WELCOME TO AMATEUR RADIO

HAM SPEAK

A SHORT GUIDE FOR THE NEW HAM

Ham Radio Glossary of Terms

A

ACC - ACCessory

Adjacent-Channel Interference - When a receiver is tuned to a specific frequency and interference is received on a nearby frequency

AF - (Audio Frequency)

AFC - (Automatic Frequency Control) Automatically compensate frequency drift

AFSK - (Audio Frequency Shift Keying)

AGC - (Automatic Gain Control) Automatically optimize receiver amplifier gain.

ALC - (Automatic Limiting Control) Limits RF Drive level to power amplifier during transmit to prevent distortion.

AM - (Amplitude Modulation)

AMSAT - (AMateur SATellite)

AMTOR - (AMateur Teleprinting Over Radio) A form of RTTY, Radio Teletype.

ANF - (Automatic Notch Filter)

ANL - (Automatic Noise Limiter) Eliminates impulse and static noise peaks.

ANT - (Antenna)

Antenna Ground System - Term used for a RF reference potential for some types of antennas. Most unbalanced or asymmetrical antennas need a good RF ground.

Antenna Impedance - The impedance of an antenna at resonance. Although an antenna's impedance fluctuates with the frequency of operation, an antenna should be 50 ohms for most transceivers.

Antenna Matching - When the antenna's impedance, at resonance, is at optimum performance for your transmitter output circuit.

Antenna Tuner - Deviceused to match an antenna to the output impedance of a transmitter.

APC - (Automatic Power Control) Current limiting of the power amplifier to prevent damage to the finals in high SWR conditions.

APRS - (Automatic Position Reporting System) In conjunction with a GPS and TNC provide position reporting.

ARES - (Amateur Radio Emergency Service) ARES is a public-service organization of the ARRL.

ARRL - (The Amateur Radio Relay League) The NationalAssociationforAmateurRadio in the United States.

ASCII - (American national Standard Code for Information Interchange) A seven-unit digital code for the transmission of teleprinter data.

ATT - (ATTuator) A network designed to reduce the amplitude of a signal.

ATV - (Amateur Television) FSTV, SSTV

Auto Patch - Used in repeater operation for telephone interconnect.

Average Power - Power measured on a standard power meter.

B

Backscatter - Form of ionosphere propagation via the E and F layers allowing stations to hear other stations within the skip zones

Balun - A simple transformer used to change an unbalanced input to a balanced output.

Band - A range of frequencies.

Bandwidth - Frequency needed for a particular type of transmission

Bank - Memory Bank

BCI - (Broadcast Interference)

BFO - (Beat Frequency Oscillator

BNC - (Bayonet Neill-Concelman) A type of antenna connector.

BPF - Band Pass filter

Busy lockout - Inhibits transmit on frequency in use.

C

Call Sign - Sequence of letters and numbers used to identify amateur radio operators and issued by the FCC.

CAP - (Civil Air Patrol) Volunteer affiliate of the United States Air Force.

Carrier - An unmodulated transmitted signal.

Carrier Frequency Offset - (= Carrier Shift) Distance between mark and space of the carrier for RTTY or similar communications.

CBR - (Cross Band Repeater) A repeater which receive incoming signal and re-transmit it in different bands -e.g. receives 144 MHz and re-transmits 430(440) MHz bands.

CCW - (Counter Clockwise)

CH - (Channel) A sequence of memory positions when frequency and related information is stored.

Icom computer Control - Interface allows multiple radio control simultaneously.

Conversion - Number of IF circuits in the receiver.

CPU - (Central Processing Unit)

CQ – A general call to all hams “seek you”

CTSS - (Continuous Tone Coded Squelch) Adds a continuous, sub-audible, low frequency tone to the transmitted carrier. Receivers set for the same low frequency tone can decode signals.

CW

1) Carrier Wave

2) Clock Wise

CW Filter - Used to narrow IF passband, and to improve reception in crowded band conditions.

D

Data Communication - Transfer of data between two or more locations.

dBd - Unit of RF power as compared to a dipole antenna.

dBi - Unit of RF power as compared to an isotropic antenna.

dBm - Decibels measure, 1 mW with a load impedance of 600 . (0 dBm=1 mW)

DC - (Direct Current)

DC Ground - A connection point directly to chassis or battery ground to prevent build-up of hazardous DC voltages.

Deviation - A measurement of FM signals for the maximum carrier frequency changes either side of the carrier frequency.

Distress Call - Signals a life-threatening situation. Most commonly referred to as an SOS or MAYDAY call.

Distress frequency - A frequency or channel specifically for use in distress calling.

- Radiotelephone distress frequencies are: 182 MHZ and 156.8MHZ. Survival craft use 243 MHz.
- Maritime distress frequencies are the same, while general aviation frequencies are 121.5 MHz.

Downlink - Frequency that repeater or satellite transmission to a user.

DSP - (Digital Signal Processor) Used to improve the signal to noise ratio for clearer and more legible communication.

- Relatively new to ham radio. Filtering includes band pass and equalization, both in the IF and Audio sections.

DTCS - (Digital Tone Coded Squelch) A selective Call system.

DTMF - (Dual Tone Multi-Frequency (= touch-tone) Used for transmit/receive numeric information such as phone number, PIN, remote radio control of commands, etc.

Dual watch - Receiving two signals simultaneously

Dummy Load - A non radiating 50 ohm load connected to the transmitter to replace the antenna for testing Purposes.

Duplex - An operating mode in which the transmit and receive frequencies are different.

Duplexer - A device which divides transmits and receives signals.

Duty Cycle - The ratios of transmit to receive time in a transceiver or on-off “time” in an audio amp or power supply.

DX’pedition - Trip to a foreign land to “be DX”

E

EBS - (Emergency Broadcast System) A system where at first, an attention tone is transmitted over all station signals and a second tone followed with specific instructions regarding the receivable frequency in the case of a national emergency.

EEPROM - (Electrically Erasable and Programmable Read Only Memory)

EME - (Earth-Moon-Earth) Moon bounce communication.

EMI - (Electro-Magnetic Interference) Often called RFI (Radio-Frequency Interference)

Emission - Transmission of a signal.

Encryption – Uses a key code to transmit in cryptic form so that only certain people understand what has been sent.

F

Fading - Signal reduction due to atmospherics.

Filter - A circuit designed to pass only the desired frequency(s).

FM -

- Frequency Modulation
- FM Broadcast

FSK - (Frequency Shift Keying)

FSTV - (Fast Scan TV) Graphics (and audio) communication using standard TV broadcast signals requiring a wide bandwidth.

Full duplex - An operation mode, which transmits and receives on different frequencies, at the same time. Operates likes a telephone communication.

G

Ground Plane - A type of Omni-directional antenna.

Ground Wave - Electrical wave directly travelling from the transmitter.

Grounding - An electrical connectionto the earth.

H

Harmonic - Multiple of a fundamental frequency.

HF - (High Frequency) 3-30 MHz range signals. (Normally 1.9 MHz band also included.)

HPF - (High Pass Filter)

Hz - (Hertz) measures in cycles per second.

I

IC - (Integrated Circuit)

IF - (Intermediate Frequency) Internally converted frequency for amplification and other signal processing.

IF Shift – A function that electronically shifts a passband frequency from the center frequency.

IMD - (Inter-Modulation Distortion) Distortion within RF circuits with upper and lower adjacent channel signals.

L

LF - (Low Frequency) 30-300 kHz range signals.

Li-ion - (Lithium Ion) Rechargeable battery which has better capacity than Ni-CAD, Ni-MH, etc. no memory effect after repeated non-full charge/discharge cycles.

LPF - (Low Pass Filter)

LSB - (Lower Side Band)

M

MARS - (Military Affiliate Radio Service)

Memory Bank - A set of memory channels organized into a group.

Memory Effect - Rechargable batteries such as Ni-Cad and Ni-MH types may be temporally getting less capacity as a result of repeated non-full charge/discharge cycles. Rechargeable batteries lose capacity as “memorized”. A wrong full capacity level at less than full charge. Li-ion batteries are free from this effect.

MF - (medium Frequency)

300 kHz – 3 MHz range signals.

MIC - (MICrophone)

Modulation - Method of adding information to a radio frequency carrier.

N

NB - (Noise Blanker) A function reducing pulse type noises.

NBFM - (narrow Band FM)

NI-CD - (Nickel-Cadmium)

NI-MGH - (Nickel Metal Hydride)

Notch Filter – Sharp and narrow rejection DSP feature reduces unwanted signal noise. . Removes a “notch” of frequencies at either the IF or audio stages.

NR - (Noise Reduction) DSP feature, reduces unwanted signal noise

O

Offset Frequency - Frequency difference between transmit and receive.

OSC - (OSCillator)

P

PA - (Power Amplifier)

Parawatch - (=Dualwatch)

PBT - (PassBand Tuning) A function electronically reduce interference by narrowing the IF bandwidth.

PEP - (Peak Envelope Power) RF Power at maximum amplitude

PLL - (Phase locked Loop) An oscillator circuit to synthesize the different frequencies a radio will operate on.

Pocket beep - Beeping, function when specific signal is received.

Priority watch - Reception mode, which by a selected frequency is always periodically, checked when VFO is set to different frequency.

PTT - (Push to Talk)

PWR - (Power)

R

Reflected Power - Non-radiated power dissipated as heat, in a transmission line, when the transmitter is mismatched to the antenna or load.

Repeater - Radio systems which receive incoming signals and re-transmits it for extended communications. Normally put on geographically high locations for VHF/UHF hand portables.

RF - (Radio Frequency)

RF Ground - Connection of amateur equipment to an earth ground to eliminate hazards from RF exposure (electrical shock at RF frequencies) and reduce RFI.

RFI - (Radio Frequency Interference)

RIT - (Receiver Incremental Tuning) Fine-tuning receive frequency without changing displayed or memory frequency.

RTTY - (Radio TeleTYpe)

RX - (Receive)

S

S/N - (Signal to Noise Radio)

SAR - (Search and Rescue)

Scan - Continually sweeping frequencies looking for signals.

Scan Edge - End and start frequencies for a scanning range.

Scratch Pad Memory - Temporary frequency memories for quick access.

Semi Duplex - An operating mode in which transmit and receive is accomplished on different frequencies alternatively.

Sensitivity - Indicates how week a signal the receiver will pick up.

Set Mode - An operation mode used for radio. To set less frequently used control features.

Skywarn - Trained volunteer storm spotters for the e national Weather Service.

SMA - (Sub-Miniature connector) Type of antenna connector, used in VHF/UHF portables.

SP - (Speaker)

Split - A mode in which the transmit and receive frequency is different.

SQL - (SQueLch) A function muting audio output for set conditions.

SSB - (Single Side Band)

SSTV - (Slow Scan TV) Graphics communications using narrow bandwidth.

SWL - (Short Wave Listener)

SWR - (Standing Wave Radio) Measurement of forward vs. reflected power output during transmit.

T

TCXO - (Temperature Compensated Crystal Oscillator) Heated crystal oscillator for better frequency stability.

TNC -

- A Terminal Node Controller modem for data communication.
- A type of antenna connector.

TS - (Tuning Step) Incremental steps.

TSQL - (Tone SQueLch) Squelch function using sub audible tones, selective call.

TVI – (TeleVision Interference)

TX - (Transmit)

U

UHF - (Ultra High Frequency) 300 MHz -3 GHz range signals.

Uplink - Frequency that a user transmits to a repeater or satellite.

USB - (Upper Side Band)

UTC - (Universal Time Coordinated) An astronomicaltime based on Greenwich meridian (zero degrees longitude)

V

VFO - (Variable Frequency Oscillator) An operating mode in which the operator can change frequency freely.

VHF - (Very High Frequency) 30-300 MHz range signals.

VOX - (Voice Operated Transmission) A function automatically put the transmitter in transmit when you talk into a microphone.

VSC-

- Voice Scan Control
- Voice Squelch Control

W

Weather Alert - A NOAA broadcast station transmitting weather alert signals.

WFM - (Wideband FM)

List of Abbreviations found in ARRL Publications

A

a - atto (prefix for 10 - 18)

A - ampere (unit of electrical current)

ac - alternating current

ACC - Affiliated Club Coordinator

ACSSB - amplitude - compandored single sideband

A/D - analog - to - digital

ADC - analog - to - digital converter

AF - audio frequency

AFC - automatic frequency control

AFSK - audio frequency - shift keying

AGC - automatic gain control

Ah - ampere hour

ALC - automatic level control

AM - amplitude modulation

AMRAD - Amateur Radio Research and Development Corporation

AMSAT - Radio Amateur Satellite Corporation

AMTOR - Amateur Teleprinting Over Radio

ANT - antenna

ARA - Amateur Radio Association

ARC - Amateur Radio Club

ARES - Amateur Radio Emergency Service

ARQ - Automatic repeat request

ARRL - American Radio Relay League

ARS - Amateur Radio Society (station)

ASCII - American National Standard Code for Information Interchange

ATV - amateur television

AVC - automatic volume control

AWG - American wire gauge

az - el - azimuth - elevation

B

B - bel; blower; susceptance; flux density, (inductors)

balun - balanced to unbalanced (transformer)

BC - broadcast

BCD - binary coded decimal

BCI - broadcast interference

Bd - baud (bids in single - channel binary data transmission)

BER - bit error rate

BFO - beat - frequency oscillator

bit - binary digit

bit/s - bits per second

BM - Bulletin Manager

BPF - band - pass filter

BPL - Brass Pounders League

BT - battery

BW - bandwidth

C

c - centi (prefix for 10 - 2)

C - coulomb (quantity of electric charge); capacitor

CAC - Contest Advisory Committee

CATVI - cable television interference

CB - Citizens Band (radio)

CBBS - computer bulletin - board service

CBMS - computer - based message system

CCITT - International Telegraph and Telephone Consultative Committee

CCTV - closed - circuit television

CCW - coherent CW

ccw - counterclockwise

CD - civil defense

cm - centimeter

CMOS - complementary - symmetry metal - oxide semiconductor

coax - coaxial cable

COR - carrier - operated relay

CP - code proficiency (award)

CPU - central processing unit

CRT - cathode ray tube

CT - center tap

CTCSS - continuous tone - coded squelch system

cw - clockwise

CW - continuous wave

D

d - deci (prefix for 10 - 1)

D - diode

da - deca (prefix for 10)

D/A - digital - to - analog

DAC - digital - to - analog converter

dB - decibel (0 - 1 bel)

dBi - decibels above (or below) isotropic antenna

dBm - decibels above (or below) 1 milliwatt

DBM - double balanced mixer

dBV - decibels above/below 1 V (in video, relative to 1 V P - P)

dBW - decibels above/below 1 W

dc - direct current

D - C - direct conversion

DDS - direct digital synthesis

DEC - District Emergency Coordinator

deg - degree

DET - detector

DF - direction finding; direction finder

DIP - dual in - line package

DMM - digital multimeter

DPDT - double - pole double - throw (switch)

DPSK - differential phase - shift keying

DPST - double - pole single - throw (switch)

DS - direct sequence (spread spectrum); display

DSB - double sideband

DSP - digital signal processing

DTMF - dual - tone multifrequency

DVM - digital voltmeter

DX - long distance; duplex

DXAC - DX Advisory Committee

DXCC - DX Century Club

E

e - base of natural logarithms (2 - 71828)

E - voltage

EA - ARRL Educational Advisor

EC - Emergency Coordinator

ECL - emitter - coupled logic

EHF - extremely high frequency (30 - 300 GHz)

EIA - Electronic Industries Alliance

EIRP - effective isotropic radiated power

ELF - extremely low frequency

ELT - emergency locator transmitter

EMC - electromagnetic compatibility

EME - earth - moon - earth (moonbounce)

EMF - electromotive force

EMI - electromagnetic interference

EMP - electromagnetic pulse

EOC - emergency operations center

EPROM - erasable programmable read only memory

F

f - femto (prefix for 10 - 5); frequency

F - farad (capacitance unit); fuse

fax - facsimile

FCC - Federal Communications Commission

FD - Field Day

FEMA - Federal Emergency Management Agency

FET - field - effect transistor

FFT - fast Fourier transform

FL - filter

FM - frequency modulation

FMTV - frequency - modulated television

FSK - frequency - shift keying

FSTV - fast - scan (real - time) television

ft - foot (unit of length)

G

g - gram (unit of mass)

G - giga (prefix for 109); conductance

GaAs - gallium arsenide

GB - - gigabytes

GDO - grid - or gate - dip oscillator

GHz - gigahertz (109 Hz)

GND - ground

H

h - hecto (prefix for 102)

H - henry (unit of inductance)

HF - high frequency (3 - 30 MHz)

HFO - high - frequency oscillator; heterodyne frequency oscillator

HPF - highest probable frequency; high - pass filter

Hz - hertz (unit of frequency, 1 cycle/s)

I

I - current, indicating lamp

IARU - International Amateur Radio Union

IC - integrated circuit

ID - identification; inside diameter

IEEE - Institute of Electrical and Electronics Engineers

IF - intermediate frequency

IMD - intermodulation distortion

in - - inch (unit of length)

in - /s - inch per second (unit of velocity)

I/O - input/output

IRC - international reply coupon

ISB - independent sideband

ITF - Interference Task Force

ITU - International Telecommunication Union

ITU - T - ITU Telecommunication Standardization Bureau

J - K

j - operator for complex notation, as for reactive component of an impedance (+j inductive; - j capacitive)

J - joule (kg m2/s2) (energy or work unit); jack

JFET - junction field - effect transistor

k - kilo (prefix for 103); Boltzmann - s constant (1 - 38x10 - 23 J/K)

K - kelvin (used without degree symbol) absolute temperature scale; relay

kB - - kilobytes

kBd - 1000 bauds

kbit - 1024 bits

kbit/s - 1024 bits per second

kbyte - 1024 bytes

kg - kilogram

kHz - kilohertz

km - kilometer

kV - kilovolt

kW - kilowatt

kO - kilohm

L

l - liter (liquid volume)

L - lambert; inductor

lb - pound (force unit)

LC - inductance - capacitance

LCD - liquid crystal display

LED - light - emitting diode

LF - low frequency (30 - 300 kHz)

LHC - left - hand circular (polarization)

LO - local oscillator; Leadership Official

LP - log periodic

LS - loudspeaker

lsb - least significant bit

LSB - lower sideband

LSI - large - scale integration

LUF - lowest usable frequency

M

m - meter (length); milli (prefix for 10 - 3)

M - mega (prefix for 106); meter (instrument)

mA - milliampere

mAh - milliampere hour

MB - - megabytes

MCP - multimode communications processor

MDS - Multipoint Distribution Service; minimum discernible (or detectable) signal

MF - medium frequency (300 - 3000 kHz)

mH - millihenry

MHz - megahertz

mi - mile, statute (unit of length)

mi/h - mile per hour

mi/s - mile per second

mic - microphone

min - minute (time)

MIX - mixer

mm - millimeter

MOD - modulator

modem - modulator/demodulator

MOS - metal - oxide semiconductor

MOSFET - metal - oxide semiconductor field - effect transistor

MS - meteor scatter

ms - millisecond

m/s - meters per second

msb - most - significant bit

MSI - medium - scale integration

MSK - minimum - shift keying

MSO - message storage operation

MUF - maximum usable frequency

mV - millivolt

mW - milliwatt

MO - megohm

N

n - nano (prefix for 10 - 9); number of turns (inductors)

NBFM - narrow - band frequency modulation

NC - no connection; normally closed

NCS - net - control station; National Communications System

nF - nanofarad

NF - noise figure

nH - nanohenry

NiCd - nickel cadmium

NM - Net Manager

NMOS - N - channel metal - oxide silicon

NO - normally open

NPN - negative - positive - negative (transistor)

NPRM - Notice of Proposed Rule Making (FCC)

ns - nanosecond

NTIA - National Telecommunications and Information Administration

NTS - National Traffic System

O

OBS - Official Bulletin Station

OD - outside diameter

OES - Official Emergency Station

OO - Official Observer

op amp - operational amplifier

ORS - Official Relay Station

OSC - oscillator

OSCAR - Orbiting Satellite Carrying Amateur Radio

OTC - Old Timer - s Club

oz - ounce (1/16 pound)

P

p - pico (prefix for 10 - 12)

P - power; plug

PA - power amplifier

PACTOR - digital mode combining aspects of packet and AMTOR

PAM - pulse - amplitude modulation

PBS - packet bulletin - board system

PC - printed circuit

PD - power dissipation

PEP - peak envelope power

PEV - peak envelope voltage

pF - picofarad

pH - picohenry

PIC - Public Information Coordinator

PIN - positive - intrinsic - negative (semiconductor)

PIO - Public Information Officer

PIV - peak inverse voltage

PLL - phase - locked loop

PM - phase modulation

PMOS - P - channel (metal - oxide semiconductor)

PNP - positive negative positive (transistor)

pot - potentiometer

P - P - peak to peak

ppd - postpaid

PROM - programmable read - only memory

PSAC - Public Service Advisory Committee

PSHR - Public Service Honor Roll

PTO - permeability - tuned oscillator

PTT - push to talk

Q - R

Q - figure of merit (tuned circuit); transistor

QRP - low power (less than 5 - W output)

R - resistor

RACES - Radio Amateur Civil Emergency Service

RAM - random - access memory

RC - resistance - capacitance

R/C - radio control

RCC - Rag Chewer - s Club

RDF - radio direction finding

RF - radio frequency

RFC - radio - frequency choke

RFI - radio - frequency interference

RHC - right - hand circular (polarization)

RIT - receiver incremental tuning

RLC - resistance - inductance - capacitance

RM - rule making (number assigned to petition)

r/min - revolutions per minute

RMS - root mean square

ROM - read - only memory

r/s - revolutions per second

RS - Radio Sputnik (Russian ham satellite)

RST - readability - strength - tone (CW signal report)

RTTY - radioteletype

RX - receiver, receiving

S

s - second (time)

S - siemens (unit of conductance); switch

SASE - self - addressed stamped envelope

SCF - switched capacitor filter

SCR - silicon controlled rectifier

SEC - Section Emergency Coordinator

SET - Simulated Emergency Test

SGL - State Government Liaison

SHF - super - high frequency (3 - 30 GHz)

SM - Section Manager; silver mica (capacitor)

S/N - signal - to - noise ratio

SPDT - single - pole double - throw (switch)

SPST - single - pole single - throw (switch)

SS - ARRL Sweepstakes; spread spectrum

SSB - single sideband

SSC - Special Service Club

SSI - small - scale integration

SSTV - slow - scan television

STM - Section Traffic Manager

SX - simplex

sync - synchronous, synchronizing

SWL - shortwave listener

SWR - standing - wave ratio

T

T - tera (prefix for 1012); transformer

TA - ARRL Technical Advisor

TC - Technical Coordinator

TCC - Transcontinental Corps (NTS)

TCP/IP - Transmission Control Protocol/ Internet Protocol

tfc - traffic

TNC - terminal node controller (packet radio)

TR - transmit/receive

TS - Technical Specialist

TTL - transistor - transistor logic

TTY - teletypewriter

TU - terminal unit

TV - television

TVI - television interference

TX - transmitter, transmitting

U

U - integrated circuit

UHF - ultra - high frequency (300 MHz to 3 GHz)

USB - upper sideband

UTC - Coordinated Universal Time (also abbreviated Z)

UV - ultraviolet

V

V - volt; vacuum tube

VCO - voltage - controlled oscillator

VCR - video cassette recorder

VDT - video - display terminal

VE - Volunteer Examiner

VEC - Volunteer Examiner Coordinator

VFO - variable - frequency oscillator

VHF - very - high frequency (30 - 300 MHz)

VLF - very - low frequency (3 - 30 kHz)

VLSI - very - large - scale integration

VMOS - V - topology metal - oxide semiconductor

VOM - volt - ohmmeter

VOX - voice - operated switch

VR - voltage regulator

VSWR - voltage standing - wave ratio

VTVM - vacuum - tube voltmeter

VUCC - VHF/UHF Century Club

VXO - variable - frequency crystal oscillator

W

W - watt (kg m2s - 3), unit of power

WAC - Worked All Continents

WAS - Worked All States

WBFM - wide - band frequency modulation

WEFAX - weather facsimile

Wh - watthour

WPM - words per minute

WRC - World Radiocommunication Conference

WVDC - working voltage, direct current

X

X - reactance

XCVR - transceiver

XFMR - transformer

XIT - transmitter incremental tuning

XO - crystal oscillator

XTAL - crystal

XVTR - transverter

Y - Z

Y - crystal; admittance

YIG - yttrium iron garnet

Z - impedance; also see UTC

Numbers/Symbols

5BDXCC.Five-Band DXCC

5BWAC.Five-Band WAC

5BWAS.Five-Band WAS

6BWAC.Six-Band WAC

° - degree (plane angle)

°C - degree Celsius (temperature)

°F - degree Fahrenheit (temperature)

α - (alpha) angles; coefficients, attenuation constant, absorption factor, area, common-base forward current-transfer ratio of a bipolar transistor

β - (beta) angles; coefficients, phase constant current gain of common-emitter transistor amplifiers

γ - (gamma) specific gravity, angles, electrical conductivity, propagation constant

Γ - (gamma) complex propagation constant

δ - (delta) increment or decrement; density; angles

Δ - (delta) increment or decrement determinant, permittivity

ε - (epsilon) dielectric constant; permittivity; electric intensity

ζ - (zeta) coordinates; coefficients

η - (eta) intrinsic impedance; efficiency; surface charge density; hysteresis; coordinate

θ - (theta) angular phase displacement; time constant; reluctance; angles

ι - (iota) unit vector

K - (kappa) susceptibility; coupling coefficient

λ - (lambda) wavelength; attenuation constant

Λ - (lambda) permeance

μ - (mu) permeability; amplification factor; micro (prefix for 10 - 6)

μF - microfarad

μH - microhenry

μP - microprocessor

ξ - (xi) coordinates

π - (pi) ≈3 - 14159

ρ - (rho) resistivity; volume charge density; coordinates; reflection coefficient

σ - (sigma) surface charge density; complex propagation constant; electrical conductivity; leakage coefficient; deviation

Σ - (sigma) summation

τ - (tau) time constant; volume resistivity; time-phase displacement; transmission factor; density

φ - (phi) magnetic flux angles

Φ - (phi) summation

χ - (chi) electric susceptibility; angles

Ψ - (psi) dielectric flux; phase difference; coordinates; angles

ω - (omega) angular velocity 2πf

Ω - (omega) resistance in ohms; solid angle

R-S-T Codes

The “RST” Signal Reporting System

READABILITY

1-Unreadable.

2-Barely readable, occasional words distinguishable.

3-Readable with considerable difficulty.

4-Readable with practically no difficulty.

5-Perfectly readable.

SIGNAL STRENGTH

1-Faint signals barely perceptible.

2-Very weak signals.

3-Weak signals.

4-Fair signals.

5-Fairly good signals.

6-Good signals.

7-Moderately strong signals.

8-Strong signals.

9-Extremely strong signals.

TONE (CW Morse Radiotelegraph only)

1-Sixty-cycle ac or less, very rough and broad.

2-Very rough ac, very harsh and broad.

3-Rough ac tone, rectified but not filtered.

4-Rough note, some trace of filtering.

5-Filtered rectified ac but strongly ripple-modulated.

6-Filtered tone, definite trace of ripple modulation.

7-Near pure tone, trace of ripple modulation.

8-Near perfect tone, slight trace of modulation.

9-Perfect tone, no trace of ripple or modulation of any kind.

The "tone" report refers only to the purity of the signal, and has no connection with its stability or freedom from clicks or chirps.

• If the signal has the characteristic steadiness of crystal control, add X to the report (e.g., RST 469X). If it has a chirp or "tail" (either on "make" or "break") add C (e.g., 469C).

• If it has clicks or noticeable other keying transients, add K (e.g., 469K).

• Of course a signal could have both chirps and clicks, in which case both C and K could be used (e.g., RST 469CK).

“Q” Signals In Ham Radio

Clarity and brevity is always required during ham radio CW communications. “Q” signals were designed to provide just that. Many Q Signals are used during voice communications, but it is recommended that they be used sparingly!

“Q” Signal Meaning

QRG - Will you tell me my exact frequency (or that of ____)? Your exact frequency (or that of ____) is _____ kHz.

QRH - Does my frequency vary? Your frequency varies.

QRI - How is the tone of my transmission? The tone of your transmission is ____
(1. Good; 2. Variable; 3. Bad).

QRJ - Are you receiving me badly? I cannot receive you. Your signals are too weak.

QRK - What is the intelligibility of my signals (or those of ____)? The intelligibility of your signals (or those of ____) is
(1. Bad; 2. Poor; 3. Fair; 4. Good; 5. Excellent).

QRL - Are you busy? I am busy (or I am busy with _____). Please do not interfere.

QRM - Is my transmission being interfered with? Your transmission is being interfered with ____

(1. Nil; 2. Slightly; 3. Moderately; 4. Severely; 5. Extremely.)

QRN - Are you troubled by static? I am troubled by static _____ (1-5 as under QRM).

QRO - Shall I increase power? Increase power.

QRP - Shall I decrease power? Decrease power.

QRQ - Shall I send faster? Send faster (_____ WPM).

QRS - Shall I send more slowly? Send more slowly (_____ WPM).

QRT - Shall I stop sending? Stop sending.

QRU - Have you anything for me? I have nothing for you.

QRV - Are you ready? I am ready.

QRW - Shall I inform _____ that you are calling on _____ kHz? Please inform _____ that I am calling on _____ kHz.

QRX - When will you call me again? I will call you again at _____ hours (on _____ kHz).

QRY - What is my turn? Your turn is numbered _____

QRZ - Who is calling me? You are being called by _____ (on _kHz).

QSA - What is the strength of my signals (or those of _____)? The strength of your signals (or those of _____)

is _____ (1. Scarcely perceptible; 2. Weak; 3. Fairly good; 4. Good; 5. Very good).

QSB - Are my signals fading? Your signals are fading.

QSD - Is my keying defective? Your keying is defective.

QSG - Shall I send _____ messages at a time? Send _____ messages at a time.

QSK - Can you hear me between your signals and if so can I break in on your transmission? I can hear you between my signals; break in on my transmission.

QSL - Can you acknowledge receipt? I am acknowledging receipt.

QSM - QSM Shall I repeat the last message which I sent you, or some previous message? Repeat the last message which you sent me (or message(s) number(s) _____).

QSN - Did you hear me (or _____) on _____ kHz? I did hear you (or _____) on _____ kHz.

QSO - Can you communicate with _____ direct or by relay? I can communicate with ____ direct (or by relay through __).

QSP - Will you relay to _____ ? I will relay to _____

QST - General call preceding a message addressed to all amateurs and ARRL members. This is in effect "CQ ARRL."

QSU - Shall I send or reply on this frequency (or on _____ kHz)? Send a series of Vs on this frequency (or _____ kHz).

QSW - Will you send on this frequency (or on _____ kHz)? I am going to send on this frequency (or on _____ kHz).

QSX - Will you listen to _____ on _____ kHz? I am listening to _____ on _____ kHz.

QSY - Shall I change to transmission on another frequency? Change to transmission on another frequency (or on __kHz).

QSZ - Shall I send each word or group more than once? Send each word or group twice (or _____ times).

QTA - Shall I cancel message number _____ ? Cancel message number _____

QTB - Do you agree with my counting of words? I do not agree with your counting of words. I will repeat the first letter or digit of each word or group.

QTC - How many messages have you to send? I have _____ messages for you (or for _____).

QTH - What is your location? My location is _____

QTR - What is the correct time? The time is _____

QTR - What is the correct time? The time is _____