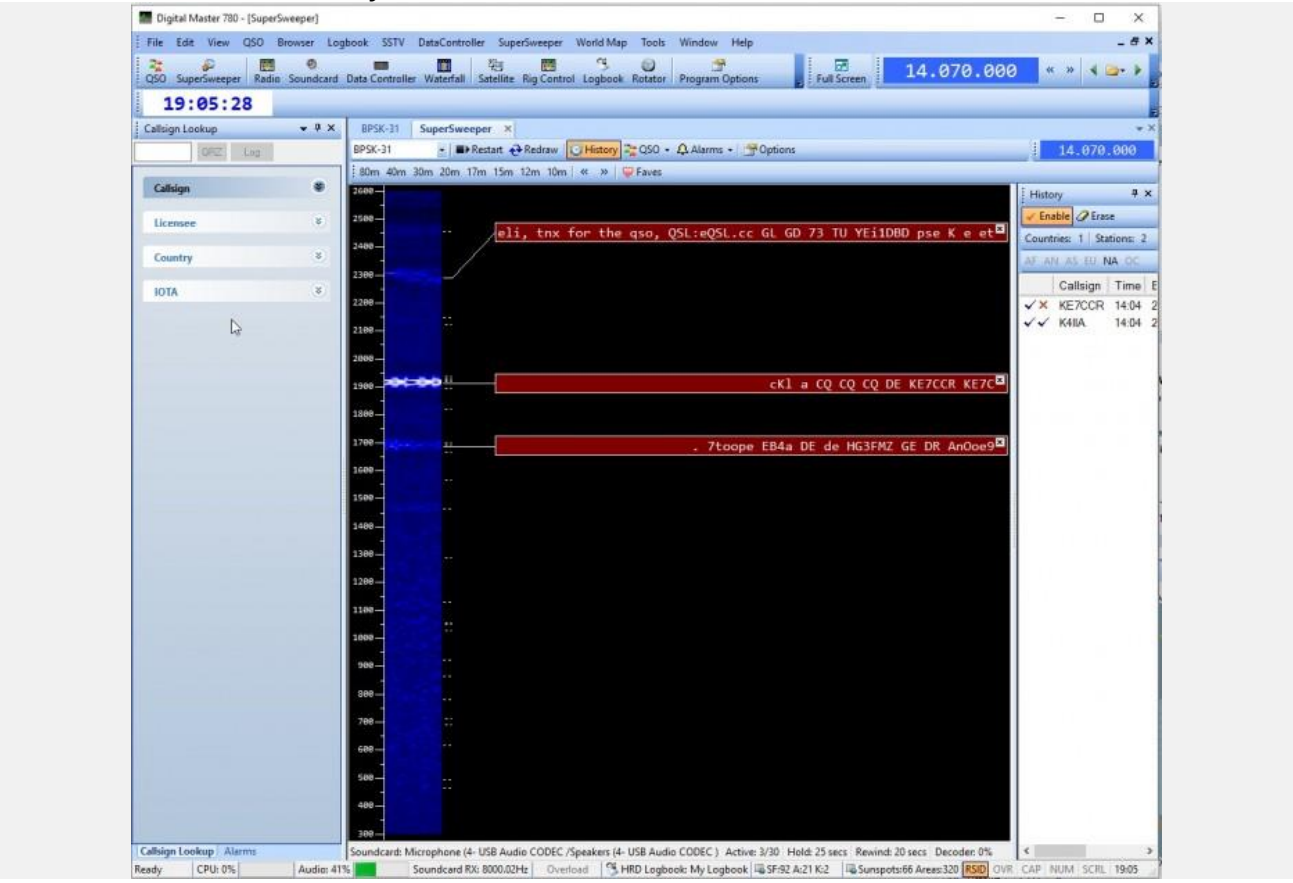
Yaesu FTdx3000 Data mode audio offset and general operating tips

MorseTutor.com *The ham radio wanderings of KE0U*

MARCH 18, 2016

Thanks to Keith G3WGE for recently noting in a question to the blog that while in DATA mode the radio adds 1000hz offset to the BFO. Keep on reading as I will go into what IMHO is the reason behind this. Keith was also looking for a way to disable this feature. Not having a signal generator I used WWV as an external source and used the very handy Spectrum Lab package by DL4YHF to display the before and after effects of mode and config changes.

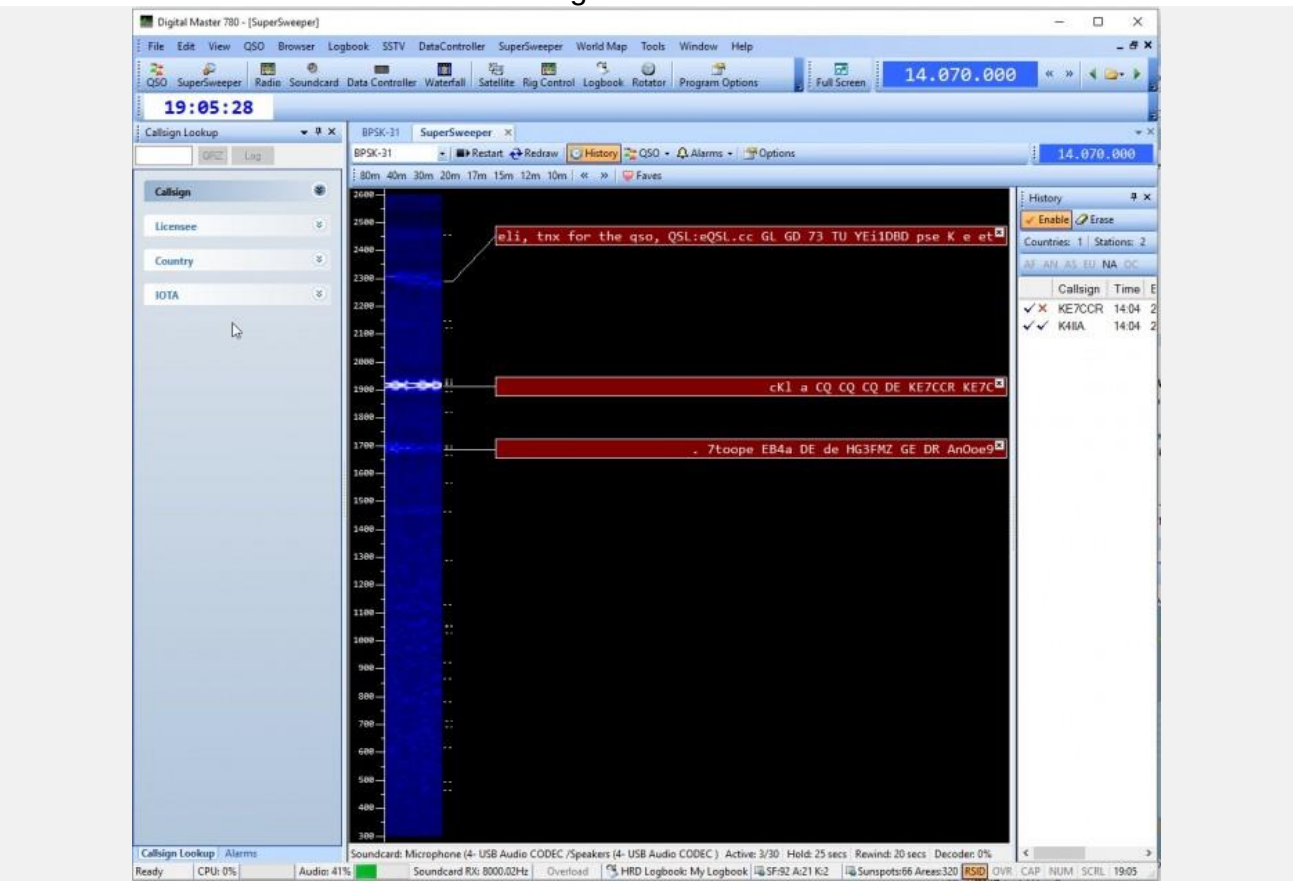
In the image below the radio is in DATA-USB and while the band is not very busy I was able to capture activity centered up on 14.070.700, which is due to the audio offset feature of the radio is being presented centered up in the waterfall at 1.7khz or 14.071.700 (14.070.000 + 1.7khz). By convention and band plan the 20m PSK center frequency is 14.070Mhz and in order to take advantage of the spectrum in the 1khz above 14.070 the audio is being offset as already described in order to put it in the band pass of the transceiver. Without this BFO offset would need to shift your center frequency down band in order to put signals in the first 1000 hz somewhere where the receiver and transceiver can function with efficiency.



Full audio width

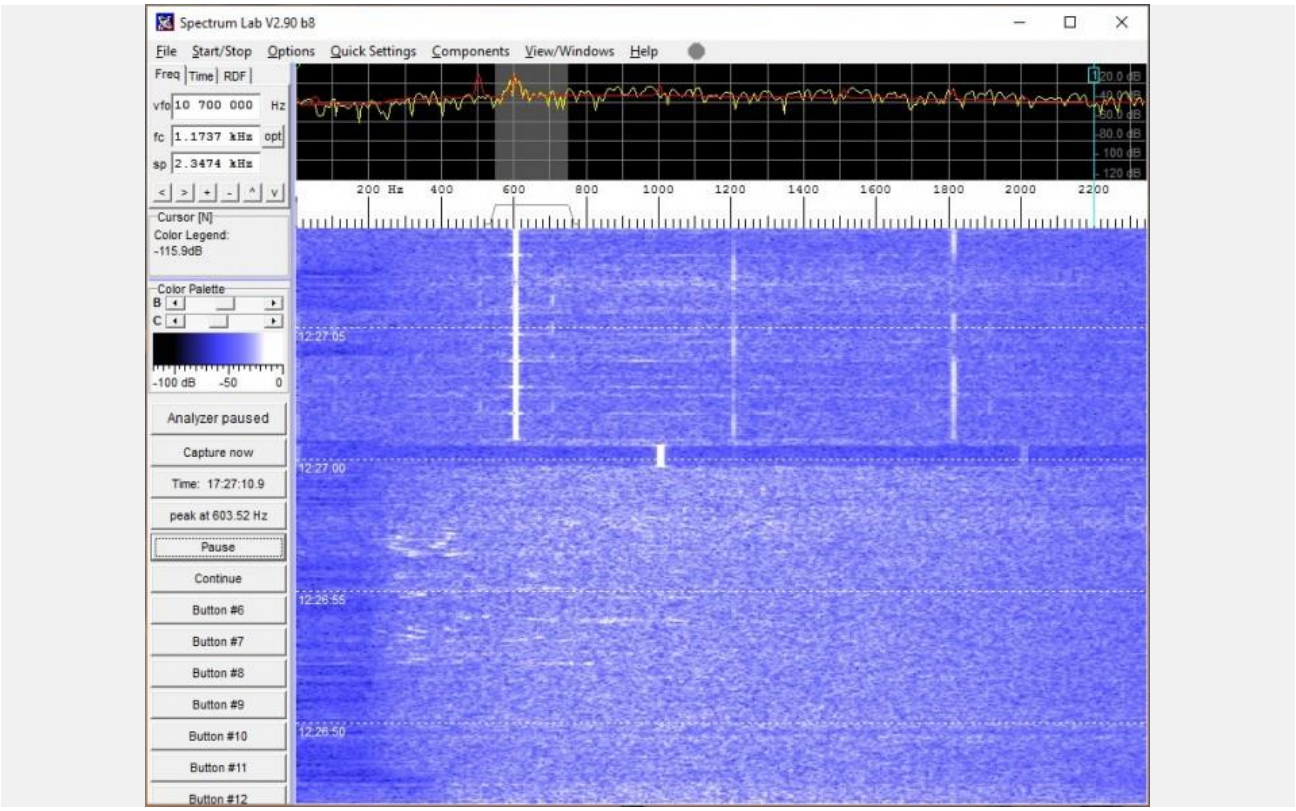
While on the subject of band pass I wanted to pass on a tip which I commonly use. As your receiver is subject to many signals within the band pass you need to be reasonably concerned with the impact this will have to the AGC circuit. Strong signals can clamp down the AGC which if you are working a weak one can in result in loss of decode. There are several receiver features which can be used to minimize the impact, in this example I moved a signal of interest into center of the audio pass band (1000hz is the default) by using the left and right frequency shift keys to the right of the VFO display. This is a great feature in DM780 and the software shifts the VFO while also adjusting the audio decode frequency so everything just tracks.

Once centered up I cranked down the IF Width and put the station of interest front and center. If I continued to have a close neighbor I could use a manual notch to null them out.



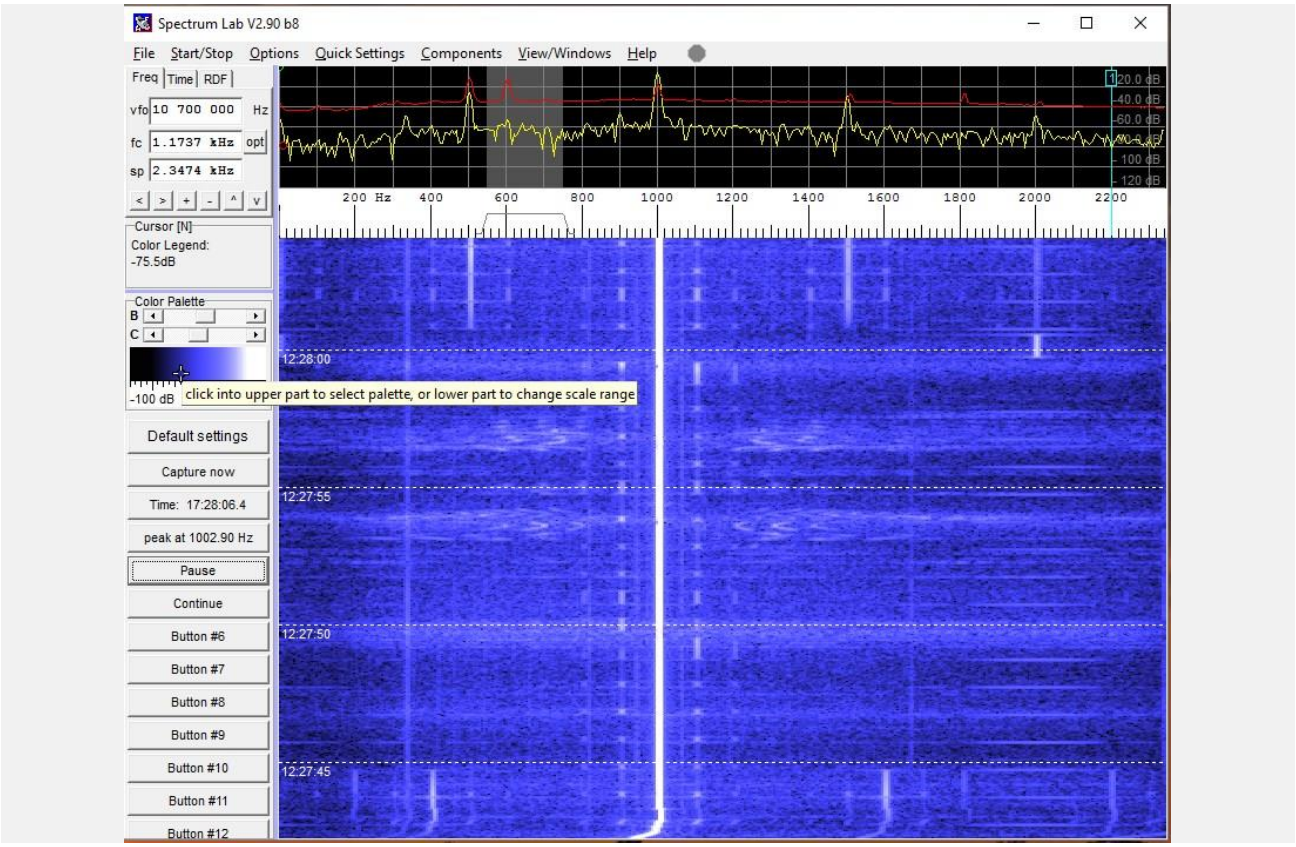
IF width set to 500hz

Referencing the WWV reference document above at the top of every minute a 1000hz tone is send. This can be seen below as the new minute begins, ignore the VFO frequency displayed the software is not configured to interact with the radio this is the default value I am guessing.



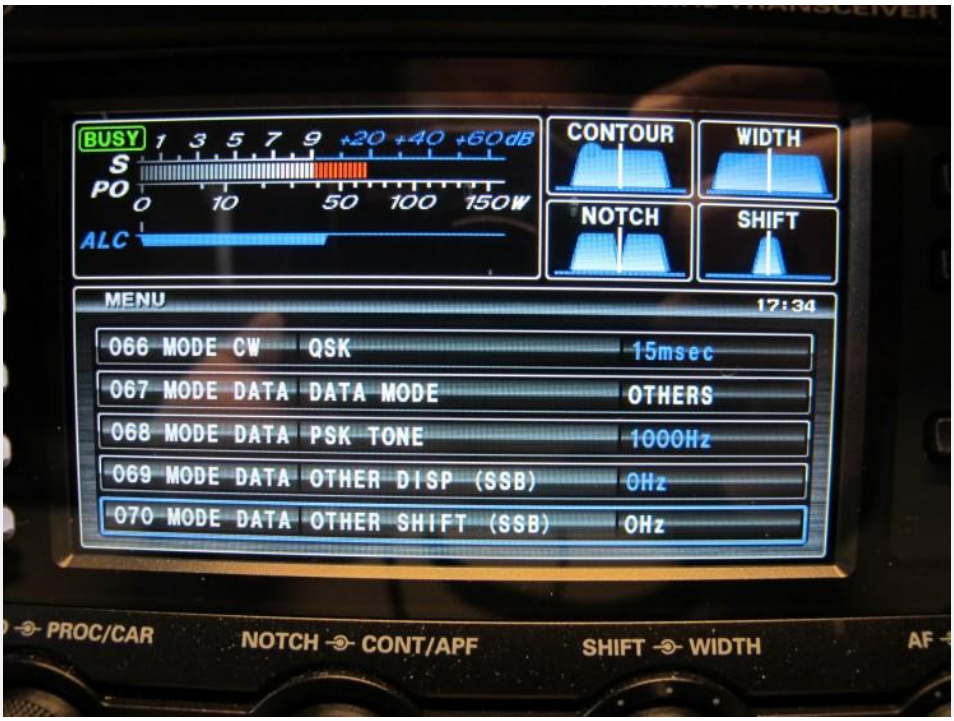
Ignore the VFO setting, radio is in USB mode at 10mhz

Changing the mode to DATA-USB results in everything shifting up spectrum 1khz. The line at 1000hz is the carrier as WWV is broadcast in AM.



Radio @ 10mhz, in DATA-USB mode

If you wish to disable this feature change 067 to OTHERS and change 070 to 0Hz.



Radio setup detail

73 Until next time,

Jay