

Installing the W1GHZ / N1JEZ Panadapter Adapter in the Yaesu FT-2000

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A few meetings of the northeast weak signal group ago, Mike, N1JEZ, showed off the FunCube Dongle and discussed the possibility of using it as a panadapter. Paul Wade, W1GHZ took the buffer amp/filter design that Mike later presented and turned it into some great little circuit boards that he makes available from his website, w1ghz.org. Paul and Mike have done a great job of writing up the design as well as the construction and installation of the buffer amp/filter into the original target of the Yaesu FT-817(footnote).

When Paul announced that the mini-boards were available for the FT-817, I sent off an email and asked him to ship me three. One would go into my FT-817 for roving and transverter use, and I thought I might give a go at putting the other two into a few of the other radios used in the shack either to drive transverters or for general Hf/VHF/UHF use.

The primary rig in the KI2L shack at present is a Yaesu FT-2000 with the DMU expansion unit and computer based rig control using MacLoggerDX or TRX-Manager (under Parallels). While the DMU does offer some of the functionality of a panadapter, it's display is nowhere near the resolution of today's LCD displays in terms of XY or bits pr pixel, nor is the processor anything to write home about. Additionally, there is no mouse based tuning functionality or decode capability available in the DMU. It does have a nice bandscope and many other features, but I found the waterfall display to be very disappointing. Numerous users have discussed hacking the DMU firmware to improve the capabilities, however, adding the adapter to the FT-2000 and putting the panadapter display on the desktop with logging and rig control seemed like a pretty good alternative.

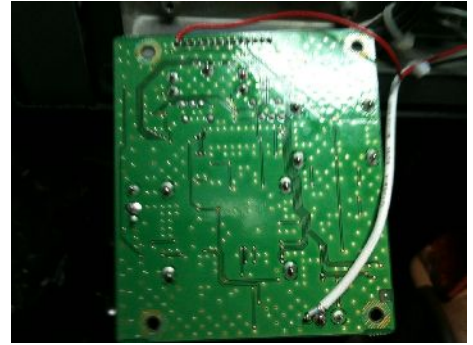
The FT-817's IF is 68.330Mhz, while the IF of the FT-2000 is close by at 69.450Mhz. This should make putting it in rather easy, or so I expected, and was delighted to find it so. Additionally, the decision by Yaesu to use a dedicated board internal to the FT-2000 to preprocess the IF for the DMU leaving the computer functionality outside of the radio made life even easier still. No circuit board modifications are required, the modification is almost the same with or without the DMU board present in the radio, and no wires are cut. If you want, you can drop the connection out ventilation slots or drill the rear panel for an SMA connector.

First build the adapter board as specified by W1GHZ (fig 1). This should take you about 20-30 minutes at the outside. When you are building the board, decide if you are going to solder

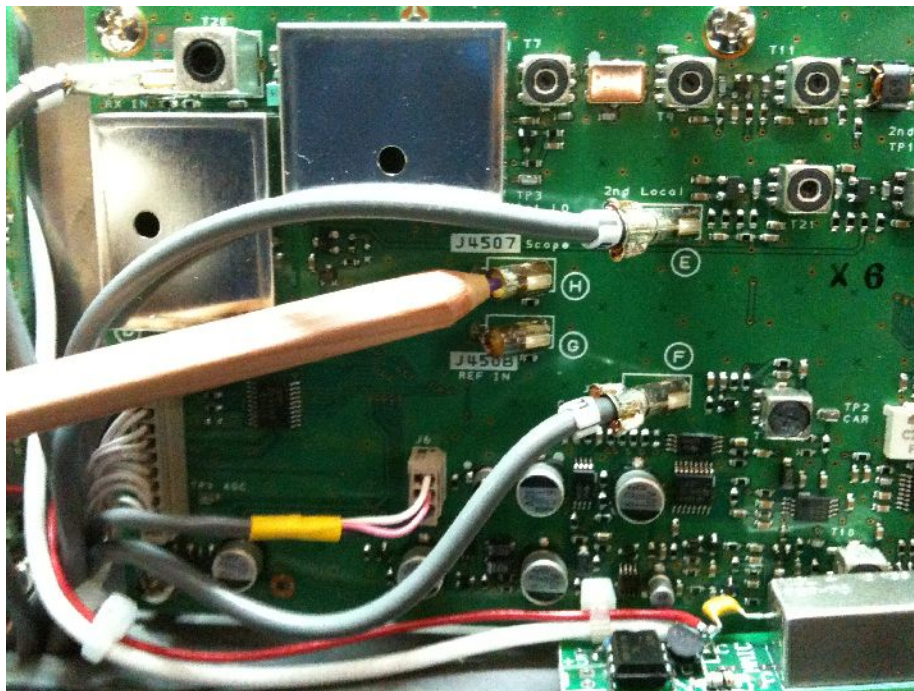


your input and output cables to the board or use connectors. I chose to put an SMA on the output to simplify testing and solder the input coax directly.

I modified the board to use 9vdc directly from the connector for the DMU by placing an LM78L08 next to the optocoupler on the end of the 680Solder a wire for +5 in the appropriate place and leave about a 6-8" tail. +9 is picked up as shown in figure 2.



The rf input may be picked up from either the DMU interface board (found in the right front side of the radio, figure 2) or at the cable marked 'H' on the other board on the right side of the radio (figure 3).



Solder up the input, drop the SMA out the back in whatever way you choice (figure 5,6), connect it up to the FunCube Dongle and follow the directions from W1GHZ and N1JEZ substituting 68.330Mhz as the IF.





I used the combination of the FT-2000 and the FCD during the January contest. A plethora of other problems kept me from otherwise making good use of it, but it was of good assistance in spotting a number of 6m contacts that would have otherwise been missed.

This worked out so well, I've picked up filters for putting one into the FT-847 as well. The 847's IF is significantly lower however, so it will probably have to be

used with a different SDR as the panadapter.



73's,
Bob