

Television Interference

by Bruce Portzer

BCB DXers usually are in the hobby only a short time before they learn that TV sets and DX listening don't mix very well. Nearly all television sets emit a raucous buzz throughout the broadcast band. In some cases, the noise in the form of a "noisy" carrier every 15 kHz, extends well into the shortwave bands. These carriers are caused by the horizontal oscillators in the sets. The oscillators themselves are "locked" to sync pulses transmitted by television stations and are rich in harmonic content, the result being that all sets generate the harmonics at the exact same frequencies (to within a few fractions of a hertz). The main difference from set to set is the strength of the harmonics. On some, the problem is barely noticeable on a radio next to the set. Others can interfere with local AM stations on car radios over 40 feet away.

What can be done to solve the problem? Very little actually. The most effective cure is to turn off the TV. Unfortunately this solution is not always enthusiastically welcomed by the person(s) watching the TV. A second possibility is to move either the TV or the receiver and/or antenna. This solution is not always practical, especially if your wife is watching her favorite program on the 200 pound console TV while, ten feet away, you're trying to hear Falkland Islands on your R-390A.

Two solutions which might work are mentioned in ARRL's Radio Frequency Interference manual. One is to install a high pass filter at the set's antenna terminals. The filter should be the same type that is used to prevent CB and ham interference. A second possible solution is to use an AC line filter at the TV set. While most TVs have such filters built-in, external filters have been known to reduce or eliminate the TV birdies. The use of antenna or line filters is based on the assumption that the interference is radiated along the TV antenna lead-in or through the AC lines. If it's radiating straight out through the cabinet, you're out of luck. I'd be interested in knowing if anyone has had any success in using these or other methods to reduce or eliminate interference from TV sets.

TVI Frequencies:

534.965	723.776	912.587	1101.40	1290.21	1479.02
550.699	739.510	928.321	1117.13	1305.95	1494.76
566.433	755.244	944.055	1132.87	1321.68	1510.49
582.167	770.979	959.790	1148.60	1337.41	1526.23
597.902	786.713	975.524	1164.34	1353.15	1541.96
613.636	802.447	991.258	1180.07	1368.88	1557.70
629.370	818.181	1006.99	1195.80	1384.62	1573.43
645.104	833.916	1022.73	1211.54	1400.35	1589.16
660.839	849.650	1038.46	1227.27	1416.09	1604.90
676.573	865.384	1054.20	1243.01	1431.82	1620.63
692.307	881.118	1069.93	1258.74	1447.55	1636.37
708.042	896.853	1085.66	1274.48	1463.29	

These are the harmonics of the TV horizontal oscillator which operates at 15.734264 kHz. This is the frequency used by color TV stations (which comprise virtually all U.S. and Canadian broadcasts). A TV set tuned to a black-and-white only station would generate birdies at slightly different frequencies.