You and the FCC

The government at your service

Legal use of Chinese radios

Recently the FCC released a public notice that has stirred quite a lot of controversy: Enforcement Advisory DA 18-980. Interestingly, for amateurs the notice doesn't address anything new. What's new is people's interpretation of the Advisory, which has caused many amateurs to believe that they're no longer permitted to use their Chinese radios. The meaning of the Advisory is further clouded by an interpretation from an FCC attorney, whose word many have unfortunately taken to be the supreme law of the land. Finally, a number of outspoken Chinese radio critics have emerged to pounce on this announcement in a collective *I told you so* opportunity, reinforcing the fears of HT owners via social media and elsewhere.

Please allow me to set the record straight. As a licensed amateur, you are legally authorized to use any radio you want, Chinese or otherwise, to transmit on amateur frequencies within your license privileges.

With that, you can now skip the rest of this long-winded explanation, knowing that you're fully within your rights as a licensed amateur to use your Chinese radio. But if you just can't resist the temptation, feel free to read on.

One of the hallmarks of amateur radio is the ability of licensed operators to develop, create, and experiment with radio equipment. Few other services are encouraged with that kind of latitude by the FCC. That means, as long as we follow the rules, we can modify a toaster, a chain-link fence, or even an existing radio, to create a transmitter and get on the air. Of course, modifying an existing radio might void its warranty, or even the certification for which the radio was intended, but that's of little concern to us amateurs, since amateur equipment does not require certification unless the equipment is marketed here.

It just so happens that many Chinese radios have been designed and manufactured to both receive and transmit on multiple bands, including amateur, FRS, GMRS, MURS, Business, and other bands. What might not be known to the Chinese manufacturers, however, is that most of these require Part 90 or Part 95 certifications (formerly *type acceptance*) to operate them, and they all require an FCC certification if they're to be marketed and sold as a regular product in the US.

So, the basic amateur transmit limitations, dictated by license class and bands, include

frequency	*power*
bandwidth	*spectral purity*

You most likely already understand what your *frequency privileges* and *power restrictions* are. They're dictated by rule and by your local bandplan. Your *bandwidth* limitations are a little more flexible, but basically FM on VHF is limited to 20 kHz in Utah, and SSB on HF is limited to between 2.8 and 3.0 kHz in the US. *Spectral purity* is a tiny bit more difficult for many to grasp.

You and the FCC

continued

The word *spur* is short for spurious (false, imitation, counterfeit) emission, meaning an unintentional transmission of a signal. According to Part 97.307(e), the mean power of any 2 meter spur must be *60 dB below* that of the fundamental signal. That means if your intended 2 meter signal is measured at 5 watts, any resulting signal you accidentally create must be 1/1,000,000 that amount, or 5 microwatts, or less. Most spurs tend to occur at the signal harmonics (multiples of the main signal frequency). The third harmonic of 146.520 MHz, for example, is 146.520 MHz x 3 = 439.560 MHz, somewhere in the middle of the amateur 70 cm band.

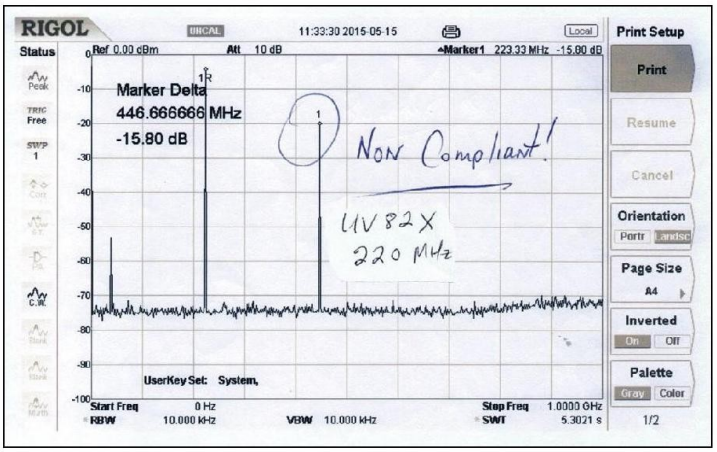
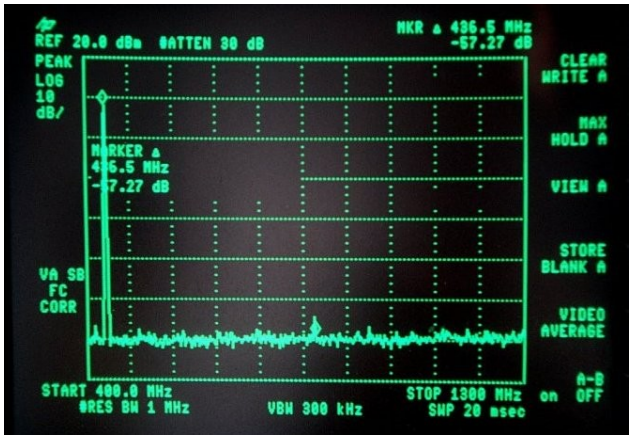


Figure 4 — This Baofeng UV82X does not comply with the FCC spectral requirements of Part 97.307e. The second harmonic of the fundamental signal is only 15.8 dB below the strength of the desired output signal.

Now, that sounds like a tall order, for your radio to keep its harmonics to one-millionth that of its main transmitted signal, but that's the rule, and most radios can actually handle that filtering demand. In fact, you'll be hard-pressed to find one that couldn't. A few years ago, some (Baofeng, Kenwood, Yaesu, TYT, and Wouxun) models were tested and found to exceed this spectral purity requirement (taken from *QST*, Nov 2015, p. 76), but they've all reportedly fixed their problems in later models, and repeated local tests have confirmed their compliance.



Much better: Baofeng UV-5R update

There's an alternative that some take, to avoid possibly using non-amateur frequencies with their Chinese radios altogether. During the programming of your radio, you can actually specify the transmit and receive ranges your radio can be capable of operating. By limiting your radio to only the amateur bands, there is little or no risk of out-of-band operation. Then again, by doing so, you lose the ability to listen to the weather, County Sheriff, fire fighters, and other non-amateur channels that provide emergency information. Furthermore, you lose the ability to transmit on them if you really need to, in case of an actual emergency. To many, that's not a big deal, but these are things to think about.

In my attempt to be somewhat complete, yet remain relatively brief, you've probably gotten a lot more than you bargained for in this explanation. But yes, it's legal for you to use a Chinese radio on amateur frequencies if you have a license, provided you operate within your frequency privileges, no matter what else your radio might be able to do, certificated or not.

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