

On Sunday Morning during Field Day this year I was on 20m working CW when Jim KD2ERF walked around to my operating position and asked me why I was on the same band as he was? He looked at me like I was committing a Crime or doing something illegal. I tried an experiment and it worked for a little while but got busted by Jim. Most FD stations can work CW and phone on the same band with out too much RFI.

Below are a few tips and getting around this situation and with a little extra work we could minimize FD RFI. These tips are from other FD operations that I gleaned from the internet.

Every year after field day questions are raised for the following year. What do big clubs do about operating CW and SSB on the same band? I see no filters that are that tight. My only thought is to have the antennas as far apart as possible. Possibly one being vertical and the other horizontal. Your thoughts please Herb K2LNS

[Some Replies via the Internet.](#)

When our club VE3MIS ran 12A, phone and cw on the same band were not usually a problem. We planned the site layout to separate phone and cw positions as much as possible on 40 and 20, the 24hr bands and laid the others out for best placing of generators. Antennas were whatever individual band managers wanted - dipole, delta loop, vertical, yagi. We have educated folks to **use RF current chokes** on antenna feedlines which may help with stray pickup.

Several stations used **band pass filters**, but that **doesn't address same band issues**. Where problems were noticed, the victim was generally a lower end rig with DSP-only type filtering. On a dead band, radiated receiver hash from some rigs was noticeable. Our club does not run other than barefoot, also helpful.

Harmonics (40 cw on either 20 or 15 digital) do show up but are quite narrow and easy to work around, especially in S&P mode where it is gone a few seconds later. Interstation issues were noticeable when running phone, cw and digital in the same band. In running digital you don't notice the phone, but get AGC pumping as the separation between cw and digital frequencies starts to get less than whatever your receiver can handle. Experience with the K3 and FT-100 (and using the internal tuner or a transmatch) was this would be within 20KHz or less as the cw folks chased up band, so again as K9YC says, the rig matters. This year the club ran 6A and nothing was noticed that caused any conversation around the dinner or breakfast tables.

In short, use physical separation, good rigs, good practice, and have fun.

W1NY runs towers, 2 with tribanders for 10/15/20 and 2 with 40-2CD beams for 40. The masts are alternated 40CW, tribander CW, 40SSB, tribander SSB. Each station has a bandpass filter on it. We'll get a little interstation interference, but it's not awful. Usually the biggest issue is the occasional clicking we'll get on the sideband stations from the CW stations, nothing we can't work through though.

We have a small club that runs 2A with a GOTA station. We run one phone and one CW station on dipoles strung end-to-end in trees. Ends are separated by 30-40 ft. GOTA runs a 43ft vertical with an SGC 237 remote tuner about 100 ft away

I bring out my TS-930S *with an INRAD 6 k Hz roofing filter on the first (40 MHz) IF.* The rx holds up fine. My TenTec Orion II does as well. In fact any of the

older rigs that can accommodate one of the INRAD roofing filters will do as well as my 930S. TenTec Eagle, TS-590DG using down-conversion... Essentially any of the top 15-20 rigs in Sherwood's ratings should do well. Otherwise, attenuation at the rx front end is necessary. 10-20 sB worked with my 930 prior to the roofing filter installation.

I should add that we run phone and CW on the same band without problems.

A few Guidelines to Follow:

1) Use ONLY radios that are clean on transmit and whose receivers have good strong signal overload and rejection. The link is a summary of the transmitter cleanliness measurements by ARRL Labs of a selection of rigs.

<http://k9yc.com/TXNoise.pdf>

El cheapo entry level rigs like the IC706, FT897, and others that work 160M to 440 MHz FM have no place in multi-transmitter environments. And, as the link shows, the most expensive rigs are not the cleanest ones. Some of the best choices for FD are the Elecraft K3, K3S, and KX3, and the Flex 6500/6700, which are fairly expensive, and the Kenwood TS590S and SG, which are not. In general, Icom and Yaseu rigs are dirtier than the other brands, generating more trash away from their TX frequency.

Likewise, for receiver overload, Rob Sherwood's website is a great Resource. The rigs listed above all show up well in his tests.

2) Antenna separation is also critical. An ideal setup would have antennas for the same band widely separated and co-linear (that is, on the same line, several hundred feet apart).

3) All antennas should be resonant, fed with coax, and have a serious ferrite common mode choke at the feedpoint (that is, up in the air).

4) Off-center fed antennas are a recipe for disaster in a multi-transmitter environment, because their feedline radiates.
ALA..G5RV

5) Bandpass filters can minimize interference between stations on DIFFERENT bands, but do NOTHING for rigs on the SAME band. Some bandpass filters are a lot better than others, and the poorest ones are VERY intolerant of mismatched antennas (that is, they fry).

<http://k9yc.com/BandpassFilterSurvey.pdf>

6) I've always viewed FD as a low power and QRP event -- high power is like a #&%\$ in the punchbowl. If you MUST run high power, use clean power amps, stubs after the power amp, carefully located on the coax line. See the link below.

<http://k9yc.com/LocatingStubs.pdf>

Our county expedition group for the California QSO Party has very successfully run CW and SSB on the same bands (80-10) with 500W stations and colinear dipoles separated by about 250 ft on 80 and 40 and tribanders separated by about 200 ft on 20-10. Each station is a K3S and KPA500, with a KAT500 tuner for 80 and 40.

The better your radios, and/or the lower the power level, the less separation you need. 100W to 500W is 7 dB, and the difference in

required separation is about 2:1.

Here's a setup our county expedition group uses for 7QP, where we run two 500W stations that are never on the same band. k9yc.com/7QP.pdf
Again, K3S, KPA500, KAT500, bandpass filters, and double stubs on the 80M and 40M antennas.

And we are serious about RX noise. If you can't hear 'em, you can't work 'em. :)

<http://nccc.cc/pdf/CQP-RFI2013-2.pdf>

Another point about the cost of rigs. Some older models, bought used, are great choices. An original K3 can be found for about \$2K, a used TS590G for about half that.

We had an unusual case of QRM this year at W6ARA. I was operating the 20 meter CW station and the VHF guys told me I was wiping out 2 meters. I immediately suspected we had a loose connection in the Yagi. Sure enough, we lowered it and found that the gamma match had not been tightened enough. We tightened it up and had no QRM the rest of the weekend. The 20 meter phone station was something like 500 feet away, and we never had any problem with it (after fixing the Yagi).

I may conclude that Bruce and I ran the RTTY Round from my station in 2014 on the same band and were within 5 KHz of each other and learned to work around any RFI.

I hope this helps us be more successful in future W2ORC FD operations.
73, Wayne N2WK

Orleans County Amateur Radio Club

<http://ocarc.us>

Minutes of Jun 12, 2017 Meeting

Monthly Meeting opened @ 7:30 pm by KD2EFR followed by Pledge of Allegiance. Secretary's report given by N5BNO, (Member's only section, Forum, Online).

Minutes for May 2017 passed.

Treasurer's report given by K2EYS. NR2C paid for some connectors purchased for the club.

Net Manager: WA2TMC, Email to EMO for help instruction on tower construction.

Quarter Master: KD2KOS, Possible Field Day readiness on Sunday, 18 Jun 2017.

Cleanup day in the fall.

OLD BUSINESS-

Field Day: 23-25 Jun 2017 Committee: NR2C, WA2TMC, KD2KOS.

Computer work by NR2C, building interfaces for radios.

K2EYS, got lift for antennas. WA2TMC, rotors and masts for antennas 6 & 2 M antennas. Food for Saturday nyte and Sunday morning. Lift in same place as last year setup in garage. GOTA staion not available this year. Friday 23 Jun 2017 brunch @ 10:30AM @ Village House.

NEW BUSINESS-

Picnic: 12 Aug 2017 - WA2TMC to have a Foxhunt(hidden transmitter).

K2EYS, Spot reserved. Sally to get meat. Dish to pass from everyone & bring own drinks.

HF antenna: WA2TMC, I guess it is up to us to do the work. Base has to be 3'x3'x4' deep(frostline).

ILLW: 19-20 Aug 2017 K2EYS, talk to lighthouse personell.

Program-

WA2TMC, wrap up on ARRL VHF/UHF Contest 10-12 June 2017(18:00-02:59 UTC) 10 watts or less. What went wrong.

WA2TMC Has and will operate on 50, 222, 432 MHz.

Meeting Adjourned @ 8:10 pm.

Ron Craig, N5BNO

secretary

Attendance per sign in sheet:

N5BNO, KD2EFR, K2EYS, W2RJH, KD2KOS, NR2C, WF2S, KD2PTM, N2WK, SALLY, N2OBX, WB2GLU, WA2TMC