

Glossary of Radio Terms

A (Alpha)

AC - Alternating Current

amateur radio - A non-commercial radio service as set by a recognized cognizant government agency. In the USA, amateur radio is defined under part 97 of the FCC Rules and Regulations.

ampere (A) : the basic unit of electrical current. Current is a measure of the electron flow through a circuit per unit of time. 6.24×10^{18} electrons moving past a point in one second, equals one ampere. Abbreviated as amps.

AM - Amplitude Modulation. The modulation of a wave by its amplitude, used chiefly as a means of radio broadcasting, in which an audio signal is combined with a carrier wave.

Antenna : a device that intercepts or radiates radio frequency energy.

antenna tuner - Impedance-matching device that matches the antenna system input impedance to the transmitter, receiver, or transceiver output impedance.

APRS - Automatic Packet Position Reporting System

ARRL - American Radio Relay League, the national amateur radio organization in the USA

AWG - American Wire Gauge - standard for describing the diameter of wire by which the wire size increases as the gauge number decreases.

B (Bravo)

Balun - balance to unbalance , a device used to couple a balanced antenna to an unbalanced feed line (e.g., dipole to coax)

Band - a range of frequencies allotted for a particular use (e.g., 20 Meter Band)

bandpass - range of frequencies permitted to pass through a filter or receiver circuit.

band-pass filter - a circuit that passes a range of frequencies and attenuates signals above and below this range

beam - an antenna that gives a directional beam pattern.

beacon - A station that transmits one-way signals for the purpose of navigation, homing, and propagation condition determination.

BFO - Beat frequency oscillator. Used to mix with the incoming signal to produce an audio tone for CW reception. A BFO is needed to copy CW and SSB signals.

bleed over - Interference caused by a station operating on an adjacent channel

block diagram - a drawing using rectangles to represent major sections of electronic circuits. The diagram shows signal flow and the function of the sections.

bounce - reflections of a radio wave off of an object, (e.g., the ionosphere or the moon)

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break - (Repeater Term) used to interrupt a conversation on a repeater to indicate that there is an emergency or urgent message. If non-urgent, simply interject your callsign.

break break (Repeater Term) used to intercede in an existing conversation with emergency communications.

C (Charlie)

calling frequency - A de-facto standard frequency where stations attempt to contact each other. Example - 146.52 is the USA National FM simplex calling frequency

capacitor - an electronic component composed of two or more conductive plates separated by an insulating material. A capacitor stores energy in an electric field.

carrier - a pure continuous radio emission at a fixed frequency, without modulation and without interruption. Several types of modulation can be applied to the carrier.

clear - used to indicate a station is done transmitting

closed repeater - (Repeater Term) a repeater whose access is limited to a select group

coax, coaxial cable - A type of wire that consists of a center wire surrounded by insulation and then a grounded shield of braided wire. The shield minimizes electrical and radio frequency interference. 50-ohm and 72 ohm characteristic impedances are typical.

code - usually refers to Morse code, but used for others such as baudot.

coil - a conductor wound into a series of loops.

color code - a system in which numerical values are assigned to various colors. Colored stripes are painted on the body of resistors and other components to show their value.

controller - (Repeater Term) the control system within a repeater - usually includes turning the repeater on-off, timing transmissions, sending the identification signal, controlling the auto patch and CTCSS encoder/decoder.

control operator - (Repeater Term) the Amateur Radio operator designated to "control" the operation of the repeater, as required by FCC regulations.

copy - indication of how well communications are received. "I have a good copy on you" also used as a question, as in "did you copy" - understand all"

CQ - calling any amateur radio station, may be sent in CW, phone or some digital modes

critical angle - The angle at which a radio signal is refracted in the ionosphere. Lower angles generally result in greater distance transmissions.

critical frequency - the highest frequency at which a vertically incident radio wave will return from the ionosphere. Above the critical frequency radio signals pass through the ionosphere instead of returning to Earth.

crystal - a piezoelectric device that tends to resonate at a frequency dependent on its

material, dimensions, and temperature

CTCSS - (Repeater Term) abbreviation for continuous tone-controlled squelch system, a series of sub-audible tones that some repeaters use to restrict access.

CW - Continuous Wave. In truth a continuous wave is an unmodulated, uninterrupted RF wave. However, in common usage refers to Morse code emissions or messages which is an interrupted wave.

D (Delta)

dB - Decibel (1/10 of a Bel); unit for the ratio of two power measurements. -

dB_i - Decibels above or below an isotropic antenna.

DC - Direct current

delta-loop antenna - a variation of the cubical quad with triangular elements.

diplexer - A frequency splitting and isolation device. Typically used to couple two transceivers to a single or dual band antenna, thus allowing one to receive on one transceiver and transmit on the other transceiver. Typical application 2M and 440MHz transceivers into a dual band antenna for satellite work. Thus typically an isolation device for use on 2 or more different bands.

dipole - the basic antenna consisting of a length of wire or tubing, open and fed at the center. The entire antenna is ½ wavelength long at the desired operating frequency. This antenna often used as a standard for calculating gain, dBd.

doubling - (Repeater Term) On a repeater if two stations transmit simultaneously, the signals mix in the repeater's receiver and results in a raspy signal. FM has a characteristic whereby the stronger signals "captures" and over-rides the weaker one.

D-region, D-layer - The lowest region of the ionosphere found approximately 25 to 55 miles above Earth; it fades away quickly after sunset and sometimes does not form at all on short winter days. The main impact of the D-layer on radio propagation is to absorb energy from signals passing through it.

dual-band antenna - antenna designed for use on two different Amateur Radio bands.

dummy load - a device which substitutes for an antenna during tests on a transmitter. It converts radio energy to heat instead of radiating energy. Offers a match to the transmitter output impedance.

duplexer - (Repeater Term) a device used in repeater systems which allows a single antenna to transmit and receive simultaneously. Thus typically for isolation on a system on the same band.

DVM - Digital voltmeter

DX - (noun) distant station; (verb) to contact a distant station

E (Echo)

earth ground - a circuit connection to a ground rod driven into the earth

Echolink - Uses a network protocol called VoIP (Voice over IP). This program allows

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worldwide connections to be made between stations, from computer to station, or from computer to computer. There are more than 96,000 registered users in 128 countries worldwide.

E-layer - The region of the ionosphere found approximately 55 to 90 miles above Earth; it fades away a few hours after sunset. The main impact of the E-layer on radio propagation is to absorb energy from signals passing through it, although sporadic-E propagation makes possible distant communications on frequencies above 30 MHz.

elmer - a mentor; an experienced operator who tutors newer operators

EME - Earth-Moon-Earth; using the moon as a passive reflector to establish a signal path; moonbounce.

EMF Electromotive force; voltage.

EMP - Electromagnetic pulse; a extremely high-energy magnetic field. Such as the current flow caused by a lightning strike or nuclear explosion.

E-skip - Sporadic E-layer ionospheric propagation

ether - Old theory for the medium once believed to conduct radio waves. The existence of the ionosphere is first discovered by the English physicist, Appellton in 1924.

F (Foxtrot)

FAA - Federal Aviation Administration (USA).

F-layer - The region of the ionosphere found approximately 90 to 400 miles above Earth and which is responsible for most long distance propagation on frequencies below 30 MHz. During the daytime (especially in summer), solar heating can cause the F-layer to split into two separate layers, the F1-layer and the F2-layer.

FCC - Federal Communications Commission, the governmental body in the U.S. which regulates the radio spectrum

feedline - wire or cable connecting a radio to an antenna

FET - Field-effect transistor

field day - Amateur Radio activity in June to practice emergency communications.

field strength meter - a test instrument used to show the presence of RF energy and the relative strength of the RF field.

filter - A circuit or device that will allow certain frequencies to pass while rejecting others.

final - The last transmission by a station during a contact. Also the last amplifying stage of a radio transmitter.

FM - Frequency Modulation - the modulation of a radio or other wave by variation of its frequency, especially to carry an audio signal.

FOG - Field Operations Guide

frequency - the rate of oscillation (vibration). Audio and radio wave frequencies are measured in Hertz. (cycles per second)

G (Golf)

gain, antenna - an increase in the effective power radiated by an antenna in a certain desired direction, or an increase in received signal strength from a certain direction.

This

is at the expense of power radiated in, or signal strength received from, other directions.

GMRS - General Mobile Radio Service.

ground-plane antenna - a vertical antenna built with the central radiating element one quarter-

wavelength long and several radials extending horizontally from the base. The radials are slightly longer than one-quarter wave, and may droop toward the ground.

H (Hotel)

half-wave dipole - the basic antenna consisting of a length of wire or tubing, open and fed at the center. The entire antenna is $\frac{1}{2}$ wavelength long at the desired operating frequency.

hand-held - (Repeater Term) a small, lightweight portable transceiver small enough to be carried easily; also called HT (for Handie-Talkie, a Motorola trademark).

handle - A radio operator's name.

Hertz - the standard unit used to measure frequency (one Hertz equals one complete cycle per second)

HF - High Frequency - 3 MHz to 30 MHz

hop - communication between stations by reflecting the radio waves off of the ionosphere.

HT - (Repeater Term) Handi-Talkie - a small hand held radio

I (India)

IC - Integrated circuit.

ID -- Identification, as announcing station callsign at intervals specified by Part 97 of the FCC Rules and Regulations.

IF - Intermediate Frequency -- Intermediate frequency, resultant frequency from heterodyning the carrier frequency with an oscillator, mixing incoming signals to an intermediate frequency enhances amplification, filtering and the processing signals. Desirable to have more than one IF.

ionosphere - The electrically charged region of the Earth's atmosphere located approximately 40 to 400 miles above the Earth's surface that refracts radio signals.

J (Juliet)

J pole - a mechanically modified version of the zepp (zeppelin) antenna. It

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consists of a half-wavelength radiator fed by a quarter-wave matching stub. This antenna does not require the ground plane that ¼-wave antennas do to work properly.

jury rig - Fix in an unorthodox manner

K (Kilo)

key - (noun) any switch or button, usually refers to a telegraph or Morse code key

key - (verb) to press a key or button

kilocycles - thousand cycles per second. Replaced by kiloHertz (kHz)

kilohertz - one thousand hertz

L (Lima)

LCD - Liquid Crystal Display

LED - Light-emitting diode

LF - Low Frequency - 30 kHz to 300 kHz

line-of-sight propagation - the term used to describe propagation in a straight line directly from one station to another.

LSB - Lower Side Band - the common single-sideband operating mode on the 40, 80, and 160 meter amateur bands.

LW - Long Wave 150 - 300 KHz

M (Mike)

mA milliamper (1/1,000 ampere)

magnetic mount or mag-mount - (Repeater Term) an antenna with a magnetic base that permits quick installation and removal from a motor vehicle or other metal surface.

mA/h - milliamper per hour

megahertz - million hertz

MF - Medium Frequency - (300-3,000 kHz)

mic (mike) - microphone - a device that converts sound waves into electrical energy.

microwave - the region of the radio spectrum above 1 giga hertz (GHz).

mil 1/1000 of an inch. Also mill a special typewriter used by radio operators in copying messages

mW - milliwatt (1/1,000 watt)

mobile - an amateur radio station installed in a vehicle - a mobile station can be used while in MOTION. A portable station is one that is designed to be easily moved from place to place but can only be used while stopped.

MUF - Maximum Usable Frequency, a measure of the highest frequency that will support transmissions off of the ionosphere.

multimode transceiver - transceiver capable of SSB, CW, AM, and FM operation.

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MW - Medium Wave - 300 - 3000 kHz. Also used for the AM broadcast band - 530-1710 kHz

N (November)

NB - Narrow band.

negative - no, incorrect

negative copy - unsuccessful transmission

negative offset - the repeater input frequency is lower than the output frequency.

net - A group of stations that meet on a specified frequency at a certain time. The net is organized and directed by a net control station, who calls the net to order, recognizes stations entering and leaving the net, and authorizes stations to transmit.

NVIS - near-vertical-incidence-skywave, a propagation mode where signals are reflected back down from directly overhead. Useful for relatively short-distances, overcoming the limitations of the usual "skip-zone" distance"

O (Oscar)

open repeater - (Repeater Term) a repeater whose access is not limited.

P (Papa)

PA - Power amplifier

picket fencing - (Repeater Term) A condition experienced on VHF and above where a signal rapidly fluctuates in amplitude causing a sound akin to rubbing a stick on a picket fence. If a repeater user's signal isn't strong enough to maintain solid access to the machine's input (such as when operating from a vehicle passing beneath underpasses or through hilly terrain), the signal would be hard to copy because of a pronounced, rapid flutter or choppy characteristic.

PL - (Repeater Term) Private Line (same as CTCSS) - low frequency audio tones used to alert or control receiving stations. PL, an acronym for Private Line, is Motorola's proprietary name for a communications industry signaling scheme called the Continuous Tone Coded Squelch System, or CTCSS. It is used to prevent a repeater from responding to unwanted signals or interference. Tone is an electronic means of allowing a repeater to respond only to stations that encode or send the proper tone. Any station may be set up to transmit this unique low frequency tone that allows the repeater to operate. Also used during the AutoPatch mode.

PM - Phase Modulation, similar to Frequency Modulation

portable - A mobile is a amateur radio station installed in a vehicle - a mobile station can be used while in MOTION. A portable station is one that is designed to be easily moved from place to place but can only be used while stopped. Portable operation is away from the home base station.

positive offset - (Repeater Term) the repeater input frequency is higher than the output frequency.

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PTT - Push To Talk, the switch in a transmitter circuit that activates the microphone and transmission circuitry

Q (Quebec)

Note that many Hams use Q-Signals verbally, but they originated in CW communications, QTH is "my Location", "QSY is change frequency", QRM is my signal is being interfered with, etc.

QRP - Low power operation, usually 5 watts output or 10 watts input power.

QSL - to acknowledge receipt. Commonly used to indicate "I understand", "I copied your transmission (or report) all OK". Also used as a term for sending cards by mail to confirm a two way contact with a station, such as QSL via the bureau.

QST - Notice of general interest

R (Romeo)

RDF - Radio Direction Finding

repeater - A repeater is a receiver/transmitter that listens for your transmission and retransmits it. Repeaters usually enjoy the advantage of height and power to extend the range of your transmission. Repeaters listen on one frequency and transmit on another.

The separation between these two frequencies is referred to as the Offset.

repeater directory - an annual ARRL publication that lists repeaters in the US, Canada and other areas.

RF - Radio Frequency, emissions in the radio portion of the electromagnetic spectrum

roger -- I understand - Received 100% In CW "R"

rubber duck - A shortened flexible antenna used with hand-held scanners and transceivers.

S (Sierra)

simplex - a communications mode in which a radio transmits and receives on the same frequency

sporadic-E - Random patches of intense ionization that form in the E-layer of the ionosphere and refract higher frequency signals that normally cannot be refracted by the ionosphere.

SQL - Squelch - A circuit that mutes the receiver when no signal is present, thereby eliminating band noise

SSB - Single Side Band

SSTV - Slow Scan Television

SW - Short Wave

SWL - Short Wave Listening

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SWR - Standing Wave Ratio, a measure of how much radio energy sent into an antenna system is being reflected back to the transmitter.

SWR Meter - A device used to measure the Voltage Standing Wave Ratio of an antenna system

T (Tango)

third-party communications agreement - an official understanding between the United States and another country that allows amateurs in both countries to participate in third-party communications.

timer - repeaters often incorporate a timer or transmit time limiter to control the length of a single transmission from a user. The time limit is set by the repeater owner.

time-out - Excessively long transmission on a repeater causing the repeater's timer circuit to stop further transmissions.

top band -- 160 Meter Ham Band (highest number meter band)

transceiver - a radio that both transmits and receives

twisted pair - ham slang for telephone or telephone lines

U (Uniform)

UHF - Ultra High Frequency 300 - 3000 MHz

uplink - Channel used for earth-to-satellite communications.

USB - Upper Side Band the common single-sideband operating mode on the 20, 17, 15, 12, and 10 meter HF amateur bands, and all the VHF and UHF bands.

UTC - Coordinated Universal Time, the time (expressed in 24-hour format) at the 0-degree Meridian, which passes through Greenwich, England.

V (Victor)

V - Volt (unit of electromotive force {EMF}).

VA - Volt Amperes - measure of apparent power. (Note true power is $I^2 \times R$)

VAC - Volts Alternating Current.

VE - Volunteer Examiner, a person authorized to administer examinations for amateur radio licenses

VFO - Variable Frequency Oscillator

VHF - Very High Frequency 30 - 300 MHz

VLf - Very Low Frequency 3 - 30 KHz

VOA - Voice Of America.

VOM - Volt-ohm-meter

VOX - Voice Operated Transmit

W (Whiskey)

white noise (Repeater Term) is a scientific term used to describe a spectrum of broad band noise generated in a receiver's detector and sampled to control the receiver's squelch. This term is often incorrectly used in repeater work to describe the sounds heard when the received transmission is noisy and hard to understand, usually attributed to a weak signal and the repeater receiver limiters are not engaged.

wilco - Will comply

work - To communicate with another radio station, a valid two way contact

WPM - Words per minute; as in Morse code or typing speed

WWV - National Bureau of Standards radio station (time signals).

WWVB - NIST radio station (broadcasts time signals).

WWVH - NIST radio station (broadcasts time signals- Hawaii).

WX - weather

X (X-ray)

XCVR - Transceiver

XFMR - Transformer

Y (Yankee)

Yagi - 1926 Hidetsugu Yagi and Shintaro Uda invent the "beam" antenna array. A directional antenna consisting of a dipole and two additional elements, a slightly longer reflector and a slightly shorter director. Electromagnetic coupling between the elements focuses maximum power (or reception) in the direction of the director.

YL - Young Lady, any female amateur radio operator or the significant other of a amateur.

Z (Zulu)

zed - a phonetic for letter "Z"

Zulu - Coordinated Universal Time. Also the phonetic for the letter Z

NUMBERS 0-9

Ø Slashed Zero - distinguishes a ZERO from the letter "O". Resolves ambiguity in callsigns like "KØOF". Press Alt-216 on your PC numeric keyboard.

73 - Best regards