



# Elecraft K4 User's Group

Hamvention 2025

FORUM ROOM 1

10:15 am – 12:05 pm

# Audience Poll – Show of Hands

- Owned a K4 for less than 6 months
- Owned a K4 for more than 6 months
- Don't own a K4, but seriously considering purchase
- Plan to operate a K4 Remotely
- Plan to order K4/0 Remote Control Head
- Plan to order V-POD Enhanced Tuning Knob for VK4
- Plan to order K4HD Superhet Front End
- Plan to order new KPA500 or KPA1500

# Elecraft Co-Founder WA6HHQ

- When will K4/O ship?
- When will V-POD and VK4 Software Ship?
- When will K4HD ship?
- Spectral Subtraction Noise Reduction?
- Adaptive Predistortion?
- Questions from Audience



# Elecraft K4 Tips and Tricks

by N6TV

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May 16<sup>th</sup>, 2025

# Please Review the Guides

From Elecraft [K4 Manuals Page](#):

- [Introduction to the Elecraft K4](#)
- [RTTY Setup Guide](#) (Elecraft “Application Note”)
- [Built-in Manual](#) and [Programmer’s Reference](#)
- [Remote K4 ON/OFF Control Methods](#)
- [Release Notes](#)

From Elecraft K4 Groups.IO: <https://groups.io/g/Elecraft-k4/files>

- [New Owner’s Setup Checklist](#) by N6TV (*before* connecting USB cable)
- [MacOS Setup Tips](#) by AI6W
- [FT8 Setup Guide](#) by WT8P
- Interactive Zoom and K4 Problem solving, every Sunday: 20:00 UTC

# Tip #1 – Use the **NORM** switch to reset the passband for current mode



# Tip #2 – Toggle Speakers+Phones (Press PF3) to mute speakers.

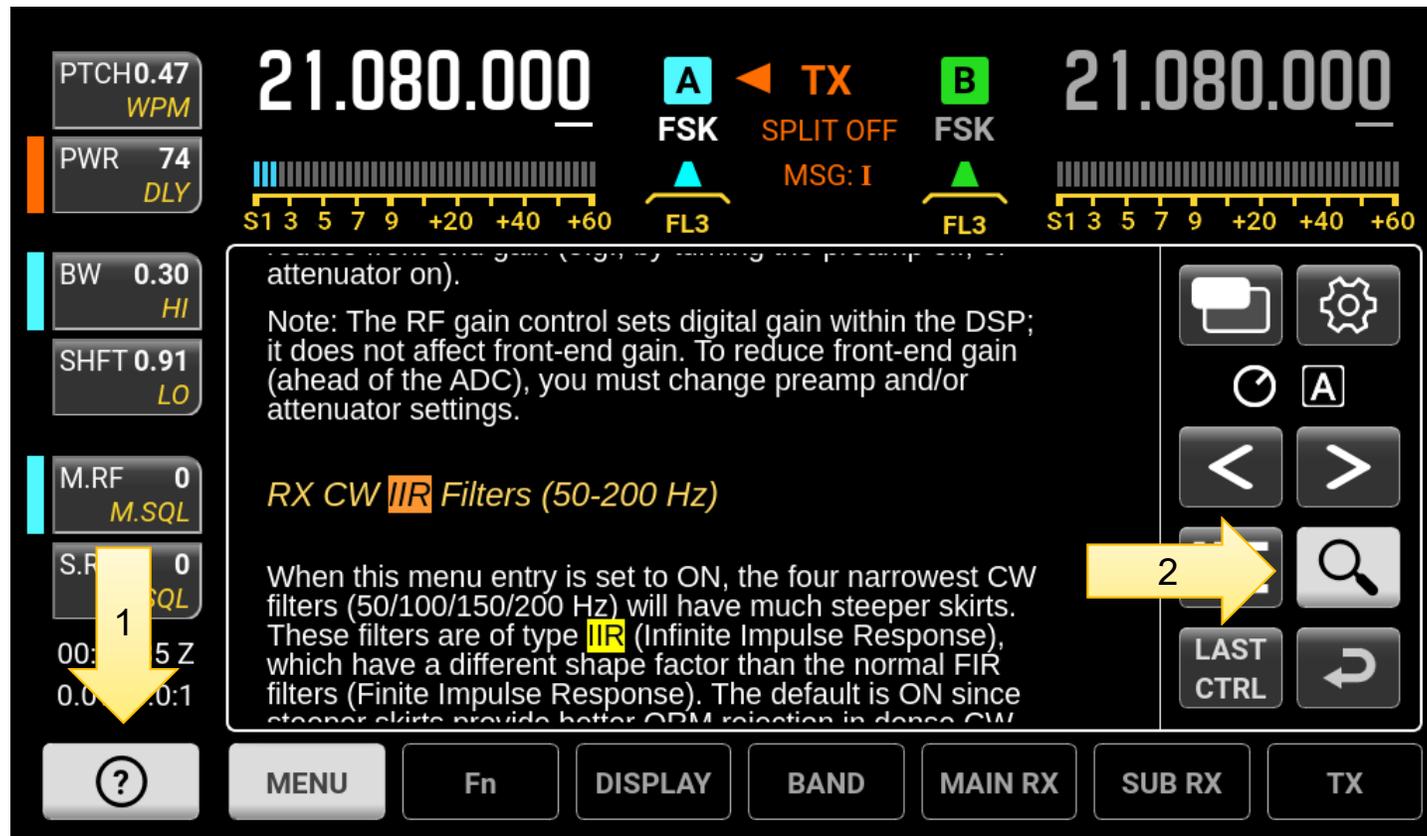
Select Speakers **2** for MAIN RX / SUB RX stereo separation

The screenshot displays a radio interface with various settings and controls. The main display shows the frequency 21.040.000. The interface includes a left sidebar with settings like WPM 33, PWR 74, BW 0.40, SHFT 0.47, M.RF 0, and S.RF 0. The main area shows a menu for 'Speakers, External' with the value '2' selected. The bottom of the screen features a row of buttons: '?', 'MENU', 'Fn', 'DISPLAY', 'BAND', 'MAIN RX', 'SUB RX', and 'TX'.

Speaker, Internal	ON	-	+
Speakers + Phones	YES		
<b>Speakers, External</b>	<b>2</b>	⌚	A
Spectrum Amplitude Units	S-UNITS		
Spectrum Freq. Marks	OFF	NORM	↶

# Tip #3 – Search the built-in manual (on web)

- **Search** the built-in manual (or [HTML file on web](#))



# Enable full screen help text mode

The screenshot shows a radio interface with a central display showing the frequency 21.080.000. On the left, there are several status boxes: PTCH0.47 WPM, PWR 74 DLY, BW 0.30 HI, SHFT 0.91 LO, M.RF 0 M.SQL, and S.RF 0 S.SQL. The bottom left shows a timer at 00:04:35 Z and a power indicator at 0.0W 0.0:1. The main display area is split into two sections. The top section shows TX and RX modes, both set to FSK, with a SPLIT OFF MSG: I indicator. Below this are two frequency meters with S1, 3, 5, 7, 9, +20, +40, +60 markers. The bottom section is a help text menu entry for 'RX CW IIR Filters (50-200 Hz)'. The text reads: 'When this menu entry is set to ON, the four narrowest CW filters (50/100/150/200 Hz) will have much steeper skirts. These filters are of type IIR (Infinite Impulse Response), which have a different shape factor than the normal FIR filters (Finite Impulse Response). The default is ON since steeper skirts provide better QRM rejection in dense CW'. To the right of the text is a control panel with buttons for a folder icon, a gear icon, a refresh icon, a button labeled 'A', left and right arrow buttons, a list icon, a magnifying glass icon, a button labeled 'LAST CTRL', and a back arrow icon. A yellow arrow points to the 'A' button.

PTCH0.47 WPM

PWR 74 DLY

BW 0.30 HI

SHFT 0.91 LO

M.RF 0 M.SQL

S.RF 0 S.SQL

00:04:35 Z

0.0W 0.0:1

21.080.000

A TX B

FSK SPLIT OFF FSK

MSG: I

FL3 FL3

S1 3 5 7 9 +20 +40 +60

S1 3 5 7 9 +20 +40 +60

attenuator on).

Note: The RF gain control sets digital gain within the DSP; it does not affect front-end gain. To reduce front-end gain (ahead of the ADC), you must change preamp and/or attenuator settings.

RX CW IIR Filters (50-200 Hz)

When this menu entry is set to ON, the four narrowest CW filters (50/100/150/200 Hz) will have much steeper skirts. These filters are of type IIR (Infinite Impulse Response), which have a different shape factor than the normal FIR filters (Finite Impulse Response). The default is ON since steeper skirts provide better QRM rejection in dense CW.

?

MENU Fn DISPLAY BAND MAIN RX SUB RX TX

# Full screen help text mode

## Scroll with VFO A knob or mouse wheel

Settings.

### RX CW IIR Filters (50-200 Hz)

When this menu entry is set to ON, the four narrowest CW filters (50/100/150/200 Hz) will have much steeper skirts. These filters are of type IIR (Infinite Impulse Response), which have a different shape factor than the normal FIR filters (Finite Impulse Response). The default is ON since steeper skirts provide better QRM rejection in dense CW signal situations, such as contests. However, at higher CW speeds (above 25 WPM), the narrowest two IIR filters (50/100 Hz) may degrade copy due to time delays. In this case, either turn off IIRs or use 150 Hz and wider.

Note: The center pitch of IIR filters has increments of 50 Hz, while sidetone pitch is adjustable in 10 Hz steps. Selecting a sidetone pitch that's a multiple of 50 Hz will provide better passband alignment when the narrowest filter is used (50 Hz bandwidth).

### RX Dyn. Range Optimization

The default value of this parameter (ON) sets up the K4's ADCs (analog-to-digital converters) for best dynamic range. Setting it to OFF will slightly improve sensitivity in the presence of



Navigation bar icons: Folder, Gear, LAST CTRL, List, Magnifying Glass, Left Arrow, Right Arrow, Refresh, A, Back Arrow.

# Use the “Last Control” button (Get help for last button or menu entry used)

Settings.

### RX CW IIR Filters (50-200 Hz)

When this menu entry is set to ON, the four narrowest CW filters (50/100/150/200 Hz) will have much steeper skirts. These filters are of type IIR (Infinite Impulse Response), which have a different shape factor than the normal FIR filters (Finite Impulse Response). The default is ON since steeper skirts provide better QRM rejection in dense CW signal situations, such as contests. However, at higher CW speeds (above 25 WPM), the narrowest two IIR filters (50/100 Hz) may degrade copy due to time delays. In this case, either turn off IIRs or uses 150 Hz and wider.

Note: The center pitch of IIR filters has increments of 50 Hz, while sidetone pitch is adjustable in 10 Hz steps. Selecting a sidetone pitch that's a multiple of 50 Hz will provide better passband alignment when the narrowest filter is used (50 Hz bandwidth).

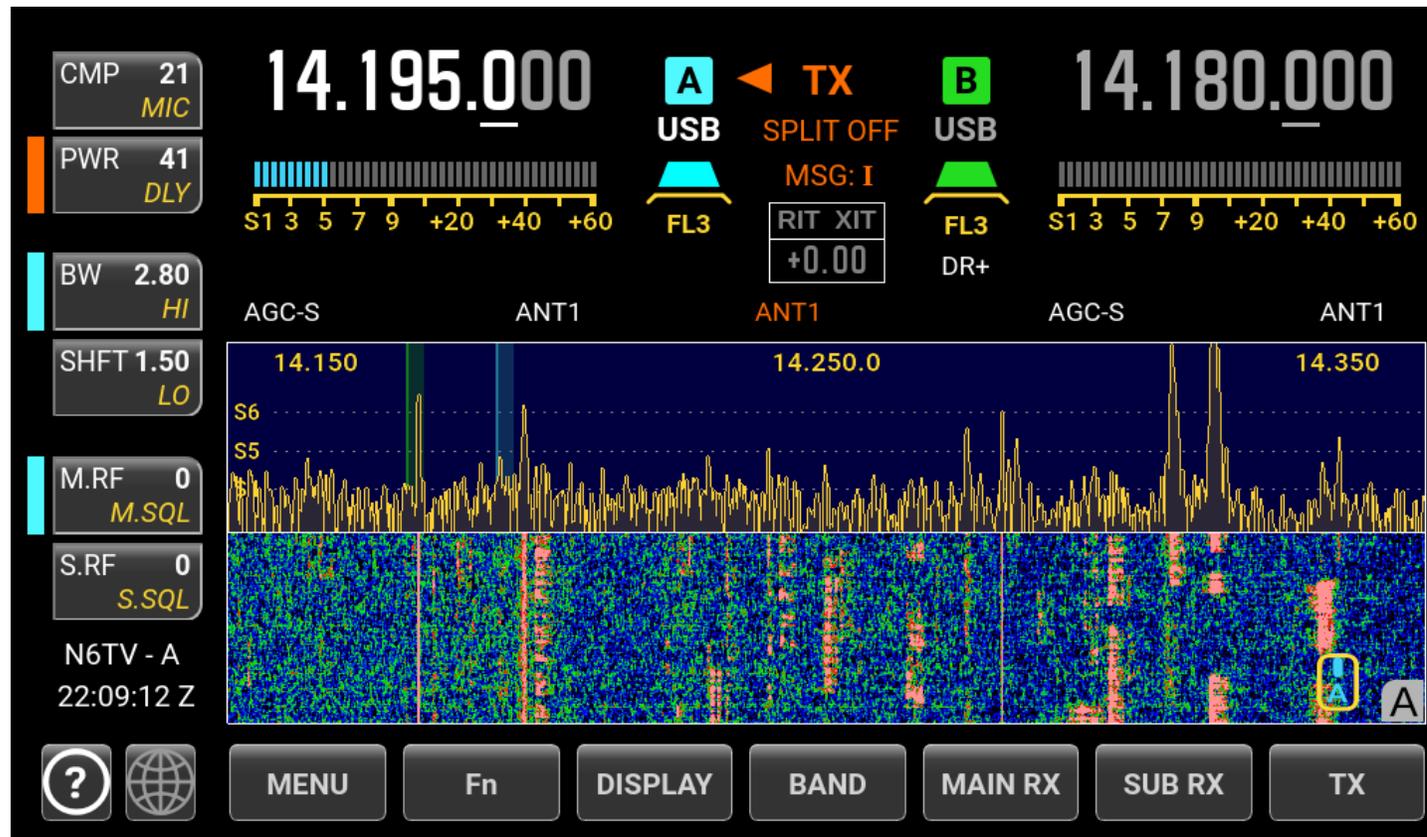
### RX Dyn. Range Optimization

The default value of this parameter (ON) sets up the K4's ADCs (analog-to-digital converters) for best dynamic range. Setting it to OFF will slightly improve sensitivity in the presence of

LAST CTRL

# Tip #4 – Change factory default scope settings

- Display should NOT look like this:

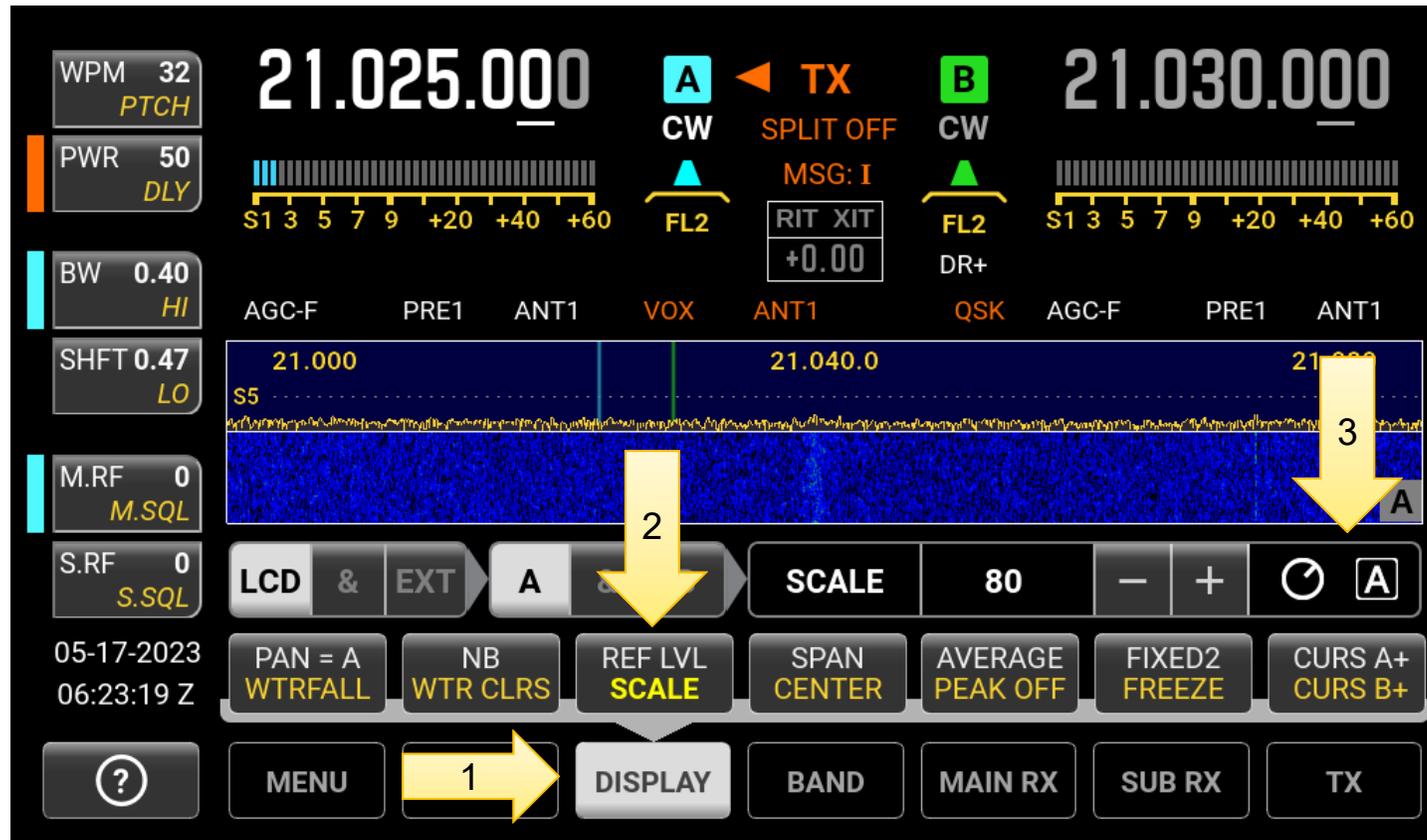


## Adjust the scope SCALE and SPAN, then set the band edges, half span scrolling

- Change **MENU:Spectrum Amplitude Units** from **dBm** to **S-Units**
- Tap **DISPLAY**, set **SCALE** (vert. axis) to 80 dB or more
- Tap **DISPLAY**, set **REF LVL** to **AUTO**
- Change **MENU:AutoRef Offset** to **4**
- Tap **DISPLAY**, select **FIXED2** mode
- Try **SPAN 40** kHz on CW, **100** kHz on Phone
- Use **RIT (OFS)** knob to set edges instead of **CENTER** button, by setting  
**MENU:RIT Knob Alt. Function** to **PAN CTR**
- Tap **A > B** *twice* to make Pan A and B look the same, so **A / B** swap preserves display.

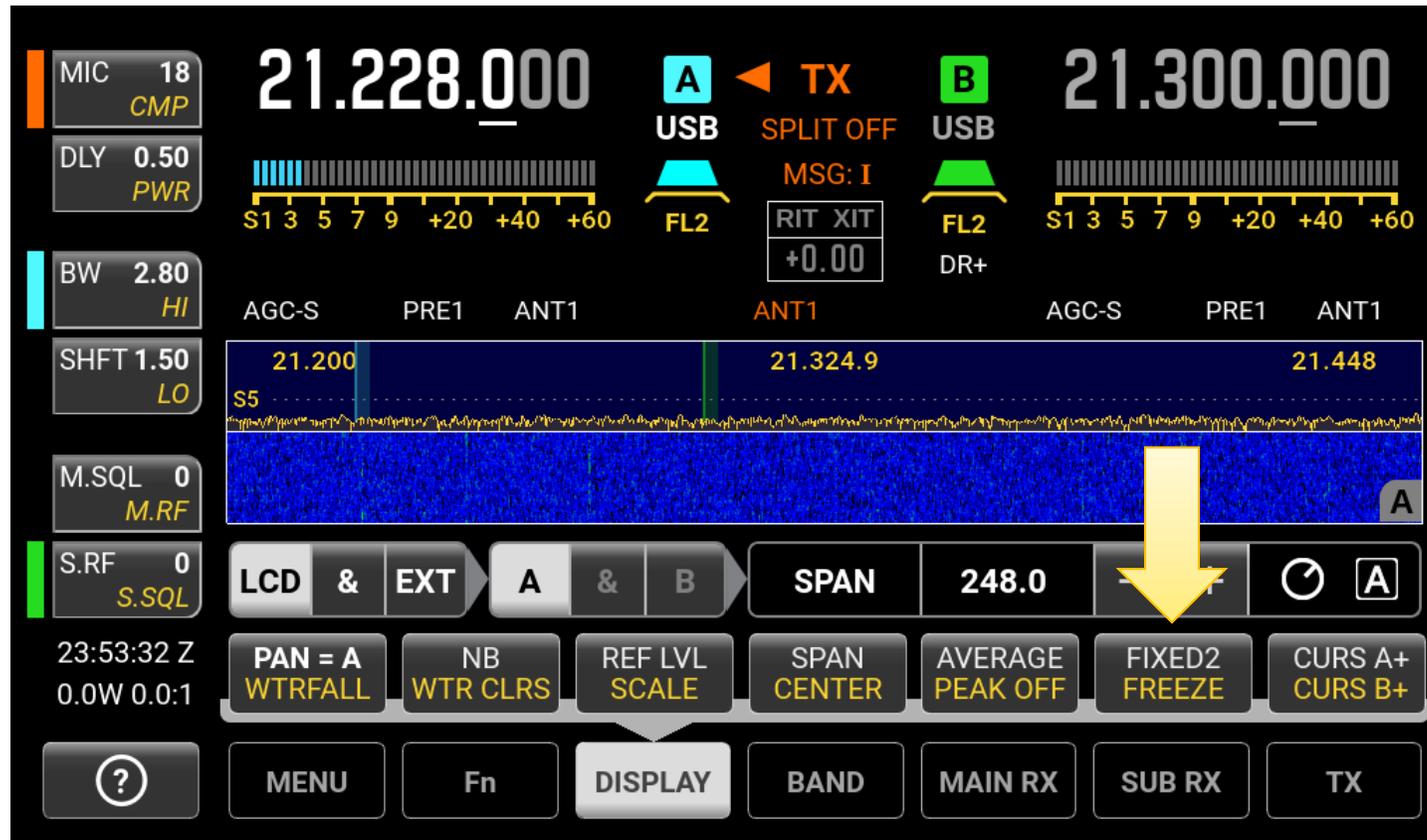
# Tap DISPLAY, hold SCALE

## Rotate VFO A to set vertical scale

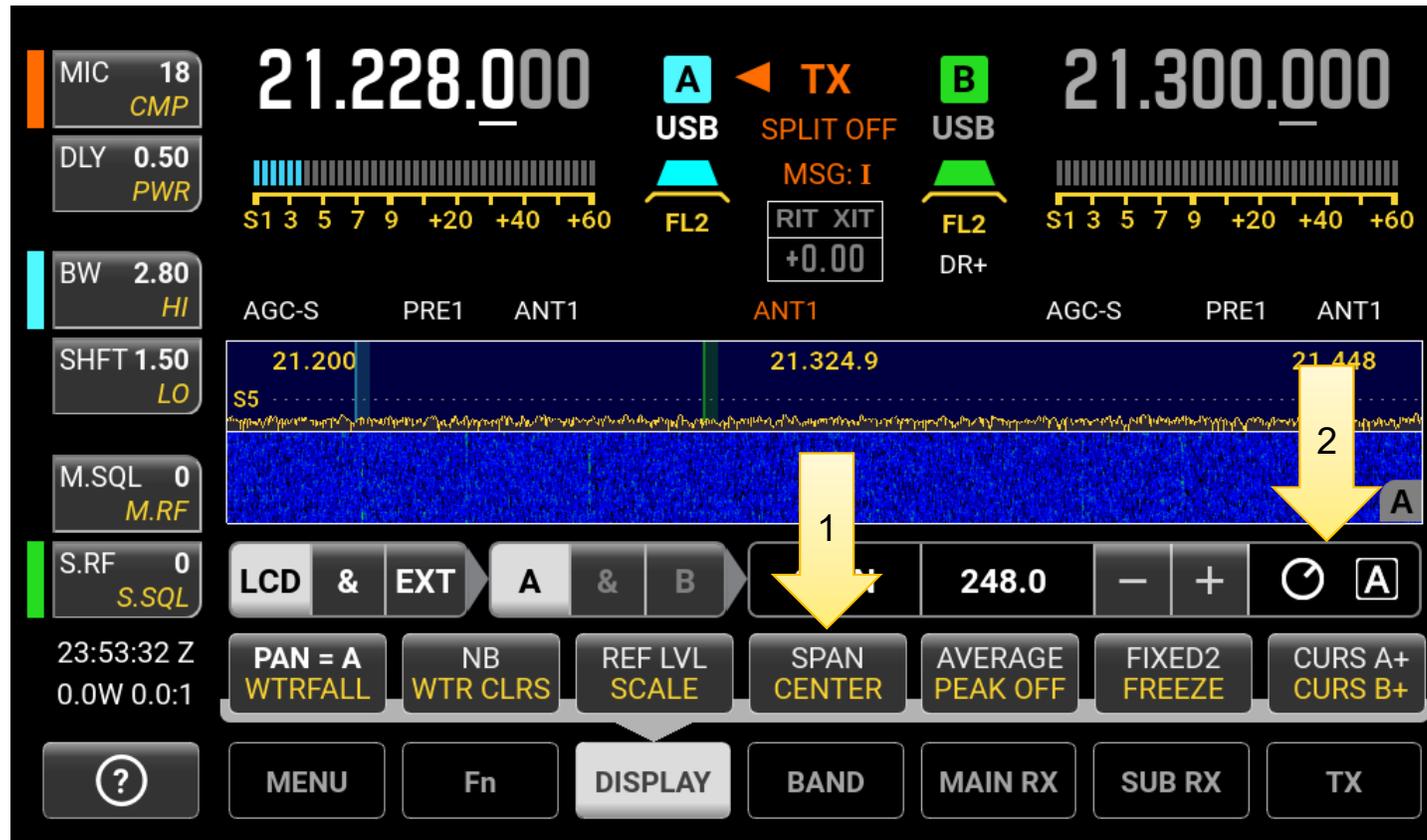


# Display > FIXED2 (half span)

Tap the button to change setting

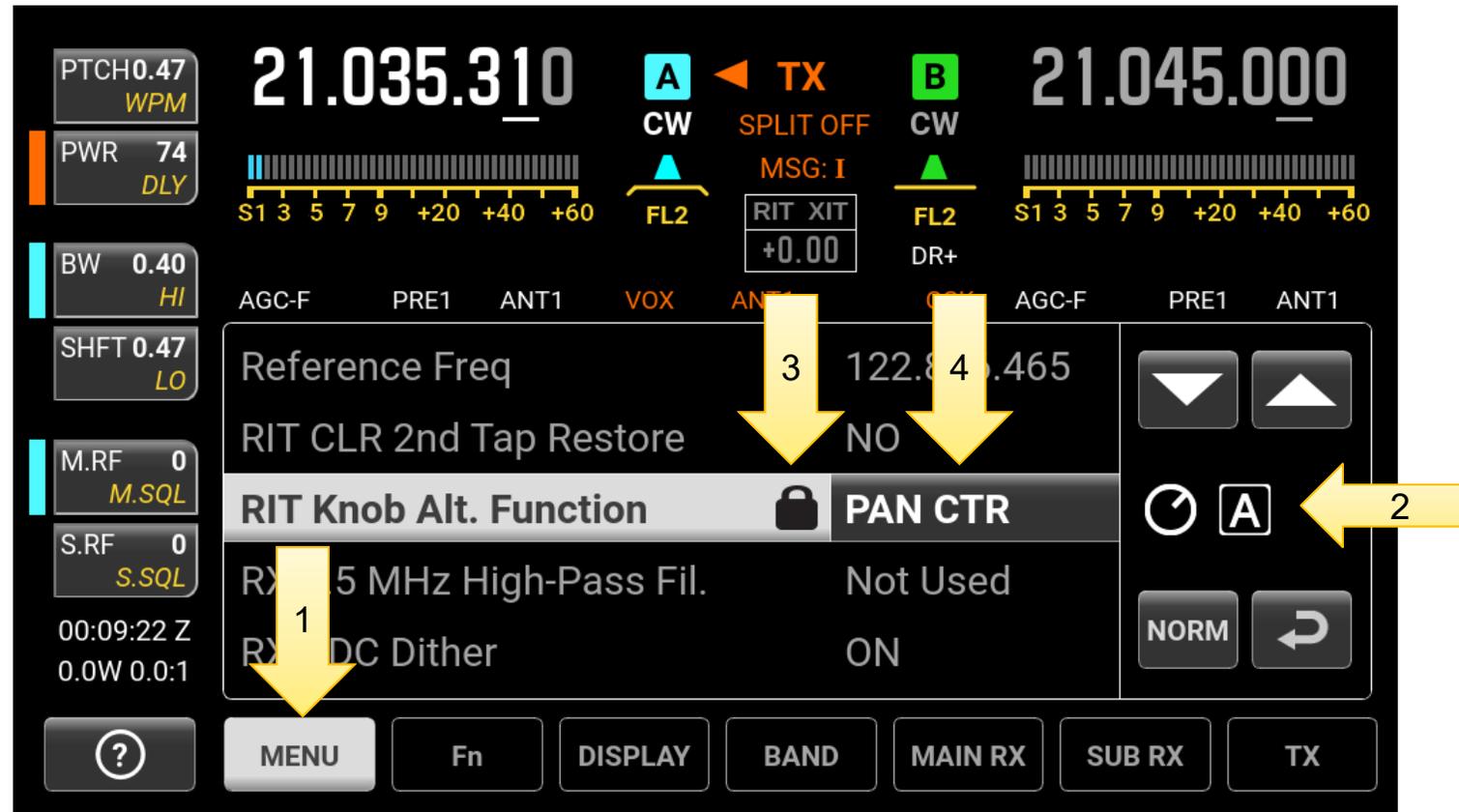


# Tap SPAN, rotate VFO A knob

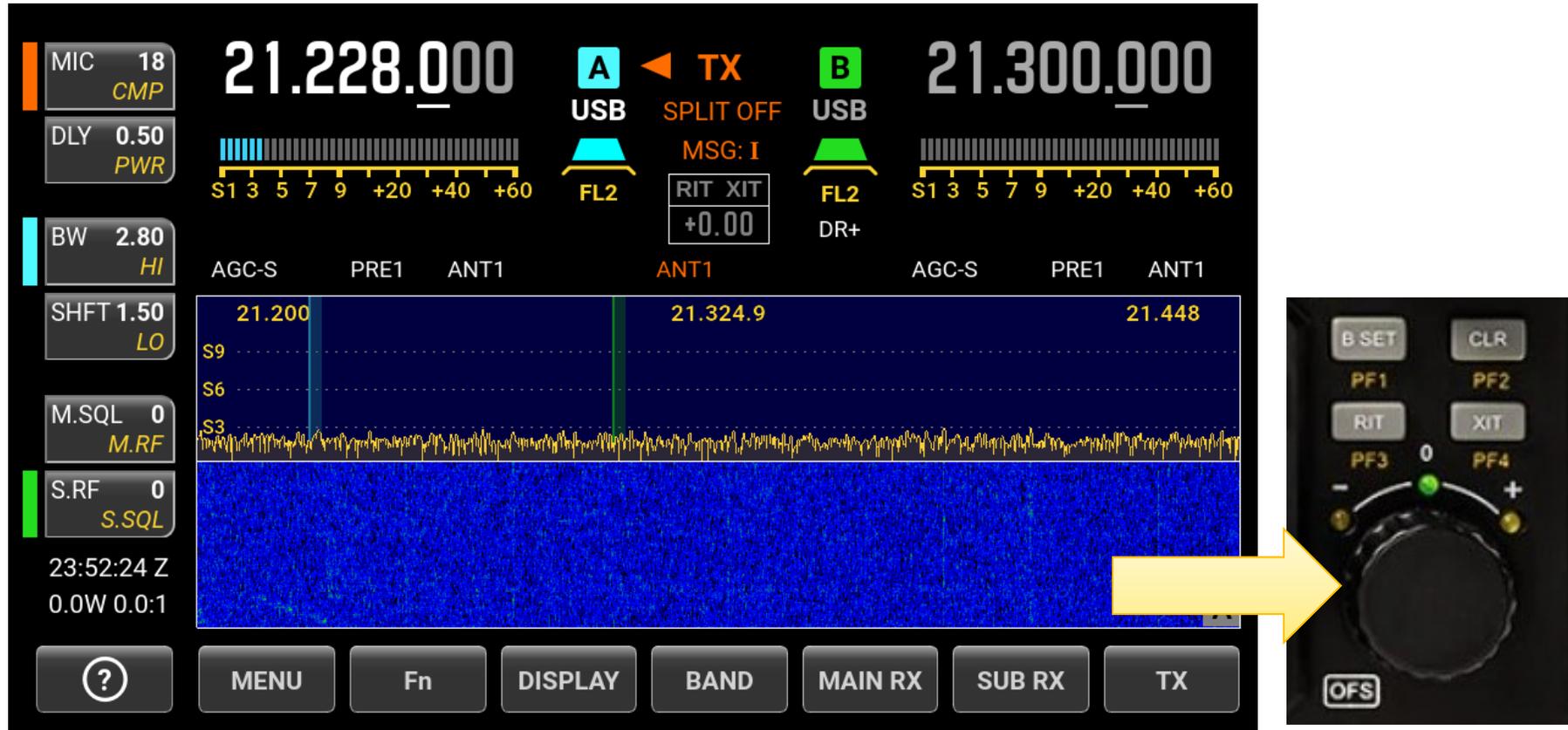


# Use RIT Knob as PAN CTR knob or PAN SPAN

When RIT OFF, RIT knob slides or zooms the scope

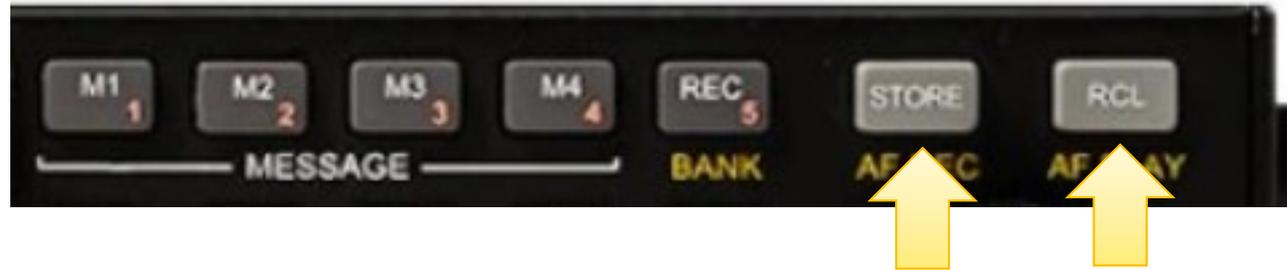


# Setting Scope Edge using the “OFS” (RIT) knob when RIT OFF



## Tip #5 – Save and restore everything using the Per-Band Quick Memories

Tap **STORE** or **RCL** > **M1** to **M4**



- Once programmed, *much* easier than using **Mode** and **Display** Buttons
- Saves and restores Freq, Mode, **Scope Edges**, Filters, of *both* VFOs, with two taps
- Program and save mode and scope edges on all bands
- **M1** = CW, **M2** = SSB, **M3** = RTTY, **M4** = FT8

Tip #6 – For best **ANT** switch operation, tap **TX > ANT CFG**, uncheck **ALL**

The image shows a radio interface with a keypad inset on the left. The keypad inset has a yellow arrow pointing to the 'ANT' button. The main interface shows the 'ANT CFG' menu with a yellow arrow pointing to the 'ANT CFG' button. The 'ANT SWITCH' section has checkboxes for 'ALL', 'ANT1', 'ANT2', and 'ANT3'. The 'ANT1' checkbox is checked, and the 'ALL' checkbox is unchecked. A yellow arrow labeled '1' points to the 'TX' button at the bottom right. A yellow arrow labeled '2' points to the 'ANT CFG' button. A yellow arrow labeled '3' points to the 'ANT1' checkbox.

POWER

TUNE XMIT

TUNE LP TEST

ATU TUNE VOX

ATU QSK

ANT RX ANT

REF ANT SUB ANT

MIC 18 CMP

DLY 0.50 PWR

21.228.000

A USB TX B USB

SPLIT OFF

MSG: I

FL2

RIT XIT

+0.00

FL2 DR+

21.300.000

S1 3 5 7 9 +20 +40 +60

AGC-S PRE1 ANT1

ANT1

AGC-S PRE1 ANT1

21.200 21.324.9 21.448

S5

ANT SWITCH

ALL  ANT1  ANT2  ANT3

23:51:55 Z

0.0W 0.0:1

ANT CFG TX EQ TX CAL LINE IN MIC INP MIC CFG VOX GN ANTIVOX SSB BW 2.8kHz ESSB OFF

? J Fn DISPLAY BAND MAIN RX TX

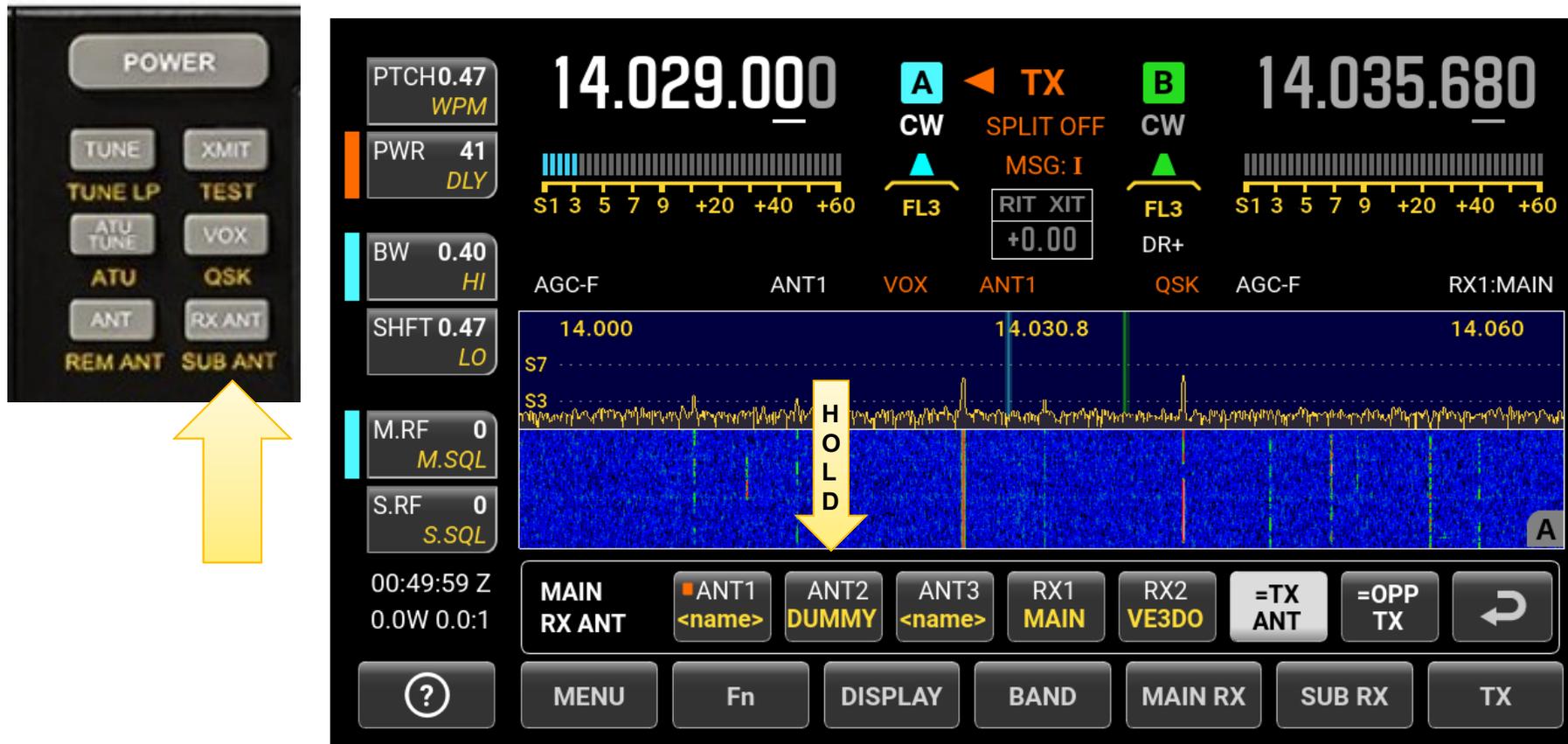
1

2

3

# Tip #7 – Label antenna names first, then select **Use Subset**, until you want to relabel

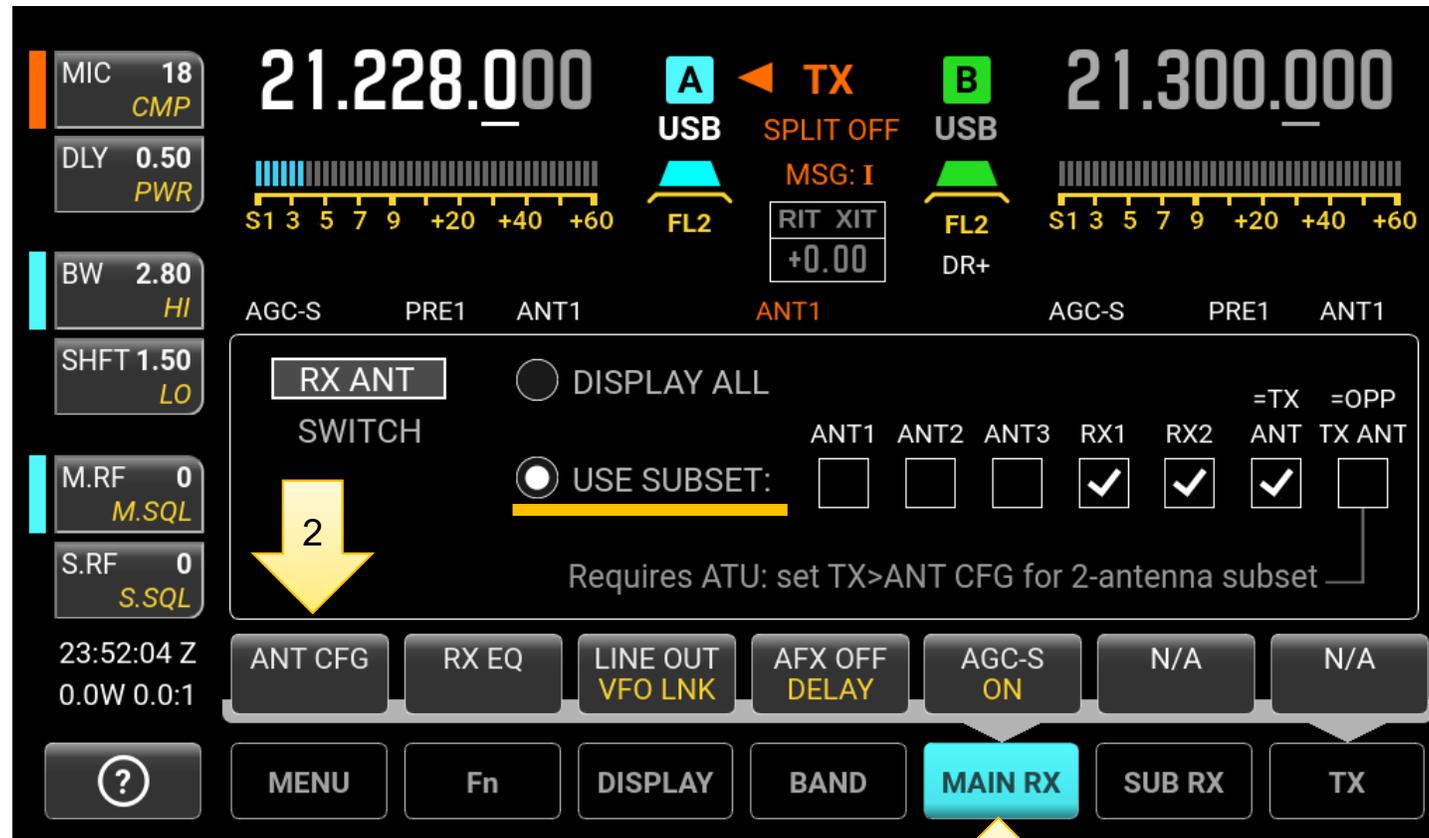
As shipped, **RX ANT** button brings up a dialog where you can label antenna names (hold button to change name)



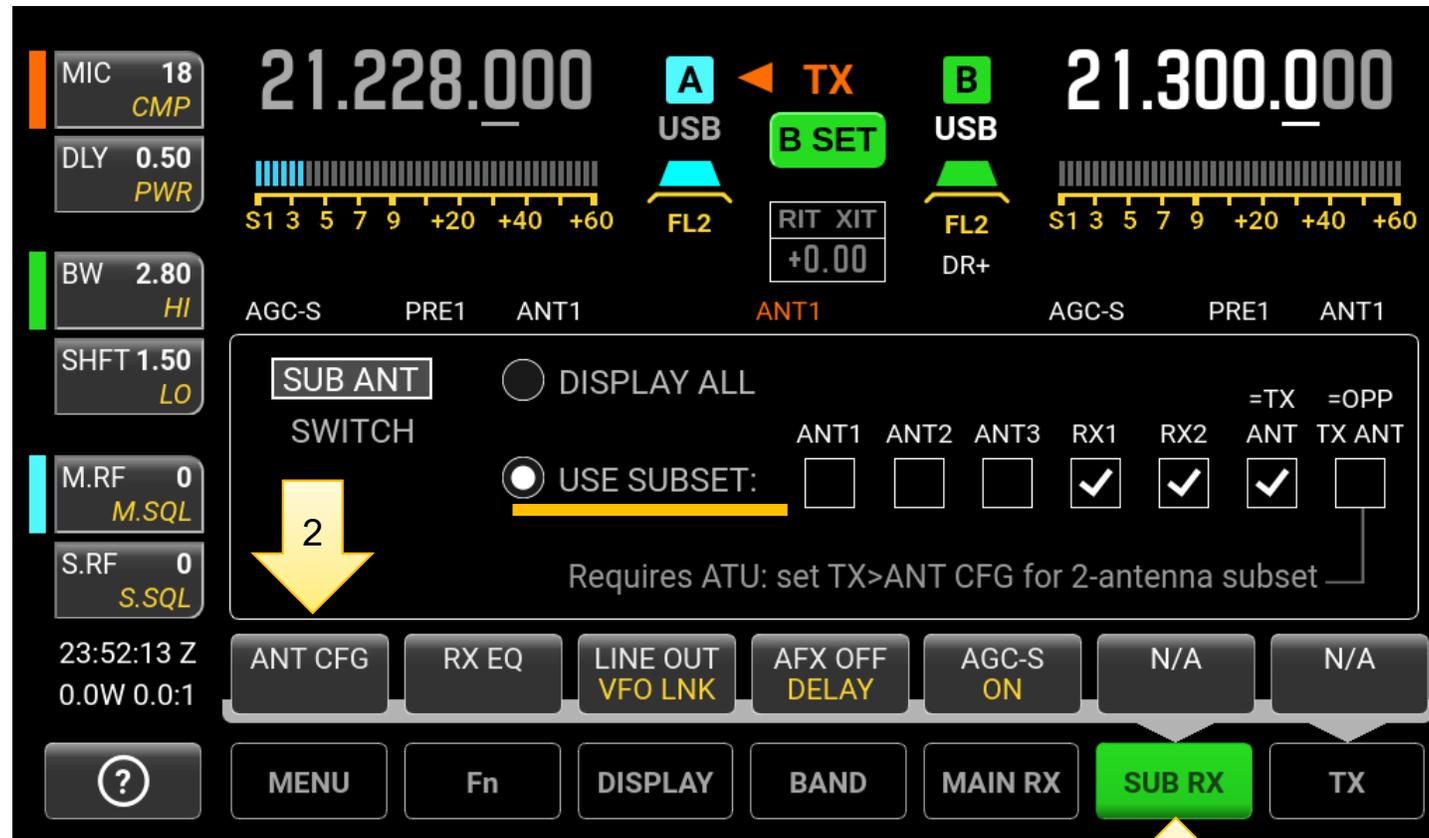
## Edit Antenna Name, tap **Enter**



Next tap **MAIN RX > ANT CFG**  
Select **USE SUBSET**



Next tap **SUB RX > ANT CFG**  
Select **USE SUBSET** select the same



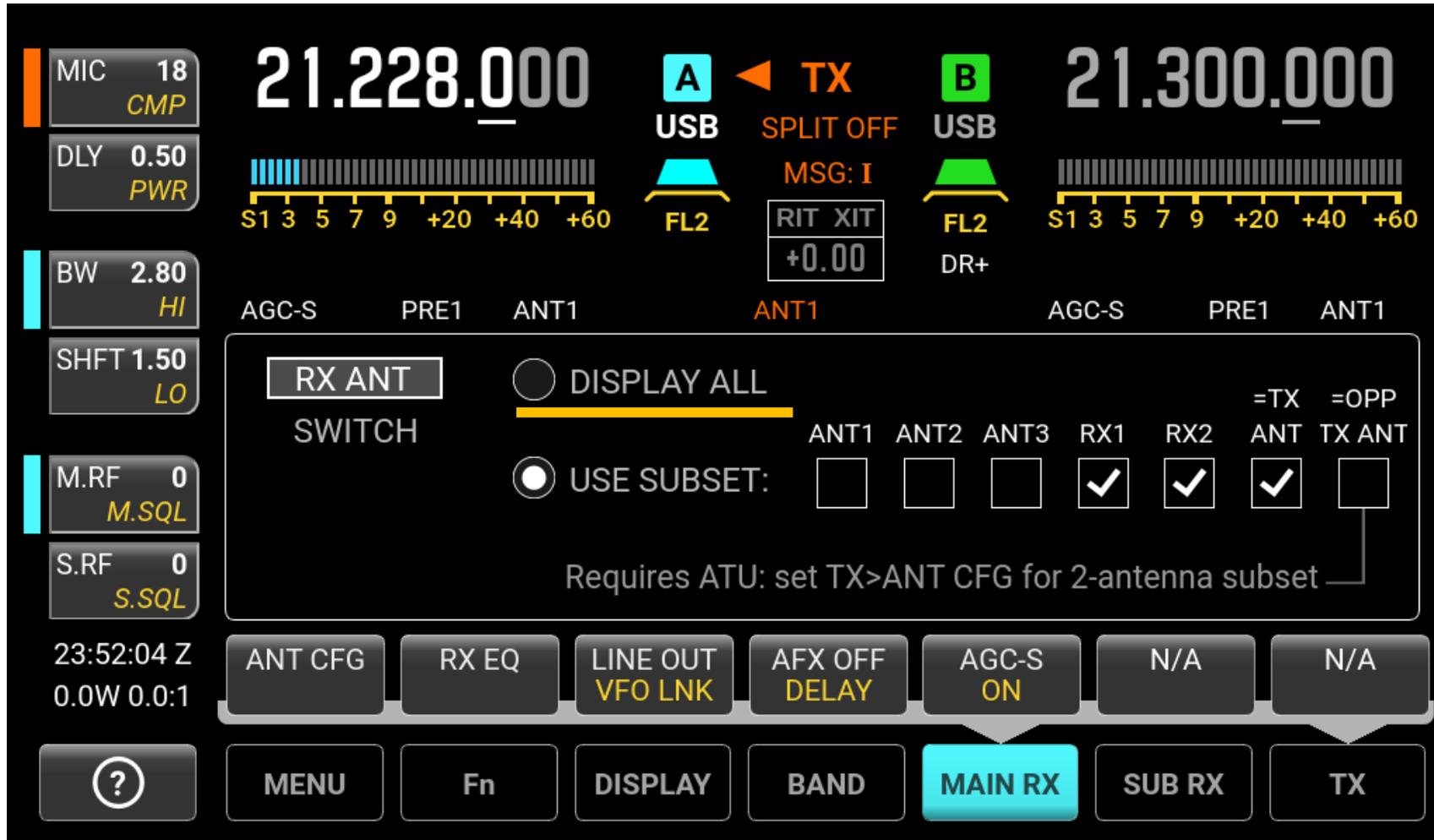
**RX ANT** and **SUB ANT** (hold) switch will now cycle through enabled antennas quickly (no more pop-ups)



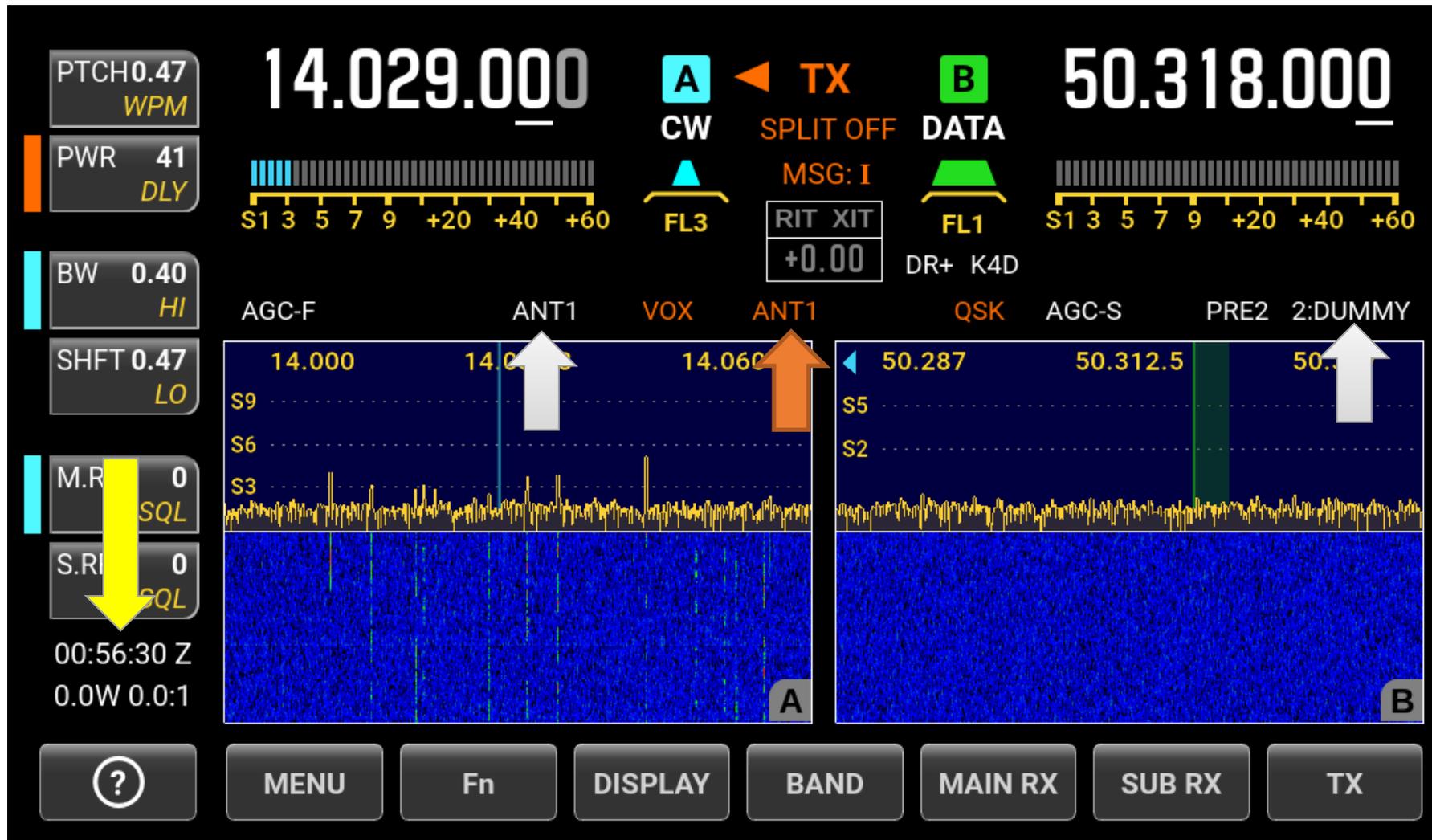
To rename antennas again:

Tap **MAIN RX** > **ANT CFG**, select **DISPLAY ALL**, dismiss, then tap **RX ANT** switch

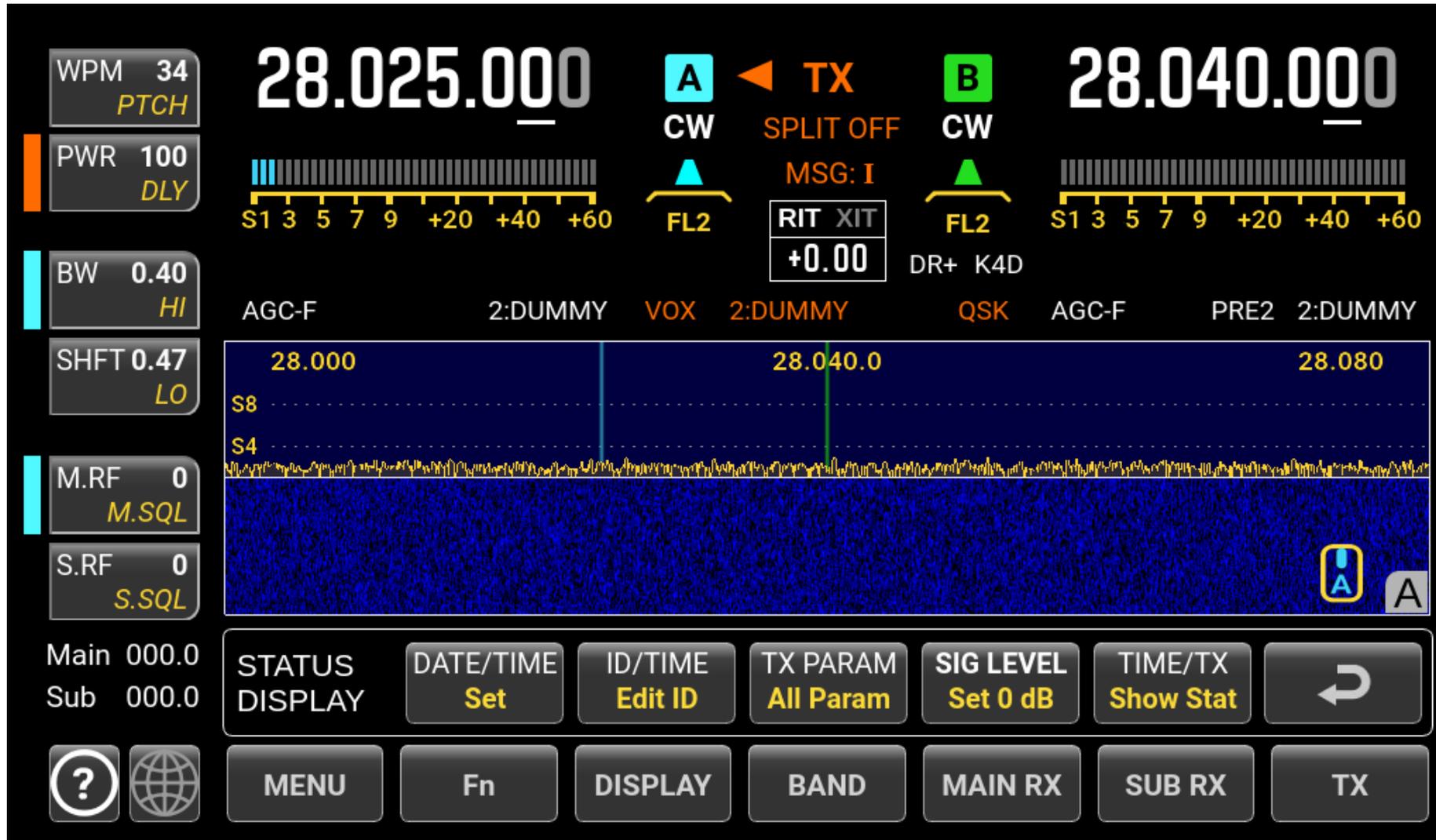
Have to select **DISPLAY ALL** to make **RX ANT** switch show the antenna renaming menu



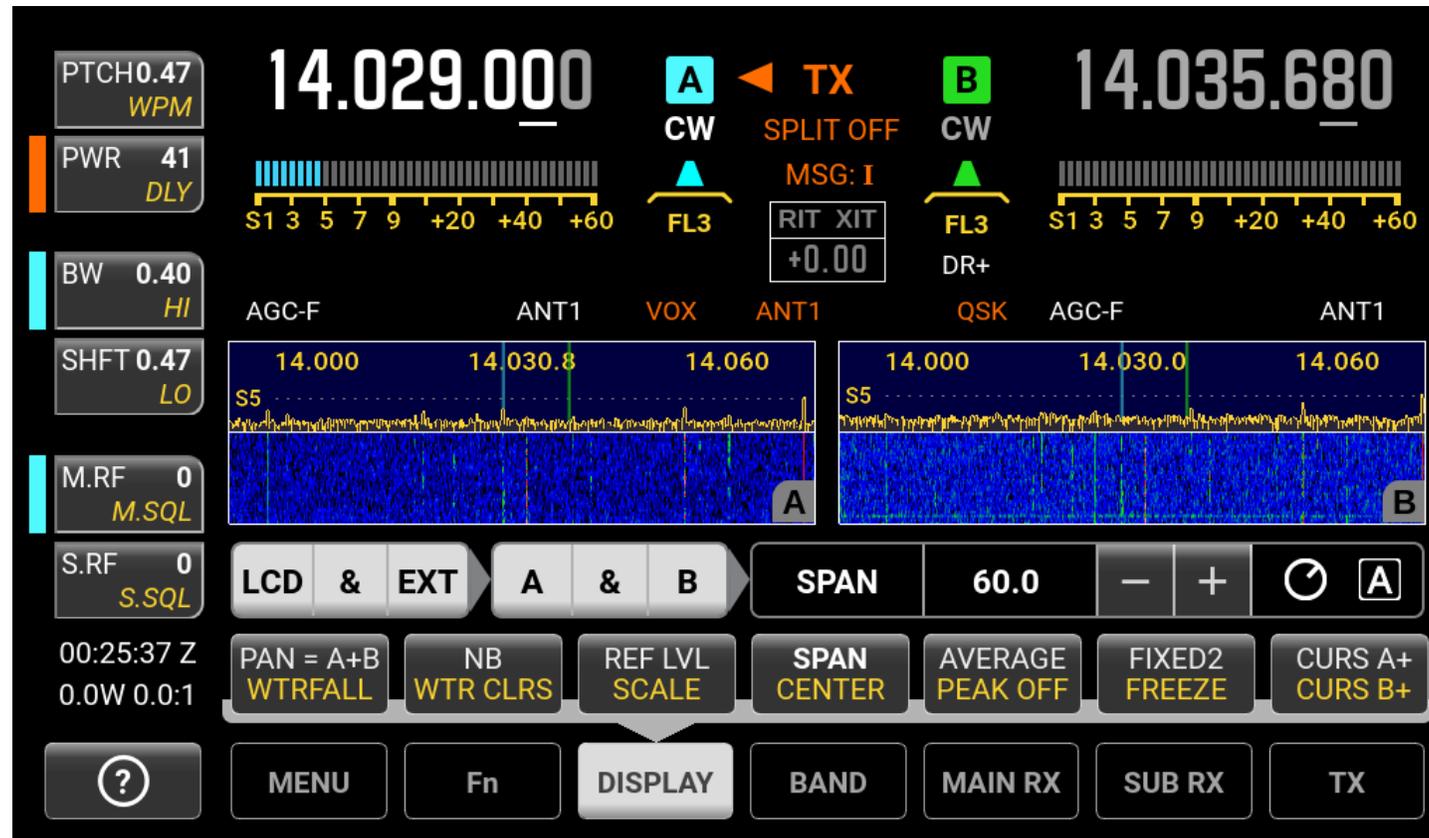
Main RX Ant, TX Ant, and SubRx Ant are always displayed above spectrum area



# The “Clock” is a button – the Status Display



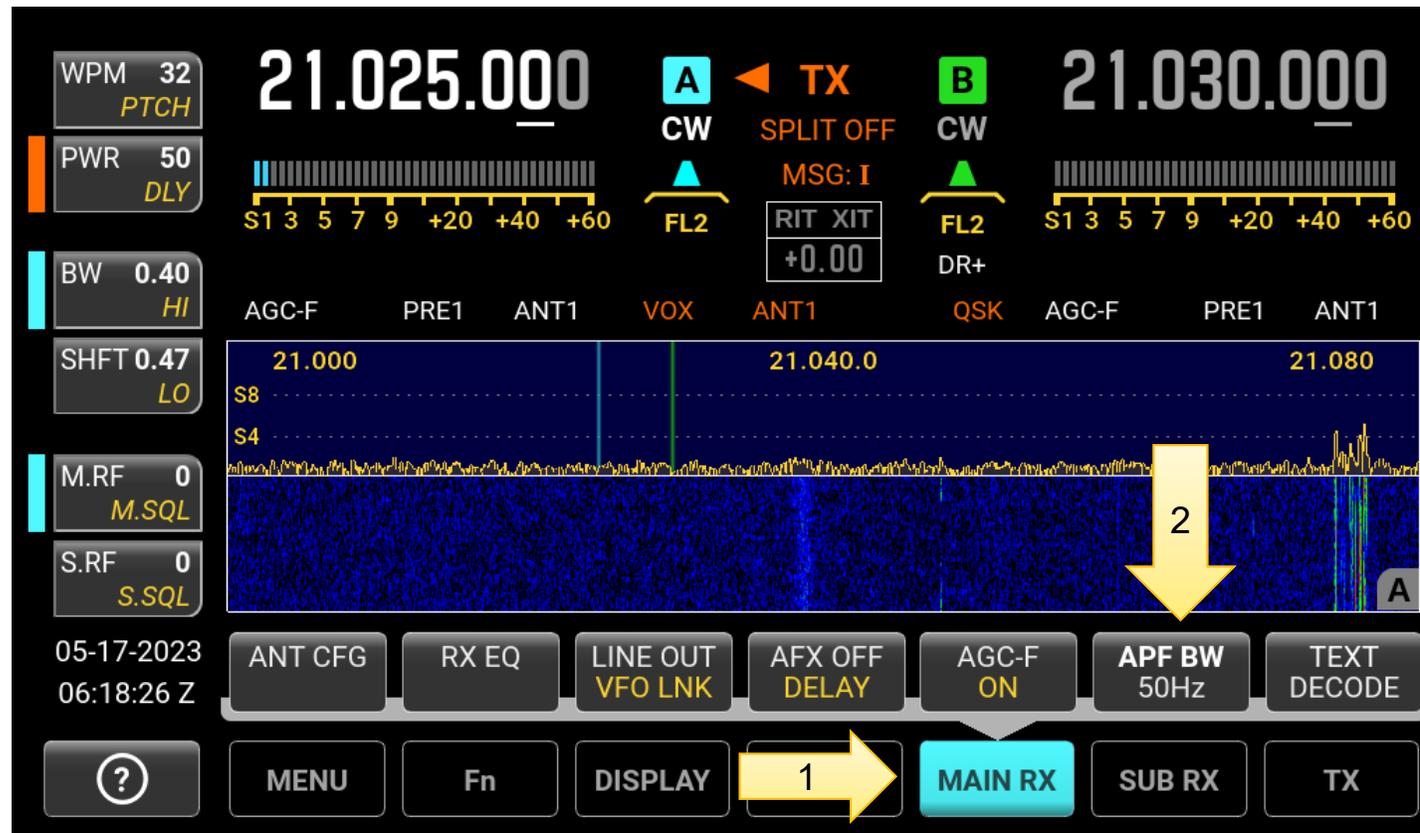
# Tip #8 – DISPLAY sets LCD, EXT, VFO A, VFO B



Tap the white buttons to select, then adjust

# Tip #9 – Copying weak CW signals using the K4 Audio Peaking Filter (APF)

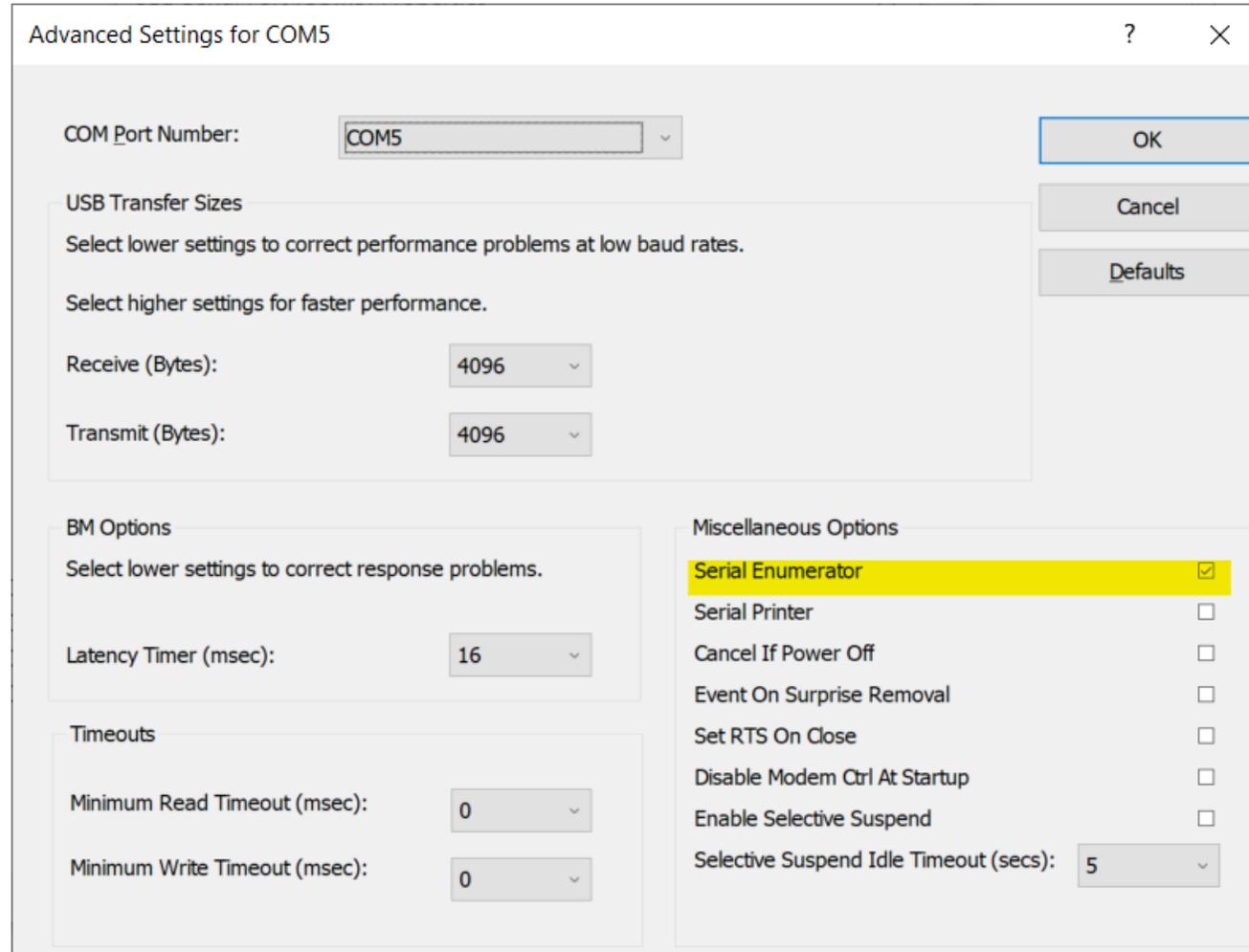
- Tap **MAIN RX > APF BW** to select 50 Hz
  - Repeat on **SUB RX**, and *all* bands (saved per-band, per VFO)



Hold **FIL** switch (**APF**) to toggle ON/OFF  
Better: use this macro: **AP / ; AP\$ / ;**



# Tip #10 – Windows Device Manager Settings for proper keying Do NOT use FTDI Default Options (can key radio)

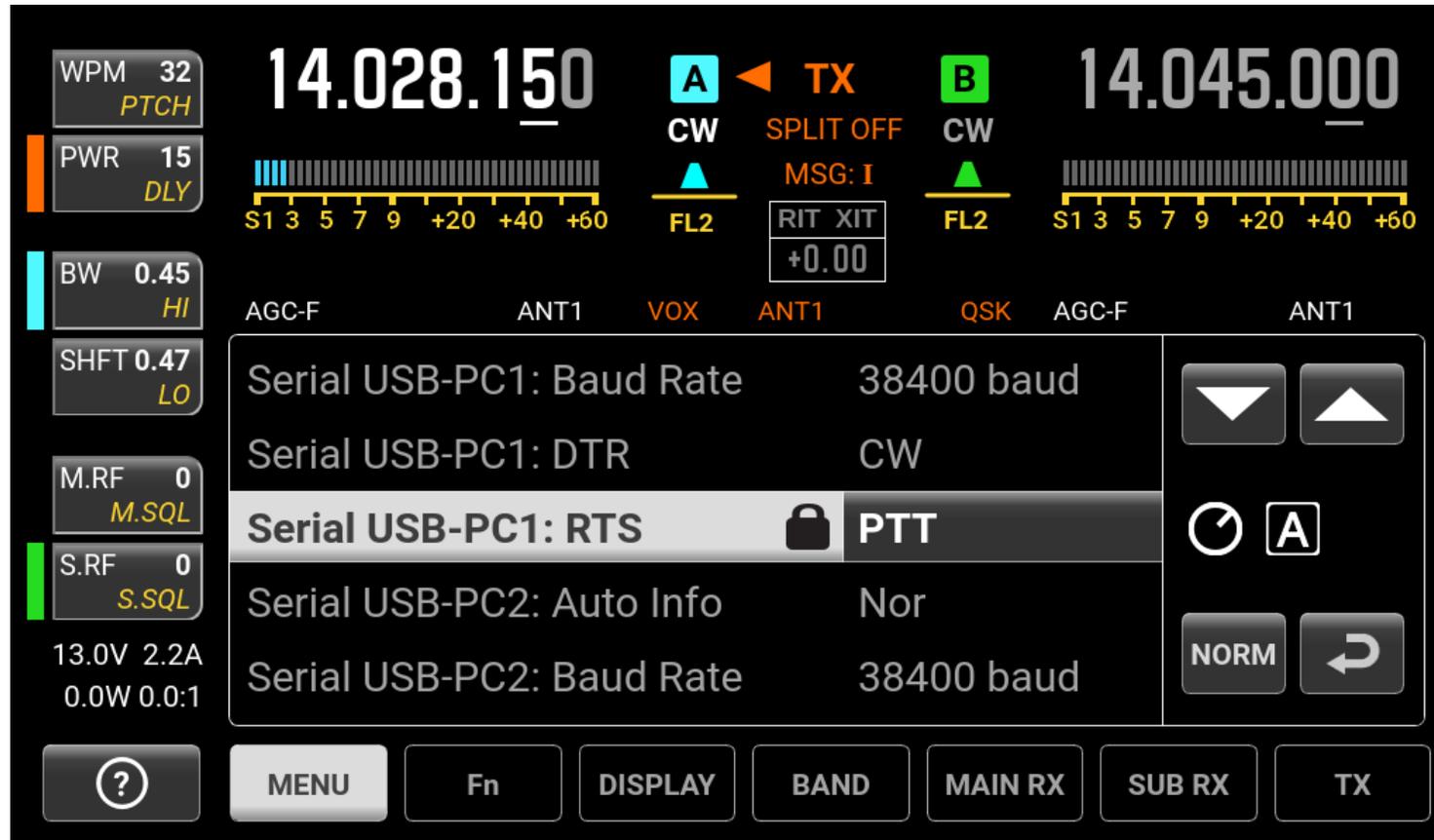


## Change the FTDI Options To This:

Miscellaneous Options

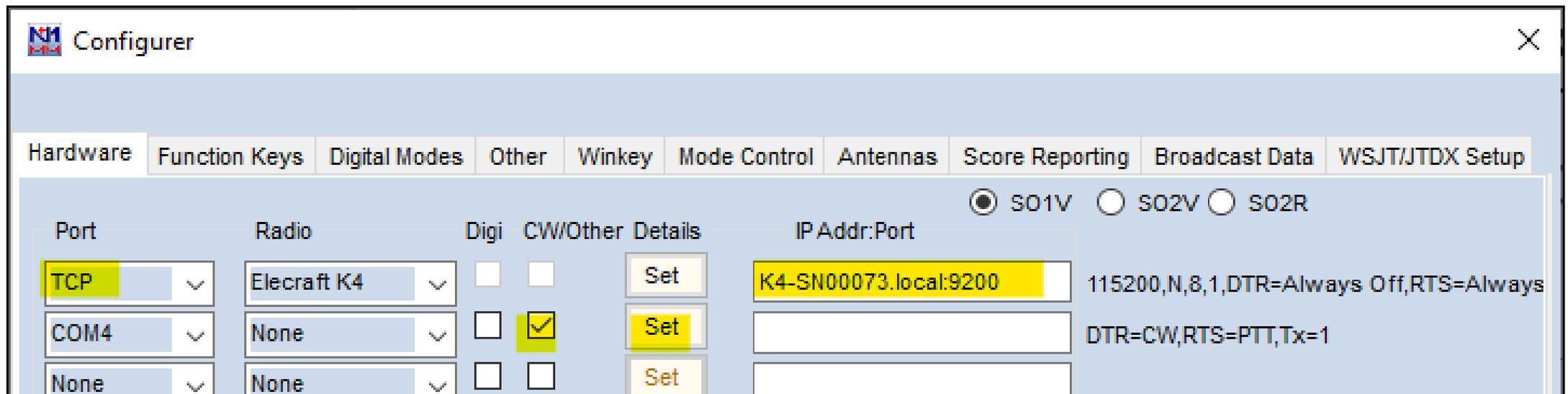
Serial Enumerator	<input type="checkbox"/>
Serial Printer	<input type="checkbox"/>
Cancel If Power Off	<input type="checkbox"/>
Event On Surprise Removal	<input type="checkbox"/>
Set RTS On Close	<input type="checkbox"/>
Disable Modem Ctrl At Startup	<input checked="" type="checkbox"/>
Enable Selective Suspend	<input type="checkbox"/>
Selective Suspend Idle Timeout (secs):	5

Now can use Menu to set **CW** Keying on **DTR**,  
**PTT** on **RTS** (FSK **RTTY** on **DTR** also supported)



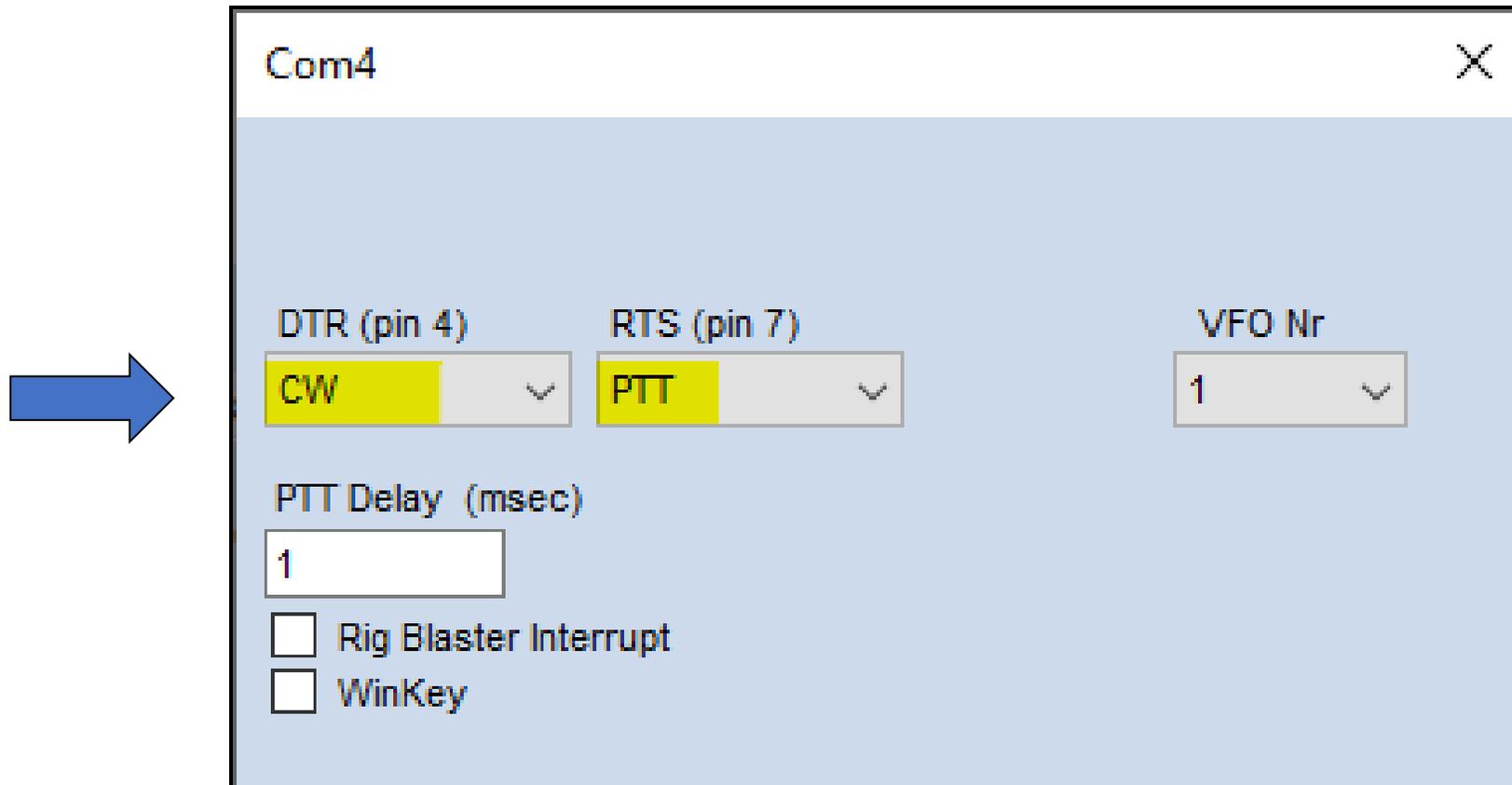
# N1MM+ Contest Software Configuration for CW Keying

- Select **Config, Configure Ports, Hardware** tab
- Can use **TCP** with K4 *hostname* or IP address for control  
**K4-SNxxxxx.local:9200** (xxxxxx = K4 serial number)
- Check **CW/Other** box next to K4 Virtual Serial Port, click **Set**



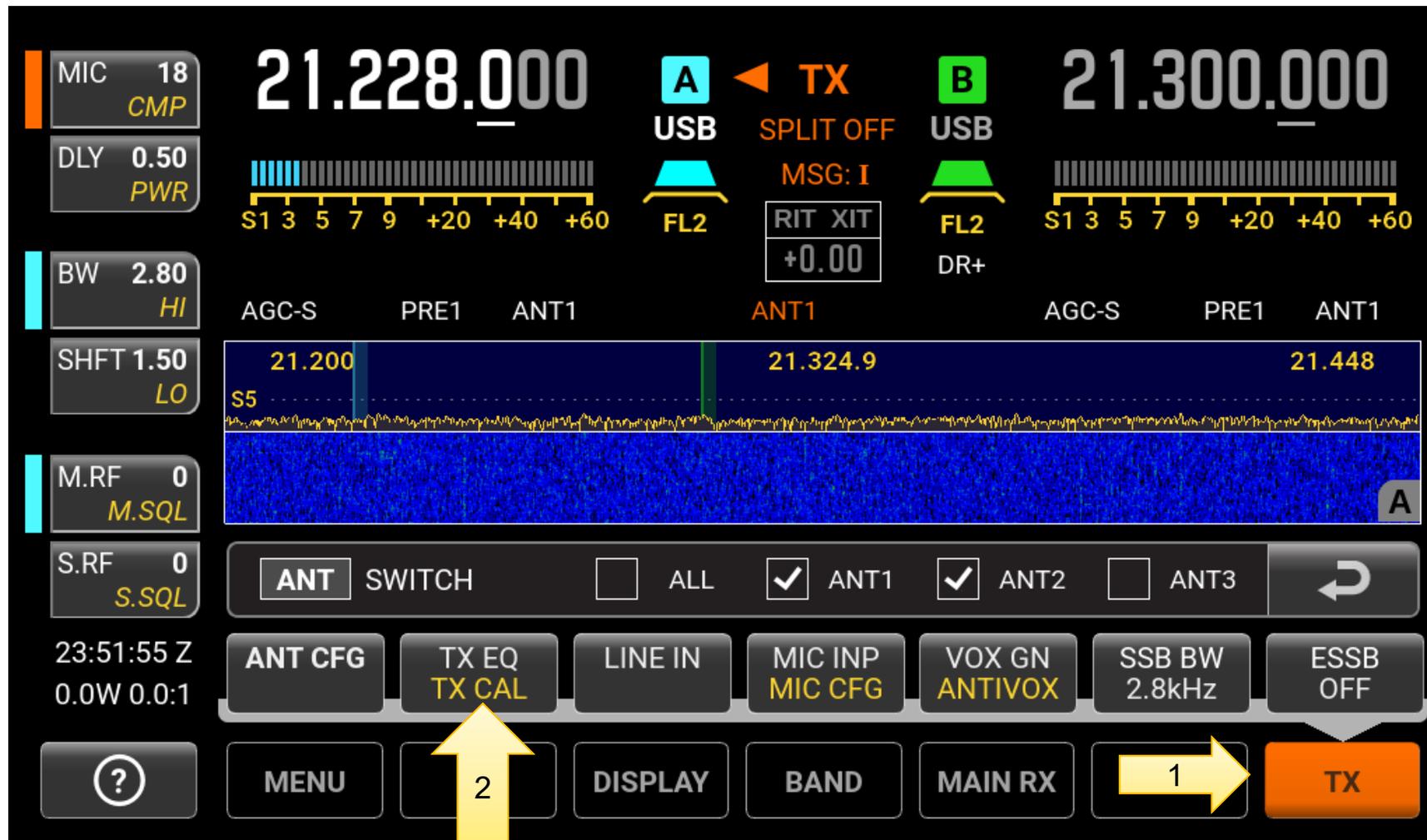
## N1MM+ Contest Software Configuration (cont'd)

- Set **DTR** (pin 4) = CW, **RTS** (pin 7) = PTT



# Tip #11 – SSB Operating Adjust TX EQ for “more punch” on SSB

Tap **TX** > **TX EQ**



Recommended TX EQ starting point. Use MON and Voice Memories to hear the difference. Tap **FLAT** to toggle ON/OFF.  
Macro: **TE-16-16-03-00+06+09+09+05**;

The screenshot displays the TX GRAPHIC EQUALIZER interface. On the left, there are several control panels: CMP 20 MIC, PWR 50 DLY, BW 2.80 HI, SHFT 1.50 LO, M.RF 0 M.SQL, and S.RF 0 S.SQL. The main area features eight frequency sliders with values: -16, -16, -3, 0, +6, +9, +9, 0 dB. Below the sliders are frequency labels: 100, 200, 400, 800, 1200, 1600, 2400, 3200 Hz. A 'FLAT' button is visible on the right. At the bottom, there are several function buttons: ANT CFG, TX EQ TX CAL, LINE IN, MIC INP MIC CFG, VOX GN ANTIVOX, SSB BW 2.8kHz, ESSB OFF, MENU, Fn, DISPLAY, BAND, MAIN RX, SUB RX, and TX. The TX button is highlighted in orange.

Frequency (Hz)	Gain (dB)
100	-16
200	-16
400	-3
800	0
1200	+6
1600	+9
2400	+9
3200	0

# Recording and Playing Voice Memories

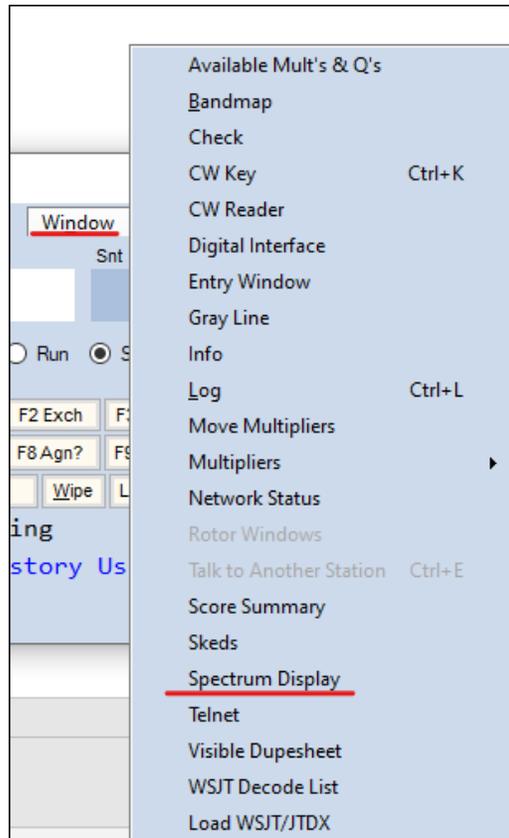
- Tap **REC** > **M1** > *talk* > Tap **M1** to save, **REC** to cancel



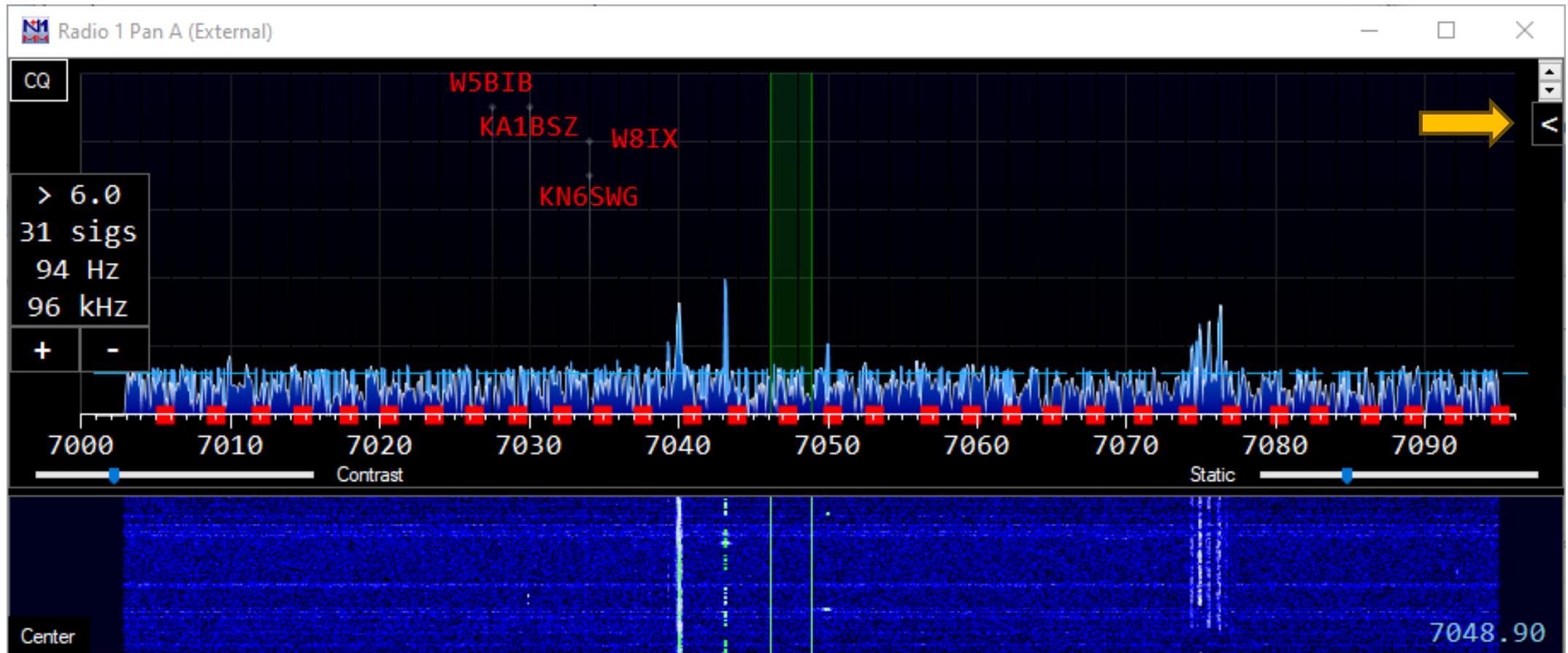
- Enable **TX TEST** mode, tap **M1** listen to **MON**
- Playback Macros: **PB1** ; **PB2** ; ... **PB8** ; **RX** ;

# Tip #12 – Try N1MM Spectrum Display

- Select **Window > Spectrum Display**



# N1MM Spectrum Display for K4



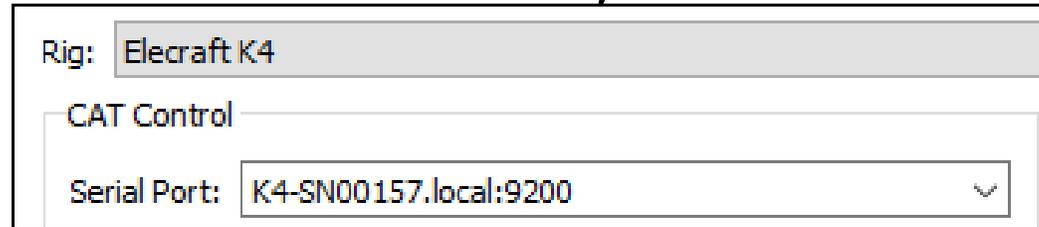
# N1MM Spectrum Display Options for K4

Spectrum Setup for Radio 1 Pan A (External) ✕

Spectrum Source	Source Options	General Options
<p><input type="radio"/> N1MM SDR Server</p> <p><input checked="" type="radio"/> <u>External (WB, Flex, etc)</u></p> <p><input type="radio"/> Airspy HF+ SpyServer</p> <p><input type="radio"/> IC-7610 I/Q via FTDI dll</p> <p><input type="radio"/> Icom Level Data - Radio 1</p> <p><input type="radio"/> Icom Level Data - Radio 2</p>	<p>External Source Name (or blank)</p> <p><u>Radio 1 Pan A</u></p>	<p>Display Bins: 512</p> <p>Show frequencies based on:</p> <p><input checked="" type="radio"/> Radio 1</p> <p><input type="radio"/> Radio 2</p> <p>Spectrum Orientation: Auto</p> <p>Show these spots: All</p> <p><input type="checkbox"/> Show only spots you can hear</p> <p>Show Red Signal Markers: All</p> <p>OK Cancel</p>

## Tip #13 – FT8 Operating Tips

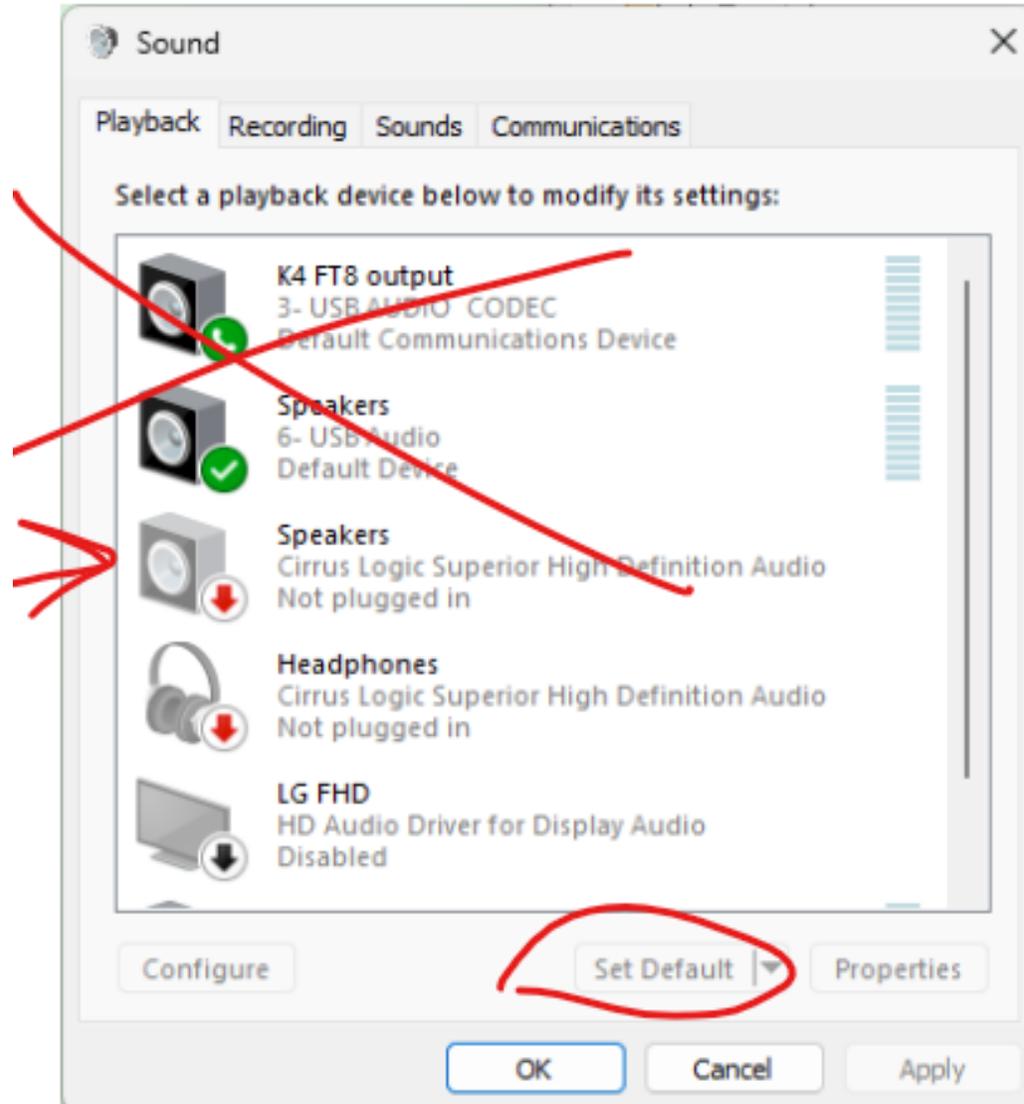
- Give **WJST-X** or **JTDX** direct access to K4 COM port or IP Address
- Enter hostname or **IP address** for TCP/IP:



The screenshot shows a configuration window for a radio rig. At the top, the 'Rig' field is set to 'Elecraft K4'. Below this, there is a 'CAT Control' section with a text input field. At the bottom, the 'Serial Port' dropdown menu is open, displaying 'K4-SN00157.local:9200' as the selected option.

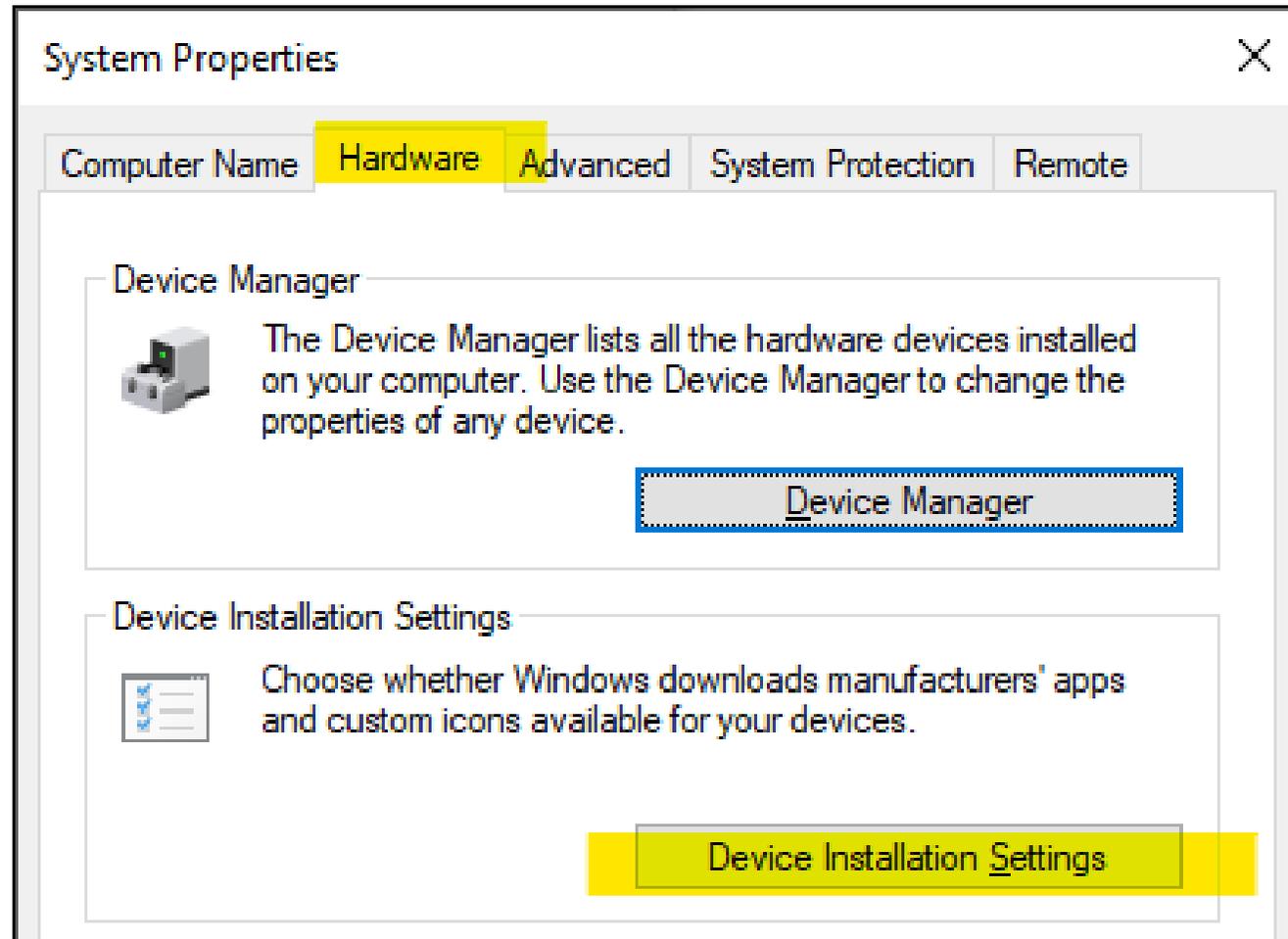
- Use **PTT via CAT** or **PTT via RTS** and use **TEST CAT** and **TEST PTT** buttons
- Use **SPLIT=FAKE IT**
- Set Audio I/O to K4 **USB Audio CODEC**
- Leave **PWR** slider set to max
- Set **TX > LINE IN** to **SOUND CARD**, level to **36** – or ALC at Hashmark 5
- **Dell PCs**: Run **services.msc** to disable Waves Audio Service
- Run **mmsys.cpl** – Windows Sound Control Panel, Disable Enhancements
- Never leave the K4 **USB Audio CODEC** as the Windows default sound card

# Leave NO GREEN MARKS on the K4 USB Audio CODEC



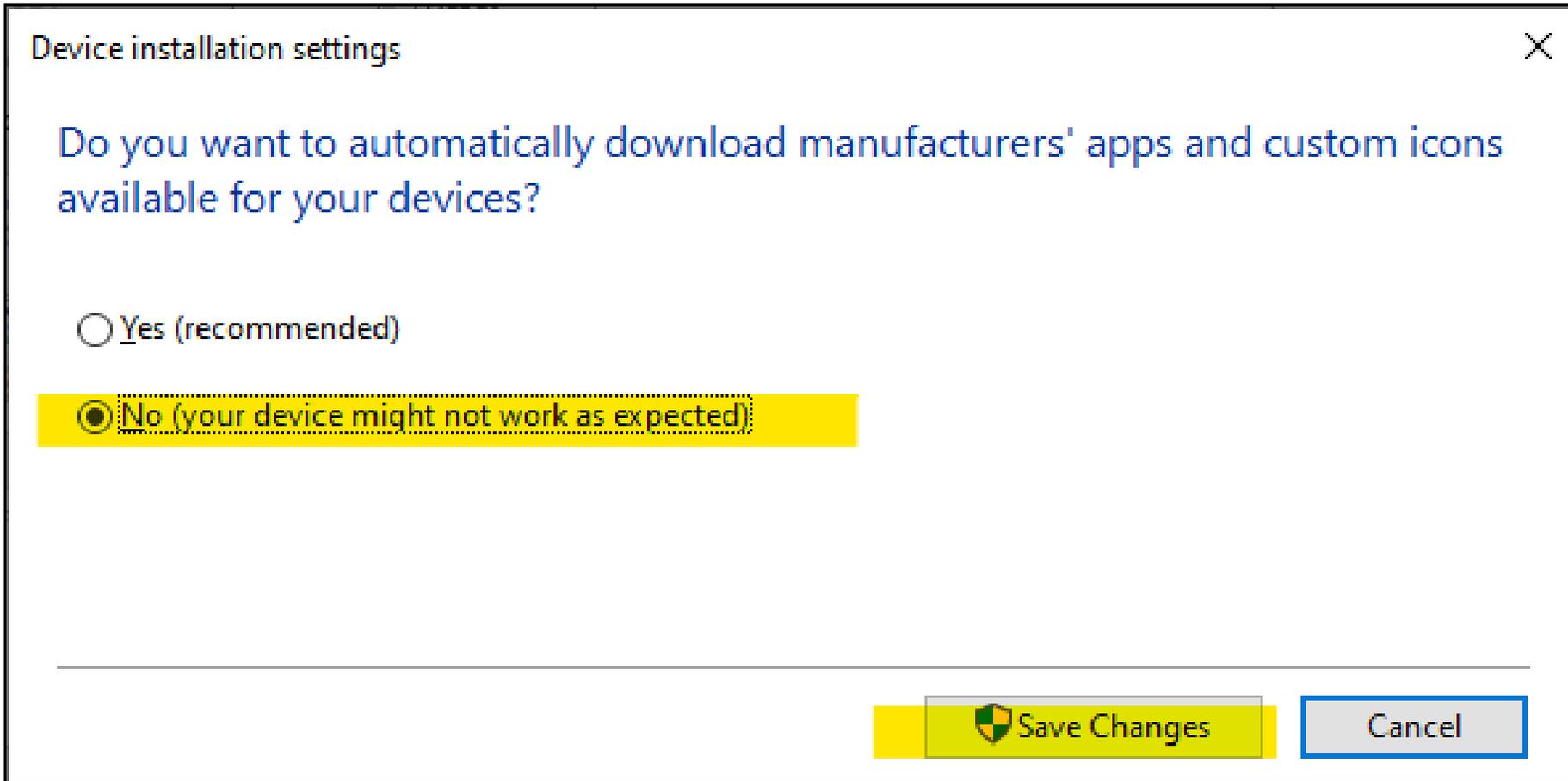
# How to Prevent Windows Updates from updating Device Drivers

**Enter in Taskbar search box: Advanced System Settings**  
**Click Hardware Tab, Click **Device Installation Settings****



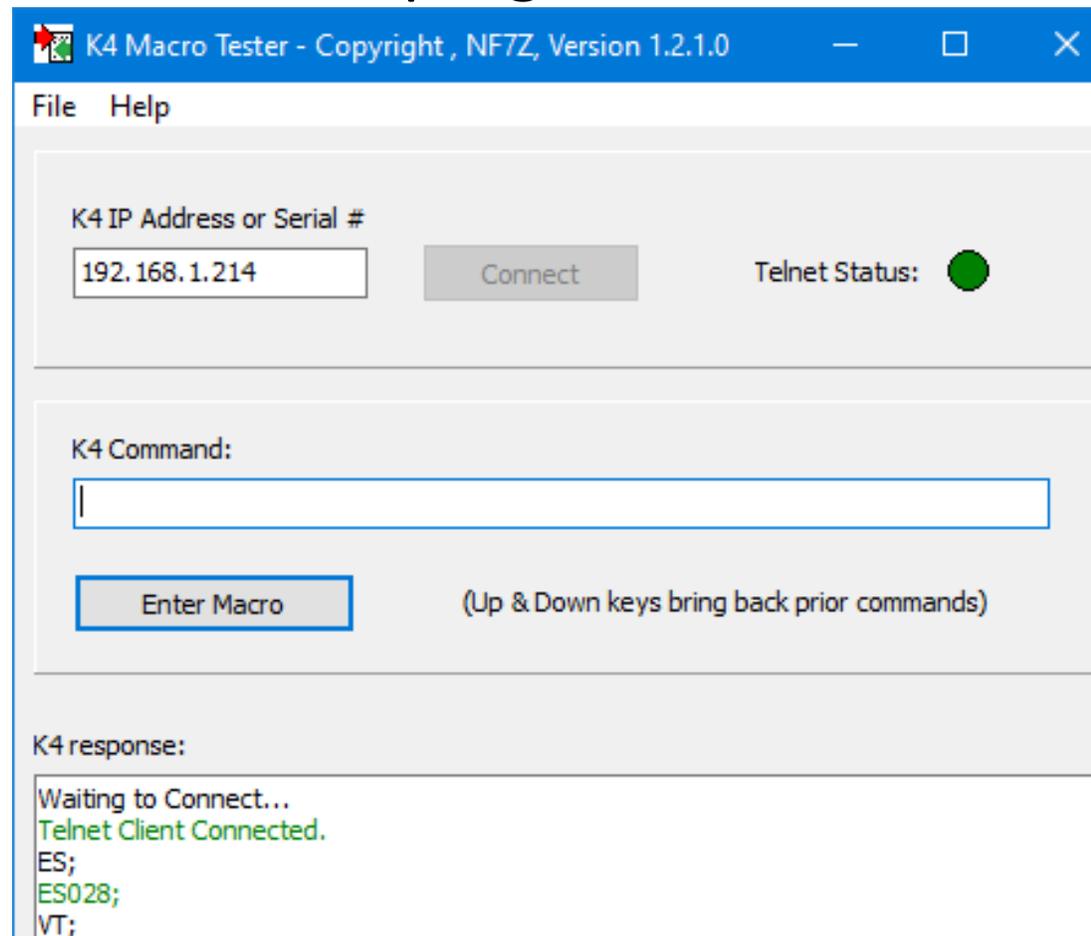
# How to Prevent Windows Updates from updating Device Drivers

**Automatically download manufacturers' apps? **NO!** Click **Save Changes****



## Tip #14 – Use K4 Macros to maximize operator convenience

- Use TELNET or [NF7Z K4 Macro Tester](#) or [NK7Z K4 Macro Master](#)
- When commands work, program them into the K4

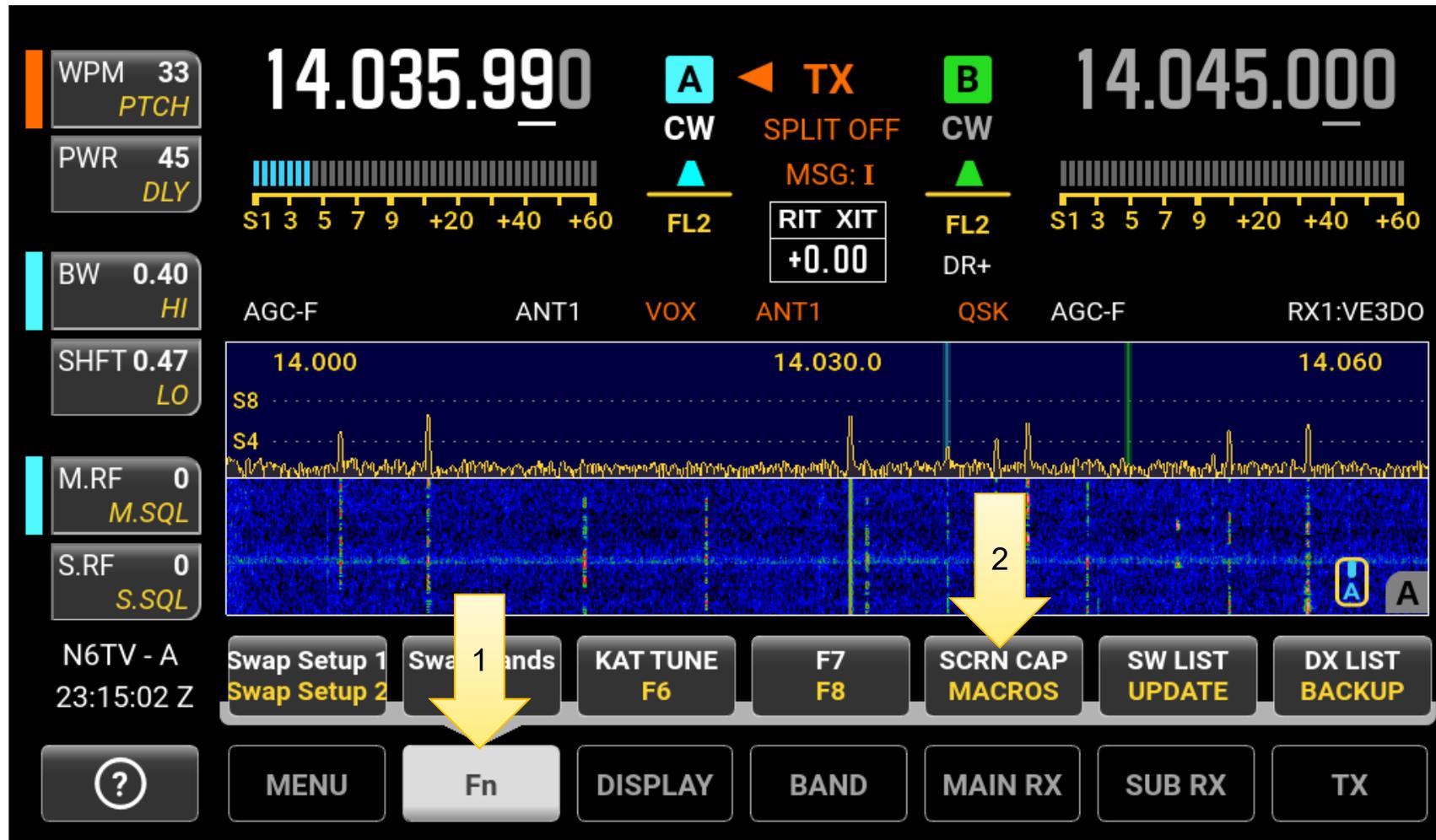


Example: Using the **REM ANT** switch to refresh **REF LEVEL** of scope



# Programming a macro

1. Tap **Fn** > **MACROS** (hold)



## Scroll down and highlight the **REM ANT** entry

2. Use the **VFO A** knob or mouse wheel to scroll to REM ANT

The screenshot shows a radio interface with two VFOs. The left VFO is at 14.195.000 and the right VFO is at 14.200.000. The interface includes various status indicators like MIC, PWR, BW, SHFT, M.RF, and S.RF. The main display shows a menu with the following entries:

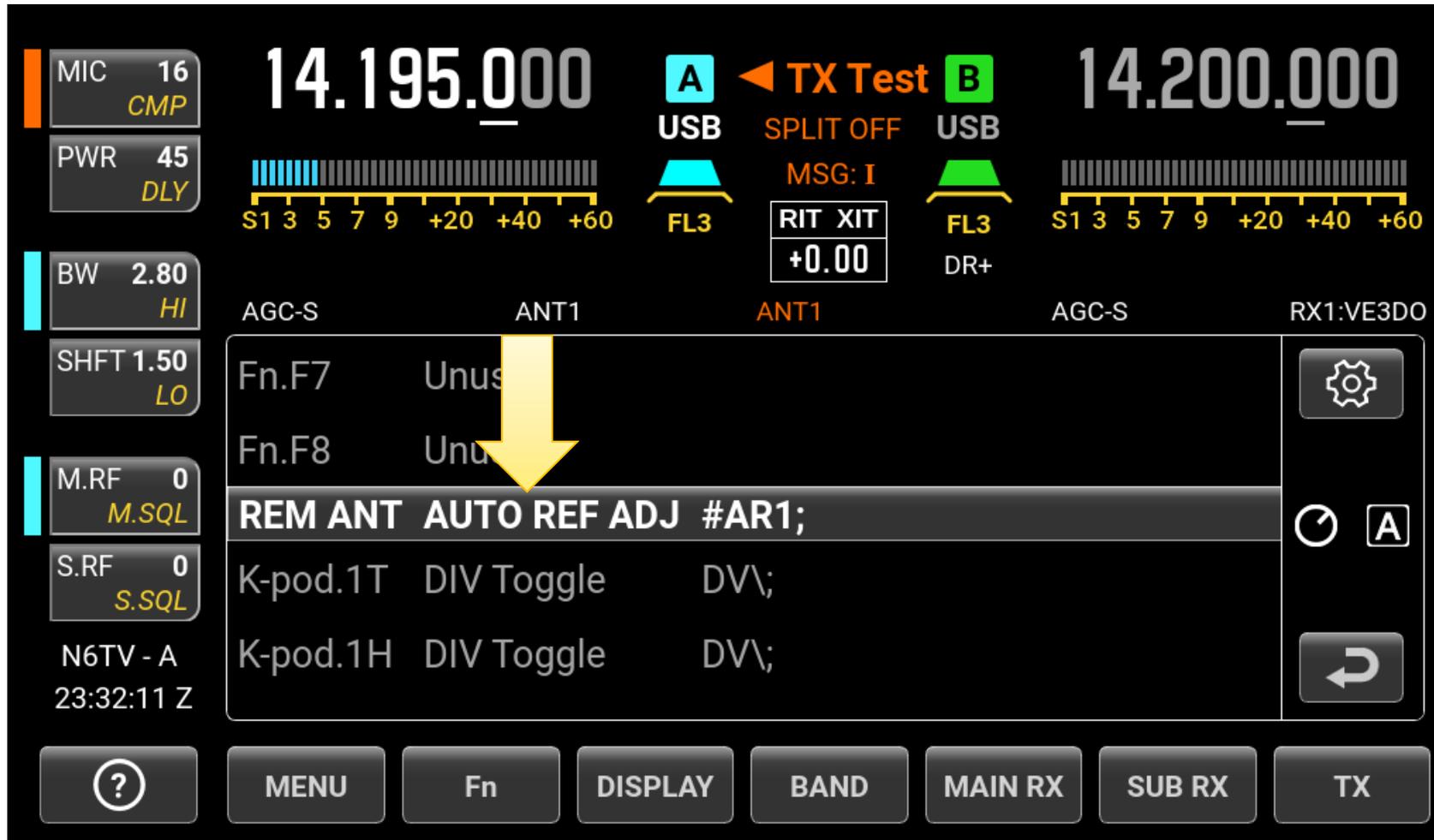
Fn.F7	Unused
Fn.F8	Unused
<b>REM ANT</b>	<b>AUTO REF ADJ #AR1;</b>
K-pod.1T	DIV Toggle DV\;
K-pod.1H	DIV Toggle DV\;

A yellow arrow points to the 'REM ANT' entry. The interface also shows 'TX Test' and 'MSG: I' indicators, and a 'RIT XIT +0.00' display. The bottom of the screen features a row of buttons: '?', 'MENU', 'Fn', 'DISPLAY', 'BAND', 'MAIN RX', 'SUB RX', and 'TX'.

# Enter a label

(optional, but documentation is helpful)

3. Tap / click on the *middle* column to set the label only



# Entering the label

4. Enter the label, tap **ENTER** to save, [**X**] to cancel



# Enter command(s) – see *Programming Reference*

5. Tap click on the **last column** to set the command(s)

The screenshot shows a radio interface with various status indicators and a command entry screen. The frequency is 14.195.000 on the left and 14.200.000 on the right. The interface includes a microphone level (MIC 16 CMP), power level (PWR 45 DLY), bandwidth (BW 2.80 HI), shift (SHFT 1.50 LO), and RF levels (M.RF 0 M.SQL, S.RF 0 S.SQL). The antenna is set to ANT1. The command entry screen shows a table of commands with a yellow arrow pointing to the last column.

Fn.F7	Unused	
Fn.F8	Unused	
<b>REM ANT</b>	<b>AUTO REF ADJ</b>	<b>#AR1;</b>
K-pod.1T	DIV Toggle	DV\;
K-pod.1H	DIV Toggle	DV\;

At the bottom of the screen, there are several buttons: a help button (?), MENU, Fn, DISPLAY, BAND, MAIN RX, SUB RX, and TX.

## Entering the Command(s)

6. Enter the command(s), tap **ENTER** to save, **[X]** to cancel



## Other K-POD macros I use:

REM ANT	AutoRef Reset	#AR1;
K-pod.1T	DIV Toggle	DV\;
K-pod.1H	Write Log	LOG;
K-pod.2T	Band Stack	BN>;
<b>K-pod.2H</b>	<b>Capture LCD</b>	<b>SS0;</b>
K-pod.3T	DIV Off	DV0;SB0;
K-pod.3H	Capture EXT	SS1;
K-pod.4T	APF Toggle	AP/;AP\$/;
<b>K-pod.4H</b>	<b>SUB Toggle</b>	<b>SB/;</b>

K-pod.5T	A > B	AB0;
K-pod.5H	A > B All	AB3;
K-pod.6T	A / B	AB2;
K-pod.6H	A / B all	AB5;
<b>K-pod.7T</b>	<b>RIT Off</b>	<b>RC;RT0;</b>
K-pod.7H	RIT Off	RC;RT0;
K-pod.8T	RIT On	RT1;RC;
K-pod.8H	RIT On	RT1;RC;

Tip #15 – For linear amplifiers, K4 can remember separate drive per band. For KPA500/KPA1500, two levels per band. Put AMP in OPER first, then set DRIVE.

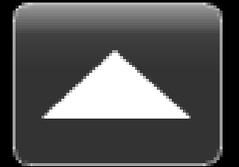
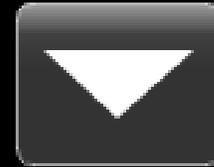
The screenshot shows the K4 radio's main display with various settings and a menu open. The frequency is 14.195.000 on the left and 14.200.000 on the right. The menu is titled 'Mouse L/R Button QSY' and lists several options:

Mouse L/R Button QSY	Left=A, Right=B
Panadapter Full Span	Normal
<b>Per-Band Power</b>	<b>YES</b>
Preamp 3 (12/10/6 m)	Disabled
Radio Serial Number	00073

A yellow arrow points to the 'Per-Band Power' option. The bottom of the screen shows a row of buttons: '?', 'MENU', 'Fn', 'DISPLAY', 'BAND', 'MAIN RX', 'SUB RX', and 'TX'.

Tip #15A – Adjust **TX Delays** to prevent amplifier hot-switching *and* eliminate T/R transition artifacts (loud pops)

TX DLY, Key Out to RF Out	5 ms
TX DLY, Unkey to Receive	6 ms

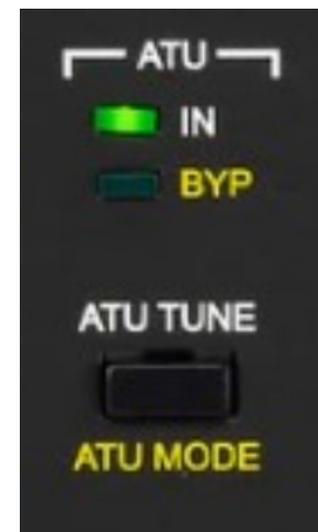
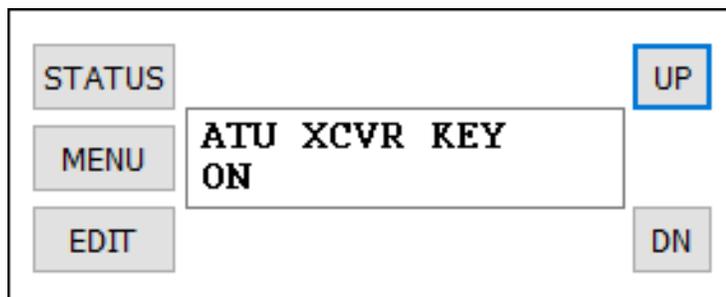
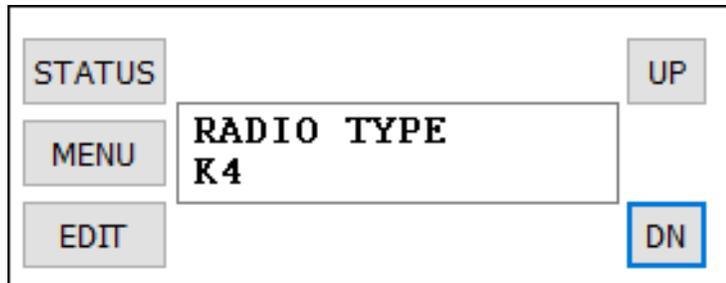


# Tip Summary

1. Use the **NORM** switch
2. Use **Speakers+Phones** toggle (**PF3**)
3. Use **Search** in the built-in and web manuals (STFM)
4. Adjust scope **SCALE** and **SPAN**, use **RIT** knob to set edges
5. Use the Per-Band Quick Memories **M1** to **M4**
6. Set **TX > ANT CFG**
7. Set **MAIN RX > ANT CFG** and **SUB RX > ANT CFG**
8. How to use the **DISPLAY** menu
9. **CW** Tip: **APF** with BW 50 hz
10. Fix **FTDI Properties**, set **DTR** keying
11. **SSB** Tip: Set **TX EQ**, use **Voice memories**
12. Use **N1MM Spectrum Display**
13. **FT8** Tip: no green marks on **USB Audio CODEC**, block **Windows Update**
14. Use **K4 Macros** to optimize operating convenience
15. For Linear Amplifiers, use **Per-Band Power** and **TX DLY**

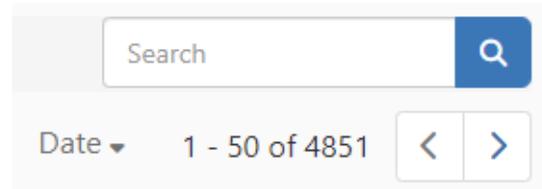
# Bonus Tip - K4 to KPA1500 Integration

- When connected by **AUX** cable, BAND buttons on AMP change band of rig (KPA500 too)!
- One tap KPA1500 **ATU TUNE** keys rig with 20W and tunes



## References

- <https://groups.io/g/Elecrafft-K4/topics>  
Use the SEARCH box, top right corner:



- <https://groups.io/g/Elecrafft-K4/files>  
Includes organized 412-page PDF by DL2FAG
- <http://www.qrz.com/db/n6tv> - Links to this and other presentations
- [n6tv@arri.net](mailto:n6tv@arri.net)

# Questions?