by the flux not the solder thus making a poor (high resistant) connection

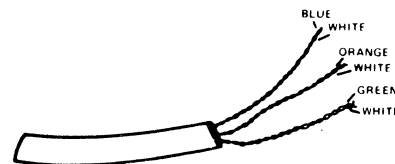
collation The putting together in sequence

collinear In line; collinear isolation of antennas is achieved by mounting them in a line with each other

collinear array antenna See: antenna, collinear array

color code (1) A method of identifying electrical components. Telephone cable is normally coded on the outer insulation of each wire. The telephone cable sequence is:

Blue	} paired with	White
Orange		Red
Green		Black
Brown		Red-White
Slate		Black-White
		Red-Black



(2) Resistors are color coded as follows:

Black 0	Green 5
Brown 1	Blue 6
Red 2	Violet 7
Orange 3	Gray 8
Yellow 4	White 9

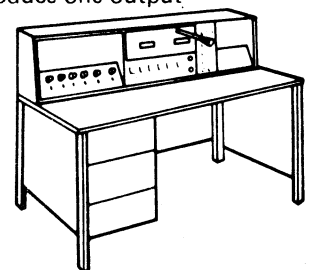


Band 1 & 2	Describe Value
Band 3	Multiplier (Number of zeros)
Band 4	Tolerance – Silver 10%; Gold 5%

combination An assembly of components that make up a complete station or unit

combiner A device that combines the output of two or more circuit elements to produce one output

command control center A control point for a number of communication channels (telephone, radio or coded communications). The hub of most communication systems



commission (1) The authority to act for others in commercial transaction (2) The fee paid for actions for others in commercial transactions

commitment (1) A pledge or promise (2) To dedicate oneself to a goal

common carrier A purveyor of communications services, offering service to the public. Rates and tariffs must be filed and approved by the FCC

common equipment Any equipment which is used in the same manner by a number of channels or equipments.

communication Transmitting and/or receiving of information signals or messages

community antenna television (CATV) A service which for a fee distributes television programs into areas via cables

community repeater See: shared repeater

compact Arranged neatly in a small space

compandor A circuit which increases the signal to noise ratio by compression at one terminal and expansion at the other

comparator A device that compares the relative levels of two or more signals. Used in General Electric's receiver voting system

Compa-Station Motorola's name for its desk-height base station

compliance Giving into a request

component A part of; a specific part in a total network of parts

compression In audio systems, reducing the volume range of the input signal so that the minimum output has less noise, and the maximum output signal has less distortion

compressor A variable gain audio device used to provide a relatively constant output level for a wide range of varying input levels

computer An electrical device which can accept information, process it mathematically in accordance with previous instructions and provide the results of this processing

condenser An outmoded term for capacitor

conductance The measurement of the ability of a component to conduct electricity. The reciprocal of resistance

conductor A solid, liquid, or gas which offers little resistance to the continuous flow of electricity

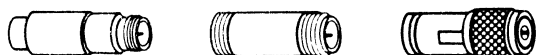
conduit A pipe or tube built into a building or buried in the earth through which cables or wires may be passed

cone of silence The area directly over or under a vertical transmitting antenna in which little or no signal is radiated

connector (1) An electrical multiconductor connecting device consisting of a mating receptacle and plug (2) Any device for making a temporary or semi-permanent electrical connection

connector, bead chain A plug on connector used to interconnect points on a printed circuit board

connector, N type An antenna connector with a constant impedance up to 10,000 MHz. Electrically superior to the UHF connector



connector, UHF The most popular connector for use in mobile radio applications due to its ease of installation and ready availability at most supply stores. Electrically this connector exhibits non-constant impedance characteristics and VSWR mismatch at higher frequencies above 300 MHz. The UHF connector is a good "all around" connector when properly used



consignment equipment Equipment (or goods) sent to an agent for sale. Title is held by the consignor until they are sold

console A cabinet that houses controls for a communications center or station

consolette (1) Motorola's name for a desk-top radio station (2) A device for mounting a mobile microphone, control head and sometimes speaker. Includes a molded case for storing some writing materials and handbooks.

constraints Limits on the variables or system parameters because of physical or system requirements

contact A conducting part which co-acts with another conducting part to make or break a circuit

continuous duty (1) An unending transmission (2) Operating 100% of the time (3) EIA — full load output under the manufacturers normal loading conditions for this class of service for twenty-four (24) hours (4) See: duty cycle

Continuous Tone Controlled Squelch System (CTCSS) A system in which receivers are equipped with tone responsive devices which allow audio signals to appear at the speaker only when a carrier modulated with a specific tone is received. This tone must be continuously present for continuous output. General Electric calls such a system "Channel Guard". Motorola calls it "Private Line" and RCA's system is "Quiet Channel"

control The initiation, direction, or termination of an action

control, automatic frequency See: automatic frequency control

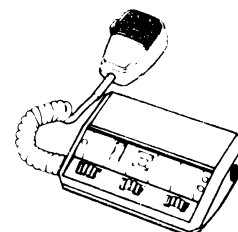
control, automatic gain See: automatic gain control

control, automatic volume See: automatic volume control

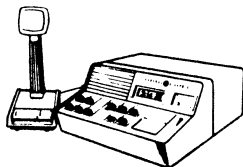
control, extended local The extension of the control system wiring of a base station to locate the controls a prescribed distance from the base station

control head A device, generally mounted in a vehicle, from which control of the radio unit is performed

control, local A control system packaged with the control unit mounted directly on the base station



Controller, MASTR A device used to supply the necessary tones or currents to remotely control a base station. May be either a tone or a DC generator



control, manual An arrangement that involves the opening and closing of switching devices by hand

control point A position from which a radio system is controlled and supervised

control, remote A control scheme for a radio system where all control functions are performed remotely via telephone lines

control station A base station, the transmission of which is used to automatically control the emission or operation of another base station such as a repeater



control unit The point or module from which a radio station is operated. See also control head

convenience outlet A power outlet placed in an equipment enclosure to supply power to portable (test) equipment

conversion, single See: single conversion receiver

converter A device which changes the condition of energy within the same type of energy

converter, frequency (1) A circuit or device which changes a signal from one frequency to another (2) In a superhetrodyne receiver the section consisting of the oscillators, mixer and first detector stage

converter, touch tone A device which will receive dual tone multifrequency (DTMF) address signals and convert them to dial pulses

convertibility The ability to be changed (converted) at a later date

conveyor A mechanical device, generally a belt, which is electrically driven. Used to transport material from a receiving point to a discharge point

coordination, frequency The cooperative selection and allocation of radio frequencies such that all systems can operate with minimum interference

coordinator, frequency One who does frequency coordination

copy, hard The printed message as it comes from a teleprinter

cord A flexible insulated conductor or conductors under a common cover, often used where flexibility is one of the functional requirements, as with microphone or speaker cords

cord, retractile A coiled cord. An electrical cord such as a microphone cord which is spirally wound so that it will

extend to its full length and then restore to the tight spiral when released

corner reflector antenna See: antenna, corner reflector

corona A static discharge which forms on a conductor suspended in air when the electrostatic stress in the air exceeds 75,000 volts peak per inch. Corona is accompanied by the production of ozone which has detrimental effects on some dielectric materials

corrosion The process or result of a material being eaten away gradually, usually by chemical action

cost (1) A monetary sacrifice incurred as a result of business operations (2) The amount of money, time, labor, etc. required to get a thing

cost, direct or functional The cost of the material used, plus the cost of the labor to assemble, plus the factory overhead

cost, indirect The fixed costs in a business operation. i.e. —salaries, rent, telephone, power, etc.

cost, total The sum of direct and indirect costs

coulomb (1) The base unit for measuring electric charge (2) The quantity of electric charge that passes any cross section of a conductor in one second when the current is maintained constant at one ampere

counter A device for counting events per unit of time

coupler, antenna See: antenna coupler

coupler, directional A coupling device that is inserted into a transmission line and has two outputs; one is proportioned to the power moving toward the antenna, and the other to the power returning from the antenna, or reflected power. The device may be used to measure the power output and standing wave ratio of the antenna

coupling The mutual relation between two circuits which permits the transfer of power from one to the other

coupling loop The inductive metal loops used in cavity resonators

cradle The mounting for a handset—may or may not contain contacts

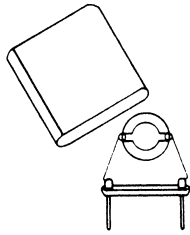
credit (1) Belief, confidence, trust, faith (2) A trust in one's integrity in money matters and in one's ability to meet payments when due

crossband A multi-channel system where the channels are located in different major frequency bands

cross modulation Interference which modulates a signal undesirably, usually from some source such as an adjacent station

crosstalk An undesirable coupling of intelligence from one channel into another channel

crystal A piece of quartz or similar material that has been ground thin and to the proper size to produce vibrations at the desired frequency. Used in radio transmission to generate, with a high degree of accuracy, the assigned carrier frequency of a station



crystal filter A highly selective tuning circuit employing a crystal. May be used in the IF amplifier of a two-way receiver to improve the selectivity and permit reception of a desired frequency, even when there is strong interference from other stations

current The movement of electrons in a circuit. Current is measured in amperes

current, unidirectional A current that flows in the same direction at all times. If it is essentially of a constant value, it is called direct current

cut-off frequency That frequency in a filter or other device at which rapid, if not complete, loss of signal takes place

cut over To transfer from one system to another

cycle One complete reversal of an alternating current, including a rise to the maximum level in one direction and a return to zero. The number of cycles occurring in one second is the frequency of the current. The work cycle is commonly used to mean cycles per second (now hertz), in which case it is a measure of the frequency. See: alternating current

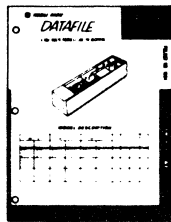
D

dampen To line with sound-absorbing materials so as to prevent audio echoes or reinforcement

damping The reduction of energy in a mechanical or electrical oscillating system by absorption, conversion into heat, or by radiation

data (1) Numbers, letters, symbols and facts that describe a condition or an object (2) Basic element of information, usually numerically expressed, which can be processed by computers or machines

Data File An extensive source of servicing, maintenance and parts provisioning information covering all current and recent General Electric mobile radio equipment. Supplemental mailings to update the information are made on a timely basis. This is a subscription service



Data Set A General Electric product to interconnect a data transmission capability to the telephone network

dBm A unit for expression of power levels in decibels with reference to a power level of one milliwatt

dBw A unit for expression of power levels in decibels with reference to a power level of one watt

decay (1) Exponential reduction in amplitude (2) To be reduced in an exponential manner, as the current in a circuit decays when the source of potential is removed

DC control A remote base station control scheme that requires metallic conductors and currents of different values to control the station's various functions. Another type of control is tone control

DC generator A rotating machine that converts mechanical energy into direct-current electrical energy

decibel A unit of relative power. One-tenth of a Bel. It has been determined that the human ear can detect certain changes of volume output, and that the basic Bel unit was not small enough to measure these changes, thus the unit decibel was established. A unit which expresses the ratio of two voltages, currents or powers used to specify transmission loss, gain or relative level

decode To provide an output which is derived from several input signals

decoder (1) A device that accomplishes the decode function (2) A device that responds to one particular coded signal while rejecting all others



deemphasis The introduction of loss at higher frequencies in a receiver of a communication system to compensate for earlier preemphasis in the transmitter and produce an overall "flat" frequency response. The customary emphasis is 6 dB per octave

degeneration (1) Decay (2) Negative feedback

delay (1) The amount of time by which an event is retarded (2) The amount of time by which a signal is retarded

delay distortion The distortion caused by the fact that some frequencies travel slower over a given path than others and therefore arrive later

demodulation The process of extracting the audio frequency signal from the modulated carrier signal. The opposite of modulation

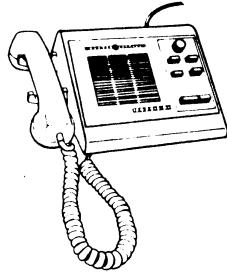
demodulator The device which recovers the original intelligence signal from the modulated carrier wave

desensitization (1) To lose sensitivity, not to be able to perform to established standards. (2) A loss of receiver sensitivity through overload due to a nearby transmitter operating on a channel relatively close to the receiver desired channel

Deskon A limited function control device for tone or DC systems

detect To rectify a modulated carrier wave and thereby recover the original modulating wave

detector The part of a radio receiver which demodulates the carrier wave



detector, first The mixer stage in a superhetrodyne radio receiver. It mixes the radio signal with a local oscillator signal to produce an intermediate frequency (IF)

detector, ratio A type of FM demodulator. See also discriminator

detector, second The detector in a superhetrodyne receiver that derives the audio frequency signal from the intermediate frequency signal

detent The notch or latch on a control knob which holds it in a fixed position until it is intentionally moved

detune (1) To adjust a circuit so that it is no longer resonant (2) The opposite of tune or align

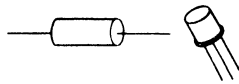
deviation (1) The frequency change of a carrier frequency as the result of modulation (2) A variation from normal

deviation, allowable The maximum permissible difference between any of a range of conditions and a reference condition

deviation, frequency The peak difference between the instantaneous frequency of the modulated wave and the carrier frequency

device A single discrete electronic unit such as a resistor, transistor or microelectronic circuit

device, semiconductor Any electron device based on the use of conduction (electron flow) in a semiconductor such as a crystal diode, transistor, thermistor or photo-diode



dial A rotary device that transmits a coded signal (encoder) to actuate equipment in accordance with the digits selected. Generally equipped with ten finger holes for number selection

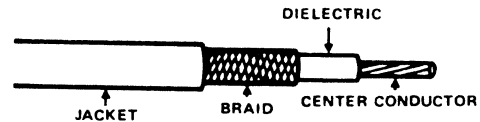


DIAL COMM General Electric's leased network of long distance telephone circuits which interconnect company locations

dial page A Type 99 tone selective signaling system which interfaces with a customer's dial telephone system at selector level and converts dial pulse codes to two tone selective signaling (Type 99 Tones)

diaphragm A flexible sheet that can be vibrated by sound waves as in a microphone, or can be vibrated to produce sound as in a telephone receiver

dielectric A material which will not conduct electricity but will contain an electrostatic charge. Used between the plates of capacitors and between the conductors of a coaxial cable to insulate the conductors



differential Minimum usable difference between quantities

diffraction The bending of a wave (light or radio) as it passes the edge of an object or through a grating

digit Any number from 0 to 9

digital (1) Referring to the use of digits to encode or decode information (2) Information in the form of pulses

dimmer See: pilot light dimmer

diode An electronic component containing two elements, a cathode and an anode, generally used as a rectifier or detector

duplexer A device which enables the use of two radio transmitters, operating on different frequencies, on the same antenna simultaneously

direct current An electrical current that flows in one direction only, usually associated with a battery or other power source. Lightning charges are also direct current voltages

directivity A characteristic of an antenna which provides greater gain in a given direction

direct wave A radio wave that travels directly from the transmitting antenna to the receiving antenna without being reflected or refracted

disable To make inoperative

discharge (1) In a storage battery, the conversion of chemical energy to electrical energy (2) In a capacitor, the conversion of dielectric stress into an electric current

disconnect To disable an electrical circuit by the removal of connections

discriminate To detect which of two frequencies is present in a circuit

discriminator A type of FM demodulator. A device in which amplitude variations are derived in response to frequency variations. The opposite of the modulator in the transmitter

dish (colloq.) A parabolic-shaped reflector used to transmit or receive radio energy in a microwave relay system

dispatch point A position from which a radio system is used but not supervised or controlled

display A visual presentation of information

distortion Unfaithful reproduction of audio signals due to changes occurring in the wave form of the original signal somewhere in the course of its transmission or reception. The lower the percentage of distortion, the more distortion free the system is and the more intelligible the message

distortion, harmonic A form of distortion most troublesome in audio amplifiers, in which harmonics of the input signal are produced within the amplifier and appear in the output along with the amplified input signal

distortion, modulation Distortion occurring in the radio-frequency amplifier of a receiver, resulting in sounds that were not in the original transmission

distribution system The method(s) used by a commercial organization to bring their products to market, i. e. Manufacturer's Representatives
Distributors
Branch Stores
Agents
Dealerships
etc.

disturbance (1) The interruption of a quiet state (2) The interference with normal communications

diversity A method of radio transmission and/or reception which counteracts the effects of fading by combining several signals all bearing the same information

doubler, frequency An electronic circuit in which the output is twice the input frequency

double throw Describing a switch or relay contacts which transfer circuit A from circuit B to circuit C

downtime The time during which a circuit, system, or unit is not operating because of component failure

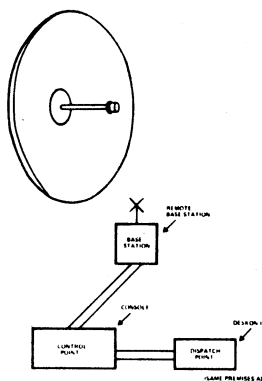
drain (1) The current drawn from a voltage source by a load (2) One of the elements of a field-effect transistor

dress To arrange wires and wire connections so that they present an orderly appearance

drift A term applied to any shifting of a signal from its assigned frequency

drip proof Protected from water falling in drops

drive The signal applied to the input of a power amplifier. Also called excitation



driven element Any antenna array element that receives power directly from the transmitter or is connected directly to the receiver

driver A device used to supply signal power to a following stage or device

driver stage In a transmitter, the amplifier stage which precedes the high amplification stage

drop (1) A voltage decrease, such as a decrease which is due to excessive current flow through a component (2) A point where information is taken from or inserted into a system

dry cell A form of primary cell in which the electrolyte is in the form of a paste rather than a liquid

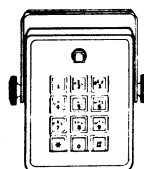
dry contacts Contacts through which no direct current flows

dual front end See: receiver, dual front end

dual modulation The process of modulating a carrier wave with two different modulations; for example, amplitude and frequency modulation so as to transmit two different types of intelligence or two messages on one frequency

dual-tone multi-frequency (Touch-Tone®) (D.T.M.F.)
A method of sending numerical information from an encoder by sending specific pairs of voice frequencies for each digit. The tone pairs are:

digit	low tone	high tone
1	697	+ 1209 Hz
2	697	+ 1336
3	697	+ 1477
4	770	+ 1209
5	770	+ 1336
6	770	+ 1477
7	852	+ 1209
8	852	+ 1336
9	852	+ 1477
*	941	+ 1209
0	941	+ 1336
#	941	+ 1477



duct A single pipe or conduit through which a wire or cable can be passed

dummy antenna A network device that simulates an antenna's impedance and power dissipation characteristics but does not radiate or receive radio waves. Used for testing radio transmitters

duplex A communication system employing different transmitting and receiving frequencies. For example, all taxi cabs operate on duplex channels

duplexer A device which allows one antenna to be used to both transmit and receive radio signals of different frequencies at the same time

duplex, half A system in which communication may be in either direction but only one way at a time. For example, base stations may operate duplex while mobiles operate on a push-to-talk basis

duplex operation

duty cycle

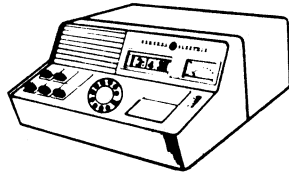
duplex operation The simultaneous operation of transmitting and receiving equipment without interruption

duty cycle The ratio of operating time to total elapsed time. See also continuous duty and intermittent duty

E

E & M signaling An arrangement by which signaling between two points on a radio or carrier path is accomplished. An **M** lead is associated with the trans**M**it (or Mouth) while the **E** lead is associated with the rec**E**iver or (Ear). Full time supervision is therefore provided

EACOM Emergency and Administrative **C**ommunications for hospitals—a specialized radio communications system which permits dialing (selective calling) among stations



easement A non-profitable interest in land which permits the holder the right to enter land owned by another for the purpose of installing or maintaining communications

effective antenna length The electrical length of an antenna as distinguished from its physical length. The ratio of the antenna open-circuit voltage to the strength of the field component being measured

effective height The true electrical height of an antenna corresponding to a "perfect" antenna that will produce the same field strength. The height of its center of radiation above the effective ground level

effective radiated power (ERP) The calculated power output from an antenna system which incorporates all of the gains and losses in the antenna system

ERP is calculated as follows:

(1) Convert power output of transmitter to dB referenced to one watt (dBW). (2) Subtract all transmissions (antenna) line losses including losses in equipment between the transmitter and antenna (filter, duplexers, circulators, duplexers, etc.) expressed in dB. (3) Add the antenna's power gain (expressed in dB reference to a 1/2 wave dipole). (4) Convert the results into watts

effective signal radiated The rating basis for licensing radio transmitters. Equal to the square root of the effective radiated power times the antenna height in feet above ground level

efficiency The ratio of the useful power output to the amount of energy (power) input, usually expressed as a percentage. A perfect electrical efficiency would be 100%

E-Layer The region in the ionosphere between 55 and 85 miles above the surface of the earth that contains ionized particles capable of bending or reflecting radio waves

electricity The flow of electrons in or on a conductor or through a gas or space

electro-acoustic Pertaining to a device whose function involves receiving or delivering electrical waves to an acoustical system. A loudspeaker and a microphone are examples

electrode (1) Either of the two terminals of an electric source, such as a battery (2) A conducting element through which an electric current enters or leaves an electrolyte, gas, or vacuum

electromagnet A coil of wire usually wrapped on a soft iron core which produces a magnetic field when current is sent through the coil

electromagnetic deflection The process of bending or changing the path of an electron stream by means of a magnetic field

electromagnetic energy Energy in a radio wave made up of electrical and magnetic components

electromagnetic field A magnetic field located at right angles both to the lines of force and their direction of motion

electromagnetic waves Radiation taking many different forms and exhibiting widely different properties, but all having in common the characteristic of velocity in the order of 3×10^{10} cm/sec. Short wavelength radio waves are characterized by reflection and refraction properties similar to light, and the ability to generate electric current in a conductor. They consist of electric and magnetic fields perpendicular to each other and to the line of travel. As wavelength increases, the radiations act less like energy particles and more like waves

electromagnetism Magnetic effects produced by an electromagnet rather than by permanent magnets

electromotive force Voltage; the force that causes current to flow in a circuit

electron

electron An elementary particle containing the smallest negative electric charge

electronic (1) Pertains to devices, circuits or systems which depend upon the flow of electrons in vacuum or in semiconductors, such as electron tubes, transistors, etc. (2) Describing devices which depend upon the flow of electrons in vacuum or in semiconductors, such as electron tubes, transistors, etc.

electronic data processing (EDP) — Use of electronic memories to store, up-date and read information automatically and using that information in accounting, billing and business analysis and reporting

electrostatic field The region near an electrically charged object

electrostatics Pertaining to electric phenomena associated with electric charges at rest

electrostatic shield A grounded metal screen, sheet, or object placed around or near a radio to prevent any electric field through the shield

electrostatic storage An electric charge stored in a capacitor or on the surface of an insulated object

element A component or basic part of the whole. Any electric device with terminals that may be connected directly to other electric devices

element, frequency determining Another name for oscillator modules

emission (1) The process of radiating radio waves into space from a transmitter (2) The process of ejecting electrons from the surface of a material under the influence of heat radiation causes

emitter follower A transistor circuit using a grounded collector to provide operation similar to a cathode follower

empathy The process of grasping or understanding the other person's point of view—putting yourself in his shoes or viewing a situation or idea through his "filter"

Employee and Community Relations (E&CR) The function in General Electric that is charged with personnel matters, as well as General Electric's citizenship in community affairs

enable (1) To allow to operate (2) To remove restrictions (3) The opposite of disable

encapsulation A process for encasing an electronic part or assembly with a protective insulating material

extender board

encoder (1) A converter or transducer used to change the state of intelligence. (2) A device to express a single character or a message in terms of a code

enclosure A housing such as a case, cabinet, cabinet rack or console which is designed to provide protection and support to equipment

energize To provide power to

energy The capacity for performing work. Motional energy is called kinetic energy. Nonmotional energy is called potential energy

engineering (1) The science of planning, design and construction (2) A section of the Mobile Radio Department that is charged with the responsibility of design (both electrical and mechanical) of the Department's products

equalize To apply to a circuit an electrical network whose transmission characteristics are complementary to those of the line so that when the loss or delay in the line and that in the equalizer are combined the overall loss or delay is almost the same at all frequencies

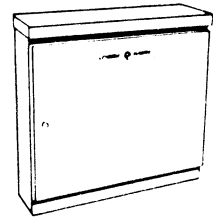
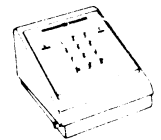
estimate (1) A calculation of the probable cost of doing a certain piece of work (2) A written statement of proposed charges

excitation The application of a signal to the input of a device in the RF or amplifier state. The application of voltage to the coils of a motor, generator, loudspeaker, or other device that produces a magnetic field

exciter The low level stages of a transmitter which normally consists of oscillator, modulator and multiplier

Extender Motorola's name for Noise Blanker

extender board A printed circuit board that plugs into a module's circuit connector at one end and the module on the other to maintain a circuit so that the module may be conveniently tested out of an inaccessible position



F

facsimile A system for the transmission of pictures, drawings and written or printed documents by wire or radio

Factory Modernized Radio (FMR) An offering of General Electric equipment which is recycled and updated, previously in-service equipment

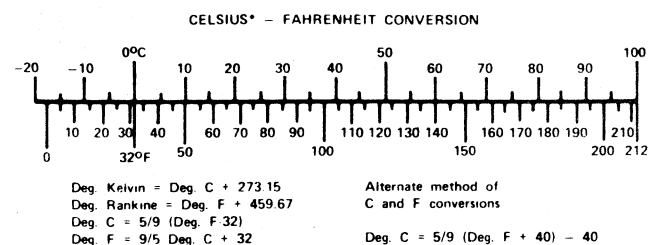
fade To decrease gradually in signal strength

fade-in To increase strength gradually of a previously weak or inaudible signal. The opposite of fade-out

fade-out To reduce strength gradually of a previously strong or loud signal. Failure of radio waves to arrive at a location either because of interference or weakness of signal strength

fading A variation in the signal intensity at a given location, on a frequency setting, or on a given volume setting

Fahrenheit The temperature measuring system that is generally used in the United States, in which 32 degrees is the temperature at which water freezes, and 212 degrees is the temperature at which water boils at sea level



fail safe Describing a circuit or device which fails in such a way as to maintain circuit continuity or prevent damage

fan See: blower

feature A prominent or distinctive characteristic

Federal Communications Commission (FCC) A board of seven commissioners appointed by the President of the United States under the Communications Act of 1934, having the power to regulate all electrical communications systems originating in the United States including

radio, television, facsimile, telegraph, telephone and cable systems

feed To supply energy to a line, antenna or circuit

feed, antenna The coaxial or wire transmission line that delivers energy to an antenna

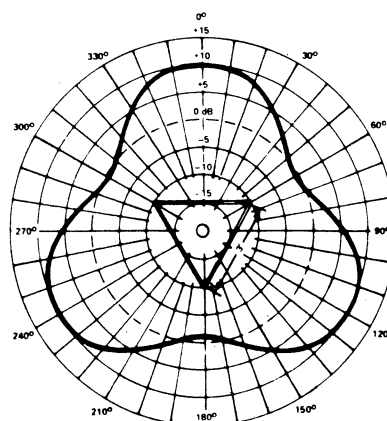
feedback The act of returning a portion of the output voltage of a circuit which includes amplification to the input of that circuit

feedback, acoustic The feeding back of sound waves from a loudspeaker to a microphone in the same audio system. Creates distortion

feeder The transmission line between an antenna and a radio transmitter or receiver

fidelity The degree of exactness with which a system or portion of a system reproduces an input signal

field distribution of antennas The field strength in angular directions from the antenna. Shown graphically as loops or circles with the antenna as the axis. Field strength in any direction is shown by the straight-line distance from the antenna to the number value in that direction. The number and position of the circles for a specific antenna depend upon the relation of antenna length to wavelength



field effect transistor (FET) A transistor which exhibits a controlled varying conductivity. Used in the RF amplifier section of a receiver to improve intermodulation rejection

field strength The strength of an electric, magnetic or electromagnetic field. Electromagnetic (radio) field strength is expressed in microvolts per meter or millivolts per meter

filament In an electron tube, the directly heated element consisting of a loop of resistance wire which emits electrons when heated by a current

filter A frequency selective network which transmits signals of desired frequencies while attenuating all other frequencies

filter, band elimination A network which is designed to freely pass signals of all frequencies except those within a definite band

filter, band pass A network which is designed to pass, without appreciable distortion, frequencies within a specified band while attenuating frequencies outside of that band

filter, crystal See: crystal filter

filter, harmonic An electronic circuit designed to screen out harmonics in a particular radio system

filter, high pass A filter (network) which passes, without appreciable attenuation or distortion, all frequencies above a specified cutoff frequency while attenuating all frequencies below the cutoff frequency

filter, low pass A filter which passes, without appreciable attenuation or distortion, all frequencies below a specified cutoff frequency while attenuating all frequencies above the cutoff frequency

filter, notch A filter that rejects a very narrow band of frequencies and passes other frequencies

final amplification The final amplification units in the transmitter which boost the radio carrier signal to the desired strength (power) for transmission

Finance A Mobile Radio Department section charged with managing the money resources and matters of the Department

fins Flat protruding sections of heat sink used to dissipate heat

fiscal calendar A twelve month financial calendar. General Electric's fiscal years are approximately the same as a standard calendar year

fish To push a steel wire or tape through a conduit, and then with it pull through wires, cables, or a heavier pulling-in wire

FISCAL CALENDAR											
FIRST QUARTER				SECOND QUARTER				THIRD QUARTER			
JAN	1	2	3	4	5	6	7	AUG	1	2	3
FEB	8	9	10	11	12	13	14	SEP	4	5	6
MAR	15	16	17	18	19	20	21	OCT	7	8	9
	22	23	24	25	26	27	28	NOV	10	11	12
	29	30	31					DEC	13	14	15
									16	17	18
									19	20	21
									22	23	24
									25	26	27
									28	29	30
									31		

five-by-five A colloquial expression describing signal merit levels which are loud and clear

fixed station (1) A radio station which is not mobile (2) A station which is permanently installed (3) A base station in a mobile radio system

flashover The discharge of high voltage electricity across a surface or around an insulator

F-Layers The upper layers of ionization in the ionosphere. The F-1 Layer is about 130 miles above the earth. The F-2 Layer height varies from about 250 miles during the day to about 150 miles at night

flip-flop A bi-stable device which can be switched to either of two states—"one" or "zero"

float To operate a storage battery in parallel with a charger and a load at such voltage that the charger supplies the load current and the battery supplies only transient peaks above the normal load

floor, raised A type of floor used in some communication centers and computer rooms in which the floor consists of removable panels supported above the sub floor. The space between the sub floor and the paneled floor is used as cabling and wiring space, as well as ducts for air circulation

flutter (1) Distortion in sound reproduction caused by low frequency noises in a radio speaker (2) Rapid, regular changes in signal strength

FM noise (1) (FM Hum and Noise), Denotes the ratio of residual frequency modulation to standard test modulation in a transmitter, measured on a standard test receiver (2) The amount of internally generated noise in an FM transmitter. Measured in minus decibels. The more negative a number is the better the equipment is. (-70 dB is a better spec than -65 dB)

FM transmitter A radio transmitter that emits or radiates a frequency modulated wave

folded dipole A receiving or transmitting antenna composed of two parallel dipoles, connected at the ends. The connection to the receiver or transmitter is made at the center of one of the dipoles

footswitch A switch or contact arrangement that is operated by the feet: i.e., PTT or Channel Guard Monitor on Command Control Centers or MASTR Controllers

form A preprinted paper used for written communication of predetermined specific information

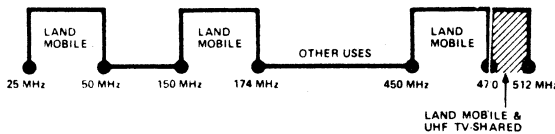
free space transmission Straight line transmission of a radio wave through a vacuum or an ideal atmosphere, without absorption, reflection or diffraction of energy by nearby objects

frequency The number of complete cycles-per-second, or hertz, of alternating current or radio waves. The frequency of a wave is equal to the velocity divided by the wavelength

frequency, audio Any of the frequencies in the range of 20 to 20,000 hertz

frequency band A continuous range of frequencies extending between two limiting frequencies. Frequency bands that are involved in two-way radio are: 25-50

MHz (low band) 150-174 MHz (high band) 450-512 MHz and 890-960 MHz (UHF bands)



frequency coordination See: coordination, frequency

frequency coordinator One who does frequency coordination

frequency demodulation The conversion of a frequency modulated signal into an audio frequency signal

frequency deviation The peak difference between the instantaneous frequency of an FM wave and the carrier frequency

frequency discriminator A circuit that converts an FM signal into an AM signal

frequency distortion A type of distortion occurring when a circuit or device amplifies or transmits, unequally, the different frequencies it is handling

frequency drift A slow undesired change in the frequency of a transmitter or receiver

frequency, intermediate (IF) In a superhetrodyne radio receiver, the frequency produced by combining the incoming radio signal with that from a local oscillator

frequency modulation (FM) A method of modulating a carrier frequency by causing the frequency to vary above and below the resting value in accordance with the sound being transmitted. The amount of deviation in frequency above and below the resting frequency is proportional to the amplitude of the sound being transmitted. The advantages of this system are almost complete freedom from atmospheric and man-made interference between stations

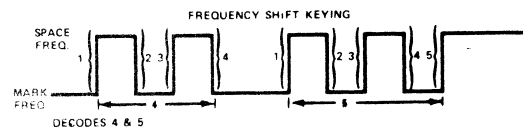
frequency monitor (1) An instrument that indicates the amount of frequency deviation (2) A receiver that allows for listening to communications on a given frequency or frequencies, (3) A means of determining or setting the frequency of a carrier

frequency multiplier A device or circuit whose output frequency is some exact multiple of the input frequency. A frequency doubler or frequency tripler

frequency range A frequency band including the frequencies at which a system is able to transmit, receive, or amplify power

frequency response The manner in which a circuit or device handles the different frequencies falling within its operating range

frequency-shift keying Transmission of coded intelligence by varying the carrier frequency by a small amount using one frequency for a "mark" signal and another for a "space" signal



frequency stability See: stability, frequency

frequency tolerance The extent to which a frequency may be permitted to vary above or below a predetermined value

fringe area An area or locality at such a distance from the transmitter that the signals received are weak

front-to-back ratio The ratio of effectiveness of a directional antenna, microphone or loudspeaker toward the front and toward the rear

full-duplex operation A method of operation of a system which provides simultaneous two-way communications between two points

function The kind of action that an equipment can perform

fundamental frequency The lowest frequency component of a complex signal

fundamental harmonic Same as fundamental. First harmonic

fundamental wavelength The wavelength of the fundamental frequency

G

G A unit of force of gravity

gain The increase of voltage, current, or power as measured against an established standard

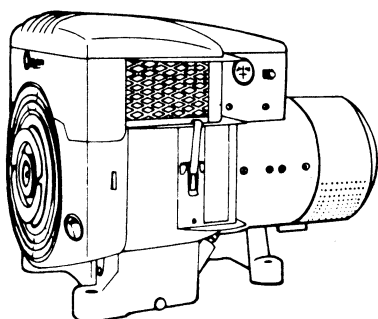
gap The space between a pair of relay contacts in their non-operated condition

gate A circuit having several inputs and one output. The output is blocked unless an input is energized (OR gate), or unless all inputs are energized (AND gate)

General Electric Automated Packaging System (GEAPS)
A standard, plug-in technique for computer and other types of printed circuit boards which contain gold plated contacts for high reliability

generator, signal A portable test oscillator which can be adjusted to provide a test signal at some desired frequency, voltage, modulation or waveform

generator, standby power An AC generator held in reserve and used to supply the necessary AC power when commercial power fails



generator, thermoelectric A semi-conductor device using thermocouple action to convert heat directly into electricity

gin pole A pole which is used together with ropes and pulleys as a derrick for lifting heavy loads and for erecting poles or towers

Government Sales (1) Sales made to agencies of the United States Government. Generally classified either Defense (DOD) or non-Defense agencies (2) A GE sales office

maintained in Washington, D. C. to service United States Government accounts

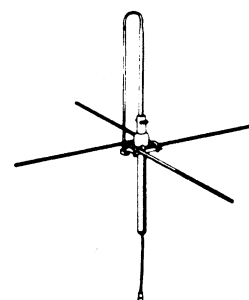
grommet An eyelet of insulating material (rubber, neoprene, nylon, etc.) placed in a hole in metal to insulate and protect wire and cables which pass through

ground A reference point. Also a connection, intentional or accidental, between an electrical circuit and the earth or its equivalent

ground absorption Transmitted radio power dissipated in the ground due to absorption

grounded Connected to earth or some conducting body that serves in place of the earth

ground plane antenna A type of vertical transmitting or receiving antenna used primarily for short wavelength or high band communications. A ground plane antenna consists of a quarter-wave vertical element, and four radial elements spaced 90° apart, and mounted on the base of the vertical element. Antennas of this type are non-directional and have a low angle of radiation



ground-reflected wave The portion of a radio wave that is reflected from the ground

ground wire A conductor leading from the radio equipment to an electrical connection with the ground

guardband A narrow frequency band provided between adjacent channels to prevent inter-channel interference

guy anchor The buried weight or mass to which the lower end of a guy wire is attached

guy wire A wire used to brace a tower of a transmitting or receiving station

H

half duplex See: duplex, half

half-wave antenna An antenna whose length is approximately equal to one-half the wavelength to be transmitted or received

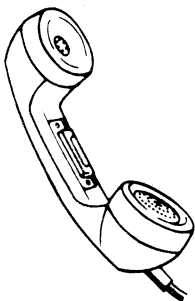
half-wave dipole A straight ungrounded antenna approximately one-half wavelength long

ham A term applied to an amateur radio operator, as opposed to business and commercial operators

handbook A compact reference book on some subject. A guidebook

Handie-Talkie Motorola's name for its personal portable products

hand microphone A microphone designed to be held in the hand. Sometimes called "palm microphone" or "military microphone"



handset A device similar to a telephone handset used in place of a hand microphone



hardcopy A tangible printed copy of a message such as that obtained from a teleprinter

hardness A measure of the capability of a communication facility to withstand external blasts or explosions

hardware The screws, nuts, clamps, anchors, etc., used in the installation and maintenance of communication systems

hardwire To wire or cable directly between units of equipment without passing through other media

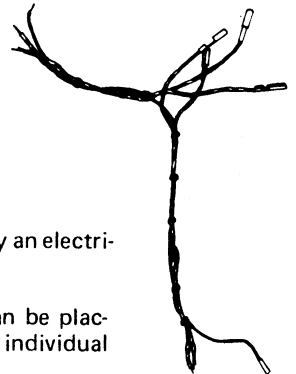
harmonic An integral multiple of a fundamental frequency. The third harmonic of 20 Hz is 60 Hz. The fifth harmonic of 40 Hz is 200 Hz

harmonic analyzer A measuring device having tuneable circuits which can identify the frequency of each of the components of a complex wave. A meter is also supplied to measure their amplitudes separately

harmonic filter See: filter, harmonic

harmonic suppression See: suppression, harmonic

harness, wiring A group of insulated wires, cut to length, bent to shape and laced together. Installed as a unit to form the back-of-panel wiring for a unit of equipment



hash Noise signals produced by an electrical or mechanical source

headphone A device which can be placed on the head to allow individual listening to messages

headset See: headphone

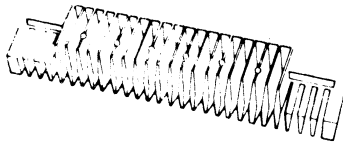
HEAR Hospital Emergency Administrative Radio — Motorola's name for EACOM

heater A device used by some two-way radio manufacturers to raise the ambient temperature near the crystal oscillator in order to maintain oscillator stability

heater, cabinet An AC-powered, thermostatically controlled, device which raises the internal temperature of an enclosure

heat sink A mass of metal, often with fins, mounted on or under a circuit component which produces heat, such as a power amplifier in mobile radio. Absorbs and radiates

the heat to maintain a safe working temperature



helix A single-layer, spiral-wound coil usually having an air or foamed polyethylene core

hermetically sealed A unit (usually a tube, relay or antenna switch) which is permanently sealed inside a metal or glass can. Sometimes enclosed in an inert atmosphere

hertz (Hz) International standard unit of frequency identical to and used instead of the old term cycles, as in "cycles-per-second"

heterodyne (1) Pertaining to the production of difference in frequencies (beat) by the combination of the two frequencies (2) To shift an incoming radio signal to a different frequency, often to a much lower intermediate frequency

heterodyne frequency The beat frequency, which is the sum or difference between two frequency signals

high band A portion of the frequency spectrum from 150 to 174 MHz in which two-way (mobile) radio operates. Some times called very high frequency (VHF)

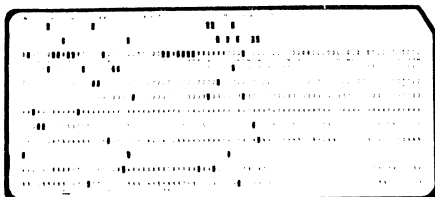
high fidelity The reproduction of audio sounds so perfectly that a listener is not aware of any loss of naturalness

high pass filter See: filter, high pass

high Q The condition of an inductance or capacitance when the ratio of reactance to resistance is high. The higher the Q of a circuit the sharper the tuning and the lower the circuit losses. — See: Q-factor

Hollerith code A 12-level (twelve bits per character) code which defines the relation between an alpha-numeric character and the punched holes in an 80-column data card

Hollerith card An 80 column card of standard dimensions in which holes are punched to indicate coded information. Used in electronic data processing systems



hookswitch The device on which a handset or microphone hangs when not in use. The handset operates a switch, or switches, which open the associated circuits. Used in telephony, and control for mobile radio applications

hop (1) The number of reflections from the ionosphere encountered by the radio wave in traveling from the transmitter to the receiver (2) The number of radio links required to span a given path

horizon The line where the sky seems to meet the earth as seen from an antenna. The limit of line-of-sight

horizontal polarization The transmission of radio waves in such a way that the plane of electrical polarization is horizontal; parallel to the surface of the earth

horn loudspeaker A very directional loudspeaker in which the driver unit is fed into a metal cone (horn) whose flare is usually an exponential curve

hot Connected, alive, energized. Said of a wire or conductor that is not grounded

hot standby operation A method of achieving reliable operation by energizing two identical equipments fed by and to a switchable input and output. A sensing device causes transfer of input and output circuits when a failure is indicated

housing A box for containing equipment or a removable protective cover over equipment

howl An undesirable, prolonged sound produced by a radio receiver because of either electrical or acoustical feedback

hum Audio frequency interference which is at the frequency of the power supply or its harmonics

humidity, relative The ratio of the amount of water vapor the air contains to the maximum amount it could hold at the same temperature and pressure, expressed in percent

hybrid Made up of several different components or a mixture of technologies

hybrid balance The degree of impedance balance between opposite legs of a hybrid junction. The better the balance, the greater the trans-hybrid loss

hybrid coil See: coil, hybrid

idle (1) Not in use (2) Available for use (3) Not busy

ignition noise Interference produced by sparks or other ignition discharged in a vehicle

image One of the two groups of sidebands generated in the process of modulation, so called because one is the reverse (mirror image) of the other with respect to operating frequency

image frequency In heterodyne frequency converters, an undesired input frequency which can beat with the local oscillator to produce the intermediate frequency and thus appear in the receiver output

image rejection The action of a receiver in suppressing the image frequency

impedance The total resistance that a circuit offers to the flow of alternating current. Impedance is a combination of resistance and reactance. The ohm is used as a unit of impedance measurement

impedance match The condition in which the impedance of one component is the same as the component to which it is attached

Improved Mobile Telephone Service (IMTS) A mobile radio telephone offering of a telephone company

impulse A surge of electricity having a single polarity

inband signaling See: signaling, inband

indicator A device used to inform of a condition or change in a condition

induced Produced as a result of exposure to a changing electric or magnetic field

inductance The ability to prevent any change in current or voltage flow. Used for rating in alternating current power systems

induction (1) The process by which an object is electrified, magnetized, or given an induced voltage by exposure to a magnetic field (2) The process by which a change in current in one circuit is caused by a corresponding change in an adjacent circuit due to magnetic coupling

induction field The magnetic field of a transmitting antenna. The radiation field leaves the transmitting antenna and travels through space as radio waves

Industrial Radio Services A market served by MRD consisting of petroleum, business power, manufacturers and others. See FCC Manual part 91

inert inactive

inhibit (1) To hold in check (2) To prevent from operating

in phase The condition existing when current waves pass through their maximum and minimum values of a like polarity at the same instant

input The current, voltage, or power that is fed into a circuit

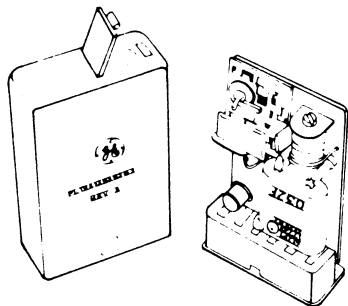
insertion loss See: loss, insertion

insulated spring or stub antenna See: antenna, insulated spring or stub

insulation Any non-conductive material used to prevent the leakage of electricity from a conductor, such as rubber, glass, mica, etc.

integrated circuit A complete circuit consisting of transistors, capacitors, resistors, diodes, etc., which is formed on a single semiconductor substrate. Two of the benefits of using integrated circuits are high reliability and space conservation

Integrated Circuit Oscillator Module (ICOM) A small, integrated circuit, frequency-determining unit containing a crystal oscillator circuit and other circuits used to generate the oscillator frequency



intelligence Information or data

intensity A general term used to signify the strength or value or a current

interchangibility The property of being able to be used in place of something else. A feature that allows substitution of components for each other

intercom Abbreviation for intercommunications systems

interconnection (1) The tying together of two systems
(2) Tying a mobile radio system into the telephone network

Interdepartmental Radio Advisory Committee (IRAC)
The management agency for radio spectrum reserved for government use

interface A method for interconnecting units or systems which are not compatible

interference The effects that occur when two or more radio waves arrive at the same point simultaneously, such as undesired noises or other radio signals

interference eliminator Any device designated for the purpose of eliminating or reducing interference in a radio system

interlock A safety device that opens a circuit when a protective covering is removed

intermediate-frequency amplifier (IF) See: amplifier, intermediate frequency

intermittent Not continuously present; disappearing and reappearing

intermittent duty A duty cycle of 1 minute on, 4 minutes off, or 20% (EIA)

intermodulation The combination of two signals beating together to form a third unusable signal which interferes with the reception of the desired signal. Measured in dB below the desired signal. The negative rating is the method of expressing the ratio of the receiver's rejection of these unwanted signals to its acceptance of correct signals

internal resistance The resistance of a voltage source such as a generator or battery, which acts to reduce the terminal voltage of the source as current is drawn

interunit Between units

intracabinet Within the cabinet

intra-unit Within the unit

intrinsically safe A laboratory (UL or Factory Mutual) rating for equipment considered approved to operate in areas in which hazardous concentrations of flammable gases exist continuously, intermittently, or periodically as described in the National Electrical Code — Class I — Division 1 — Group D

inverter (1) Any of several devices used to convert direct current to alternating current (2) A single input, single output device which changes the polarity of (inverts) a signal when passing it from input to output. A negative signal at the input produces a positive signal at the output and vice versa

ionosphere The upper portion of the earth's atmosphere beginning at about 50 miles above the surface of the earth; the cause of radio signals being bent, and returned to earth

isolation The condition which exists between two circuits which prevents their interacting with each other

isolator A passive RF device which permits transmission in only one direction, absorbing energy in the opposite direction

itinerant Traveling from place to place

itinerant station See: station, itinerant

J

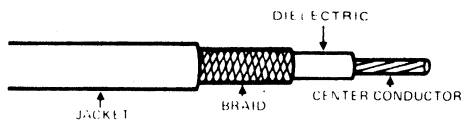
jack A connecting device ordinarily used in a fixed location and designed to make electrical contact with mating contacts of a plug

jack, pin A single contact connecting device into which a single pin plug may be inserted to make temporary connection



jack, test Any jack on which a circuit or circuit component appears, to facilitate access for testing

jacket The outer covering on an insulated wire or cable



jamming The deliberate radiation, reradiation or reflection of electromagnetic energy with the object of impairing the use of electronic devices, equipment or systems

joint (1) A connection of two or more conductors (2) The soldered connection to a terminal

jumper A short length of conductor used to bridge electrical connections

junction A point where two or more wires or cables are connected

junction box A metal or other container into which wires or cables are led and connected

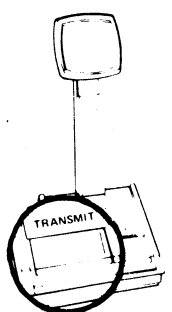
K

key A push-to-operate type switch used for operating a transmitting circuit in a radio system

keying The process of depressing the switch on a microphone and operating the transmitting station for transmission of a signal

keypunch A machine controlled by a typewriter-like keyboard which enables an operator to punch holes in pre-described places in a Hollerith code

kilo A prefix meaning one thousand



Microphone with
Keying Switches

kilohertz (kHz) Equal to one-thousand cycles-per-second. Replaces the outmoded term kilocycle

kit, field A package of parts and instructions for modifying equipment after it has been shipped from the factory

knee The region of maximum curvature on a graph or curve

knob A rounded (or otherwise shaped) projecting part forming a handle or grip for turning

knockout A metal disc punched in the side of a metal terminal junction box or cabinet which can be punched out to allow entry of a cable or conduit

L

lace To draw together and fasten by means of a cord or ribbon which goes around the whole, as in lacing cable

lag The difference in phase expressed in electrical degrees between the voltage and current which produced it

lamp An indicator which is illuminated by current flowing through a filament and heating the filament causing a glow

land-mobile An abbreviation for land to mobile communications

Land Transportation Radio Services A market served by MRD consisting of motor carrier, taxicab, auto emergency and others — see FCC Manual — Part 93

lash To fasten together — the antenna transmission line is lashed to the tower leg

LC The ratio of inductance to capacitance

leakage, current Undesirable flow of current through or over the surface of an insulation

lead-in A wire or transmission line used to connect an elevated antenna to its associated radio transmitter or receiver

lead, test A short flexible insulated wire with a test clip or test prod on one end, used to make temporary connections between a test instrument and the circuit to be tested

level (1) Designates the number of bits per character in a code such as (a) an eight-level ASCII or (b) a twelve-level Hollerith. (2) The difference between a quantity such as voltage, power or sound volume and a specified reference quantity—usually specified in decibels (dB)

level, selector A portion of a telephone switching device that has up to 10 pairs of contacts. Used in mobile radio applications for interconnecting some interface equipment such as paging terminals

level, volume The energy level of speech or music measured in volume units (VU)

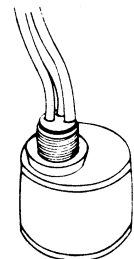
lever, armature The metal arm connected to a relay armature which transmits the armature movement to the relay springs

Lexan™ One of General Electric's trademarked brands of polycarbon resins. It exhibits an extremely high resistance to maring, scratching or breaking

life cycle A test performed on a material device to determine the length of time before failure

life, service The life expectancy under normal conditions of use

lightning arrestor (surge diverter) A device used to protect electrical equipment from high transient voltages by shunting them to the earth ground. Usually connected to power input and telephone type control circuits



limiter That part of an FM receiver circuit which removes the amplitude modulation variation from the radio carrier signal by cutting off the peaks exceeding a certain amplitude

line A transmission line or power line. A system of one or more wires

linear Describing a device in which the signal output voltage is directly proportional to the signal input voltage. A straight line relationship

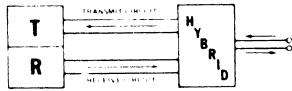
line, balanced A two-wire line which has identical impedance from each wire

line drop A voltage drop between two points on a power line or transmission line because of resistance or leakage in the line

line, dry A line that has no DC voltage potential

line equalizer A connection in series with a telephone line that will alter the frequency response characteristics of the line

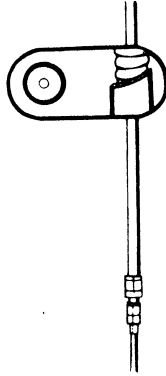
line, four-wire A two-way transmission circuit using separate paths for transmit and receive function



line, lossy A transmission line, usually a coaxial cable, which is designed to have very high transmission loss per unit length. Used in tunnel (underground) radio communications systems

line-of-sight distance The straight-line distance from station to horizon. This represents the normal transmitting range of FM stations

line, transmission In radio, a coaxial cable used to transfer energy from a transmitter to an antenna and from the antenna to the receiver(s)



line, two-wire A two-conductor circuit used for one-way or two-way transmissions (telephone)

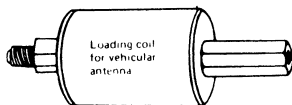
link The portion of a radio relay system between adjacent radio stations

live Energized. Connected to a power source

load (1) A device that receives power from a transmission system. (2) The amount of electric power drawn by an electric or electronic device

load, artificial A device which can dissipate energy (into heat) without radiating it. Used to terminate radio transmitters while being tested

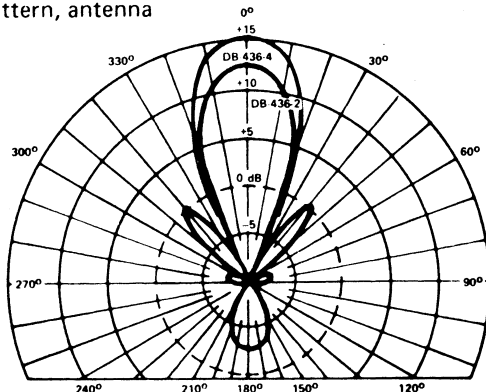
loading, antenna Insertion of reactance in an antenna circuit to improve its transmission characteristic in a given frequency band



loading, ice The stress imposed on an antenna or antenna structure caused by ice forming on its members

loading, wind The stress imposed on an antenna or antenna structure caused by wind

lobe One of the three-dimensional petals representing the radiation or reception efficiency of a directional antenna. See: pattern, antenna



log A list of radio stations showing frequency, location, power, and other data. Also a communication record for a station showing calls made, time, date, and other data. A detailed record

logic That portion of a circuit that provides a go/no go answer based on its ability to compare incoming data with preprogrammed data

loop antenna See: antenna, loop

loop resistance The total of the amount of resistance of both wires in a two-wire line, including the terminations

loss Energy dissipated without accomplishing useful work

loss, attenuation The reduction of energy which occurs as a wave travels through space or through a transmission line. Generally expressed in decibels per unit distance

loss, diffraction The loss suffered by radio waves traveling a path longer than line-of-sight, caused by the bending of the wave around the earth's curvature or around an obstruction

loss, free space The theoretical transmission loss between two radio antennas dependent only upon distance and frequency

loss, insertion The reduction or attenuation of signal resulting from the connecting of a module or component to a circuit

loss, path The reduction or attenuation of signal strength that occurs between the transmitted strength and the received signal strength

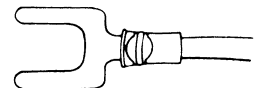
loudspeaker A device for converting audio frequency current into sound waves

low band A section of the frequency spectrum from 25-50 MHz in which mobile radio equipment is licensed to operate

low loss Describing circuits and transmission line in which little energy is lost from the input to the output

low pass filter See: filter, low pass

lug, spade A connector which has an open end to slip under a terminating screw



M

magnet An object that produces a magnetic field external to itself and can attract iron and attract or repel other magnets

magnetic field A region in space surrounding a magnet or a conductor through which current is flowing

magnetic shield A soft iron housing used around delicate instruments or radio components to protect them from the effects of stray magnetic fields

main standby A system that has 100% backup capability—See: hot standby operation

maintainability A characteristic of design and installation expressed as the probability that an item will be retained in, or restored to, an acceptable operating condition within a certain period of time when maintenance is performed in accordance with prescribed procedures and resources

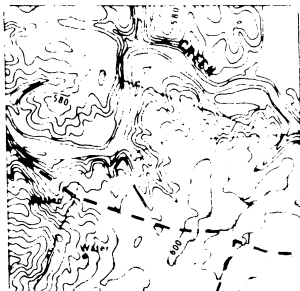
maintenance The work of keeping equipment up to prescribed standards

maintenance, preventive The systematic inspection, cleaning, adjustment tuning and repairing of equipment before it develops major defects or causes outages

manual control See: control, manual

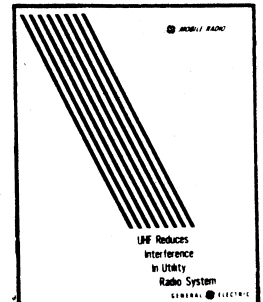
Manufacturer's Representative (MR) An independent franchised sales agent for General Electric Mobile Radio Department's products

map, topographic An accurately scaled map having contour lines which show the elevation above sea level. Used in preparing profiles of radio propagation paths. Available from U. S. Geological survey



marginal Operating at the borderline of permissible limits. Requires only a very small impairment to fail

Market File A grouping of brochures and sales literature that apply to specific market segments like Police, Fire, Business, Manufacturing, etc.



marketing The performance of business activities that direct the flow of goods and services from the producer to the consumer or user

Marketing Section The section of MRD that is responsible for marketing. MRD Marketing incorporates the following functions:

- Marketing Administration
 - Order Service
 - Factory Modernized Radio
- Product Service
 - Renewal Parts
 - Technical Publications
- Marketing Communications
 - Advertising & Sales Promotion
 - Editorial Services
 - Product Information
 - Materials Production Warehousing & Distribution
- Sales Planning
 - Systems Sales
 - Bids and Proposals
- International Sales
 - Foreign Government Liaison
 - Foreign Manufacturing Development
- Field Operations
 - Domestic Sales & Service
 - Field Operations Administration
 - Headquarters Sales
 - Government Agency Liaison

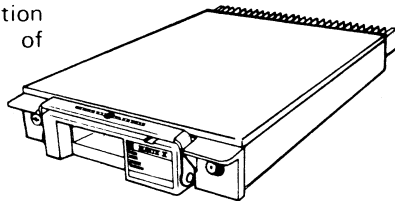
MARS Military Affiliated Radio System A world-wide network of amateur radio stations sponsored by the U. S. Military for their potential usefulness during emergencies

mask To hide or obscure, to make less noticeable

mast A vertical pole serving as an antenna support or as the antenna proper

MASTR A General Electric trademark for a Mobile Radio product line. An acronym for **M**obiles **A**nd **S**tations **T**Ransistorized

MASTR II The second generation of MASTR products. Incorporates plug-in printed circuit boards, single layer construction and extensive use of integrated circuits



MASTR Controller See: Controller, MASTR

matched impedance The coupling of two circuits in such a way that the two units are equally valued at the same impedance level

matching Connecting two circuits together through an impedance transforming device so that there is maximum power transfer

matching, antenna The process of adjusting the impedance of an antenna so that it matches the impedance of the transmission line

matrix An array of horizontal and vertical input or output leads with cross points at the intersections, used as a means of switching from any input to any output

Mc Abbreviation for megacycle, See: megahertz

mean The arithmetic middle point of a range of values, obtained by adding the highest and lowest values and divided by two

mean carrier frequency The resting frequency of an FM transmitting system

mean time to repair On a particular item or system, the total corrective maintenance time divided by the total number of corrective actions during a given period of time

median The point below which there are as many instances as there are above

mega- A prefix meaning one million

megacycle One million cycles per second. Replaced by the word megahertz

megahertz One million cycles per second

memory A device for the storage of binary digits for later use. Used in computers and binary signaling systems

message A completed communication

metallic circuit A wire line circuit which is completely in wire (contains no carrier, radio or earth return)

meter (1) The basic unit of length in the metric system. Equal to 39.37 inches (2) An instrument for measuring the value of some quantity. See: ammeter, frequency meter, voltmeter, etc.

meter, field strength A calibrated portable radio receiver having an output meter, used with a standard antenna to measure the strength of a radio wave (electromagnetic field) at a particular point due to radiation from a particular radio transmitter

meter, peg count A meter connected to a circuit in such a way so as to count the number of times the circuit is used

meter, running time An electric clock connected to a circuit in such a way so as to cause the clock to run only for the time the circuit is in use

MICOR Motorola's trademarked name for a line of equipment (base and mobile) incorporating plug-in circuit boards and some integrated circuits

micro- A prefix meaning one-millionth. Also used to describe something very small

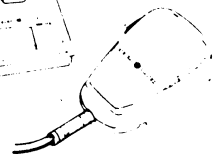
microphone A transducing device which converts sound waves into corresponding audio frequency electrical energy



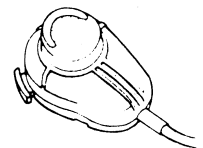
microphone, carbon See: carbon microphone



microphone, military A hand held microphone

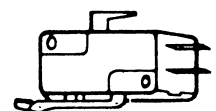


microphone, noise cancelling A modification to a microphone to redirect ambient noise before it is converted into electric waves by the microphone element



microstrip See: stripline

microswitch Honeywell's trademarked name for a small switch having toggle contact springs which can be operated by a very small movement of the actuator



microvolt One-millionth of a volt. Used in the measurement of receiver sensitivity

microvolts per meter A measure of field intensity or field strength of a radio wave

microwave That portion of the frequency spectrum including the UHF band and above

mid band In mobile radio, the range of frequencies from 66 to 88 MHz. May be used in some areas of the U.S. for point-to-point communication paths

milli- A prefix meaning one-thousandth of

miniature A small scale; greatly reduced

minus sign (—) The sign used to indicate subtraction (removal) or negative value or polarity; i.e., the negative battery terminal

mismatch The condition in which the impedance level of a source does not match or equal the impedance level of the connecting unit. The result is a reduction or loss in power transfer through reflection

mixer A device for combining two or more input signals into a single output. Combines incoming radio signal (with local oscillator) to produce an intermediate frequency. Sometimes called a first detector

mobile Term used to describe equipment designed for vehicular installation

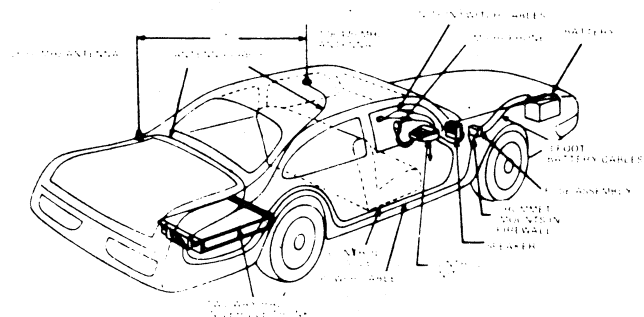
mobile relay See: relay, mobile

mobile telephone control terminal See: terminal, mobile telephone control

Mobile Telephone Service (MTS) Telephone service between a fixed mobile radio base station and several vehicles equipped with mobile radios

mobile transmitter A radio transmitter designed to be used while a vehicle is in motion and mounted in or on the vehicle

mobile unit A complete transmit/receive unit that can be used while a vehicle is in motion and mounted in or on the vehicle



MOCOM Motorola's trademarked name for their low specification, low priced radio equipment line. Generally marketed when minimum performance and price are major factors in the buying decisions

MODAT Motorola's acronym for its Mobile Data System

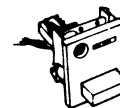
mode A state of operation, a condition

model A complete assembly of components that require only optional accessories to become a working unit

modification The act of altering the form or qualities

modify To alter the form or qualities

modular A construction technique incorporating the use of standard size units for interchangeability



modulate To vary the amplitude (AM), frequency (FM) or phase (PM) of a high frequency wave or carrier in step with amplitude variations of another wave (modulating wave). The carrier is usually a sine wave while the modulating wave is often a complex voice frequency wave

modulated wave See: wave, modulated

modulating wave See: wave, modulating

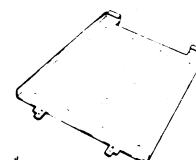
modulation The process in which the amplitude and frequency of a carrier wave is varied with time in accordance with the wave form of an intelligence signal

modulation distortion See: distortion, modulation

modulator In a transmitter, the final audio-frequency stage which mates the audio-signal with the carrier signal (RF)

module An electronic assembly performing one or more distinct functions, packaged as a replaceable unit, as part of a complete unit. For instance, a receiver module may be interchanged should a failure occur

mounting (1) A rack framework or steel plate which serves as a support for equipment
(2) The process of fastening equipment to a rack, framework or steel plate



MRD (1) General Electric's Mobile Radio Department
(2) Mobile Radio District

multiband antenna See: antenna, multiband

multi-conductor Having more than one wire or conductor within a sheath or jacket

multi-coupler, receiver A device which permits several radio receivers to use the same antenna. Usually a broadband amplifier with several output amplifiers

multicoupler, transmitter See: circulator

multimeter A meter with more than one scale



multipath transmission The propagation phenomenon that results in signals reaching the receiving antenna by two or more paths. Usually caused by reflection or refraction of the wave by an obstruction in the path

multiplex, frequency division A multiplex system in which the total transmission bandwidth is divided into narrower bands each used for a single separate channel

multiplex, time division Equipment which enables the transmitting of a number of signals over a single common path (channel) by transmitting them sequentially at different instants of time

multi-tone A method of signaling that involves two or more tone signals produced simultaneously or sequentially. Tone signaling – Type 99, Quick Call, DTMF

multivibrator A form of oscillator which has two stages coupled so that the input of each is derived from the output of the other. The frequency type oscillates without triggering pulses while the one-shot type delivers one output pulse of adjustable width for each input pulse received

mute To silence or reduce sound level

muting To mute

N

narrow band See: band, narrow

narrow-band frequency modulation A type of frequency modulation which occupies only a fraction of the band width of a conventional (wide-band) FM station. Commonly used in mobile communications. Under FCC regulations ± 5 kHz is the maximum permissible deviation for mobile radio systems

negative The term used to describe a terminal which has more electrons than normal. Electrons flow out of a negative terminal in a voltage source

netting The process of adjusting a system's transmitters and receivers to the same operating frequencies

network A combination of two or more electrical components arranged to perform a specific function

network, antenna coupling Networks which permit two radio transmitters to use the same antenna simultaneously. Consists of two pairs of band-pass and band-rejection filters. See: circulator

nitrogen A colorless, odorless, tasteless gas which comprises 78% by weight of the earth's atmosphere. Used to pressurize equipment enclosures in corrosive and other undesirable atmosphere in order to provide operation in those atmospheres

noise (1) Interference caused by internal or external sources in radio reception (2) Any random disturbance in a communications system which tends to obscure the desired signal

Noise Blanker A device used in mobile radio applications which senses the presence of undesired noise on the desired channel and causes the desired signal to be interrupted for the time period that the undesired noise is present. The time period is controlled and measured in milliseconds so that the interruption of the desired signal is not audible

noise level Volume of noise usually expressed in decibels

noise limiter A circuit that cuts off the noise peaks that are stronger than the highest peak of the desired signal being received

noise suppression See: suppression, noise

noise, white A constant power broadband noise

nomograph A chart having three or more scales across which a straightedge can be placed to provide a graphical solution for a particular problem. In mobile radio, nomographs may be used to determine frequency spread, estimated range, antenna height, etc:

non-incendive A laboratory (UL or Factory Mutual) rating for equipment considered approved to operate in areas where volatile or flammable liquids or gases are handled as described in the National Electrical Code — Class I — Division 2, Group A, B, C or D materials

number, binary A number expressed in binary notation

nylon A chemical substance that makes a strong elastic fiber which is insensitive to moisture and mildew

N-type semiconductor See: semiconductor, N-type

O

objective (1) The results expected (2) Without bias or prejudice

octave The interval between two frequencies having a ratio of 2 to 1

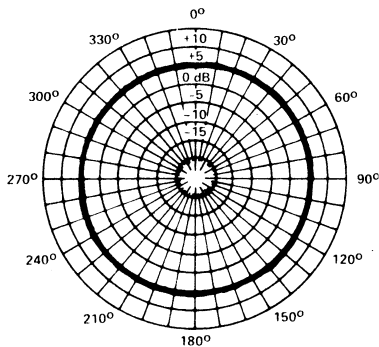
off normal Describing the condition of a switch when it is moved from its normal (at rest) position

off the shelf Said of an item which is available from stock on hand

ohm The unit of electrical resistance. It is the resistance which one volt will develop with a current of one ampere

Ohm's Law The current in an electric circuit is directly proportional to the electromotive force in the circuit. In the form $E=IR$, where E is the electromotive force, I is the current, and R the resistance of the circuit; Ohm's Law defines resistance

omnidirectional Equally effective in all directions (Example: the radiation pattern of a vertical antenna)



one-half wavelength One-half the distance of a total wavelength. (Example: one-half wavelength in high band is approximately 3 feet).

open A break in circuit continuity

operation, half duplex See: duplex, half

operator A person whose duties include the adjustment and/or operation of radio equipment

optimize To adjust for maximum response

options Additional equipment items or features that may be added to equipment by choice

opto-couplers A combination of a light source (LED) and a light sensor arranged to operate in concert. Normally used to provide maximum circuit isolation

order, held An equipment order that cannot be processed, for one of the following reasons:

HELD ORDER CODE	REASON
1	Awaiting confirmation order
2	Awaiting credit approval
3	Awaiting customer release
4	Awaiting FCC approval of license application
5	Awaiting correct lease or conditional sales contract
6	Miscellaneous – generally missing or incorrect information

Order Service The function in General Electric Mobile Radio Department that edits and processes customer orders

order wire A circuit used by maintenance personnel for communications regarding the line up and maintenance of communication facilities

orientation (1) The precise pointing of a directional antenna (2) Familiarization with and adaption to an environment or task

oscillating current A current that alternately increases and decreases in magnitude and reverses polarity with respect to time in a definite pattern

oscillation Fluctuations in a system or current, especially those consisting of a flow of charges alternately in opposite directions

oscillator Any non-rotating device for setting up and maintaining oscillations of a frequency determined by the physical characteristics of a radio system

outage A disruption of communications from any cause, whether planned or accidental

out-of-band signaling See: signaling, out-of-band

out-of-phase Having waveforms that are of the same frequency, but not passing through the corresponding values at the same instant

output Useful energy delivered

overload A load greater than a device is designed to handle

overload capacity The amount of overload that a device can handle without undergoing permanent damage

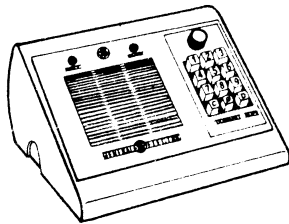
overtone One of the harmonic frequencies at which a vibrating body can freely vibrate in addition to its own basic frequency. The first harmonic is called the fundamental harmonic; the second harmonic is called the first overtone

P

pad A resistance network used in coupling two impedances. A pad may also be used to reduce transmission levels

pad, resistance See: resistance pad

Pagecon A Type 99 Tone selective signaling control device that interfaces with General Electric's dial page terminal



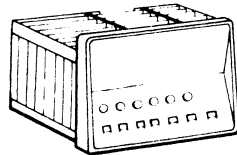
paging To summon the attention of a selected individual by announcing his name over a public address system, by sounding his unique code on a code system or by selectively calling him on a pocket radio receiver which emits an alerting signal

paging, radio The selective alerting (calling) of a receiver via a radio system

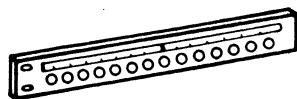
pair Two wires of a single circuit generally applied to telephone wherein one wire is designated "tip" and the second wire "ring"

paired switching A method whereby two functions are selected by one control operation

panel A metal or insulating plate on which equipment is assembled and wired for mounting in a cabinet or on a rack



panel, jack An area filled with jacks (connection points) for use in testing or interconnecting circuits

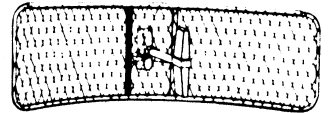


paper, electro sensitive A paper which turns blue wherever a direct current passes through it. Used with facsimile and high speed printers

paper, NCR NCR is an abbreviation of "No Carbon Required". See: paper, pressure sensitive

paper, pressure sensitive A paper which may be used to make a copy without the use of carbon paper. The paper is coated with microscopic balls filled with blue dye. The pressure of the writing instrument crushes the balls, releasing the dye leaving a permanent mark

parabolic antenna A symmetrical metal or metal-mesh "dish" which makes a highly directional antenna. Generally used at UHF frequencies and above



parallax The apparent change in the position of an object depending upon the position from which it is viewed. For instance: the indicator needle of a meter will appear to rest at a different position if read from either the right or left of the instrument rather than from the front

parameter A quantity which varies with the circumstances of its application, such as input voltage, frequency or maximum allowable current

parasitic (1) Describing unwanted oscillations which occur in portions of radio frequency circuits which are self resonant (2) Describing a passive element in a directional antenna array which acts as a reflector or director in reradiating energy received from the active element

parasitic arrays An antenna array containing one or more parasitic elements (reflectors, directors) which cannot connect to the transmission line

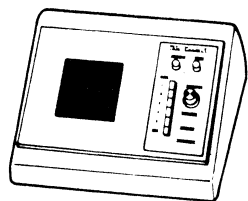
parity Describing a self-checking code employing binary digits in which the total number of "ones" or "zeros" is always even or always odd

party A person sharing a telephone or radiotelephone

passband A band of frequencies which is passed through a circuit or filter essentially unchanged

passive Describing a device which does not contribute energy to the signal it passes

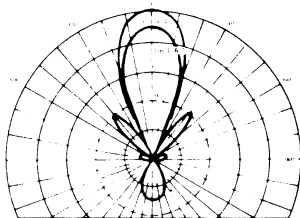
patchpanel A board or panel containing a number of jacks at which circuits may be terminated for temporary interconnection



patch, phone An interlinking device between a telephone circuit and a radio system

path, signal The route by which intelligence is conveyed from transmitter to receiver or through a circuit

pattern, antenna or radiation A radial graph showing the strength of a radio frequency field from an antenna



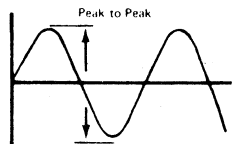
PBX Telephony abbreviation for "Private Branch Exchange". A telephone switching center generally located at the customer's premises

peak The maximum instantaneous value of some quantity such as voltage or current

peaking To tune a circuit for very sharp response at a particular frequency

peak load The maximum load consumed or produced in a stated period of time

peak-to-peak Describing the measurement of an alternating current or voltage from maximum positive value to maximum negative value



peak voltage A maximum voltage which can be applied to a device

peg count A count of the number of times an event occurs

penalty A charge against a contractor for some infraction of the specifications. Generally associated with contractor performance over which he has control

percentage modulation (1) A measure of the degree to which a carrier wave is modulated by a signal wave (2) The ratio of half the difference between the maximum and minimum amplitudes to the average amplitude, expressed in percent

performance bond See: bond, performance

period The time required for one complete cycle

peripheral equipment Equipment which works in conjunction with a communication system but is not part of it. For instance, an emergency generator

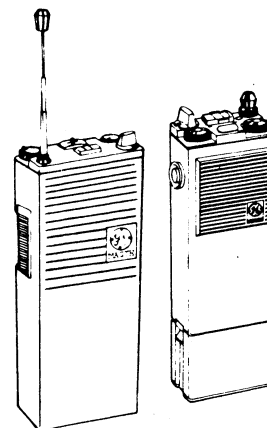
Permakay Motorola's name for its encapsulated IF filter

permalloy A magnetic alloy of nickel (78.5%) and iron (21.5%) which has a very high permeability. Used in powdered metal cores for filters

permeability A measure of the magnetic flux in a magnetic material compared to the flux which would be created in air by an equal magnetizing force. The permeability of air is 1.0

permeability tuning Adjusting the resonant frequency of a coil by moving a powdered iron or ferrite plug in or out of the coil to change its inductance. Also, called slug tuning

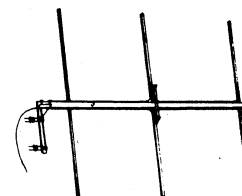
Personal Series Radios A transmitter and receiver combination which can be hand carried or worn within the clothing. These combinations are capable of operating from their own power supplies and antennas



PERT Program Evaluation and Review Technique. A management tool for comparing actual with scheduled program progress

phase The position at any instant which the periodic wave occupies in its cycle of 360 degrees

phased-array An antenna system consisting of more than one individual antenna, called elements, which are arranged in an interconnected grid. This arrangement forms a narrow beam



phase distortion See: delay distortion

phase inverter A device which changes the phase of a signal by 180 degrees

phase modulation Modulation in which the phase angle of the carrier wave is caused to vary by an amount proportional to the instantaneous value of the modulating wave

picofarad A very small unit of capacitance equal to one millionth of a millionth of a farad — previously called micromicrofarad

piezoelectric transducer A transducer that depends upon the interaction between electric charge and the deformation of materials caused by pressure. Some crystals and specially processed ceramics have piezoelectric properties

pigtail A splice made by twisting together the bared ends of two conductors

pileup, spring The assembly of contact springs together with their separating insulators, held together as a unit, which is the essential part of a relay, key or jack



pilot light A light or indicator showing whether or not equipment is on

pilot light dimmer An optional feature on some mobile equipment that reduces the illumination from control head indicator filament lamps. Some operate manually to give the operator control of illumination while others are controlled by photo sensitive devices

pin An electrical terminal in a connector which pushes into a socket to make a connection

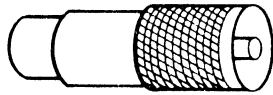
pitch The property of a tone determined by its frequency. The higher the frequency the higher the pitch

plating The application of one metal over another by electrolysis

plate input power The amount of the direct voltage applied to the radio unit times the current flowing to the unit, measured without modulation

plug A contact member on the end of an electrical cord which terminates the cord conductors. It can be inserted into a jack, connector, or receptacle to make temporary connections with the conductors terminated in the jack, connector or receptacle. Two conductor communication circuit plugs terminate in "tip" or "sleeve" contacts while three conductors terminated in "tip", "ring" and "sleeve" contacts

plug, coaxial A plug connected to the end of a coaxial cable to interconnect with another coaxial connection



plug-in Describing any device having terminals so it can be connected by simply pushing it into a suitable socket or connector

plus sign (+) The sign used to indicate additional or a plus value. Positive polarity or a positive terminal on a circuit

point A physical or geographic location

point-to-point communications Radio communications between two definite fixed-location stations



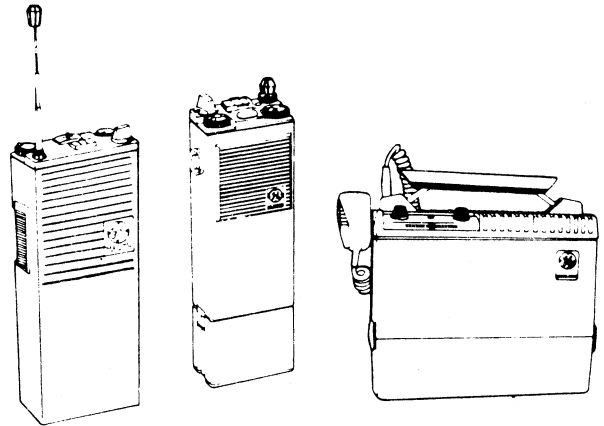
polarity An electrical condition determining the direction in which the current tends to flow

polarization Orientation with respect to a given position, force, voltage, direction, etc.

polarization antenna See: antenna, polarization

pole (1) One end of the magnet (2) One electrode of a battery (3) A long, round, slender, column of wood, concrete or steel used to support antennas and cables

portable receiver A completely self-contained radio receiver, having a speaker, battery supply and antenna built into the unit



portable station A completely self-contained radio receiver/transmitter with a power supply, antenna and controls that can readily be transported from place to place

portable transmitter A complete radio transmitter designed so that it can be readily transported from place to place

positive terminal (1) The terminal toward which electrons flow and from which a conventional current flows in the external circuit (2) Opposite of negative terminal

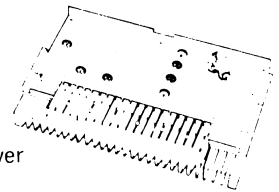
pot The slang word for potentiometer

potentiometer A three terminal resistance device having an adjustable tap which can be used for a voltage divider

power Rate of doing work. Energy per unit time

power amplifier (PA) An amplifier designed to deliver high output power to its load rather than a high voltage

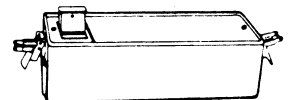
power, effective radiated
See: effective radiated power



power level The amount of electrical power passing through a given point in a circuit. May be expressed in watts or decibels relative to a reference power

power output The power in watts delivered to a load, such as from a transmitter

power pack A unit consisting of batteries or transformers and other components necessary to provide the energy required to operate an electric device



power supply (1) The commercial AC power available from a power company (2) A rectifier or other device which provides power for a communication system

power supply, emergency A source of AC power, usually a motor generator set, which is automatically switched on when the commercial AC power fails

preamplifier A low noise amplifier designed to take a very low level signal, such as that from an antenna or microphone, and boost it to a level which can be accepted by a receiver or standard amplifier

precision The quality of being stated with exactness

pre-emphasis Deliberately distorting a signal by increasing the power in the higher frequencies at the transmitting end of a communication system, followed by a complementary de-emphasis in the receiver. The customary emphasis is 6 dB per octave. Its purpose is to improve the circuit signal-to-noise ratio

preselector A device placed ahead of a frequency converter, or like device, which passes signals of desired frequencies and attenuates others

primary First in the order of time, placement and development of importance. The winding on a transformer connected to the source

printed circuit or wire board See: board, printed circuit or wire

printer (1) A printing telegraph (2) A teletypewriter

priority A sequence of relative importance

Priority Search Lock Monitor A General Electric receiver frequency scanning system which permits listening to active channels with a commitment to revert to a priority channel whenever a signal is on that channel. Priority may be pre-set or under operator's control at the buyer's option



Private Line Motorola's trademark for continuous tone controlled squelch system (CTCSS)

profile chart See: chart, 4/3 earth's radius

profit (1) The gain resulting from the employment of capital in any transaction (2) The surplus of money left an employer or producer after deducting all costs of operation

program (1) A planned activity (2) Instruction placed in the memory of a computer

Progress Line A General Electric trademarked name for its mobile product equipments

propagation The radiation of electromagnetic waves

proposal An offering to be accepted or rejected

protect To equip with devices for safeguarding from damage by excessive voltages, current or physical abuse

protector (1) A device that is placed in a control or power circuit to safeguard equipment from the stress of excessive voltage peaks (2) A shield to safeguard equipment from physical damage

P-type semiconductor See: semiconductor, P-type

Public Safety Radio Service A market served by the Mobile Radio Department consisting of police, fire, local government highway safety, and others. See: Part 89 FCC Manual

pull box A box with a removable cover installed in a conduit run to facilitate pulling wire or cable into the conduit. Particularly useful at corners

pulse A signal of short duration

pure tone The sound produced by sound waves on a single frequency, such as the tone of a tuning fork struck lightly

push to talk (PTT) The keying button used to open a transmitter for transmission

Q

Q-factor The measure of the excellence, or lack of resistance loss, of a coil

quad (1) A small diameter wire or cable consisting of four wires (two pairs) twisted together (2) A grouping of four items

quality (1) The degree of excellence a product or a person possesses (2) A subjective evaluation of a communication

quarter-wave Having an electrical length of one-quarter wavelength

quarter-wave antenna See: antenna, quarter-wave

quartz An element consisting of pure silicon dioxide. The original piezoelectric material widely used to control the frequency of oscillators

quartz crystal A thin square or rectangular slice of quartz which when precision ground and smoothed will vibrate at a frequency determined by its thickness and its position in the natural quartz

quiescent Inactive, without an input signal

Quiet Channel RCA's name for Continuous Tone Controlled Squelch System (CTCSS)

quieting Reduction of system noise

Quik-Call Motorola's trademark for a system of selective calling, normally using two pairs of two tones each in sequence. Quik Call II uses a pair of sequential tones similar to GE's Type 99 system

R

rack, equipment A floor supported steel framework to hold communication equipment. Consists of parallel pairs of steel vertical channels spaced 19, 23 or 30 inches apart and drilled and tapped for equipment mounting screws



rack mounting A method of mounting equipment in which metal panels supporting the equipment are attached to predrilled, tapped vertical steel channel rails or racks. The dimensions of the panels, the spacing of the rails and the spacing and size of the mounting screws are standardized

rack unit In mobile radio, generally a rack mounting of 19 inches between rails and a height of 1.75 inches per unit

radiation The emission of electromagnetic waves

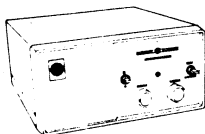
radiation, spurious See: spurious radiation

radiator Any of the parts of an antenna which radiate electromagnetic waves either directly into space or against a reflector

radio The science of communicating over a distance by converting sounds or signals into electromagnetic waves and radiating them through space

Radio Common Carrier (RCC) (1) A non-wire line common carrier (2) An enterprise that is licensed by the FCC and Public Utilities Commission to provide radio communications service to the public

radio receiver An instrument which amplifies radio frequency signals, separates the intelligence signal from the RF carrier, amplifies the intelligence signal additionally, and converts the intelligence signal to the original intelligence



radio spectrum The entire range of useful radio waves as classified into seven bands by the Federal Communications Commission:

<u>Designation</u>	<u>Abbr.</u>	<u>Freq.</u>
very low frequency	vlf	10-30 kHz
low frequency	lf	30-300 kHz
medium frequency	mf	300-3,000 kHz
high frequency	hf	3-30 MHz
very high frequency	vhf	30-300 MHz
ultra high frequency	uhf	300-3,000 MHz
super high frequency	shf	3,000-30,000 MHz

radiotelephone (1) Pertaining to the use of radio for telephony (2) A transceiver or radio receiver and transmitter used for telephone communications via radio

radio transmission Radiation. The conveyance of intelligence by radio waves

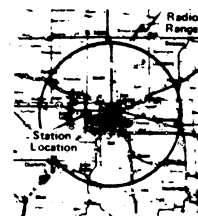
radio wave A wave of electromagnetic radiation characterized by variations of electric and magnetic fields. See also: electromagnetic waves

radius The shortest distance from the center of a circle or arc to a point on the circumference

radome A dome shaped cover for a parabolic antenna which protects the antenna from the elements and their attenuating effects. The material used must be transparent to radio energy (fiberglass, nylon, etc.)

random noise A term for irregular disturbances of an electrical nature. It is not uniform in amplitude, phase and frequency

range The extent of coverage or effectiveness. A measure of distance



rate, charging The current in amperes at which a battery is charged

rated output The power, voltage, or current that a device is specified to provide

ratio The relative size of two quantities

ratio, front-to-back (1) The ratio of forward resistance to back resistance of a device (2) The ratio of field strength in the front lobe of an antenna to that in the back lobe

ratio, signal-to-noise The ratio, in decibels, of signal power to total noise power in a channel. It is numerically equal to the noise power ratio plus the bandwidth ratio minus the noise load ratio. Generally applied to multiplex systems

ratio, standing wave The ratio of the maximum to the minimum amplitudes of corresponding voltages or currents in the direction of propagation in an antenna system

RCA-700 RCA's low specification, low priced solid state mobile line. Few integrated circuits are used, many wired interconnections. Generally sold in the markets where performance and maintainability are not factors in the buying decision

RCA-1000 A modified (higher power RF) Model 700 — See: RCA-700

reader, tape An input device which accepts punched coded paper tape and converts it to a digital electrical output

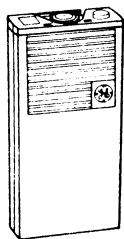
readout The visual display of the output of a measuring instrument, or the memory of a computer

real time Without delay

receiver A radio unit that changes radio frequency energy into audio

receiver, dual front-end A receiver that is capable of receiving two frequencies that are spaced beyond the receiver's normal frequency spread capabilities. This is accomplished by the addition of a second RF circuit

receiver, paging A small, light, pocket-sized receiver used for alerting individuals when they are away from their normal communication instruments (mobile radio or telephone)



receiver, satellite A receiver installed in a remote location usually connected by land lines to a control point to extend mobile coverage. See: voting, receiver

receiver unsquelched sensor (RUS) A solid state switch which provides a d-c voltage when the receiver audio is unsquelched

RECOMM (REcord COMMunications) General Electric's private telegraph and data network. See Dial Comm directory for more detail

rectifier A device for converting alternating current to direct current. Output is normally not pulsating and is reasonably free from noise components

redundant (1) Exceeding what is necessary or normal (2) Elements of equipment which are in duplicate so that when one fails the second continues to operate without interruption

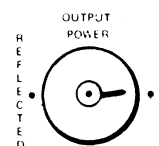
reed See: vibrating reeds

reel, cable A large steel, wooden (or similar material) spool on which cable (antenna transmission line) is wound for convenient storage and shipment. Cable manufacturers frequently require the return of cable reels

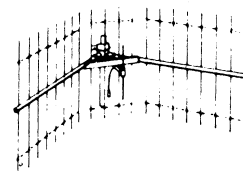
reference level The amount of power in a circuit at a reference point. Example, zero dBm at 1000 Hz

reflection The change in direction of waves after striking on a surface. (Example: reflection of light, sound, or radio waves)

reflectometer A device which can be coupled to the output of a transmitter so as to measure the energy traveling in each direction in the coaxial cable and thus determine the standing wave ratio



reflector In a directional antenna system, the rear portion of the element which usually is not connected to the remainder of the antenna. It is used to reflect radio waves back to the main elements. A polished reflecting surface is used to change the direction of radiant energy or sound waves or concentrate them in a desired direction



refracted wave See: wave, refracted

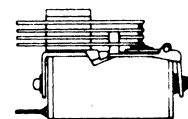
refraction The bending of a radio wave passing obliquely from one medium to another in which the velocity of the propagation is different from the first medium

regenerate To restore information to its original condition. Said of pulses, tones or data signals

regulation, voltage The capability of a device to maintain a constant output voltage while the load varies. This feature provides more constant voltages; hence, specifications that can be relied upon and improved circuit reliability over a range of input voltage variations

relative humidity See: humidity, relative

relay (1) An electromagnetic device that performs switching functions between energized and unenergized conditions. (2) An intermediate station on a multi-hop radio system



relay, coaxial A relay used to switch the coaxial antenna lead. Often used to transfer the antenna from the input of a receiver to the output of a transmitter

relay, latching A relay which locks on automatically when operated and is held mechanically in the operated position until released by energizing a release winding

relay, mobile A fixed receiving and transmitting station that is used to rebroadcast a signal; sometimes called a repeater

relay, reed A relay composed of contacts on moveable magnetized reeds sealed into small glass tubes. Coils around the glass tubes are energized to operate the reed

relay, sealed See: hermetically sealed

relay station Also known as a repeater. See: repeater

reliability The ability of an item to perform a required function under stated conditions for a stated period of time

remote control The operation of a device from a distance either electrically or by radio waves

Renewal Parts A Product Service function to supply replacement parts for maintenance purposes

repeater Repeaters are radio transmitters that rebroadcast radio signals at the same time that they are received, but on a different RF frequency

repeater, shared or community A shared mobile relay station enabling multiple licensees to utilize the same radio frequency channel. CTCSS (Channel Guard) tones are used to separate the different licensees on the common radio frequency. Often called a community repeater

reperforator A machine which punches baudot code into paper tape from incoming electrically coded baudot signals

reset Revert to a normal state

resistance The ability to react to the flow of AC or DC current, with an opposition to the flow of the current

resistance loss Power loss due to current flowing through a resistance

resonance The condition of being in tune

resonator A circuit that responds to oscillations of a particular frequency

Resource and Product Planning The section of the Mobile Radio Department that is charged with the responsibility of planning products and managing resources to meet the objectives of the Department

response Frequency range or response within specific limitations of speakers, amplifiers, etc.

response, frequency The transmission loss or gain of a system, measured over the useful bandwidths, compared to the loss or gain at some reference frequency (generally 1,000 Hz)

response, spurious The response of a radio receiver to an undesired frequency

resting frequency The assigned carrier frequency of an FM radio system. Also called the center frequency from which deviation is measured

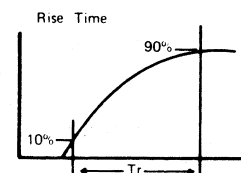
revision A change or modification

rheostat A variable resistor whose value can be changed by turning a control knob

ripple An alternating voltage superimposed on the direct current from a generator or rectifier. Generally caused by incomplete filtering

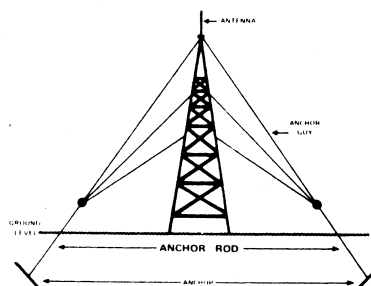
riser Conduit or cable which runs in a vertical direction on a pole, tower or building

rise time The time required for a pulse or other waveform to rise from 10% to 90% of its peak value



risk The chance of injury, damage or loss

rod, anchor A long steel rod which attaches to a buried anchor and has an eye on its upper end to which guys may be attached



roll off Gradually increasing attenuation of an audio system with increasing frequency

rotating stock An inventory of frequently used equipment for off-the-shelf shipment in small quantities

S

safety factor The difference between the normal operating level of the equipment and the maximum level that the equipment can be subjected to without failure

Sales Field Mailing (SFM) A written communication to be read and retained in the Sales Information Manual. A blue heading is used for Administrative (A), a yellow for Product News (P), a red for Competitive Information (C) and green for Market Development (M)



salesman A man whose profession is to sell goods

salesmanship The work of a salesman

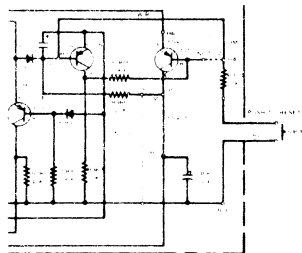
sales plan A written plan of action defining customers' needs and wants and a sales objective. A plan to reach the sales objective is also part of a sales plan

satellite A redundant unit remotely located. See: receiver, satellite

saturation The condition in which further increase in one variable produces no increase in a dependent variable

schedule (1) A time table for activity (2) A time plan for a project

schematic diagram A diagram or drawing which shows electrical connections of a radio or other electrical unit by means of symbols which are used to represent the components



scrambler, speech A device to provide privacy to voice communication via radio or telephone circuits. The simplest is an inverter, a modulator which changes low frequencies to high and vice versa

Search Lock Monitor A General Electric receiver channel scanning scheme which locks the receiver on the first channel received

seize To take over a function

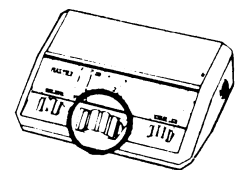
Sel-Call General Electric's name for its selective signaling system. See: Tone, Type 99

selective call A system for alerting individual or groups of stations by means of coded signals

selective interference Radio interference in a narrow band of frequencies

selectivity The ability to select one particular signal from other signals at nearby frequencies. This specification is important in urban areas where radio spectrum congestion exists. The more negative the dB rating, the better the specification

selector (1) A switch used to select a specific function (2) Decoder (Telephony)



selector level See: level, selector

semiconductor A material whose resistivity is between that of conductors and insulators, and whose resistivity can sometimes be changed by light, an electric field, or a magnetic field. Current flow is sometimes by movement of negative electrons and sometimes by transfer of positive holes. Used in transistors, diodes, photo diodes, photo cells, and thermistors. The material is usually silicon, germanium, selenium or lead sulfide.

semiconductor, N-type A type of semiconductor in which the material has an excess of electrons (negative charges) and current conduction is therefore by electron carriers.

semiconductor, P-Type A type of semiconductor which has a deficiency of electrons. These spaces are called "holes" and are the equivalent of a positive charge. In P-type material it is the "holes" which carry the current.

semi-duplex See: duplex, half

sending Transmitting

sensitivity (1) The characteristic of a radio receiver which determines the minimum input signal strength required for a given signal output. In FM, sensitivity is the signal level required to produce a given ratio of signal to noise See: signal-noise ratio (2) The ability of a receiver to receive and amplify a weak signal. The more sensitive a receiver is, the weaker the signal it can receive and hence the greater the area the mobile may operate in

sensitivity control A circuit that governs the gain of the RF amplifiers in a radio receiver

sensor Any device that can detect the presence or a change in the state of a light, radio or sound wave

sequential The result of combining actions in the desired order

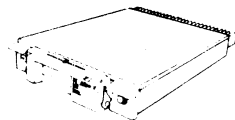
service channel In multiplex systems, a band of frequencies (channels) utilized for maintenance and fault indication of a communication system

service life See: life, service

Service Station A maintenance and installation service purveyor

servicing To make fit for operation by inspecting, adjusting or repairing

set An assembly of transmitters, receivers, etc. which make up a mobile radio unit



shaping To alter the waveform of a wave by filtering or limiting

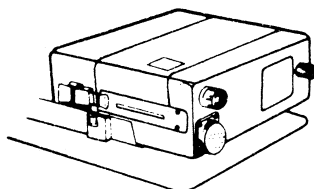
shared repeater A shared mobile relay station enabling multiple licensees to utilize a single mobile relay station. Different Channel Guard (CTCSS) tones are used to separate the different licensees on the common radio frequency

shelf life The period of time under specified conditions that a material or product retains its usability without operation

shield A metallic covering over a circuit or equipment component which intercepts electrostatic or electromagnetic fields and the current they induce to ground

shock A sudden stimulation of the nerves and convulsive contraction of the muscles caused by a discharge of electricity through the body

shock mounting A mounting for equipment to insulate it from mechanical shock. Usually supported on rubber isolators



short circuit A near zero

resistance connection between two sides of a circuit. It disrupts normal circuit operation and may cause an excessive current flow

shorted out Made inactive by connecting a heavy wire or other low-resistance path around a device, usually for protection purposes

short wave An indefinite term applied to a radio wave having a short wavelength

sidebands Two bands of frequencies, one on either side of a carrier frequency produced by modulation

sight draft (S/D) A draft or check payable upon presentation

signal The form of a radio wave in relation to the frequency serving to convey intelligence in communication

signaling, in-band The sending of control functions or other intelligence within a voice frequency communications channel. In mobile radio, this channel is normally 300 to 3,000 Hz

signaling, out-of-band The sending of control functions or other intelligence on a frequency above or below a voice frequency communications channel

signal merit See: circuit merit

signal strength A measure of the field intensity caused by a radio transmitter at a particular location within its operating range. Usually expressed as microvolts, or millivolts

signal-to-noise ratio The ratio of the radio field intensity of a received radio wave to the amount of noise received with the signal

simplex system Operation of a radio system so that transmission is in only one direction at a time

SINAD (1) The ratio of signal plus noise, plus distortion to the noise, plus distortion; expressed in decibels (2) An EIA standard method of measuring receiver sensitivity (see EIA Standard RS204). Basically it is a measure of RF signal strength that will result in a readable signal

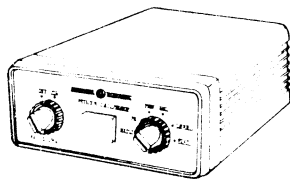
single conversion See: receiver, single conversion

single conversion receiver A superhetrodyne receiver with only one IF. All receiver gain occurs in the IF. This technique results in less beat frequencies, hence fewer spurious and "tweet" frequencies

single-sideband transmission The condition of radio transmission in which the RF carrier and one of the two sidebands produced is suppressed at the transmitter. One sideband is thus used to carry all the intelligence

siren An acoustical device used as a warning signal on emergency vehicles

siren/amplifier A General Electric device that operates as a siren or a public address amplifier



skip distance The minimum distance at which radio waves of a specified frequency can be transmitted by reflecting them from the ionosphere

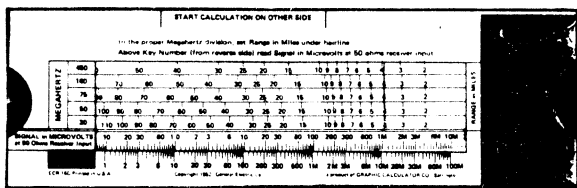
skip zone A ring-shaped region around a transmitter within which there is no reception from the transmitter

sky wave See: wave, sky

sleeve A connection point on a plug



slide rule A hand calculating device consisting of several scales divided in proportion to the logarithm of the numbers they represent



slug tuning See: permeability tuning

Small Integrated Circuit Oscillator Module (SICOM) A small integrated circuit oscillator module first used in General Electric's personal and portable equipment. See Integrated Circuit Oscillator Modulator (ICOM)

sniffer, radio frequency A device which detects the presence of RF activity

socket A mounting into which a lamp or tube may be inserted

software The routine programs or instructions required to use computers and data processing equipment

solar cell A device which will generate low voltage direct current from the sun's radiant energy

solid state Denoting the use of semiconductors instead of vacuum tubes or relays

sound A vibration at a rate that can be heard by human ears. The limits of human hearing are about 20-20,000 Hz. Sound can travel through any medium which possesses the ability to vibrate. The vibrations are called sound waves

sound wave See: wave, sound

speaker A loudspeaker

speaker efficiency The efficiency of a speaker depends on the amount of loss developed in the transfer of electrical energy to acoustical energy. The less loss the higher the efficiency

spectrum A continuous range of frequencies wide in extent within which waves have some common characteristics. (audio spectrum, radio spectrum, etc.)

speech plus An arrangement in the communication channel that enables the channel to carry digital information simultaneous with voice

spike A pulse of short duration and of greater amplitude than the average

splits, band The grouping of frequencies within a band that can be accommodated by mobile radio equipment

splitter A radio frequency hybrid which has a single input and from one to eight equal outputs while maintaining isolation between outputs. See: multicoupler, receiver

sporadic reflections Sharply defined reflections of radio waves returning from the ionosphere and occurring at frequencies that are greater than the critical frequency of the layer. Sometimes called abnormal reflections

spring, contact A resilient flat metal strip which is the contact or supports a contact in a jack, key or relay pileup

spring pileup See: pileup, spring

spurious radiation Any radiation from a radio transmitter at frequencies other than the operating frequency

spurious response Reception in a radio receiver at one or more frequencies other than that to which the receiver is tuned

squelch To subdue or suppress

squelch, carrier A squelch system that responds to presence of an RF carrier

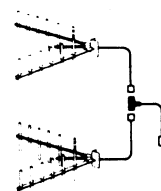
squelch circuit A circuit that reduces or lowers the noise that would otherwise be heard in a radio receiver between transmissions

squelch tail elimination Channel Guard circuitry which eliminates the noise burst from the receiver squelch by muting the receiver audio before the transmitted carrier is turned off

stability, frequency The ability of a radio transmitter to maintain any predetermined frequency, such as its FCC-assigned frequency. Measured in percent of the carrier. The lower the percentage the better the stability

stacked array An array in which half-wave antennas are placed one above the other

stacked dipoles Two or more dipole antennas arranged one above the other on a vertical supporting structure



stage A single section of a multi-section circuit or device

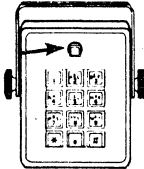
standby equipment Equipment maintained primarily as a readily available alternate supply

standby generator See: generator, emergency power

standing wave ratio (SWR) (1) A measure of the amount of lost transmitting power due to impedance differences between the transmission line and the antenna (2) The ratio of reflected to incident waves that exists at some particular point on a transmission line

standing waves Stationary waves. The results of reflection. Produced by interaction of two waves of the same frequency traveling in opposite directions

start dialing indicator A circuit ready indicator on DTMF (Touch Tone) mobile encoders which indicates that the circuit is ready to accept DTMF tones



static Unwanted noise heard in a radio receiver due to changes in electrical charges in the atmosphere caused by lightning, or man-made causes such as electric motors, neon signs, etc.

station A receiver/transmitter unit

station, base See: base station

station, control See: control station

station, mobile See: mobile unit

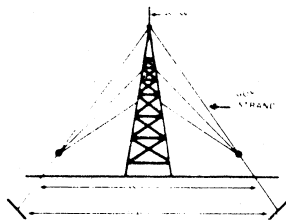
station, personal See: Personal Series radio

station, portable See: portable station

storage battery A unit consisting of two or more storage cells

straight dipole A half-wave antenna consisting of one conductor and usually center-fed

strand, guy A mechanical cable used for guying antenna supports. One end is attached to the support and the bottom end is attached to the anchor rod



stripline Strip transmission line. A type of a narrow flat conductor sandwiched between and insulated from wider flat ground conductors. Primarily used in solid state designs

stub, matching A reactance consisting of a section of transmission line less than one-quarter wave length long connected to the system transmission line. Used to match the transmission line to the antenna. The free end may be shorted or open as required

stub, quarter wave A section of transmission line which is shorted at the far end and is exactly one quarter wave-length long at the operating frequency. It presents a high impedance and passes the operating frequency and all odd harmonics but is an effective short to all even harmonics

stub, radio frequency A short section of transmission line adjustable in length and usually shorted at the far end. The stub is bridged to the system transmission line and used to tune it to an impedance match with the antenna or transmitter

subcarrier (1) A portion of a carrier's modulation used to convey intelligence (2) A carrier that is used to modulate a main carrier

substrate The part of an integrated circuit which acts as a support. It may be a small ceramic insulator to which the IC is attached or a semi-conductor chip within which an IC is fabricated

sub-system A major portion of a complete system (power sub-system, control sub-system, etc.)

sunspot A dark spot on the sun in some way responsible for the disturbances in the ionosphere which severely affects radio communications

sunspot cycle The period of about eleven years during which sunspots and solar flares pass through one cycle — minimum to maximum to minimum. The last minimum occurred in 1964, the last maximum in 1968

superhetrodyne receiver A radio receiver which converts the incoming radio wave to an intermediate frequency (IF) and amplifies the signal at intermediate frequency before detection

supersonic Traveling at a speed greater than sound

supervisory control (1) The monitoring, supervising and control of a system from a distance (2) A control function which renders a circuit inoperative when operated primarily in Remote/Repeater application

suppressed carrier transmission A system of carrier transmission in which the carrier signal is suppressed and only the side frequencies are transmitted

suppression, harmonic The prevention of harmonic generation in an oscillator

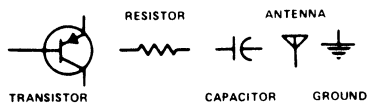
suppression, noise The capability of a radio receiver circuit to automatically reduce the noise output when no carrier is being received. See: squelch circuit

suppression, surge See: protector

suppressor, noise (1) A squelch circuit which blocks the output of a radio receiver when no carrier is present and therefore limits background noise (2) A device or devices installed in the ignition system of a vehicle to reduce the noise radiated from it

switch (1) A mechanical — electrical device which can be controlled to interconnect two circuits (2) To transfer a connection from one circuit to another

symbols Designs used on drawings to represent circuit components



sync A slang expression meaning "to synchronize"

synchronize To cause two systems or devices to operate at precisely the same frequency or speed, so that they are in phase

synchronous Describing a device whose speed of operation is controlled by other devices so that they operate at the same speed

synergism The simultaneous actions of separate elements or functions which together have greater total effect than the sum of their individual effects

synthesizer, frequency A highly precise crystal oscillator with frequency divider used to provide the precise radio frequency. A typical synthesizer can be set to small frequency increments and have an accurate output at the desired output frequency

system A combination of two or more stations in such a way as to provide communications

system, all-channel type A system with all stations able to communicate with all other stations

system, point-to-point A system in which the communication is between only a control point and a number of surrounding points

system, status A system which reports to a specific point. The mode, or the state of elements within that system

system, strip A system in which the area of coverage is a long narrow route (railroads, turnpikes, etc.)

T

tape (1) Punched tape (2) A narrow strip of fabric, paper, or plastic with or without an adhesive coating. (friction, punched paper, plastic, etc.)

tariff A document filed by a communications company with the Public Utilities Commission which lists the services offered the public and a schedule of rates and charges

tarnish (1) A discoloration or stain on the surface of metal caused by exposure to chemicals or the atmosphere (2) To dull or destroy the lustre of metal

tee A three-way connection in the shape of the letter "T"

Teflon DuPont's trademarked name for a tough heat and chemical resistant plastic used as an RF insulator

telecommunication Pertaining to the art and science of communication via telephone, radio or telegraph

telegraph A system of communication using coded signals. (e.g. teletypewriters, radio telegraph, stock tickers, etc.)

Telex An acronym for "Telephone Package" a schedule of bulk discount rates for multiple private line telephone services

telephony The art and science of conveying speech sounds over distances by converting them to electrical signals which can be transmitted over wires or radio circuits

teleprinter An electromechanical device which prints characters on paper producing hardcopy

teletypewriter An electric typewriter device which generates a coded signal corresponding to the typed character

temperature compensation (1) The process of making some important characteristic of a circuit (the frequency of an oscillator) independent of temperature changes (2) The practice of having some circuit component change with temperature in such a way as to compensate for other component changes thus keeping some desired characteristic constant

ten signals A series of coded messages designed to reduce air time and confusion in busy mobile radio systems

Examples: 10-4 Okay
10-7 Out-of-service
10-8 In Service

terminal (1) A point in a circuit or device that provides access (2) A point at the end of a system (3) Device in a system providing input/output access

terminal, mobile telephone An interconnecting apparatus that interfaces the telephone system with a mobile radio system. Generally contains signaling and other control functions

termination (1) A point at which a connection can be made (2) To bring to an end or conclusion

termination charge An established billable charge to be made for equipment removed from rental payments before all of the payments in the lease agreement are made

TermiNet A General Electric trademark for its teleprinter terminal

test A procedure or sequence of operations to determine whether or not a circuit is operating properly and, if not, the type and location of trouble

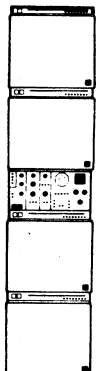
thermal Having to do with heat

thermistor A semi-conductor resistor whose resistance decreases as its temperature rises. Used in circuits to compensate for the effects of temperature variations or as a nonlinear circuit element

thin film circuit A circuit whose elements are films formed on an insulating substrate. A thin film is only several molecules thick

third harmonic A frequency wave having three times the fundamental frequency value

threshold In an FM receiver, the point at which the peaks of the incoming RF signal exactly equal the peaks of the internally generated thermal noise power or the point above which increasing the input signal strength provides only a dB for dB improvement in the output signal-to-noise ratio



threshold of hearing The lowest level of audibility

thyristor A high current transistor used in power rectifier circuits. Also used as a surge protector

time delay The time required for a signal to travel between two points

time division multiplex An arrangement where several signals share a single transmission facility each being connected in sequence for a short period of time

Timer, Carrier Control See: Carrier Control Timer

time-out-timer Motorola's name for a device designed to limit the amount of continuous transmission time a station may use. Automatically cuts off the transmitter after a selected time interval. See: Carrier Control Timer

time, rise The time in microseconds required for a pulse or steep front wave to rise from 10% to 90% of its peak value

time, warmup The time interval between the first application of power to a communication system or equipment and the time when voltages have stabilized and it is ready for operation

tip (1) The ball shaped contact on the cord (tip) of a plug
(2) One of the wires of a pair of telephone wires (the other wire is called "ring")



tolerance An amount of permissible variation from a standard. Often expressed in percent

tone An audio frequency

tone control A method of using various tones and levels of tones to remotely control a base station over a communication path. Eliminates the need for metallic conductors. Another type of control is DC control

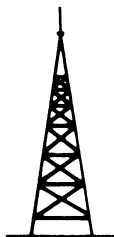
tone, Type 90 General Electric's name for a system of single tone signaling. These tones are generally between 1000 and 2400 hertz in two bands

Tone, Type 99 General Electric's name for its two tone sequential selective signaling system. Sometimes called Sel-Call. These tones are generally between 520 and 953 hertz

topographic map See: map, topographic

Touchtone A Bell System trademarked used to describe their method of signaling dual tone multi-frequency (DTMF) tones

tower, antenna A tall metal structure used as a support for one or more antennas or as one of the supports for a very large antenna



traffic A term used for messages handled by a radio communications system

training The process of instruction, so as to make proficient or qualified in a specific field or subject

train, pulse A succession of pulses which follow each other closely, usually at equal intervals

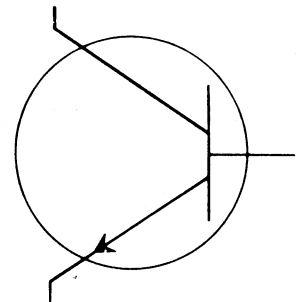
transceiver A combination of transmitting and receiving equipment that uses some or all of the components jointly in both transmitting and receiving

transducer A device which receives a wave from one transmission system or medium and transmits a wave containing equivalent information to a different system or medium

transformer An electrical device for voltage current transformation and/or impedance matching

transient A rapid, sometimes violent, fluctuation of voltage or current in a circuit usually of short duration caused by switching or changes in load

transistor A very small, active, semi-conductor device which can perform the same function as electron tubes such as amplification, control and rectification. Transistors consume very little power and create only a small amount of heat



transmission The transfer of electrical energy from one location to another through radiation. The transfer always is accompanied by an energy loss depending on the medium through which the transmission is occurring. Radio communications are possible in spite of excessive energy losses because of the exceptionally high sensitivity of the receiving equipment.

transmission line See: line, transmission

transmission loss A term used to denote a decrease in power during the transmission of energy from one point to another

transmitter The term applied to the equipment that is used for generating and amplifying an RF carrier signal and modulating this carrier signal with intelligence, then radiates the modulated signal into space after it has been amplified, and fed into the transmission line to the antenna

transportation See: land transportation

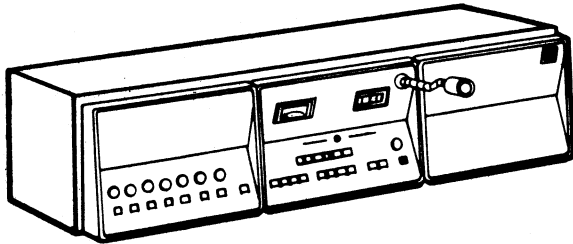
trap A filter

tune (1) To adjust for resonance at a selected frequency
(2) To adjust for best operation

tuned antenna See: antenna, tuned

turret

turret A section of a Command Control Center containing the control switches, etc. Generally placed on top of a desk or another turret



two-wire line

two-way communications Communications that occur between radio stations each having a transmitter and receiver. The stations may be in a fixed location or may be mobile

two-wire line A two-conductor metallic circuit used for communications

U

UL Approved Designating a product or device that has been inspected, tested and approved by the Underwriters Laboratories, Inc.

Ultra High Frequency (UHF) Any of the frequencies in the band 300 to 3,000 megahertz. In land mobile we are licensed to operate in the following ultra high frequencies:

406–420 MHz

450–512 MHz

806–902 MHz

928–947 MHz

ultrasonic Describing frequencies higher than those which are audible. Generally above 20,000 hertz

unbalanced line A transmission line in which the voltages on the two conductors are unequal

undamped wave A continuous wave with no restrictions on its oscillations

undermodulation Incomplete modulation at a transmitter

Underwriters Laboratories, Inc. A laboratory sponsored by the National Board of Fire Underwriters which examines and tests devices, material and equipment whose action may affect casualty, fire and life hazards

unidirectional antenna See: antenna, unidirectional

unidirectional current See: current, unidirectional

unit, mobile Complete equipment for mobile installation, consisting of radio set, control head, speaker, microphone, antenna, cables and mounting hardware

unit, volume See: volume, unit

unmodulated Without modulation; the RF carrier signal alone as it exists during pauses in conversations

untuned Not adjusted to resonance at a particular frequency

usage The percentage time that a communication circuit is in use

usage count A count of the number of times that a communication circuit is busy

useful bandwidth That portion of the channel spacing which remains after the guard bands are deducted

user Any individual who uses a communication circuit

utility (1) A power, gas or water service available to the public (2) A portion of the Industrial Radio Service

V

valley A dip, or low point in a curve which plots the electrical characteristics of a circuit

valley detector A circuit used in General Electric's receiver voting system which, in conjunction with a peak detector, evaluates the incoming audio signal

Van Allen belts Radiation belts that surround the earth, consisting of electrons and protons at high energy levels

varactor A semi-conductor diode used as a variable capacitor. Used as a harmonic generator, frequency multiplier and amplifier

Variac The registered name for a continuously variable auto-transformer. A typical unit has an input of 120 VAC and an output continuously variable between 0 and 140 volts

variance The difference between list price and the amount of dollars actually received; i.e., MR commission is considered variance, discounting is variance

varicap A varactor diode used as a voltage-variable capacitor

varistor A pair of diodes connected in parallel but with opposing polarities. Used as a voltage limiting device

vendor One who sells

vendor equipment Equipment listed in MRD's catalog which is made by others, but approved for sale by MRD

Versatone General Electric's trademark for a solid-state, laser-tuned tone determining element available from 70 Hz to 2500 Hz

vertical antenna A vertical steel tower, rod, or shaft used as an antenna

very-high frequency (VHF) Any of the frequencies in the band 30–300 megahertz. See: low band and high band

Vibrasponder Motorola's trademark for vibrating reeds

vibration (1) A rapid rhythmic motion back and forth
(2) A mechanical oscillation

voice Referring to the sounds uttered by human beings

voice coil The coil of wire at the apex of a loudspeaker which carries the voice currents and, being in a strong magnetic field, moves the speaker cone in unison with the voice currents

voice frequency The frequency range of ordinary speech from about 300 to 3000 hertz

voice grade Said of a communication circuit which is nominally 300 to 3000 hertz

volt The practical unit of voltage potential or electromotive force. One volt is the force required to send one ampere through a resistance of one ohm

voltage regulation See: regulation, voltage

voltage standing wave ratio (VSWR) A measure of the reflected power of a transmission line expressed in volts

voltmeter An indicating device to measure electrical pressure in volts

volume The strength of loudness

volume control A potentiometer voltage divider used to adjust the loudness of an audio circuit

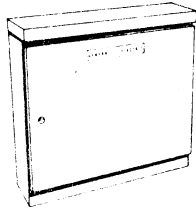
volume unit (VU) A measure of the magnitude of sound from an electrical wave. Measured in decibels

voting The process of selecting. In a diversity receiver communication system, the process of selecting the best receiver and processing the audio received to the rest of the system

W

Walkie Talkie Motorola's trademark for their personal and portable equipment

wall mount A cabinet designed to be mounted to the flat surface of a wall



warble An audio frequency tone whose frequency is varied over a specified range. Used in siren amplifiers for alerting the public that an emergency exists

warranty The seller's assurance to the purchaser that the products will be or are as represented

waterproof Constructed and sealed so as to be impervious to water

watt The unit of power equal to the number of volts multiplied by amperes

wattmeter A meter to indicate the rate at which electrical energy is being used or produced

wave A propagated periodic disturbance such as a radio, light, or sound wave

waveguide A transmission line comprising a hollow conducting tube within which electromagnetic waves may be propagated. Generally used in microwave communications systems

wavelength The distance measured along the direction of propagation between two points that are in phase on adjacent waves. A wavelength is the distance traveled by a wave in the time of one cycle. Electromagnetic waves include both light and radio waves and travel in space at approximately 300,000,000 meters per second. To determine the exact length of a wave, 300,000,000 meters per second is divided by the frequency in hertz

wave, modulated A carrier wave whose amplitude or frequency is varied in an intelligence signal

wave, modulating The audio-frequency or other intelligence signal wave used to vary the amplitude or the characteristic of a carrier wave in the process of modulation

wave, radio An electro-magnetic wave which travels through space at the speed of light. Produced by energizing an antenna with radio-frequency current

wave, refracted A radio wave that is bent (refracted) as it travels into a second medium of propagation, such as from the atmosphere to the ionized layers of the stratosphere

wave, sky A radio wave that has been reflected from the ionosphere

wave, sound A traveling or standing wave produced by vibrations at a sonic rate

waybill (W/B) A paper listing the goods and shipping instructions sent with or fastened to the goods in transit

weatherproof So constructed or protected that exposure to the weather elements will not prevent proper operation

weathertight So constructed that exposure to a driven rain will not result in the entrance of water

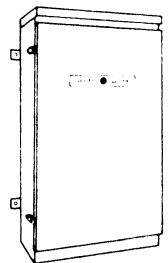
whip antenna See: antenna, whip

white noise Random electrical noise which has equal energy per cycle over a specified frequency band

wide band See: band, wide

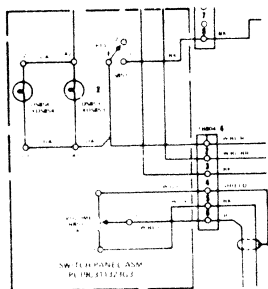
winding Several turns of an insulated wire that form a coil used in a relay, transformer or other electromagnetic device

wire A single metallic conductor



wire wrapping A type of electrical connection made by tightly coiling a wire around a square terminal having sharp corners

wiring diagram A circuit diagram that shows electrical components and all of the wires which interconnect them. The diagram shows terminal designations and color coding of the wires, etc.



wiring harness See: harness, wiring

word (1) A set of characters or symbols which is treated as a unit (2) A group of binary digits containing sufficient information to direct a logical operation (3) A telegraph word consisting of six character intervals

work plan A written action plan to identify specific goals to be achieved within a definite period of time

workshop A group meeting for a period of intensive study on a specific subject

X-axis

zulu time

X, Y, Z

X-axis The horizontal axis on a graph

zener diode A silicon diode which acts as a rectifier until the voltage reaches a point known as the zener voltage or avalanche voltage. At that point the diode becomes conducting with a voltage drop that is independent of current

zero beat The condition achieved when adjusting two circuits to the same frequency by listening to the two tones, when the beat note disappears

zero level The reference level used for comparing sound or signal intensities

zone of silence A skip zone. A local region in which the signals of a given radio station cannot be satisfactorily heard

Y-axis The vertical axis on a graph

yagi antenna See: antenna, yagi

zulu time The time at 0 degree meridian, or Greenwich standard time

AA	LF-forstærker	AF	amplifier	Verstärker
AB	Fjernstyringsenhed		Automatic control box	
AC	Alarmkreds		Alarm circuit	Alarmkreis
AG	Tonegenerator	AF	generator	
AN	Antenne		Antenna	Antenne
AR	Lavfrekvensmodtager		audio receiver	
AP	Dæmpeled		attenuator panel	Dämpfungsglied
AS	Antenneomskifter		antenna switch	Antenne Umschalter
ASP	Antenne spec.			
BA	Grundbåndsforstærker		baseband amplifier	
BC	balancekredsløb		balance circuit	Symmetriekreis
BD	bredbåndsmodulator		broadband demodulator	
BF	afgreningsfilter		branching filter	Abzweigungsfilter
BL	udvisker		blanker	
BM	bredbåndsmodulator		broadband modulator	
BP	båndfilter		bandpass filter	Bandpass Filter
BO	stødosillator		beat oscillator	
BT	batteriprøver		battery tester	Batteritester
BU	batterienhed		battery unit	Batterie
CA	kabinet		equipment casing	Kabinett
CB	fjernbetjeningsenhed		control box	Kontrollgerät
CD	kanalmodulator		channel demodulator	
CC	tilslutningskabel		control cable	Kontroll Kabel
CE	styreudstyr		control equipment	
CF	koaksialfilter		coaxial cavity filter	
CM	kanalmodulator		channel modulator	
CO	kodeenhed til selektivt opkald		code unit for selective calling devise	Kodenkreis
CAF	styring		control equipment	Bediengerät
CRF	modtager (CRP)		receiver	Empfänger
CTF	sender		transmitter	Sender
CP	kontropanel		control panel	Kontrollpaneel
CR	strømregulator		power regulator	Stromregler
CS	bærefrekvensgenerator		carrier supply	
CU	ladeenhed		charging unit	Ladegerät
CK	bæretaske		carrying bag	Tragetasche
DA	jævnspændingsforstærker	DC	amplifier	Verstärker
DC	retningskobler		directional coupler	
DD	afgreningsdemodulator		drop channel demodulator	
DL	kunstig belastning		dummy load	
DM	afgreningsmodulator		drop channel modulator	
DS	simultan modulator		drop channel simod	
DV	diversity enhed		diversity unit	DV682 Geber-niveauekontrol DV681 Auswerter
EX	styreenhed		exiter	
EQ	modforvrænger		equalizer	
FC	frekvenskontrolenhed		frequency control unit	
FD	multiplikatortrin		frequency multiplier	Multiplikatorstufe
FF	flip-flop enhed			
FM	frekvensmodulator		frequency modulator	
FN	filter kredsløb		filter network	Kreislauf
FU	cifferenhed		group modulator	
FT	frequency tripler		frequency tripler	Verdreifacher



III OTHER ABBREVIATIONS

<i>ACCT No</i>	<i>Konto nr.</i>
BAL	- Balance
B/L	- Bill of Lading
BS	- Balance Sheet
CONS	- Consignment
CR	- Credit
C/S	- Cost of Sales
DL	- Direct Labor
DM	- Debit Memo
DR	- Debit
C/V	- Carrying Value (of Inventory)
EN	- Engineering Change Notice
FG	- Finished Goods (Inventory)
FIFO	- First In First Out (Revaluation)
IR	- Inspection Report (Condemnation Memo)
ITP	- Internal Transfer Price
JE	- Journal Entry
LON	- DL plus NAD (Conversion Cost)
MAT	- Material
M/S	- Memorandum of Shipment
M/U	- Markup
NAO	- Normal Applied Overhead
OBS	- Obsolescence
P+L	- Profit and Loss
PO	- Purchase Order
RIP	- Raw and In Process (Inventory)
RR	- Receiving Report
SCF	- Standard Cost File
SN	- Shipping Notice
SSS	- Stock Selection Sheet
STD	- Standard
UBS	- Unbilled Shipments (Inventory)
VSC	- Variable Shop Cost (Inventory Carrying Value)
WIP	- Work in Process

STAS INVENTORY ACCOUNTING INSTRUCTION

SUBJECT: Glossary of Abbreviations

Number: S.I.A. No. 19.0

I PURPOSE

The purpose of this instruction is to identify the abbreviations which are most commonly used in or by Inventory Accounting

II ORGANIZATION ABBREVIATIONS

ADM	- Administration
A/P	- Accounts Payable (Trades Payable)
A/R	- Accounts Receivable
B/A	- Business Analysis
CC	- Cost Center
EDP	- Information Systems and Data Processing
ENGR	- Engineering
FAC	- Facilities
FIN	- Finance
I/A	- Inventory Accounting
MFG	- Manufacturing
MKTG	- Marketing
PC	- Profit Center
PER	- Personnel
SC (SYS)	- Systems Center
STAS	- Storno A/S, Denmark only
STEL	- Storno Elektronik GmbH, Germany
STOF	- Storno SA, France
SLTD	- Storno LTD., England
STORNO	- Storno A/S, total company
SVST	- Svenska Storno AB, Sweden
T/P	- Trades Payable (Accounts Payable)

VR	spændingsregulator	voltage regulator	Spannungsregler
VU	vibrator enhed	vibrator unit	Zerhacker
XD	krystal diskriminator	crystal discriminator	Diskriminator
XF	krystalfilter	crystal filter	Quarz Filter
XO	krystaloscillator	crystal oscillator	Quarz Oszillator
XQ	krystalskiftekrede	crystal shift circuit	
XS	krystalskifteenhed	crystal shift unit	Kanalwechsler

OP	oscillator phasemodulator	osc. phase modulator	Phasen Verstärker
OQ	oscillator/firdobler	oscilloscope	
OT	oscillator/dobler	oscillator/doubler	Oscillator Doppler
PA	Senderforstærker	poweramplifier	Senderverstärker
PG	impulsgenerator	pulse generator	
PM	fasemodulator	phase modulator	
PN	strømforsyning med nummerkald	power supply with number call	
PS	strømforsyningsenhed	power supply	Stromversorgung
PU		pilot unit	
PV		power amplifier driven by vibrator	
PR		power amplifier driven by rectifier	
RA	HF-forstærker	RF amplifier	Verstärker
RB	fjernstyringsenhed	remote control unit	Fernkontroll
RC	modtagerkonverter	receiver converter	Empfänger Konverter
RE	ringeudstyr	ringing equipment	RzF Baugruppe
RF	modul	Radio frequency unit	Moduleinheit
RG	ringegenerator	ringing generator	
RK	STel	rack	
RP	relæenhed	relay panel	Leitungskreis
RT	liniepanel	line panel	Liniepaneel
RX	modtagerenhed	receiver	Empfänger
RU	ensretterenhed	rectifier unit	Gleichrichter
SC	signalomsætter	signalling converter	
SG	signal generator	signal generator	
SI	serviceinstrument	service instrument	
SL	tjenestelinie	service line	
SQ	squelch enhed	squelch unit	Rauschsperr
SR	tonemodtager	tone receiver	Ton empfänger
ST	684+685 tonesender	transmitter	Sender
SU	omskifterenhed	switching	Umschaltereinheit
SV	subverter	subverter	
SD	sekvens dekoder	sequence decoder	
SN	kredsløb	circuit	Kreislauf
TA	senderantenne	Transmitter antenna	
TB	loddeliste	terminal board	
TC	senderkonverter	transmitter converter	
TE	terminalenhed	terminal equipment	terminaleinheit
TG	tonegenerator	tone generator	
TK	trimmenøgle	tuning key	Trimmeschlüssel
TL	transmissionsledning	transmission line	
TM	senderblandingstrin	transmitter mixer	
TQ	sender + modtager	transmitter receiver	
TR	tonemodtager	tone receiver	Tonempfänger
TS	transmissionsmåleudstyr	test set	
TT	tonesender	tone transmitter	Tonsender
TU	tidsfordelingsenhed	timing unit	
TAA	microelectroteknik		
VA	video forstærker	video amplifier	
VD	spændingsdeler	voltage divider	
VC	stemmekontrol	voice control	Schaltereinheit
VP	ventilatorpanel	ventilator panel	

Storno

GG	gruppekonverter	group converter	
GD	gruppemodulator	group demodulator	
GM	gruppemodulator	group modulator	
HA	HF forstærker	RF amplifier	
HP	telefon	headphones	Kopfhörer
HS	gaffelkontakt	hook switch	Gabelkontakt
HU	gaffelenhed	hybrid unit	
MD	modul		
IA	MF forstærker	IF amplifier	Verstärker
IC	MF-konverter	IF converter	
IL	MF-begrænser	IF limiter	
IM	Impulsmodulator	pulse modulator	
IT	impedanstransformator	impedance transformer	Impedanzstufe
IU	inverterenhed	inverter unit	
ID	identifikationsgiver	display unit	Belegtanzeige
JB	samledåse	junction box	Verbindungsbox
JP	samlepanel	junction panel	Verbindungspaneel
JU		junction unit	
KO	klystron oscillator		
LA	linieforstærker	line amplifier	Linieverstärker
LC	tærskelkreds	level control	Schwellverstärker
LD	begrænser	diskriminator	Begrenzer
LI	begrænser forstærker	limiter amplifier	Begrenzer
LF	linieplade	line panel	
LM	højttalermikrofon	loudspeaker microphone	Lautsprecher Mikrofon
LP	linieplade	line panel	
LS	højttaler	loudspeaker	Lautsprecher
MA	mikrofonforstærker	microphone amplifier	
MC	mikrofon	microphone	Mikrofon
MD	multiplex	demodulator	
MG	synkroniseringsgenerat.	marker generator	
MK	ombygningssæt	modification kit	Umbausatz
MM	multiplex modulator		
MO	modulator		
MP	meter panel	service panel	
MR	dæpningsled	muting pads	
MS	synkroniseringsseparator	marker separator	
MT	mikrotelefon	micro telephone handset	
MU	monitorenhed	monitor unit	
MV	multivibrator		
MX	blandingspanel	mixer panel	
MH	strubemikrofon	throat microphone	Kehlenmikrofon
MI	ophæng	suspension	
MK	modifikationskit	modification kit	
NC	nummeropkald	numbercall	
NK		nectification kit	
NU	nummerenhed	number unit	
OD	oscillatortripler		
OM	oscillator modulator		