



## GLOSSARY

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### HAM RADIO TERMS

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This glossary contains general definitions of typical amateur radio terms. Not all of the definitions listed may apply to your specific model of radio. Consult the manufacturer for further clarification of model-specific terms.

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## A

**ACC** (ACCessory)

**Adaptive filter**

Digital filter associated with Digital Signal Processing.

**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, a form of digital signalling.

**AGC** (Automatic Gain Control)

Automatically optimize receiver amplifier gain.

**ALC** (Automatic Level Control)

Limits RF drive level to power amplifier during transmit to prevent distortion.

**AM** (Amplitude Modulation)

**Amplifier**

A device used to increase the output power of a device.

**AMSAT** (AMateur SATellite)

**AMTOR** (AMateur Teleprinting Over Radio)

A form of RTTY, radio teletype.

**Anderson power poles**

Used by many emergency radio operators to connect 12 volts DC to their radios.

**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 its resonance. Although an antenna's impedance fluctuates with the frequency of operation, an antenna should be 50  $\Omega$  for most transceivers.

**Antenna matching**

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

**Antenna tuner**

Device used to match an antenna to the output impedance of a transmitter.

**APC** (Automatic Power Control)

Current limiting of power amplifier to prevent damage to 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 American Radio Relay League)

The National Association for Amateur Radio in the US.

**ASCII** (American National Standard Code for Information Interchange)

A seven-unit digital code for the transmission of teletypewriter data.

**ATT** (ATTenuator)

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 standard power meter.

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## B

### **Backscatter**

Radio signals reflected back from ionized patches in the ionosphere.

### **Backstay**

Rigging to support the mast in maritime mobile installations, usually insulated for HF antenna purposes.

### **Balun**

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

### **Band**

A range of frequencies.

### **Bandwidth**

Frequency needed for particular type of emission.

### **Bank**

Memory bank

### **BCI (BroadCast Interference)**

### **Beacons**

Ham radio signals used for propagation study, found on specific frequencies.

### **BFO (Beat Frequency Oscillator)**

### **BNC (Bayonet Neill-Concelman)**

A type of antenna connector.

### **BPF (BandPass Filter)**

### **Bunny hunt**

Finding hidden transmitters, sometimes called "T HUNTING" and "Fox Hunting."

### **Busy lockout**

Inhibits transmit on a frequency in use.

A

B

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## C

### **Call sign**

Sequence of letter and numbers used to identify amateur radio operators and issued by the countries licensing bureau.

### **CAP** (Civil Air Patrol)

Volunteer affiliate of the United States Air Force.

### **Capture effect**

Only the strongest signal heard over an FM receiver.

### **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 bands and re-transmits 430(440) MHz bands.

### **CCW** (Counter ClockWise)

### **CH** (CHannel)

Sequence of memory positions where frequency and related information is stored.

### **CI-V**

Icom computer Control Interface allows multiple radio control simultaneously.

### **Clipping**

Overdriving an amplifier circuit, causing the signal to drop out on voice peaks. (AKA: Flat topping a signal)

### **Contesting**

Working as many stations as you can over a specific amount of time.

### **Conversion**

Number of IF circuits in the receiver.

### **Coronal hole**

Sunspot activity that may lead to enhanced VHF and 10 meter propagation.

### **CPU** (Central Processing Unit)

### **CQ**

Radio communications term used to call others.

### **Crossband repeat**

A mode in many dual band radios where a radio transmits on one band, a crossband repeater transmits the received signal on another band, which is heard back by the radio on the other band.

### **CTCSS** (Continuous Tone Coded Squelch System)

Adds a continuous sub-audible low frequency tone to the transmitted carrier. Receivers set for the same low frequency tone can decode signal to hear the audio.

### **CW**

- 1) Carrier Wave
- 2) ClockWise

### **CW filter**

Used to narrow the IF passband to improve reception selectivity in crowded band conditions.

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## D

### D-RATS

Multi-platform integrated tool for communicating digital information, developed for First Responders, using D-STAR radios.

### D-STAR

Digital Smart Technologies for Amateur Radio, an open protocol.

### Data communications

Transfer of data between two or more locations.

### dBd

Unit of RF power as compared to an ideal half wave dipole antenna.

### dB<sub>i</sub>

Unit of RF power as compared to an isotropic antenna.

### dBm

Decibels measure, 1 mW with a load impedance of 600 Ω (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.

### DCS

Digital Coded Squelch, a method of silencing radios until a specific string of tones are received to open the audio stage. An alternate to CTCSS.

### Deviation

A measurement for an FM signal for the maximum frequency changes on either side of the carrier frequency.

### Digital communications

Information sent digitally, which may be decoded as voice, data, and/or video.

### Dipole

A half wave antenna, with a bi-directional radiation pattern.

### Distress call

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

### Distress frequency

A frequency or channel specific for use in distress calling. Radiotelephone distress frequencies are 2.182 MHz and 156.8 MHz. Survival craft use 243 MHz. Maritime distress frequencies are the same, while general aviation frequencies are 121.5 MHz.

### Doppler shift

Common in satellite communications, where signals may very up or down in frequency, as the satellite approaches and departs from view.

### Downconverter

A device to take higher frequencies, and lower them to appear at a lower frequency, for reception.

### Downlink (↔Uplink)

Frequency that repeater or satellite transmits on to a user.

### DSP (Digital Signal Processor)

Used to improve the signal to noise ratio for clearer and more legible communications. Relatively new to the ham radio.

### 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 commands, etc.

### Dualwatch

Receiving two signals simultaneously.

### Dummy load

A non radiating 50 Ω load connected to the transmitter to replace the antenna for testing purposes.

### Duplex

An operation mode in which the transmit and receive frequencies are different.

### Duplexer

A device which divides transmit and receive signals.

### Duty cycle

The ratios of transmit to receive time.

### Dx'pedition

Trip to foreign land or rare entity to operate ham radio.

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## E

### **E LAYER**

The ionospheric layer usually responsible for most 10 meter and 6 meter skywaves over 1500 mile paths. Appears especially in summer season.

### **EBS (Emergency Broadcast System)**

A system where at first an attention tone is transmitted over all station and the second tone followed with specific instruction regarding the receivable frequency in the national emergency.

### **EEPROM (Electrically Erasable and Programmable Read Only Memory)**

### **EME**

Earth Moon Earth, also known as moon bounce, is a radio technique where amateur radio operators operate via reflected signals from the Moon. Making a signal path from an earth bound station, reflected off the moon, back to another earth bound station.

### **EMI**

Electromagnetic Interference, sometimes caused by battery chargers and inverters.

### **Emission**

Transmission of a signal

## F

### **F CONNECTOR**

Found on 440 MHz and 1.2 GHz antenna circuits.

### **Fading**

Signal reduction due to atmospheric.

### **Feed point**

Where the coaxial cable or ladder line joins the active antenna.

### **Filter**

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

### **FM**

- 1) Frequency Modulation
- 2) FM broadcast

### **Foldback**

A circuit to limit power output when the transmitter senses elevated SWR or temperatures.

### **FSK (Frequency Shift Keying)**

### **FSTV (Fast Scan TV)**

Graphics (and audio) communication using TV broadcast signals, requires a wide bandwidth.

### **Full duplex**

An operation mode, which transmits and receives on different frequencies at the same time, as a telephone communication.

### **Fuse**

An intentional weak link to guard against overload.

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## G

### **GaAs FET**

Sensitive transistor, found in VHF/UHF receiver amplifiers, with a low noise floor.

### **Ground Plane**

A type of Omni-directional antenna.

### **Ground Wave**

Electrical wave directly travelling from transmitter.

### **Grounding**

Electrical connection to the earth.

## H

### **Ham**

A licensed radio operator who enjoys the hobby and service of radio communications.

### **Harmonic**

Multiple of a fundamental frequency.

### **Heat sink**

The heavy fins on the back of a transmitter to dissipate heat buildup.

### **HF (High Frequency)**

3–30 MHz range signals. (Normally, 1.9 MHz band also included.)

### **HPF (High Pass Filter)**

### **Hz (Hertz)**

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H

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## I

### **IC**

Integrated Circuit, found in large scale chips within a radio.

### **IF (Intermediate Frequency)**

Internally converted frequency for amplification and other signal processing.

### **IF shift**

A function that electronically shifts the IF frequency from a center frequency to reduce interference.

### **IMD (Inter-Modulation Distortion)**

Distortion within RF circuits made with upper and lower adjacent channel signals.

### **Inverter**

An electrical device that converts direct current, DC, to alternating current, AC. Can be a source of noise on HF bands.

### **IRLP**

Internet Radio Linking Project, allowing ham operators to join in on a party line, with the internet connecting repeaters together.

## J

### **JT65**

A weak signal digital mode, primarily used on HF and 6 m, for weak signal and EME type contacts (moon bounce, meteor scatter).



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## K

### **Knife edge**

The refraction of a signal over tall buildings and mountains.

## L

### **LCD**

Liquid Crystal Display, primarily used for displaying frequency and radios operations.

### **LED**

Light Emitting Diode, a low current low voltage component to illuminate a radio dial.

### **LF (Low Frequency)**

30–300 kHz range signals.

### **Li-ion (Lithium Ion)**

Rechargeable battery which has better capacity than Ni-Cd, Ni-MH, etc., no memory effect after repeated non-full charge/discharge cycles.

### **Logging software**

A computer log of contacts, used for QSL card confirmations on contacts.

### **LPF (Low Pass Filter)**

### **LSB (Lower Side Band)**

**I****J****K****L**

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## M

### **Maritime mobile**

Amateur radio operation from aboard a marine vessel.

### **MARS** (Military Affiliate Radio Service)

### **Memory bank**

A set of memory channels organized into a group.

### **Memory effect**

Rechargeable batteries such as Ni-Cd and Ni-MH types may be temporality getting less capacity as a result of repeated non-full charge/discharge cycles. It is called so since rechargeable batteries lose capacity as if “memorize” 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)

### **Mobile**

In a vehicle, or other type station no fixed at a specific location.

### **Modulation**

Method of adding information to a radio frequency carrier.

### **MT63**

A weak signal, digital communications mode, being used in MARS net traffic.

### **MUF**

Maximum Usable Frequency, the highest frequency that may return a skywave back to earth.

## N

### **NB** (Noise Blanker)

A function reducing pulse-type noises.

### **NBFM** (Narrow Band FM)

### **Ni-Cd** (Nickel-Cadmium)

### **Ni-MH** (Nickel-Metal Hydride)

### **Notch filter**

Sharp and narrow rejection filter for elimination of interfering signals

### **NR** (Noise Reduction)

DSP feature reduces unwanted signal noise

### **NVIS**

Near Vertical Incidence Skywave, a method of lowering a dipole, or an angled vertical, to enhance a high elevation of signal radiation and reception.

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## O

**Offset frequency**

Frequency difference between transmits and receives.

**Ohm**

Unit of resistance.

**Optoisolator**

Found in tuning knob circuits, where an LED shines through an interrupter to signal a data pulse.

**OSC (OSCillator)****Oscillator**

The heart of all radios, needing a small amount of feedback to keep it oscillating.

## P

**PA (Power Amplifier)****PACTOR**

Digital radio modulation used mostly on the HF bands for digital messaging.

**Parawatch (=Dualwatch)****PBT (PassBand Tuning)**

A function to reduce interference by electronically narrowing the IF bandwidth.

**PEP (Peak Envelope Power)**

RF power at maximum amplitude.

**Photovoltaic**

Solar cell, converting photons to electricity.

**PLL (Phase Locked Loop)**

Circuit to synthesize the different frequencies a radio will operate on.

**Pocket beep**

Beeping function when specific signal is received.

**Power supply**

Usually converts 110 Volts AC to 12 Volts DC. Sometimes built in, sometimes external to the equipment.

**Priority watch**

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

**PSK31**

A type of radio-teletype using Phase Shift Keying with a very narrow bandwidth as an efficient way of communicating.

**PTT (Push To Talk)****PWR (PoWeR)****M****N****O****P**

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## Q

### **Q**

Response of a circuit over a specific bandwidth. Also, Ham Slang for a contact, or QSO.

### **QRP**

Low power operation, usually 1 watt or less.

## R

### **Reflected power**

Non-radiated power dissipated as heat when the transmitter is mismatched to the antenna or load.

### **Refraction**

Radio waves are bent back to earth, via the ionosphere, by refraction.

### **Repeater**

Radio systems, which receive incoming signal and re-transmit it for extended communication area. Normally put on geographically high locations for VHF/UHF hand portables.

### **RF** (Radio Frequency)

### **RF ground**

Connection of amateur equipment to earth ground to eliminate hazards from RF exposure 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)

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## S

**S/N** (Signal to Noise ratio)

**SAR** (Search And Rescue )

**Safety**

RF exposure limits, set by ANSI (American National Standards Institute), to minimize over exposure to RF signals from a nearby antenna.

**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 operation mode in which transmits and receives is accomplished on different frequencies alternatively.

**Sensitivity**

Indicates how weak a signal the receiver can detect.

**Set mode**

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

**Simplex**

An operation mode where transmit and receive frequency is same.

**Skywarn**

Trained volunteer storm spotters for the National Weather Service.

**SMA** (Sub-Miniature a connector)

Type of antenna connector, used in VHF/UHF portable.

**SP** (SPeaker)

**Split**

An operating 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 communication using narrow bandwidth.

**SWL** (Short Wave Listener)

**SWR** (Standing Wave Ratio)

Measurement of forward vs. reflected power output during transmit.

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## T

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

**TNC**

- 1) Terminal Node Controller  
Modem for data communication.
- 2) A type of antenna connector.

**TOT** (Time Out Timer)

Time limiting function for continued repeater or other operations.

**Towers**

Antenna support structures.

**Transverter**

A device similar to a downconverter, but used for both receive and transmit.

**TS** (Tuning Step)

Incremental steps

**TSQL** (Tone SQueLch)

Squelch function using subaudible tones, selective call.

**TVI** (TeleVision Interference)

**TWT**

Traveling Wave Tube, found in microwave amplifier circuits.

**TX** (Transmit)

## U

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

**UHF connector**

Sometimes called a PL-259 plug, for coaxial cable, on VHF.

**Uplink** (↔Downlink)

Frequency that user transmits to the repeater or satellite.

**USB**

- 1) Upper Side Band
- 2) Universal Serial Bus

**UTC** (Universal Time Coordinated)

An astronomical time based on the Greenwich meridian (zero degrees longitude).

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## V

### **VCO**

Voltage Controlled Oscillator, found in the PLL section of the modern radio.

### **VFO** (Variable Frequency Oscillator)

An operation mode in which operator can change frequency freely.

### **VHF** (Very High Frequency)

30–300 MHz range signals.

### **VOX** (Voice Operated transmission)

A function that automatically switches the transmitter to transmit when you talk into the microphone.

### **VSC**

- 1) Voice Scan Control
- 2) Voice Squelch Control

## W

### **Waveguide**

The carrier of microwaves from radio to antenna, and back.

### **Weather Alert**

NOAA broadcast station transmitting alert signals.

### **WFM** (Wideband FM)

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Y

**Yagi**

Directional antenna.

Z

**Zener diode**

A diode used to regulate the operating voltage.



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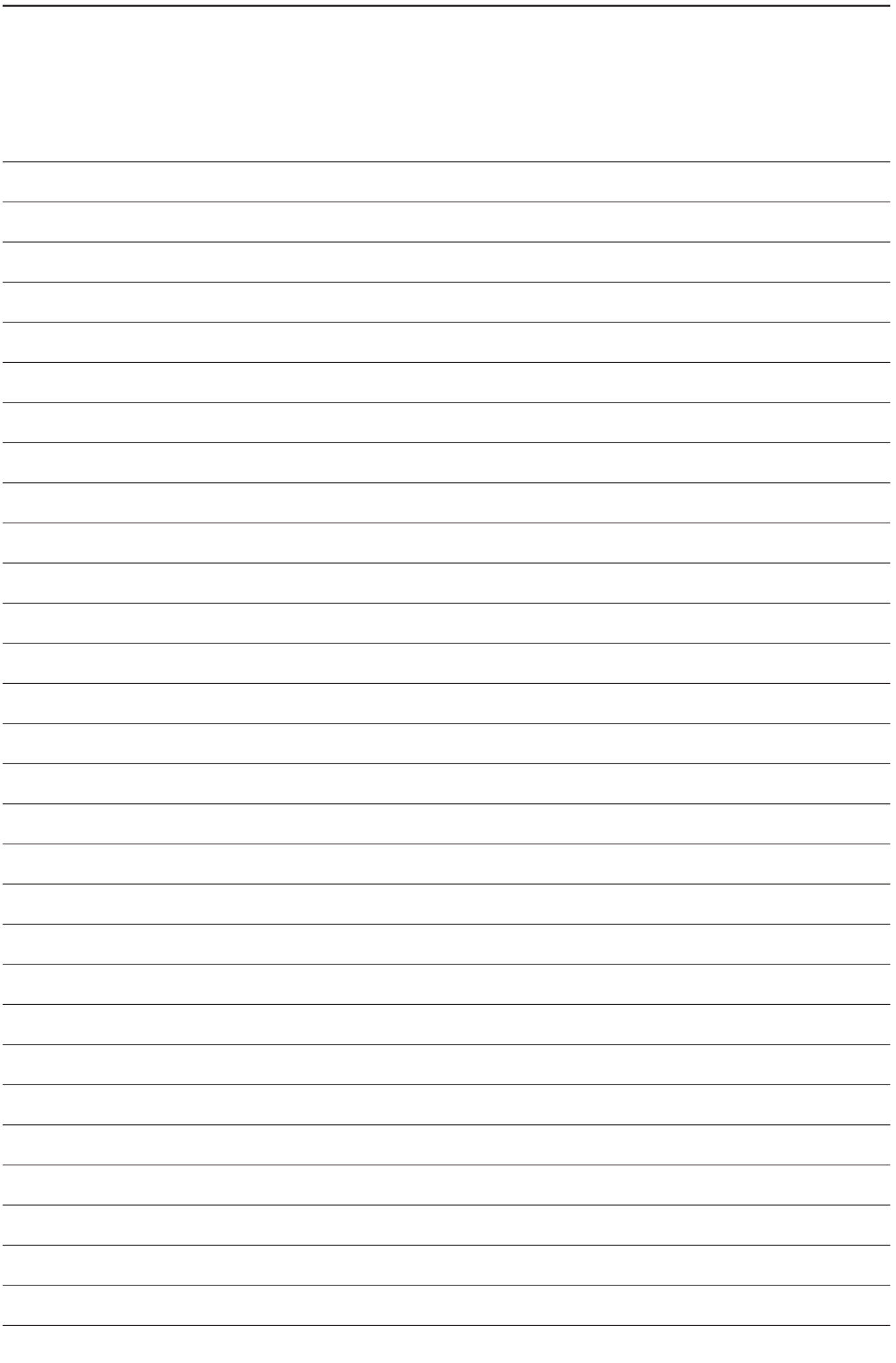
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**Count on us!**

