EME TRV 2320 MHz solution with PLL oscillator

Problematic of EME 2320 MHz

Band spread:

2302 MHz Australia

2304 MHz USA and couple of EU countries

2320 MHz EU

2424 MHz Japanese

Traffic requests for building TRV:

Cross Band, CW, SSB, JT

Good sensitivity and good selectivity

Enough power output, minimum 50W RF – with redundancy 80W RF

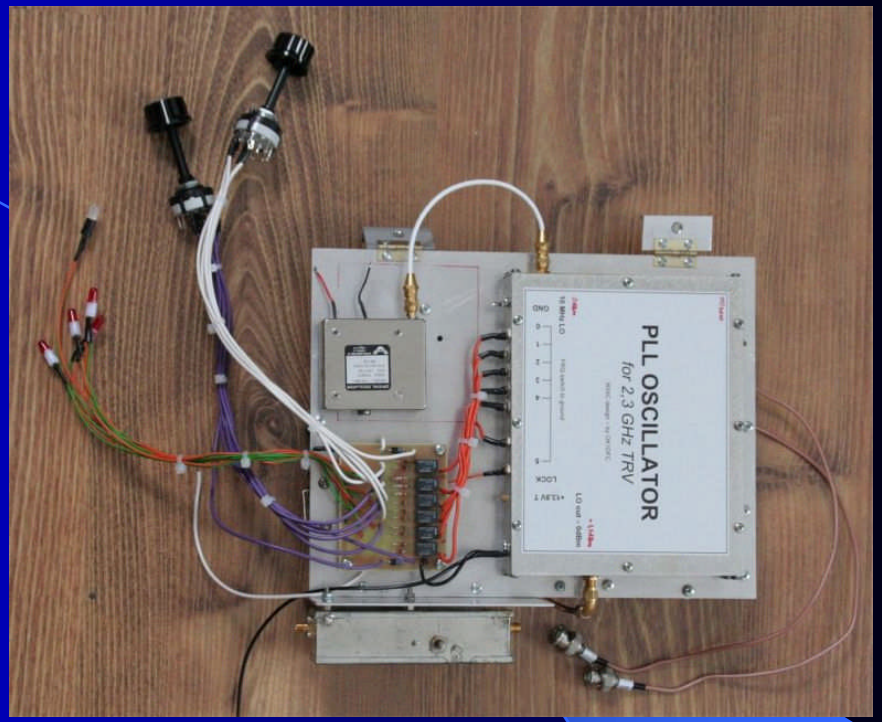
Power supply in the unit – plug in 230V only

Minimizing of cable connection outside of TRV

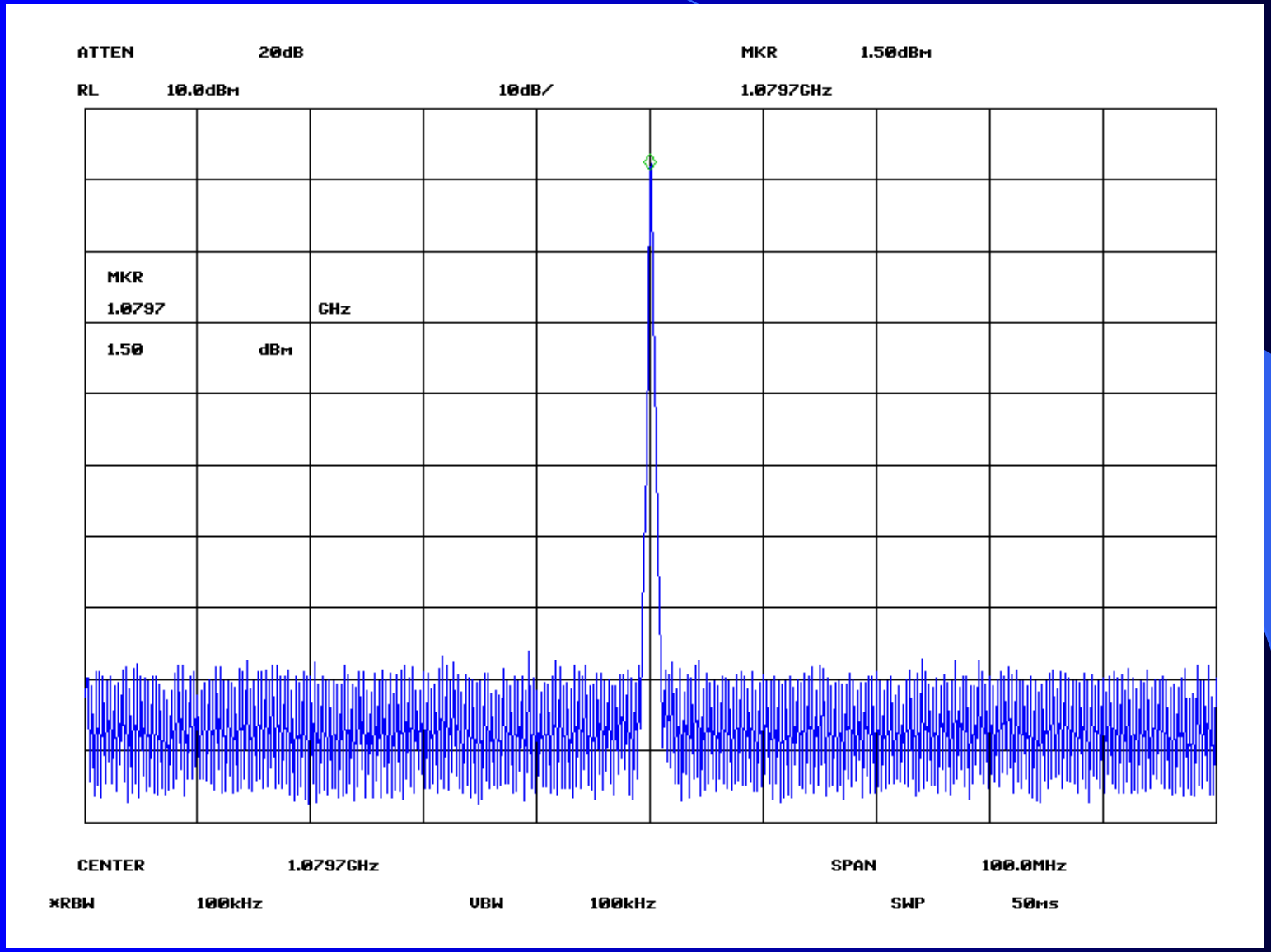
Internal sequencer

PLL & 10 MHz

- Possibility switch Cross Band for RX and TX separately
- High frequency stability
- Locking on requested QRG immediately after band switch or switch between RX/TX
- External 10 MHz LO by Rubidium

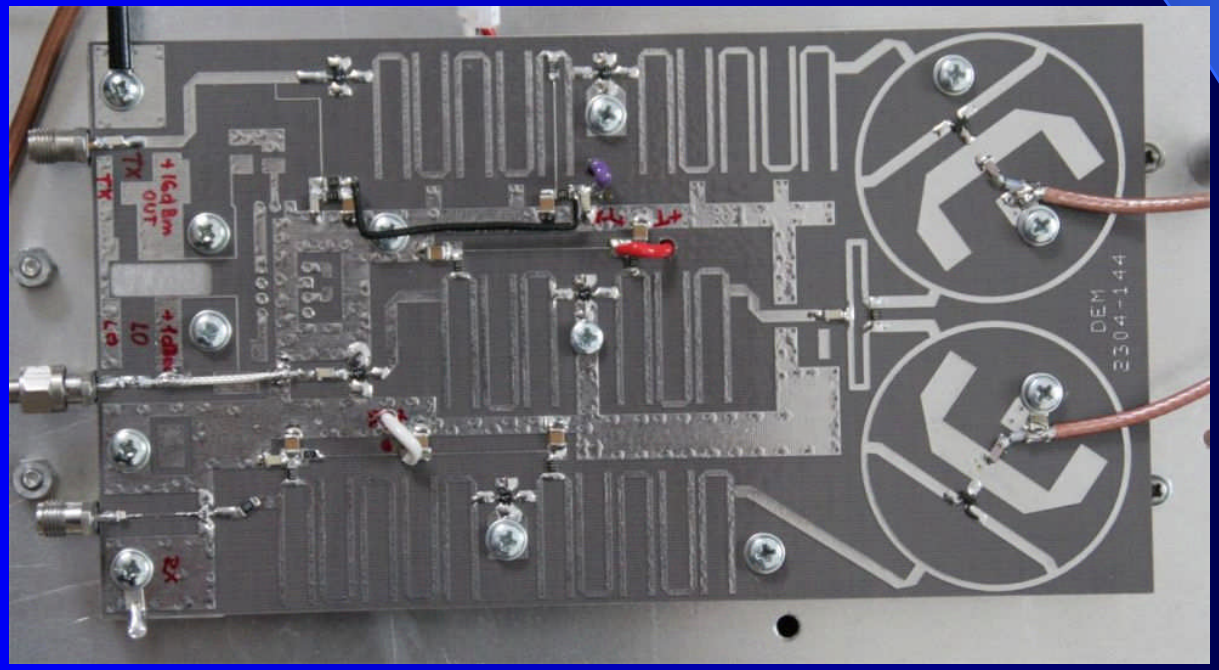


LO spectrum

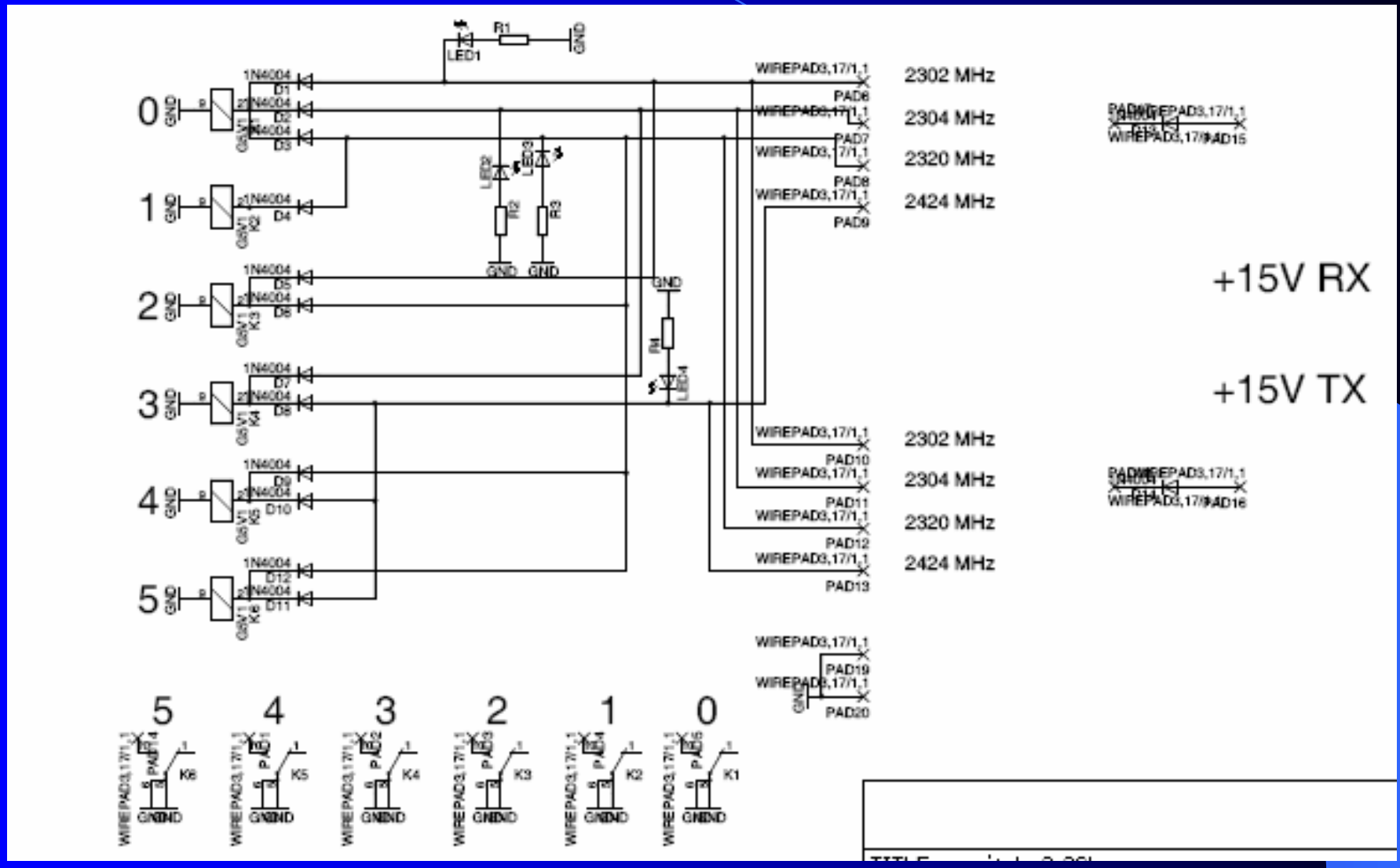

ATTEN 20dB
MKR 1.50dBm
RL 10.0dBm
10dB/
1.0797GHz
MKR
1.0797
GHz
1.50
dBm
CENTER 1.0797GHz
SPAN 100.0MHz
*RBW 100kHz
VBW 100kHz
SWP 50ms

Requests for TRV

- Broadband filters 2302 – 2424 MHz = 122 MHz broadband !!!!
- Minimum RF out +15dBm
- Mechanically simple installed board
- Looks like Down East Microwave solution is right way

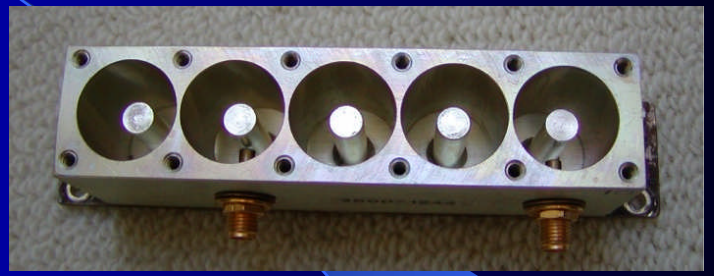


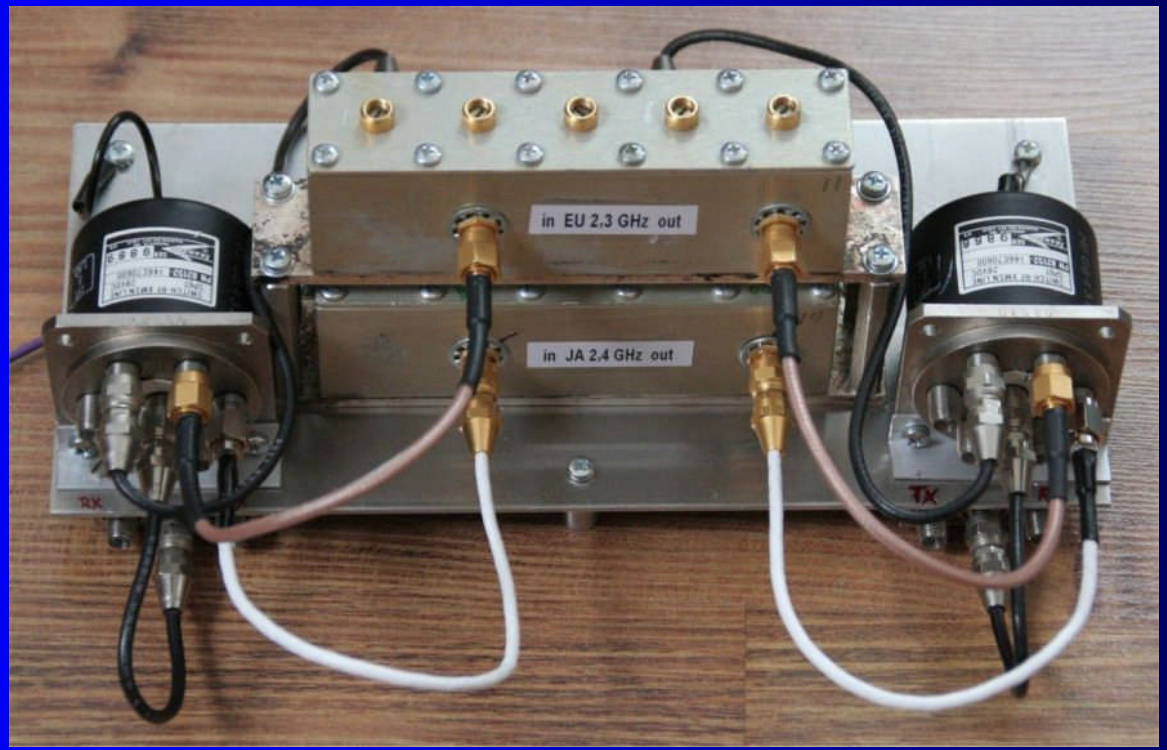
Band switching



Filters

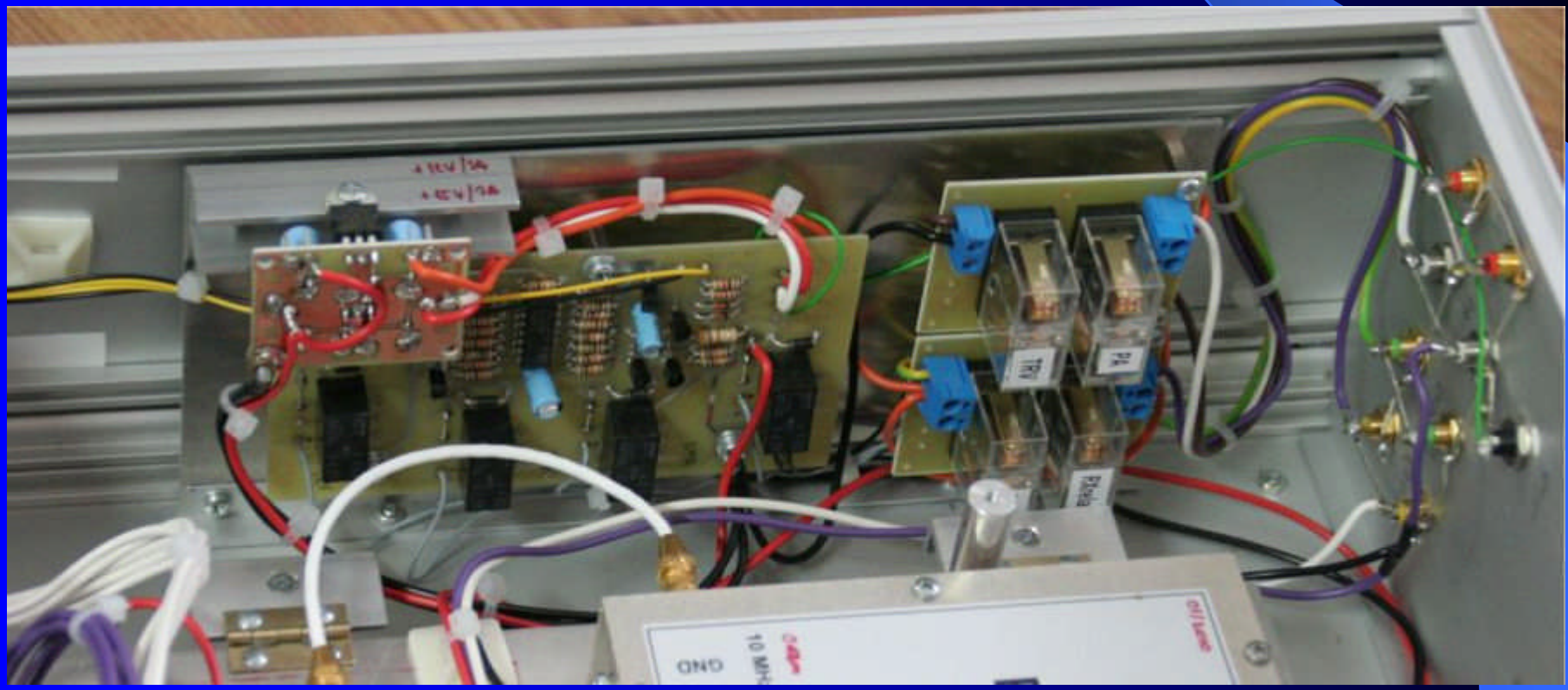
- Max. 6MHz for –3dB
- Rejection of LO
- Switching RX-TX and all available bands





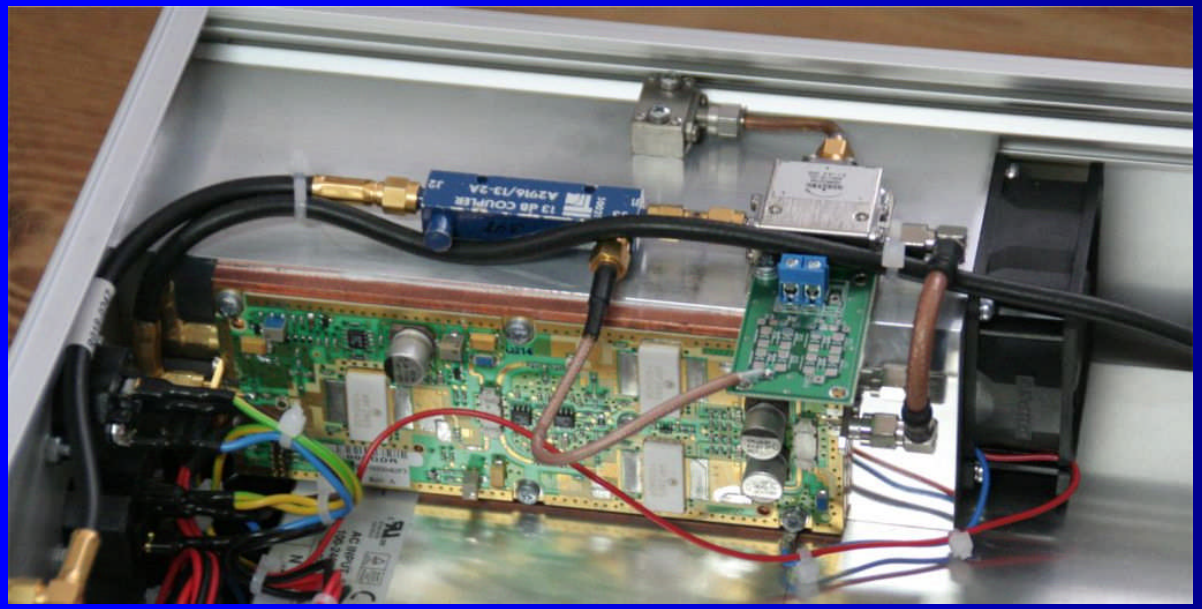
Sequencer

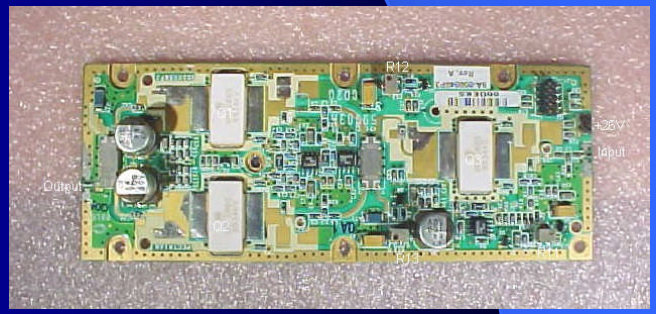
- Sequencing switching between RX and TX as TRV – PA – Relay - VLNA and back
- 15V DC controlling voltage on output
- Again looks that DEM has solution and I have used



Internal SSPA 80W RF out

- Simplicity
- Reliability
- Spectrian for 70 USD – ideal solution on E-Bay
- Cooling – Fisher electronic heat sink with blower
- Measuring SWR
- Output protected by circulator





Mechanical solution of TRV

- Design
- Simple maintenance service

EME tests in the 2320 MHz

Minimum requests:

- Dish 3m or bigger, minimum 2,4m
- VLNA – around 0,5dB NF – good solution of G4DDK
- RF power 150W
- Dish controlling 0,2 ° AZ – HB9DRI – OE5JFL solution
- High QRG accuracy
- Patience !!!!!!

Thanks and see you soon on
2320 MHz EME !!!