

## Zero beating a CW signal

The bandwidth of CW signals is narrow, usually close to 150 Hz and dependent largely upon the rise and fall time of your transmitter's keying. In spite of this narrow bandwidth, it is important to avoid consuming more of the band than necessary to be courteous to others seeking to use the band. Cutting right to the chase, zero beat means perfectly matching your CW transmit frequency to that of the desired received signal, thereby minimizing the bandwidth consumed by the two-way QSO.

Most modern multimode transceivers will provide a *CW sidetone generator*. This is an audible tone of the signal you transmit. Hearing your own dits and dahs makes sending consistently timed, accurate code easier. Good amateur practice calls for you to tune the receiver so that the received tone of the other station perfectly matches your own sidetone. In this way the RF frequency on which you and your contact are transmitting in alternation is exactly the same. If you are slightly off-frequency relative to your contact, the total consumed bandwidth of the QSO will be wider than necessary, reducing the availability of band for other stations to use.

Some modern transceivers provide automated zero beat functions to help precisely align tuning. This can be very helpful in the case where the transmitted tone from the contact station is a higher or lower frequency than your own preferred CW sidetone frequency. A commonly used frequency for transmitted CW tone is 800 Hz, and this is commonly the sidetone used to achieve zero beat. This may not be your preferred *listening-for-decoding* tone, however.

Many operators prefer to use the receiver incremental tuning (RIT), or receiver clarifier function, to tune the receiver slightly higher or lower than the zero beat frequency, thereby changing the demodulated tone of the received station to a more preferred listening tone without altering the transmit frequency. If you prefer to alter the zero beat tone of your contact, use the RIT / clarifier function so that both your station and the contact station can accurately maintain the zero beat transmit frequency, keeping the consumed bandwidth to a minimum.