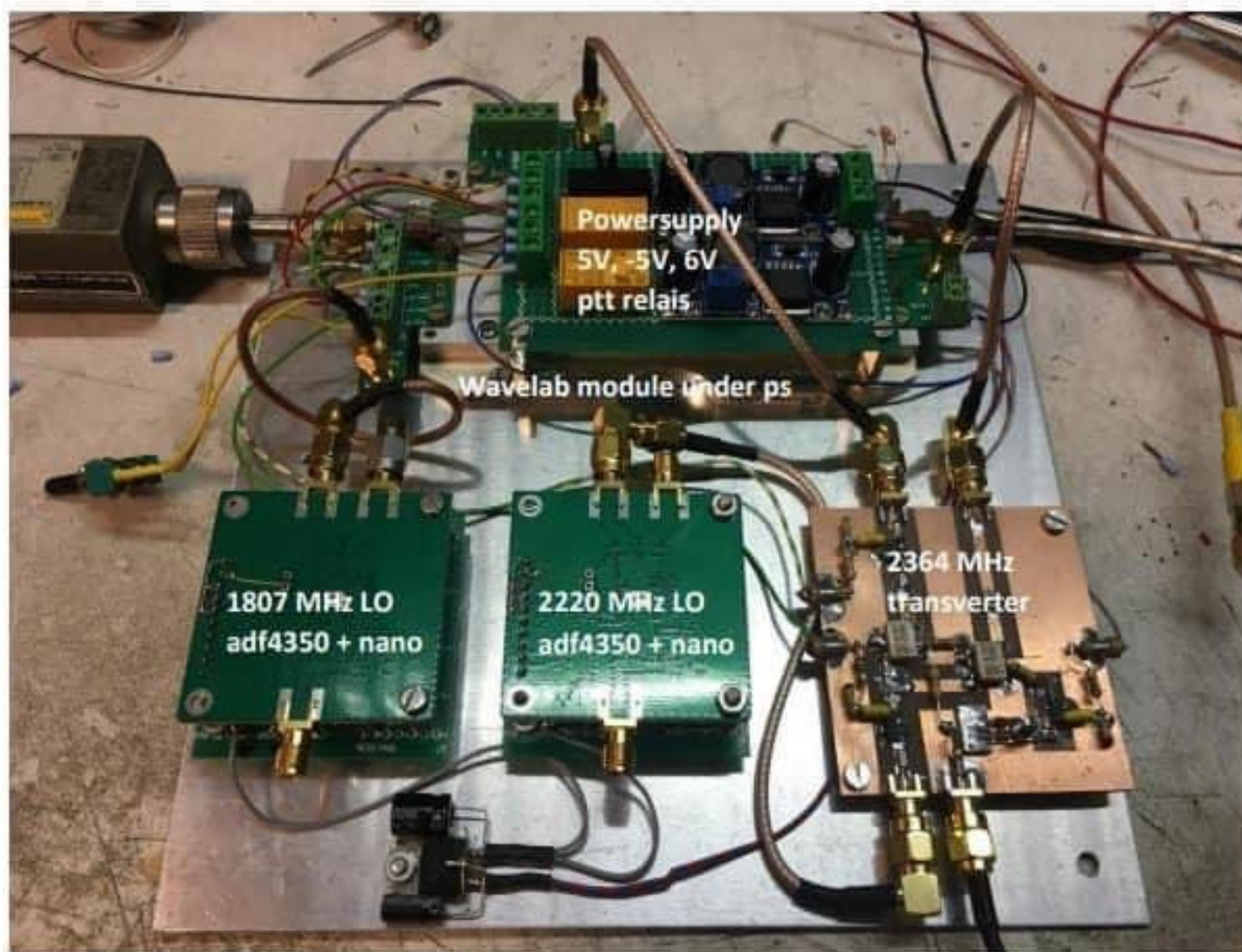


24GHz transverter with Wavelab module



The unit is used with the designed IF of 2364 MHz (TX IF filter is inside). It can work between 2300 MHz and 2420 MHz, a Bulgarian 13 cm transverter will work fine. I chose to make my own transverter on 2364 MHz. Tx needs only 3 dBm IF power. To connect the module I use 3 small pcb's with inline connectors and sma connectors. You can find the Gerbers to make these in the Polisch blog.

Power supply contains 2 Buck converters, 5V and 6V. The -5V is made with a Traco isolated inverter. This -5V also enables the 5V and 6V by a small relay with two contacts to be shure the negative is first. RX TX change over is made by a small relay with two changeover contacts.

Both LO's are adf4350 development boards from ALIEXPRESS with each an Arduino nano controller. You can do it with one nano but I had these boards already made.

The 2364 MHz transverter contains 2 mixers, 3 mmic's, one filter and a simple IF change over without active components. First mmic amplifies the LO signal to a higher level to drive both mixers. In the 2364 MHz TX the mmic brings the level to 3 dBm. The third mmic ia an IF amplifier on 144 MHz. In the 2364 RX line is a small SAW filter to keep the image at 2076 MHz out.

I have measured an output of 2 Watts, LO rejection is not that good, >25dB down but fine for me. The Wavelab module itself has a RX conversion gain of around 20 dB. Noise figure is unknown due to the lack of a good noise source on 24GHz.