



## DX-Patrol Converter for OSCAR-100

### Specifications:

- TX output frequency 2400 MHz
- TX input Frequency 434MHz
- LO Input **Es'hail-2** satellite OSCAR-100 >>2400Mhz<<: +10dBm  
- 1966Mhz ( 434MHz)
- TX RF input: ( 100mW to 5W max) 434 MHz
- TX RF output: 20dBm (100mW)
- Power supply: 10-16V
- Connectors: SMA
- PCB dimension : 80mm/ 65mm
- Voltage : 10V to 16V
- Power consumption 300mA

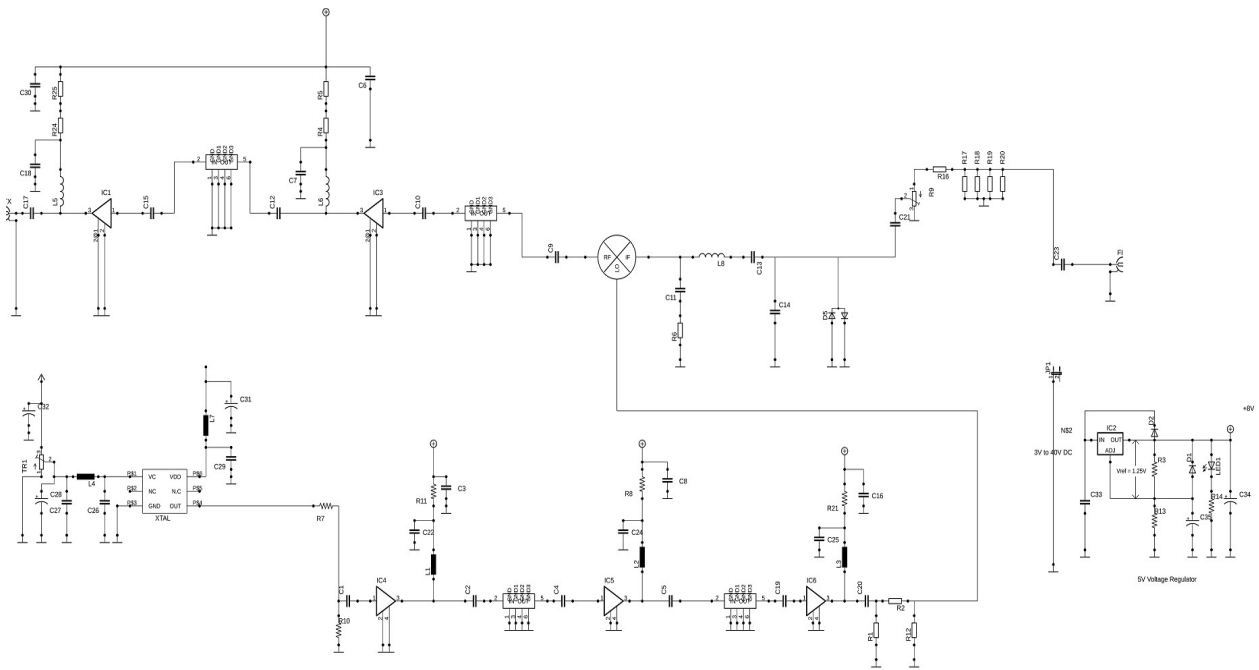
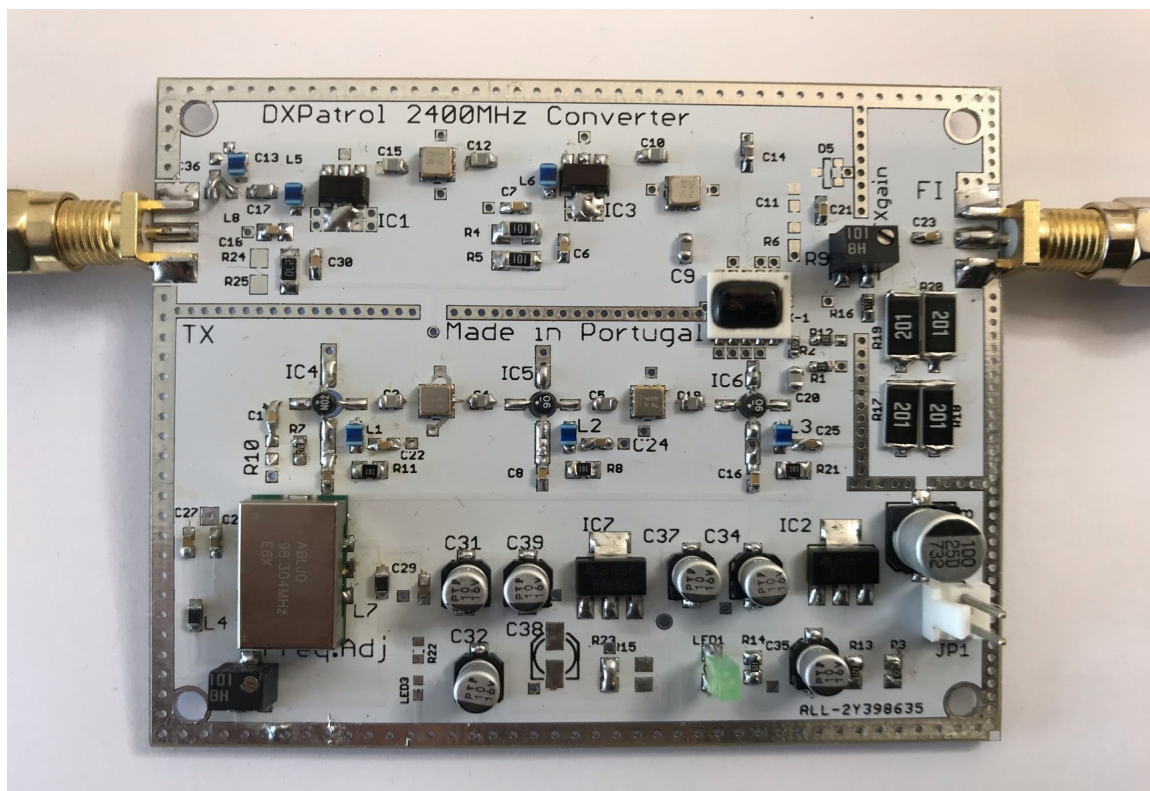
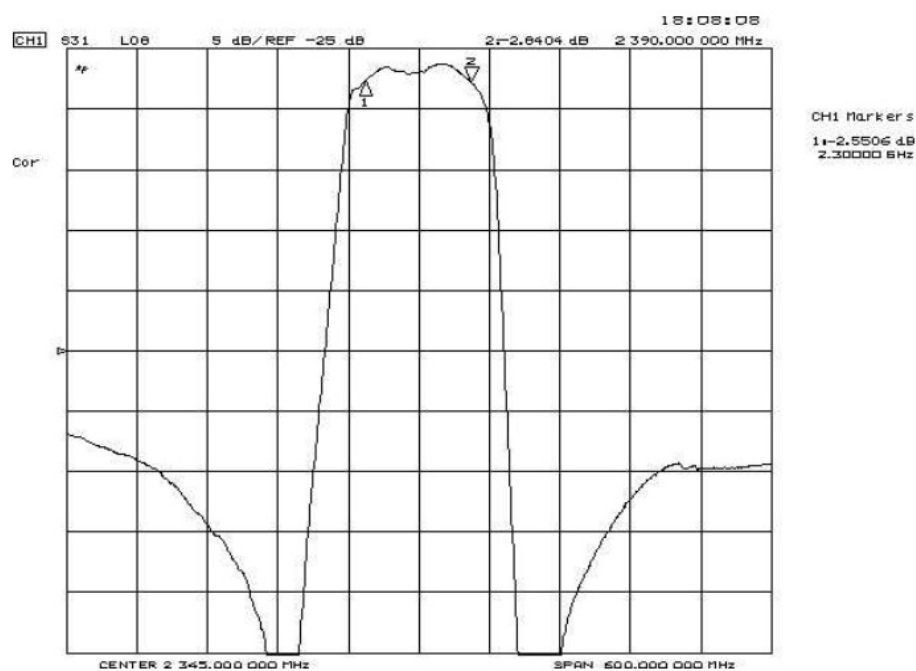


Fig 1 Circuit diagram



*fig 2 PCB assembled and tested*



*Fig 3 Typical Saw filter cut diagram.*

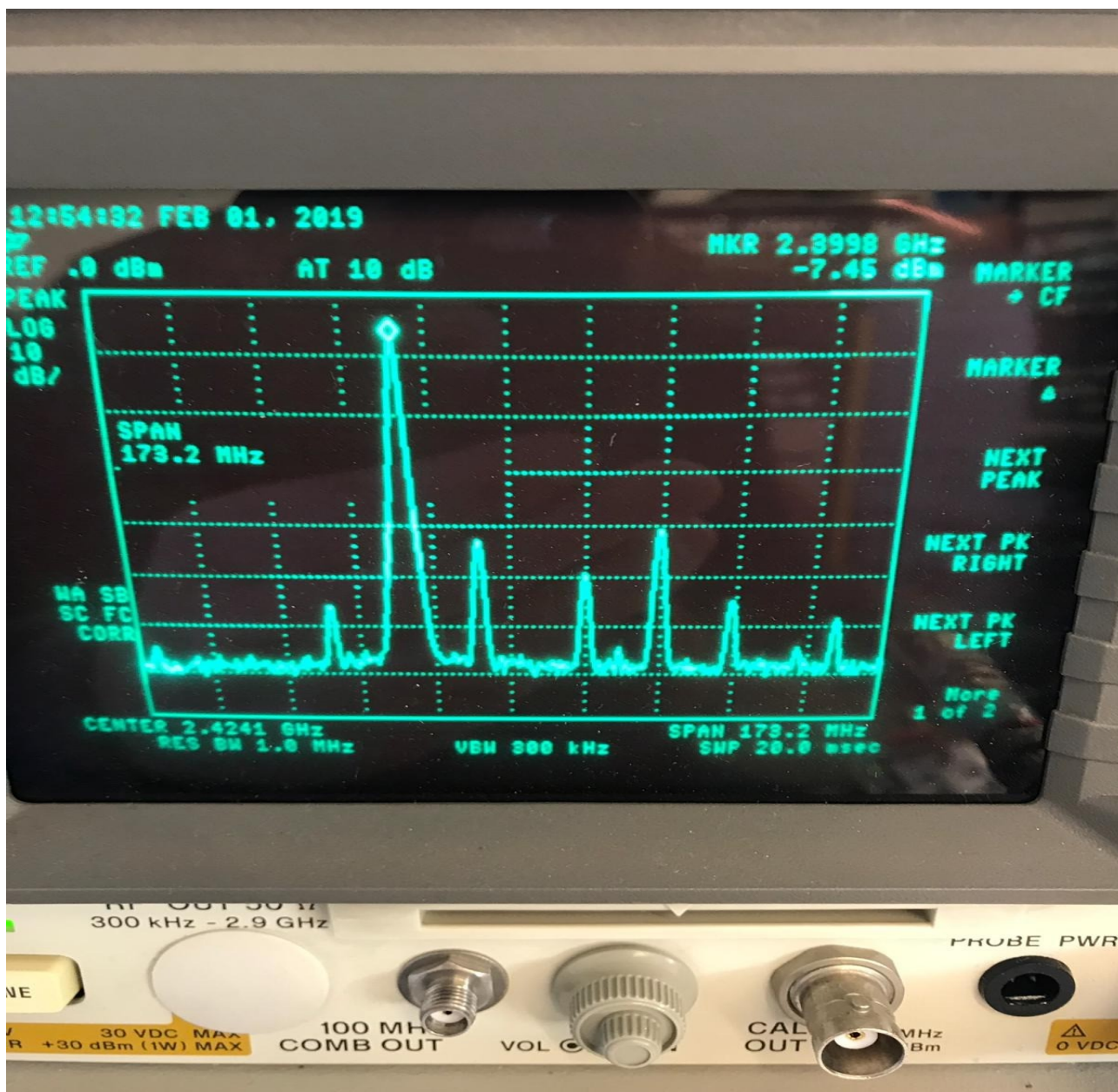


Fig4 TX RF spectrum ( spurious emissions better than 30dB below)

This is a complete TX only module linear converter for 2400MHz (13cm band.)

Covers the SSB/CW/FM and Satellite segments of 13cm band



Local Oscillator.

Using a Ultra Low Jitter from Abracon Crystal Oscillator.

- High "Q", 3rd Overtone Crystal Technology
- Ultra Low Jitter performance 0.10 ps Max. (12kHz to 20MHz)
- Standard LVCMOS RF Output
- Wide Operating Temperature (-40°C to +85°C) standard
- $\pm 40$  ppm Max. All inclusive Stability (including Aging) over 10-years

The Frequency is multiplied several times and amplified to a 7dBm level required for mixer.

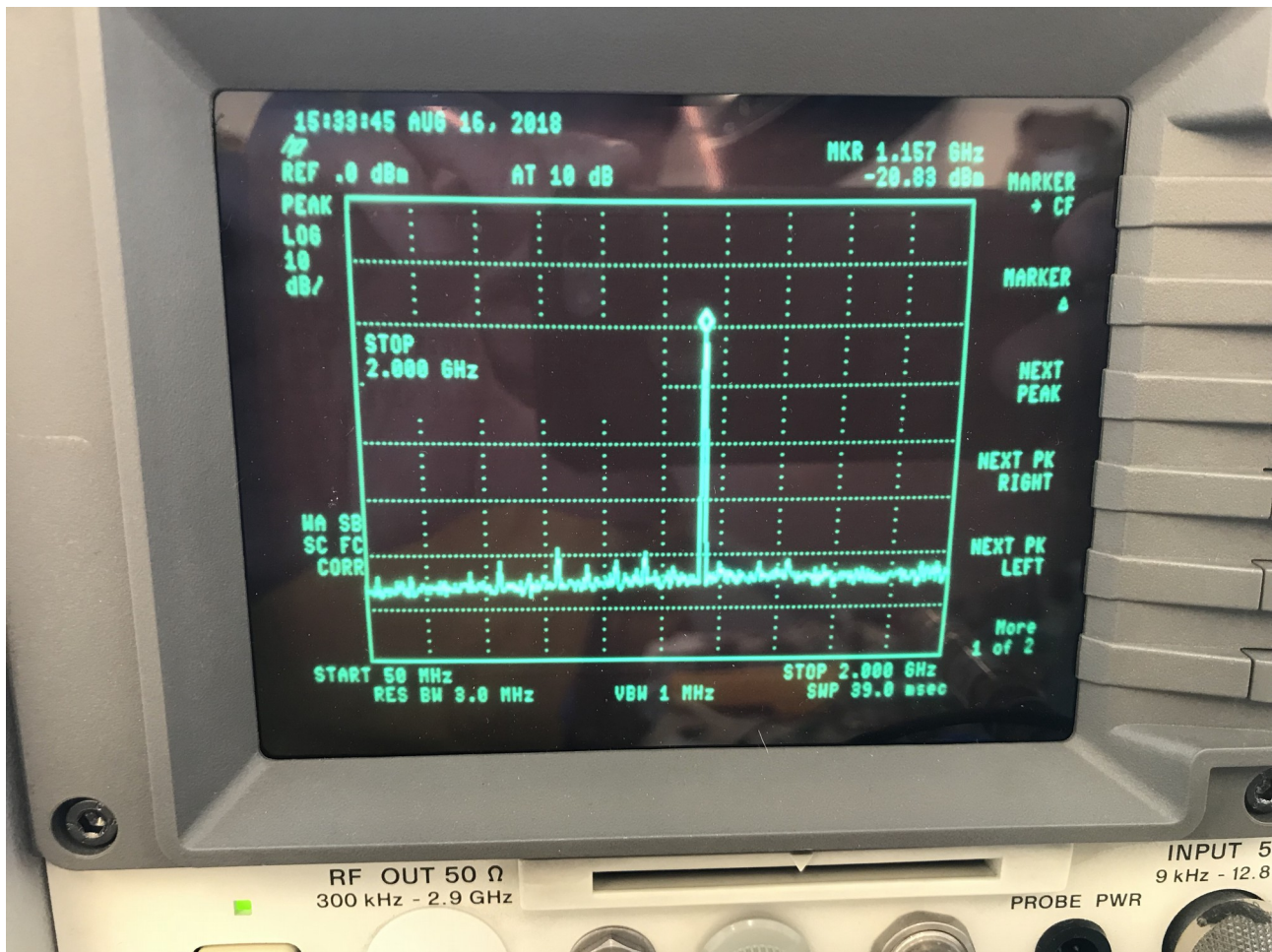


Fig 5 Local Oscillator signal over a 50Mhz to 2Ghz span.

The Converter TX power is 100mW, enough power to drive a Wi-Fi booster amplifier for 4W or 8W versions

You can order one of this amps cheap on ebay or amazon.

This amps have a internal VOX-TX really fast switching. No PTT required.

8W is sufficient for Uplink the satellite. Great for CW, need some internal modification for good SSB modulation due the linearity required. ( further details later about modification)\*

## WiFi Signal Booster



**8W 2.4GHz**



Due the power losses on 2.4Ghz, we recommend you to use a very good waterproof box, the closest to the antenna as possible, and fit the converter and booster inside.

The signal will be transported on IF, 434MHz, with a good low-loss coaxial cable.

Depending on the length and loss of cable, you can adjust the TX gain on the *tx gain R9*.

*TR1 freq. Adjust* It's where you can adjust the Local oscillator frequency. You can correct with a good frequency meter or by listening you CW by the feedback over the satellite on 10.490Ghz

Enjoy this great fun geostationary satellite Qatar OSCAR 100.

Best 73

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