

Glossary of Wireless Terms

From week to week we give here a section of the glossary of wireless terms from the "Listener's Guide."

**H.T.B.**—Short for high tension battery. See "B Battery."

**HAND-CAPACITY.**—An effect which interferes with the tuning of a receiving set, created by the proximity of the hand to a variable tuning condenser. To prevent this trouble, firstly, see that the moving plates of the tuning condenser are connected to earth. Keep the condenser as far away from the hand as possible, if necessary using an ebonite rod for a tuning spindle. If these precautions do not eliminate the trouble it may be necessary to shield the back of the panel with copper sheet, taking particular care that no part of the set comes in contact with it except the earth terminal to which it should be connected.

**HARMONICS.**—In radio, harmonics refer to the incidental waves mostly noticeable in undamped ("spark") wave operation, although sometimes very pronounced in broadcast reception. These harmonics differ in length and frequency from the true and original operative wave of such transmitters. At times, listeners will hear the harmonics of high power long wave stations, while their tuners are set for much shorter waves. The harmonics of the 600 metre wavelength in general use for ship Morse communication are as follow:—

Second harmonic	300	metres
Third	200	"
Fourth	150	"
Fifth	120	"
Sixth	100	"
Seventh	85.7	"
Eighth	75	"
Ninth	66.6	"
Tenth	60	"
Etc., etc.		

It will be observed that the first variation from the original wavelength is called the "second harmonic," and so on. To ascertain, say, the eighth harmonic of a station operating on, for instance, 400 metres, divide 400 by 8, and the result, 50, gives the wavelength of the harmonic.

**HEATER TUBE OR VALVE.**—A valve specially designed for sets driven direct from A.C. mains, has a heater which is electrically separate from the filament, but heats the latter mechanic-

ally and causes it to perform its usual functions.

This is a high pitched note when the beats are rectified to render them audible. It is this action which is the explanation of "howling" between an oscillating receiver and a broadcast transmitter, or between two oscillating receivers.

When receiving signals from a broadcast transmitter by the heterodyne method, the beats are produced at an inaudible frequency, and the detector valve used rectifies the "beats," and renders the music, etc., audible. Such a receiver is known as "superheterodyne."

Thus, if the wave from the incoming station has a frequency of 30,000 per second, and the locally produced oscillations are produced at 31,000 per second, the "beat" or "heterodyne" note will be 1000 per second.

**HENRY.**—The unit of self-inductance, being that inductance which will so retard any change in the value of a current that it takes 1 second for 1 volt to raise the current in a circuit by 1 ampere. In tuning circuits the Henry is too big, and measurements are usually reckoned in terms of milli- or micro-henries.

**HETERODYNE.**—A system for the reception of continuous wave signals. The receiving circuit is artificially supplied with oscillations at a frequency slightly different from that of the incoming waves. The two series of oscillations alternately add and subtract as they come into or go out of step with one another. This produces pulsations of amplitude at an audible frequency, known as "beats." A similar effect can sometimes be observed if two adjacent notes on a piano are struck simultaneously.

**HERTZIAN WAVES.**—Electro-magnetic waves (the basis of radio transmission and reception), named after their discoverer, Prof. Heinrich Hertz.

**HIGH FREQUENCY (H.F.) OR RADIO FREQUENCY.**—A term applied to alternations or waves which occur at frequencies too high for audibility; sometimes called "Radio Frequency." High frequency may be taken to include all frequencies above 10,000 per second.

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