

# IC-910H IF Tap for SDRs

Want to look at a big chunk of spectrum on 2m? Want to be able to find that 23cm HT that is 28 KHz off freq in the next contest? Your mates haven't got around to GPS locking their transverters yet? Would you like to relive the glory of that last massive Es opening? This is a very easy modification for your radio so that you can add the display and features of a **S**oftware **D**efined **R**adio.

**Warning:** Modern radios contain components which may be damaged by static discharge. Precautions must be taken to eliminate any static electricity build-up between the operator and the radio before any of the internal circuits are touched. If you are not familiar with the proper techniques for this, consult the Radio Amateurs Handbook.

**Do this at you own risk. If you fry it – it's your problem.**

**Matt -VK2DAG-**

The Intermediate Frequencies for the IC-910 radio is on 10.850 MHz for the MAIN and 10.950 MHz for the SUB. A nice match for any of the SDR doing the rounds. After a long search on the net and a good look in the service manual, I came up with a couple of solutions. The one I went for will allow you to tap either the MAIN or SUB IF chain (or both for 2 SDR outputs). No matter what band you are on, you will be able to see that band with your SDR.

All that is needed is a connection to a place on the circuit board that is after the 2<sup>nd</sup> mixer but before the 2<sup>nd</sup> IF filters. Once it is tapped it needs to be buffered and then feed it out the back of the radio. In the block diagram below, (Fig. 1) that point is before F51 BPF on the MAIN and before F1651 on the SUB.

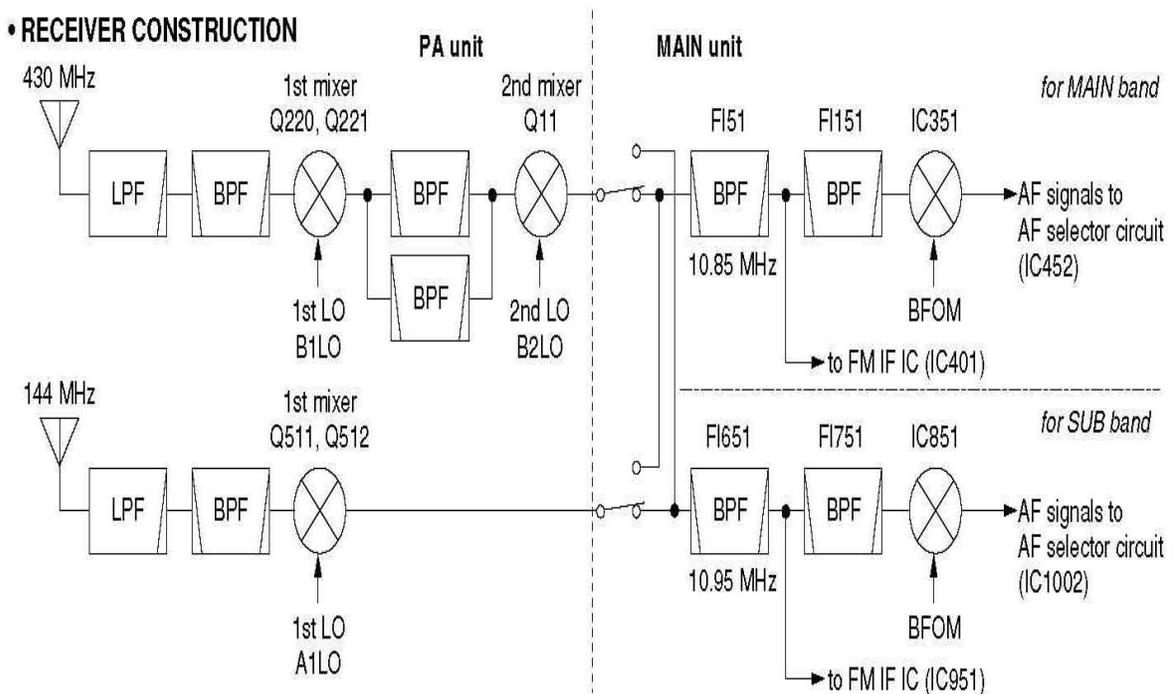


Figure 1

From the MAIN UNIT (2) circuit diagram (Fig.2).

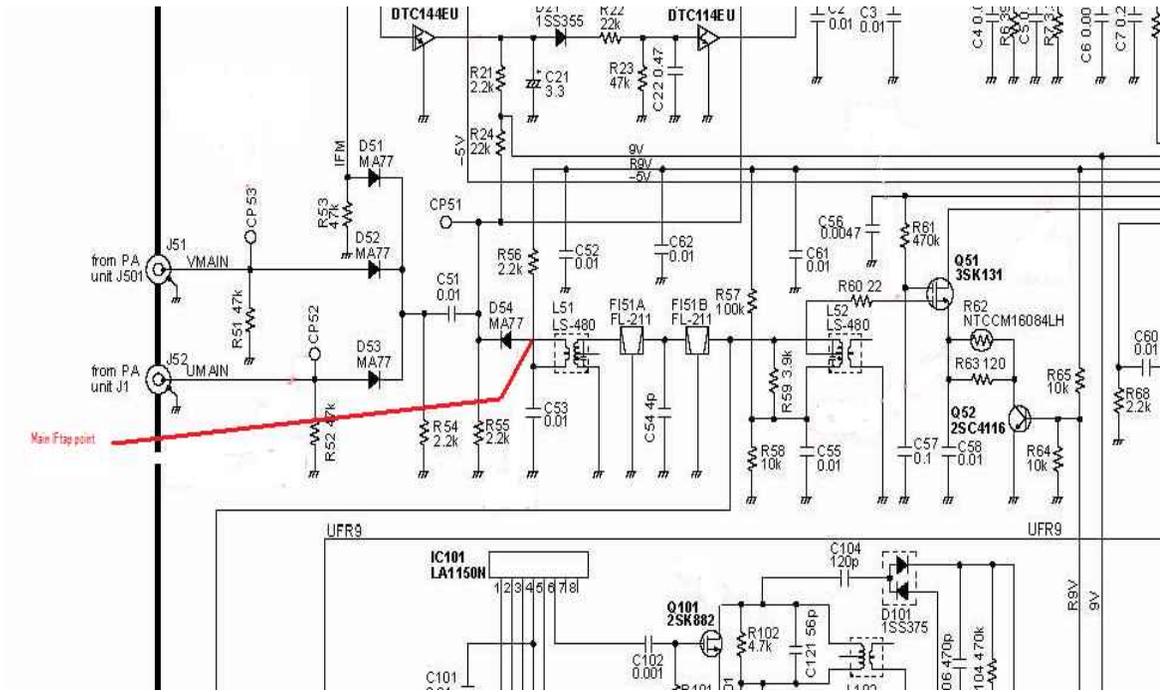


Figure 2

The connection point on the MAIN UNIT PCB (Fig. 3).

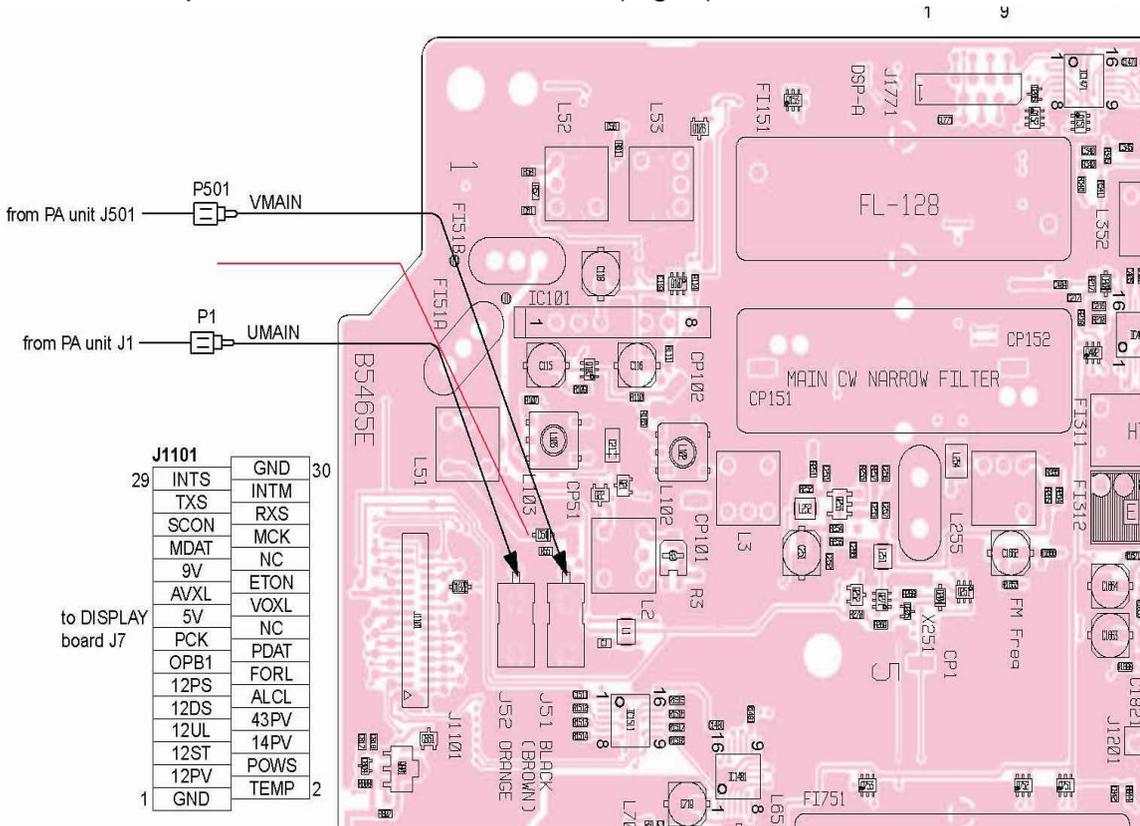


Figure 3

The point we want for the MAIN is the junction of D54 and L51.



Figure 4

The end of D54 is easy to get to, so you don't have to disconnect all the cables and pull the PCB out of the radio (Fig. 4). Use a shielded cable like RG-141 that will be connected to the input of your buffer/amplifier.

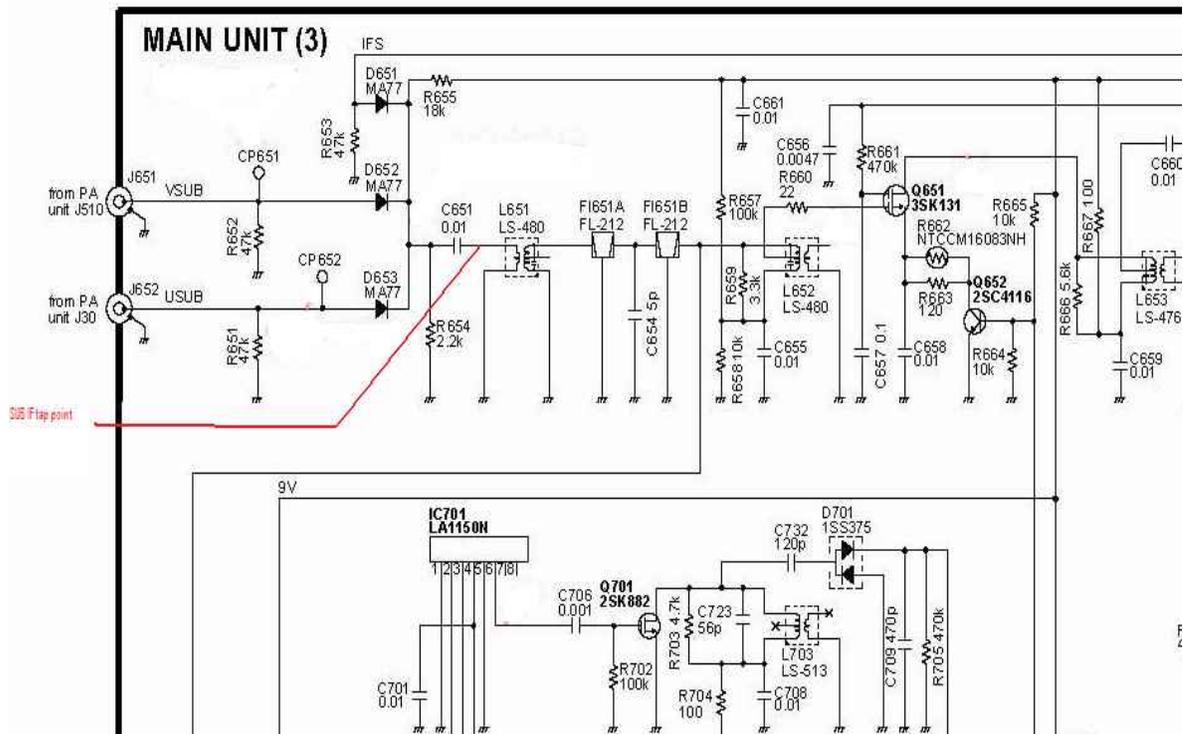


Figure 5

If you want to also add a tap for the SUB it is just as easy (Fig. 5).

The buffer/amplifier I used is a kit from Clifton Laboratories in the US. Cost about \$30 posted. The kit is quick to build, takes about an hour to put together. You set the gain of the amplifier by selection of a resistor pair (Fig. 6).

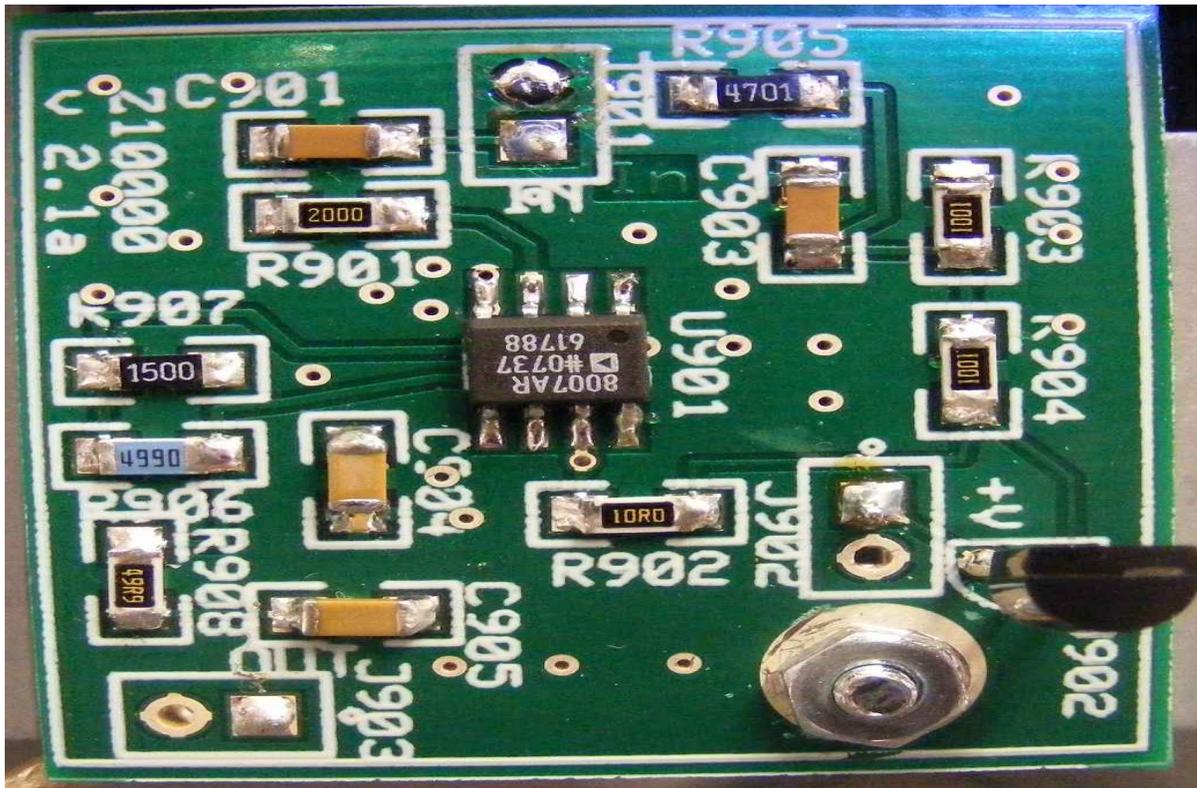


Figure 6

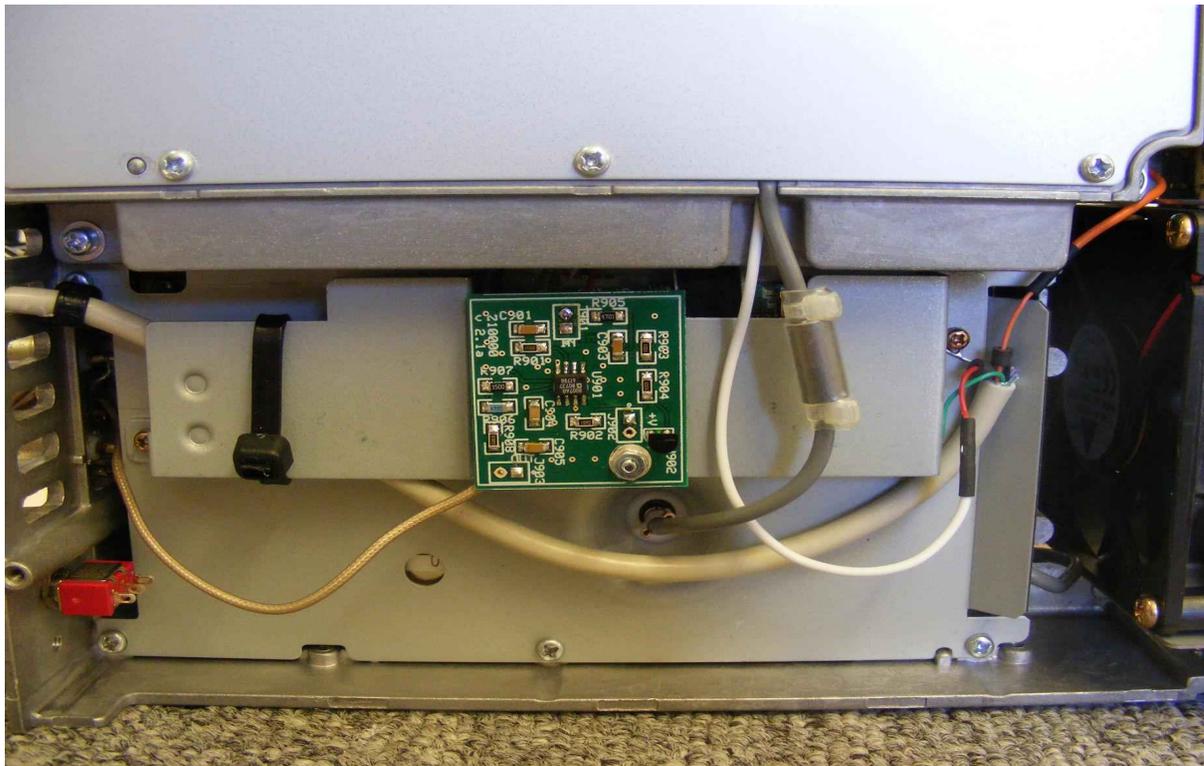


Figure 7

There is lots of spare room in the radio and the PCB for the buffer is not very big. I mounted mine on the cover that would be used for DSP modules (Fig. 7).

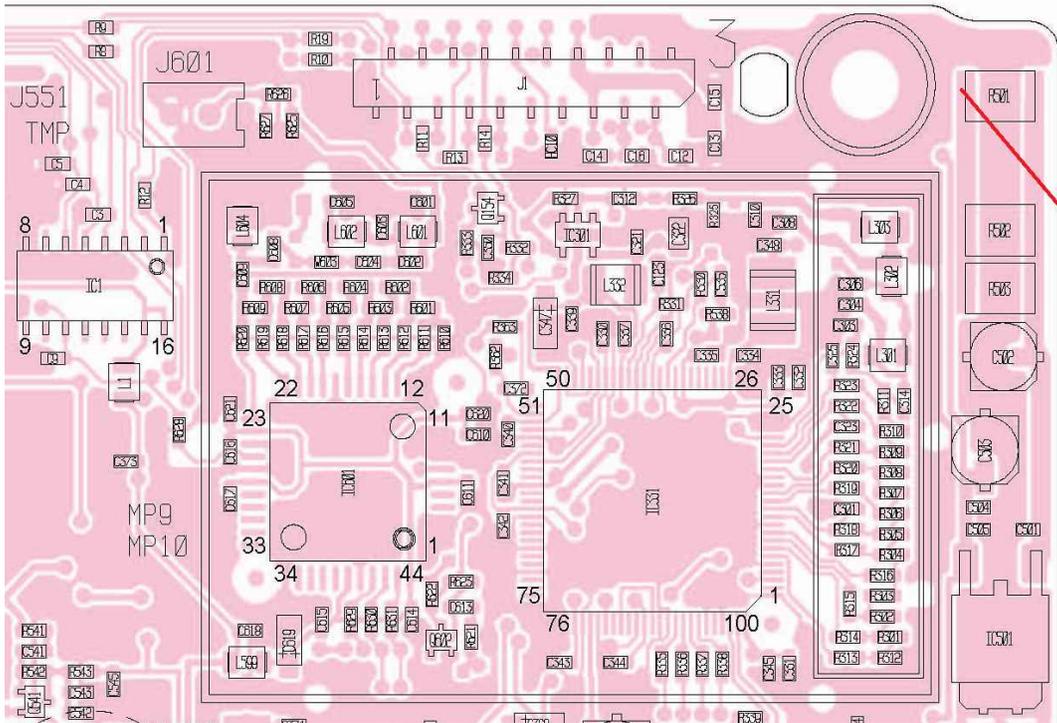


Figure 8

To power the buffer/amplifier, I found a 12 volts power connection from a PCB pad on the PLL PCB (Fig. 8).

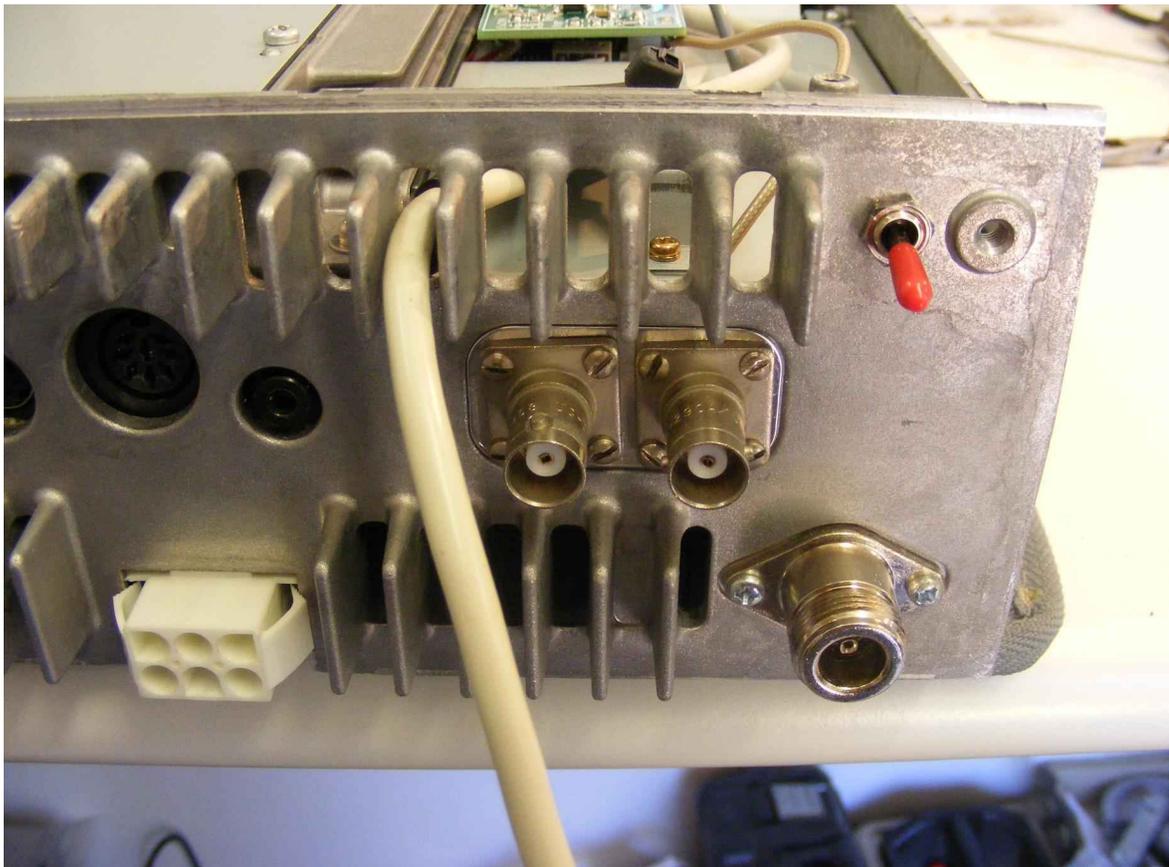


Figure 9

The back panel of the IC-910 has a handy hole ready for you to mount your connector from the buffer/amplifier (Fig. 9).

Fire up your preferred SDR software tuned to 10.850 MHz and smile at your cleverness.

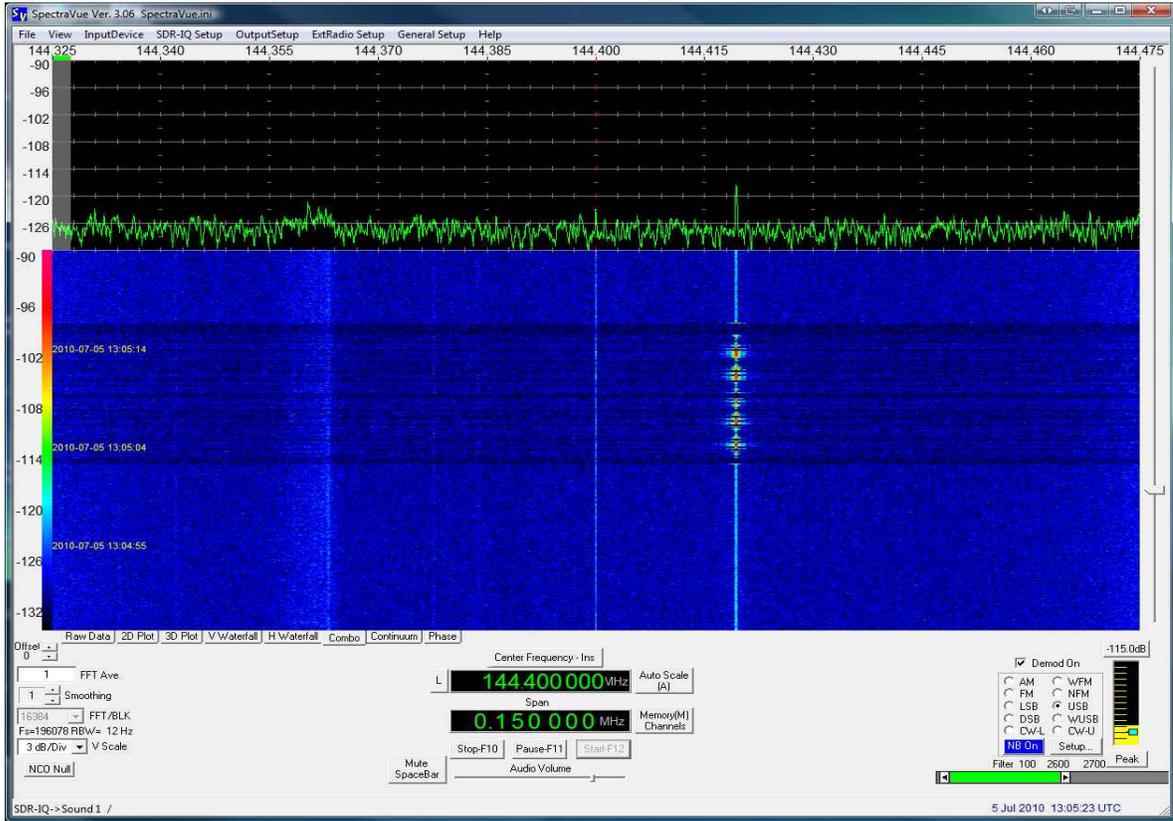


Figure 10

SpectraVue with SDR-IQ - IC-910 on 144.400. Watching the Dural beacon which I hear at 59+30 so the AGC is coping a thumping (Fig. 10).

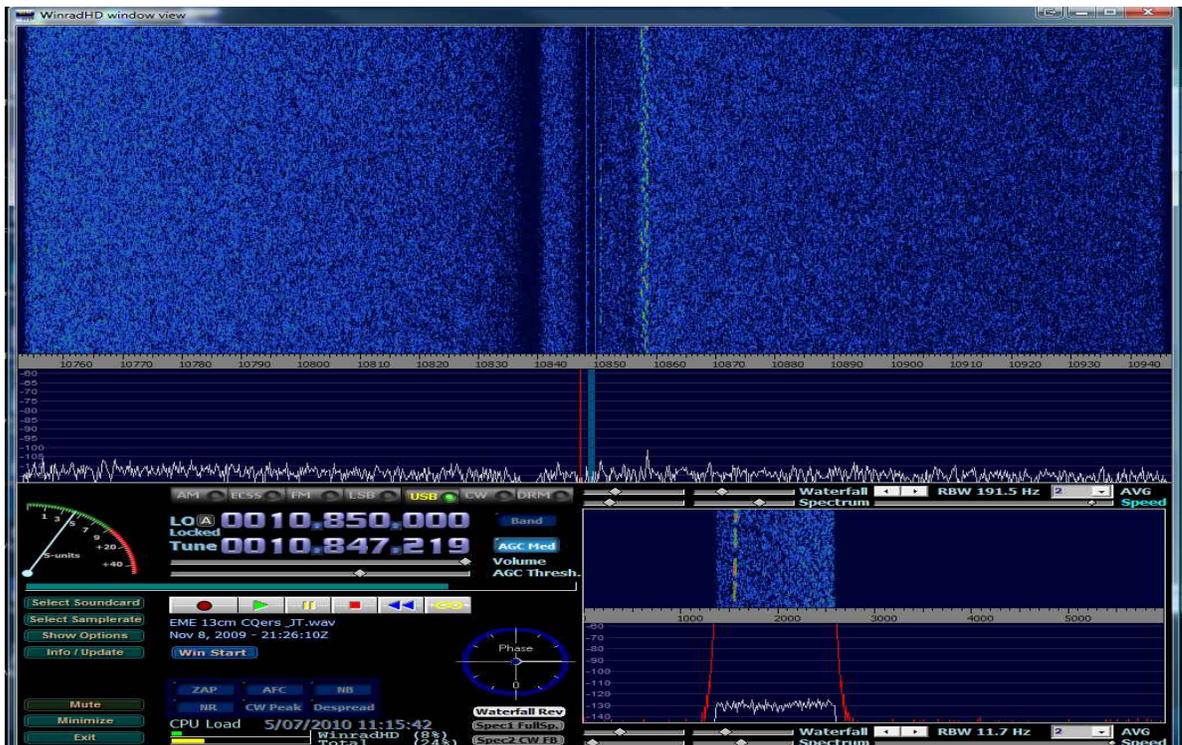


Figure 11

WinradHD with SDR-IQ - IC-910 on 161.100 with transverter on 2320.100. Watching 2 CW signals CQing and a JT65 signal. 13cm EME using VK2JDS 4.6m dish (Fig. 11).

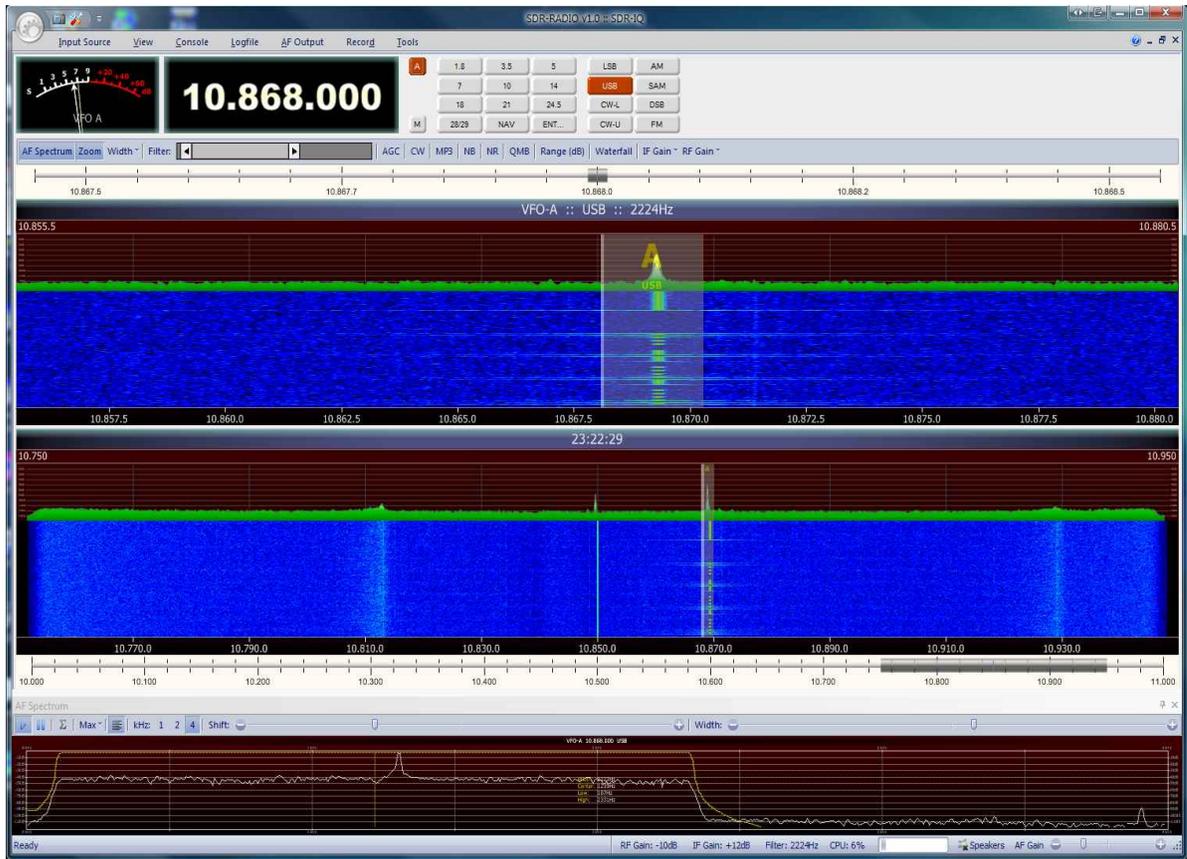


Figure 12

SDR Console with SDR-IQ - IC-910 on 144.400 watching Dural beacon (Fig. 12).

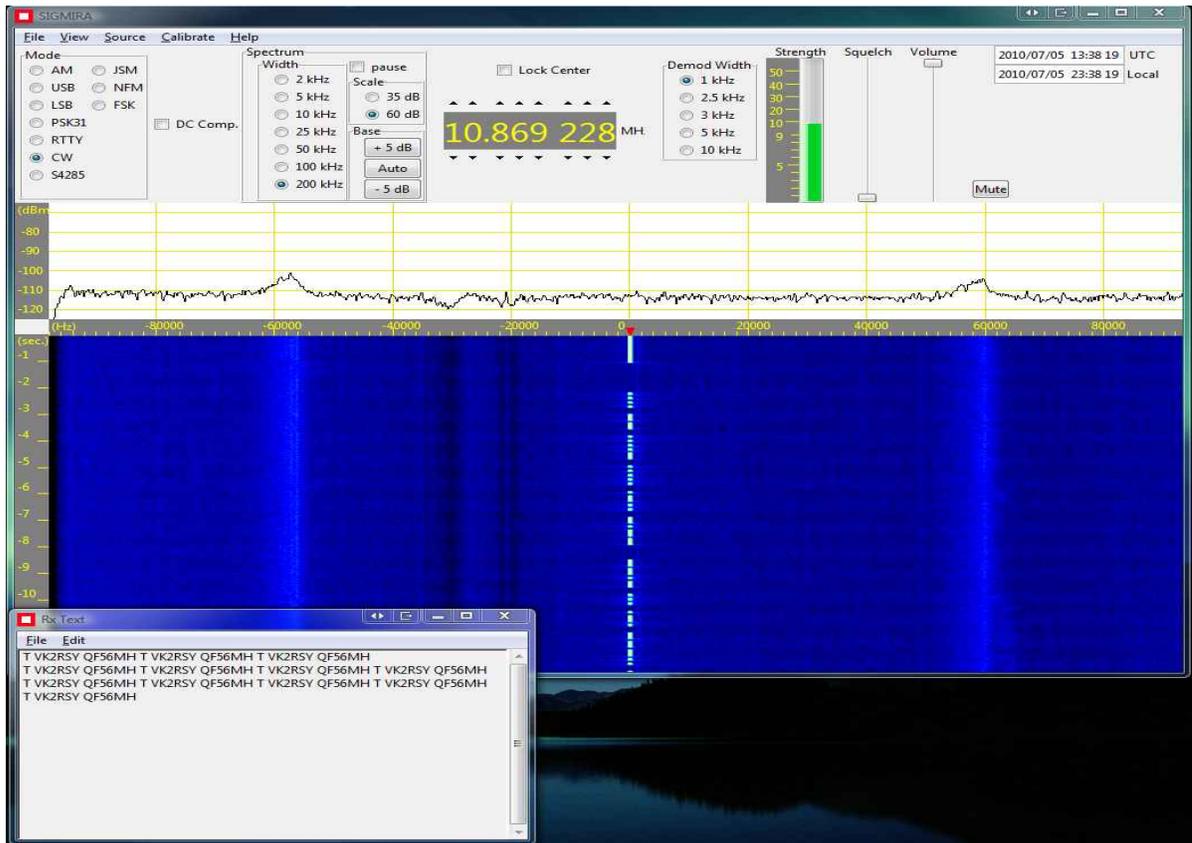


Figure 13

Sigrama with SDR-IQ - IC-910 on 144.400 decoding Dural beacon (Fig. 13).

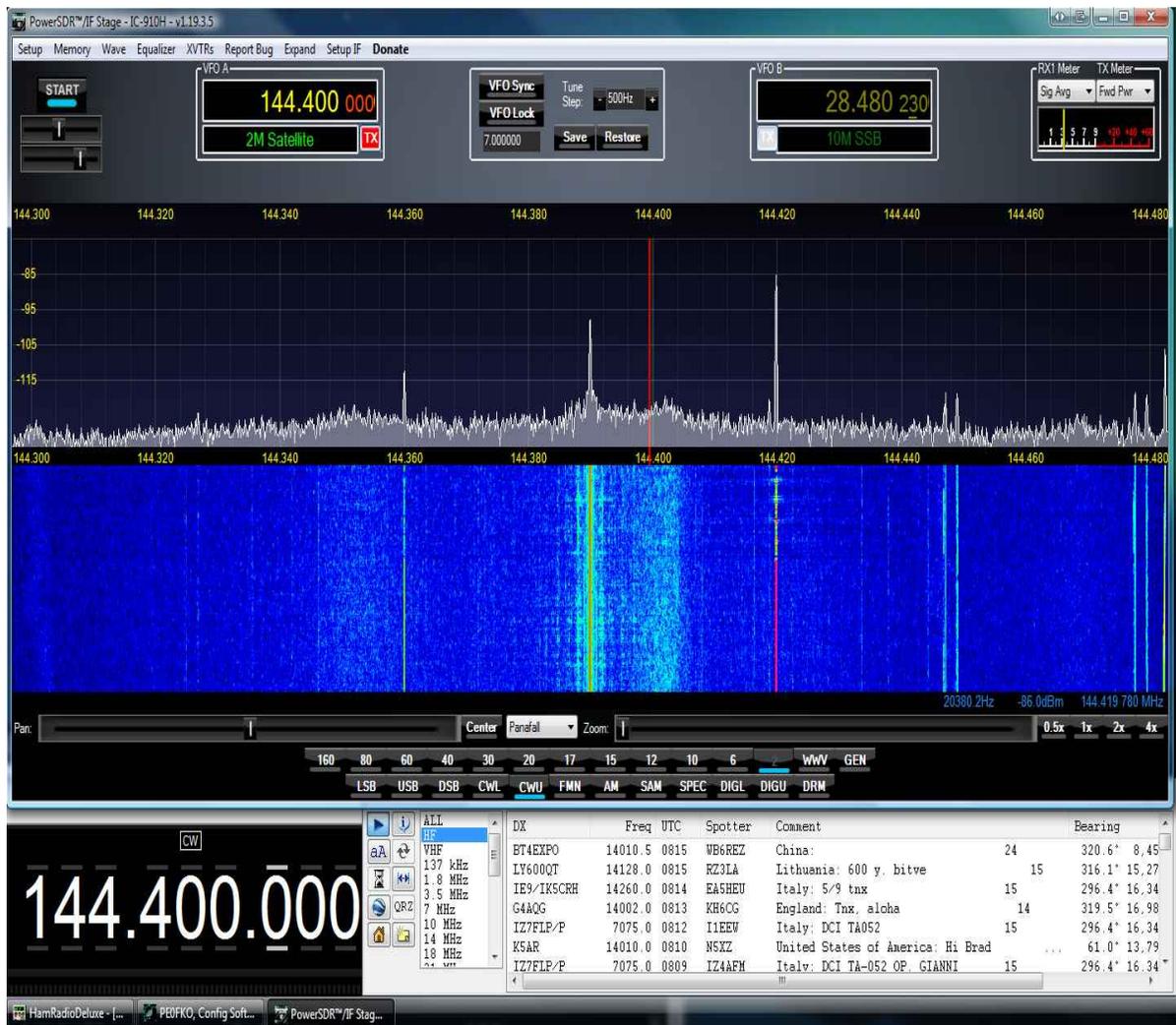


Figure 14

PowerSDR/IF and Ham Radio Delux with SoftRock V9.0 - IC-910 on 144.400 watching the Dural beacon. The signal in the middle of the display is the oscillator from the SoftRock and the signal at 144.360 is an image of the 144.420 beacon. (Fig. 14).

The Present version of PowerSDR/IF doesn't have an option for SoftRocks that have USB control of the Si750. So the software won't enable spur/image reduction.

So the benefits from this simple modification are well worth the effort. Being able to see all the action across the weak signal sub-band is just plain magic. And to make a recording that is a 200 KHz wide snapshot of the band for later play back is very useful too.