

Sideband Contesting Using K3 Radios at PJ2T – Some Notes

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Introduction

After doing a few SSB contests with various M/M teams at Signal Point I realized that we're not getting the most performance out of our Elecraft K3 radios. I did some Internet sleuthing and compiled the results here. With attention to details I'm sure we can maximize our results going forward. Here is what's critical to know BEFORE the contest starts. If you're not familiar with an Elecraft K3 transceiver's front panel knobs here's a link to the manual.

<https://ftp.elecraft.com/K3/Manuals%20Downloads/E740107%20K3%20Owner's%20manual%20D10.pdf>

Receive

All four of our Elecraft K3 transceivers have 2.7 and 2.1 KHz roofing filters installed for sideband operations. In addition, you can go narrower with the variable DSP bandwidth knob. The trick with the 2.1 KHz filter and narrower is using the IF shift control and moving the IF center frequency DOWN a bit to increase intelligibility.

The Hi-Cut and Low-Cut adjustments can be lightly used to try and knock out adjacent QRM.

If you totally mess up your settings you can restore things to the nominal 2.7 KHz filter with a centered IF by pressing and holding the knob with the yellow label "NORM" for 2 seconds.

Our K3 radio are usually run with AGC settings of AGC SLP = 0 and AGC THR = 10 for maximum dynamic range to enhance picking signals out of a pile-up.

K3 radios achieve maximum performance when you protect the front end from signal overload. Reduce the RF gain or use the attenuator, especially on the low bands.

On 40/80/160 meter bands we have two Beverage receiving antennas available. One orientated to USA/JA and the other to Europe. Use the K3's RX ANT button combined with the Beverage switching box to select. Note – On 40 and 80 meters we add a bandpass filter to the Beverage antenna input on the back of the radios to keep the 160M transmit signal from overloading the receiver and tripping the protective COR relay. Failure to insert the receive filters can result in damage to the radios.

Transmit

Jim Brown, K9YC has written extensively about how to set up punchy, but readable transmit audio for contesting. See <http://audiosystemsgroup.com/ContestAudio.pdf> for an in-depth article. For our purposes we want to maximize audio in the mid and upper levels of the human voice to put the most RF out there. To that end try setting the 8 channel transmit audio equalizer as follows realizing that your voice characteristics might require some adjustment. Use the monitor function to see what you sound like.

Channel	Setting
1	-16
2	-16
3	-16
4	-6
5	0
6	0
7	+3
8	+3

To properly set the audio TX gain on a K3 turn the compression (CMP) to zero first, then adjust the MIC GAIN until the fifth to seventh ALC bar is flickering on voice peaks. Only then bring in your compression, no more than 10db on the compression meter is warranted... ever. We don't want PJ2T associated with crap audio.

In conjunction with the built-in Digital Voice Recorder (DVR) you can record and trigger messages from N1MM+ Logger to save your voice. This is especially useful for CQ'ing. There are four memories that can be programmed. In a contest with a fixed exchange all four might be useful. In a contest with a variable exchange like serial numbers perhaps only the CQ message will work. Here is the code for the function keys:

F1 CQ M1, {CAT1ASC SWT21;}

F2 EXCH M2, {CAT1ASC SWT31;}

F3 tu M3, {CAT1ASC SWT35;}

F4 PJ2T M1, {CAT1ASC SWT39;}

We have had some issues with the DVR suddenly dropping messages out of memory. Try power cycling the radio first, before you bother to re-record your message(s). Even with this issue, which we're working on, the DVR is worth using as it functions 95% of the time.

We tune the amps by first putting the amp in standby and testing for good SWR with a press of the K3's tune button. Place the rig in CW mode, amp to operate and with less than nominal power adjust the plate tuning and loading for maximum power by holding down the dit side of the keyer. Bring the drive power up until you see 900 to 1000 watts and retune. Grid current is the critical reading. 1KW is our station limit. Place the rig in the proper SSB mode for the band and have at it.

Watch your sideband so you don't transmit out of band if you find yourself near a band edge. That can get us eliminated from a contest.