

New DX-Patrol QO-100 Up converter MK4



fig 1, Upconverter full assembled PCB



Fig 1.1 MK4 upconverter housing

- Full lockable into a internal TCXO 10 Mhz reference or a external GPSDO
- TX /Standby function with RF VOX
- Extreme accuracy and precision transmission frequency.
- Local Oscillator has 4 factory pre-programmed frequencies for 4 IF usages. (*see table*)
- Easy selection by dip switch (s1) on board.
- Clean and stable signal.
- Spurious emissions = < 50dB
- 200mW output 23dBm
- Local Oscillators uses a Analog Devices AF4351 synthesizer
- locked into **10MHz TCXO Clipped Sine Wave Oscillator Frequencies Stability 500ppb**
- power supply 10 to 15V
- Current consumption 300mA
- Dimensions: 77mm/67mm
- Connectors SMA
- PLL Lock Green LED indication
- TX/Standby Green/Orange LED indication
- RF input 1 to 3 W (*6W absolute maximum*)
- New DC plug connection
- Metal case optional



Fig 2 DC connection, (positive to center pin)



Fig3 Standby mode, Lock Led Green and TX/STBY Led Green.



Fig 4 TX mode, TX/STBY led is Orange

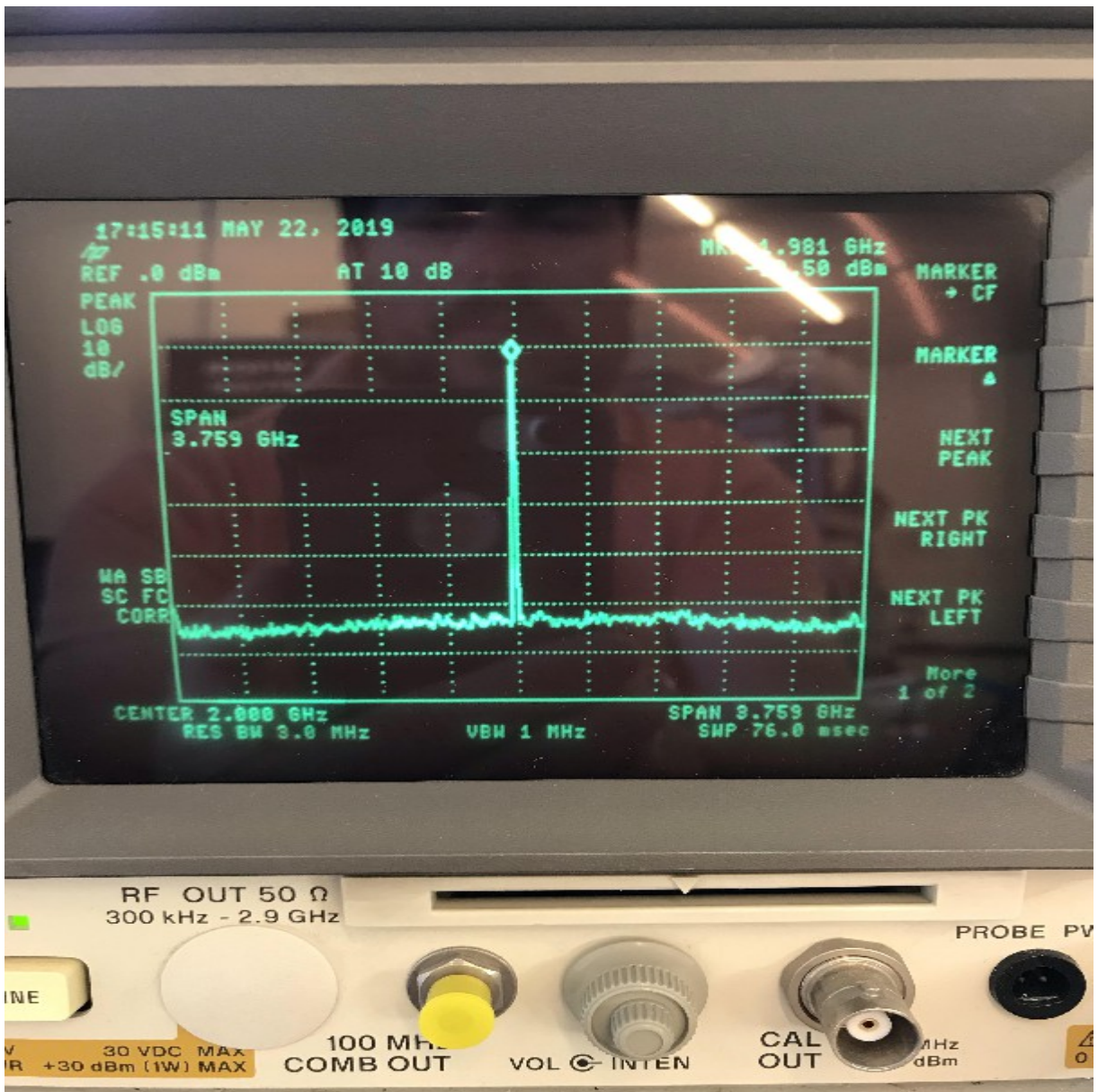


Fig 5 spectrum view 3,8Ghz span (local oscillator)

IF 28MHz *	RF 2372Mhz	
IF 144MHz	RF 2256MHz	
IF 432MHz	RF 1968MHz	
IF 1296MHz	RF 1104MHz	

Table 1. IF frequencies options

TX mode, the MK4 Upconverter will turn to TX mode when some IF RF is detected on IF in port. TX-mode will trigger from any power higher than 100mW in whatever IF 28, 144, 432 or 1296MHz

The Hold On TX mode is 250ms

External 10MHz reference:

-Remove JP2 Off (this jumpers turns OFF the TCXO; this avoid any dual reference signal on input resulting in erratic output signal.)

-Swap JP1 from Internal position, to External position

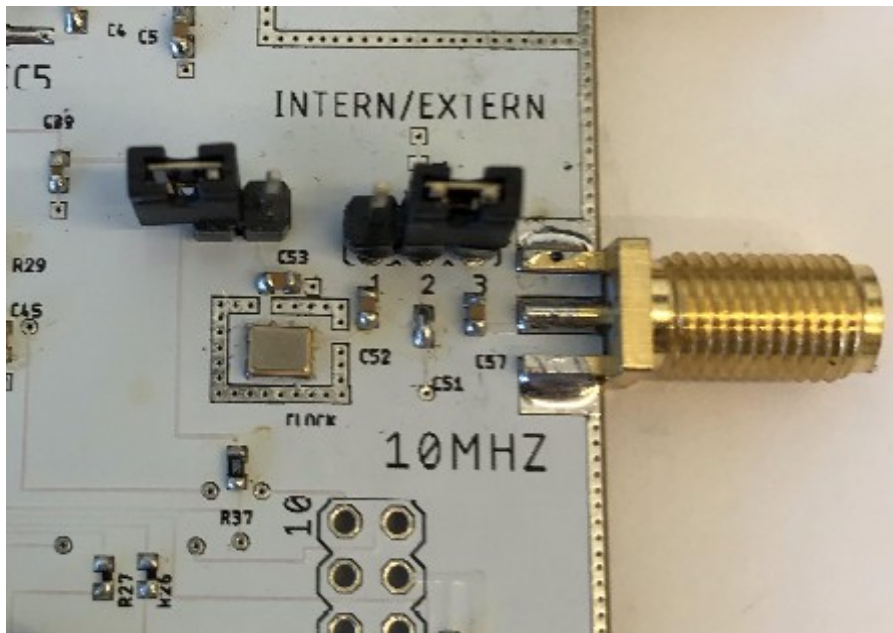


fig 6 external 10Mhz reference jumper selection

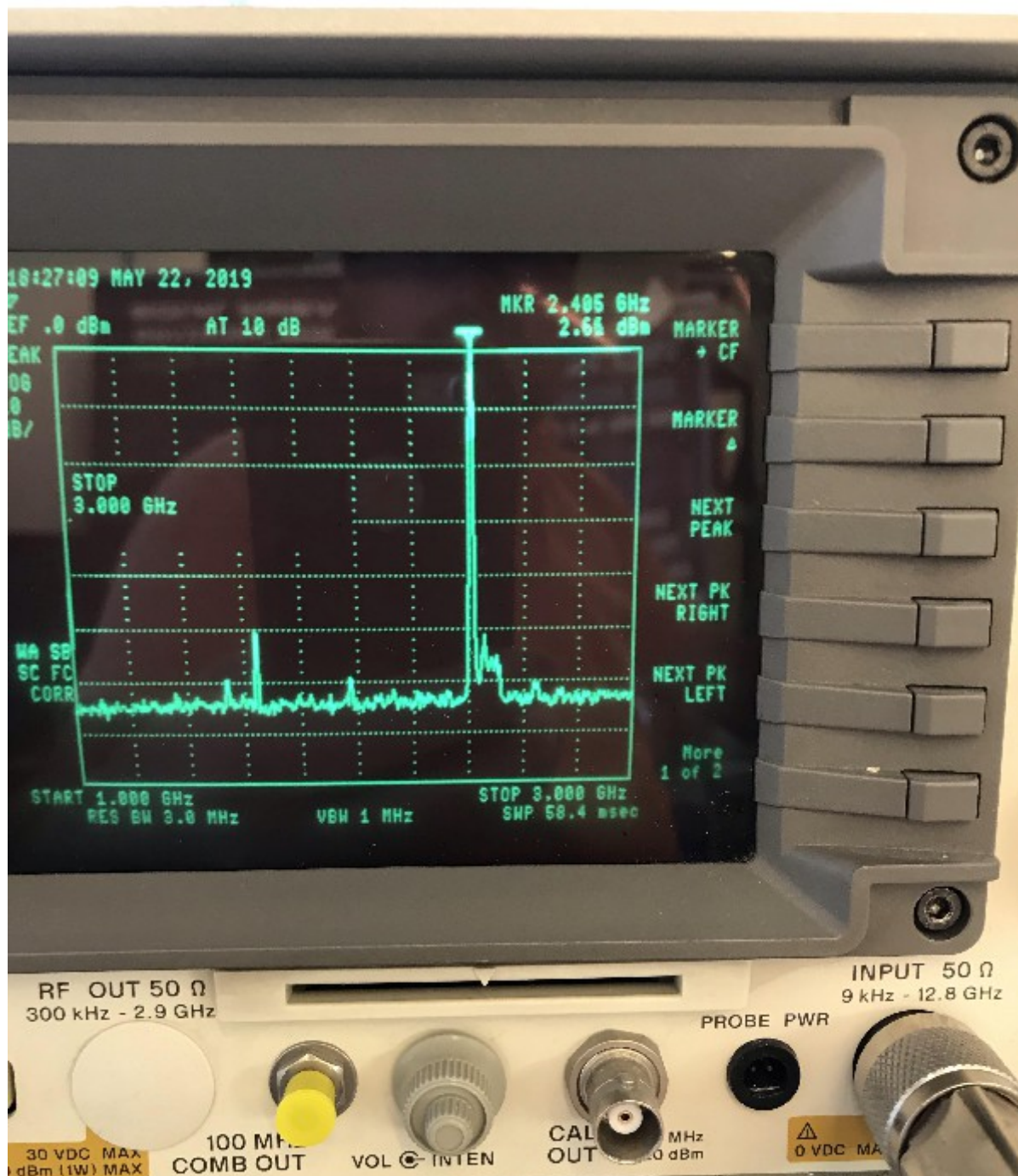


Fig 7 Output signal on 2400MHz (LO leakage 53dBs below)

- **Low IF input can increase the converter spurious emissions. Using this IF, some external Band Pass Filters might be needed between the converter and power amplifier.*
- *144Mhz and UP IFs are well recommended.*