

Mimi 2.3

TRANSVERTER 28/144 MHz



40-years of participation in VHF contests at the region with extraordinary high concentration of BIG-GUN stations had led us to the development of a transverter, which is the most suitable for extreme operating conditions at 2 m band.

Basic technical requirements:

- > Adequate sensitivity
- > High intermodulating resistivity of receiver
- > High suppression of inter-modulation in TX path
- > Extremely low sideband noise OCXO
- > Extreme suppression of sideband noise in TX signal
- > Maximum utilization of excellent parameters of K3 transceiver from Elecrafts company.

As a result, there is an appliance that minimally interferes others and excellently resists to interference from surrounding stations.

High level components of low noise were used to process all signals. The crystal filter specially developed for our appliance was included into IF signal path. We equipped the LO with new type of OCXO with extremely low side-band noise. The whole control of the transverter is managed by the computer with integrated color touch screen display.



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Technical Specifications:

General parameters

IF range:	28 – 30 MHz
RF range:	144 – 146 MHz
Input IF power:	0 dBm (1 mW)

Oscillator

Frequency:	116 MHz
Frequency accuracy (20 °C):	+/- 0,5 ppm
Frequency stability (0 - +40 °C):	+/- 0,1 ppm
Sideband noise, in distance:	
10 kHz	165 dBc/Hz
100 kHz	165 dBc/Hz
1 MHz	165 dBc/Hz
5 MHz	170 dBc/Hz

Sideband noise with Option 1 - 116 MHz Crystal filter

Sideband noise, in distance:	
10 kHz	162 dBc/Hz
100 kHz	172 dBc/Hz
1 MHz	172 dBc/Hz
5 MHz	172 dBc/Hz

Receiver

Noise figure:	typ. 2,5 dB
Noise figure with Option 2 - HI-Q input helical filter:	typ. 1,5 dB
RX gain:	typ. 25 dB
RX input IP3:	typ. 13 dBm
RX output IP3:	typ. 38 dBm
Image rejection:	min 90 dB

Specification for IF crystal filter

Number of poles:	8
Nominal centre frequency:	Band from 28,025 to 28,385 MHz with the step 30 kHz
Bandwidth between 3 dB:	≥ +/- 15 kHz
Ripple at f _{nom} +/- 10 kHz:	≤ 1,5 dB (typ. 0,5 dB)
Stop band f _{nom} +/- 35 kHz:	≥60dB
f _{nom} +/- 50 kHz... 1000 kHz:	≥80dB

Transmitter

Optimal output power:	20 WPEP
Maximal output power:	60 WPEP
IM3 of output signal:	50 dBc @ 10 W PEP
	43 dBc @ 20 W PEP
	36 dBc @ 40 W PEP
	22 dBc @ 60 W PEP
Sideband noise without/with filter, in distance:	
10 kHz	141 dBc/Hz – 142 dBc/Hz
100 kHz	144 dBc/Hz – 164 dBc/Hz
1 MHz	164 dBc/Hz – 164 dBc/Hz
5 MHz	173 dBc/Hz – 174 dBc/Hz

Other parameters

Supply voltage:	12... 14,4V
Current consumption:	Max 8 A (TX)
PTT control:	Contact to ground
Outputs/ inputs:	
RX:	N female
TX:	N female
IF RX:	BNC female
IF TX:	BNC female
PTT input:	Cinch female
PA control:	Cinch female
LNA ant. relay control:	4 pole DIN
Computer control:	USB 1
Case:	High quality Al DIN Case (Bopla)
Dimension:	250 x 100 x 245
Control measure:	3,5" color touch screen display

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