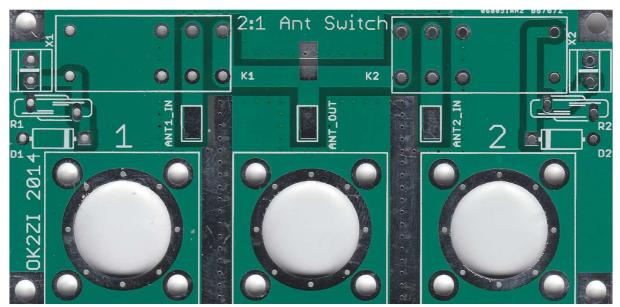
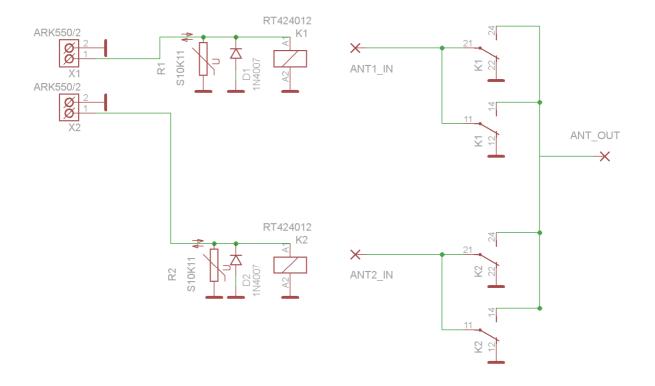
## 2x1 antenna switch



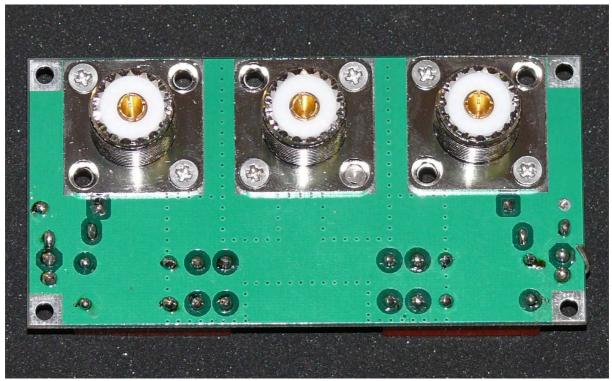
Bare PCB, the size is 49x100 mm



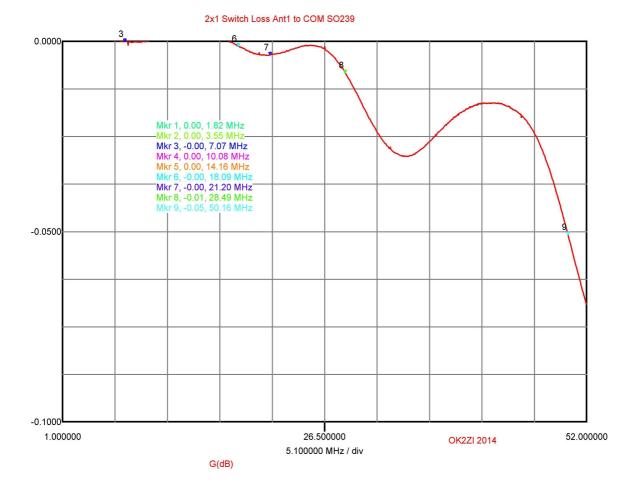
All components mounted



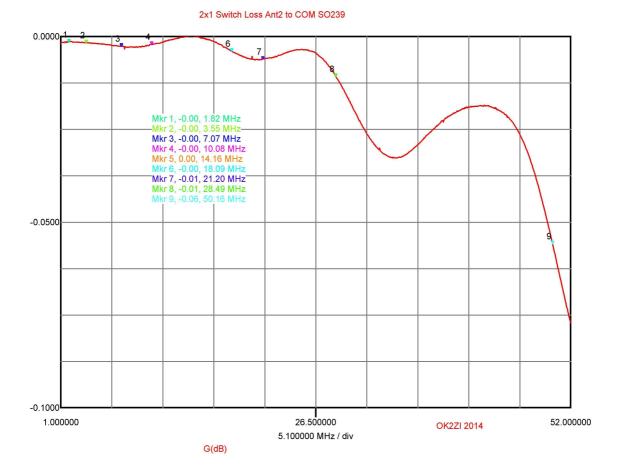
Schematic is simple.....



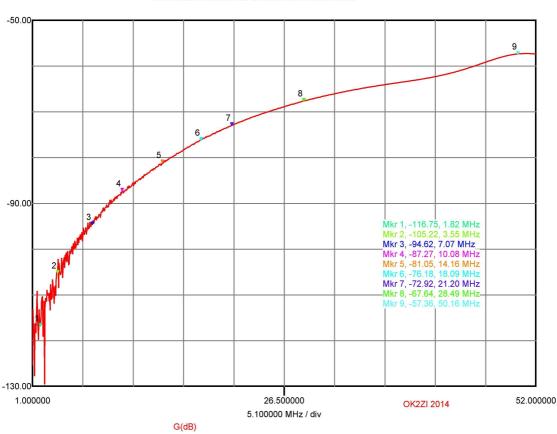
Reverse side with SO-239 panel connectors



Transfer loss from ANT1 to COM port (50MHz only -0.05dB!!)

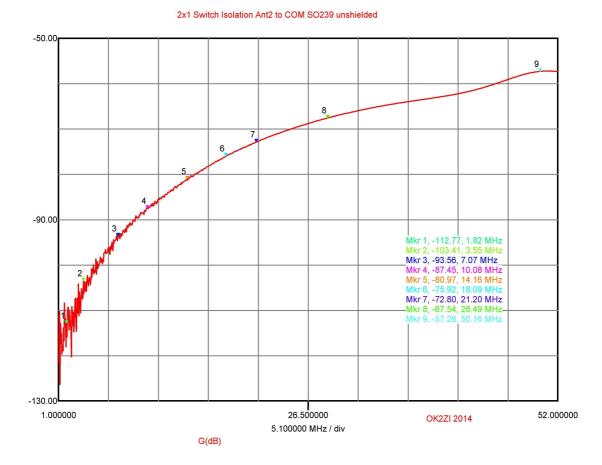


## Transfer loss from ANT2 to COM port (50MHz only -0.06dB!!)

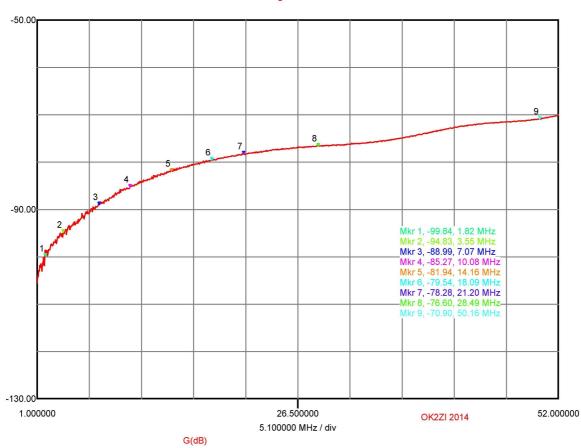


2x1 Switch Isolation Ant1 to COM SO239 unshielded

Isolation between ANT1 and COM (>110dB@160m, >55dB@50MHz)



## Isolation between ANT2 and COM (>110dB@160m, >55dB@50MHz)

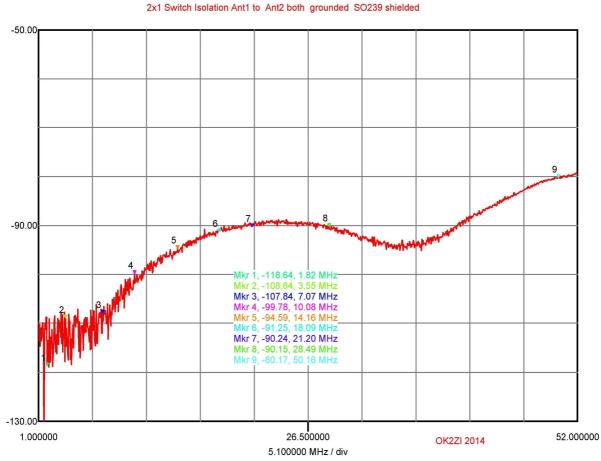


2x1 Switch Isolation Ant1 to Ant2 both grounded SO239 unshielded

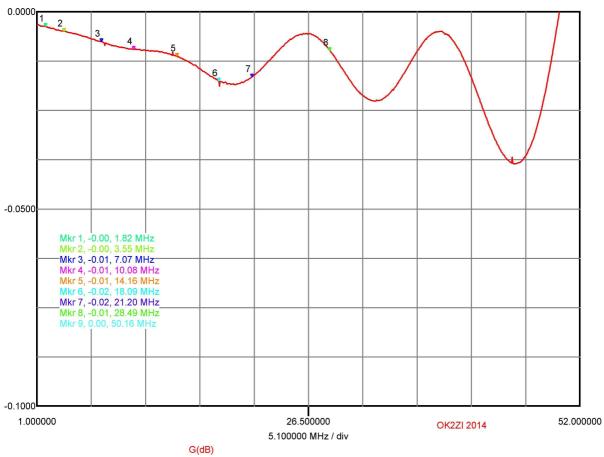
Isolation between ANT1 and ANT2, both antennas grounded



Added metallic shield between ANT1, ANT2 and COM and compensation coil at COM port.



Isolation between ANT1 and ANT2, both antennas grounded and port shielded



Transfer loss from ANT1 to COM port with the compensation coil and shielding (50MHz = 0.00dB!!)

RIGO	OL			20	):23:36	2014-09-29				++ (Local)	Amplitude
Status	0 <b>Ref</b> -1.0	0 dBm	≝ Att	10 dB				Marker2	144.82 Mł	Hz -41.10 dB	Auto Scale
Peak	<sub>-20</sub> So	ale/Div									RefLevel
Free	-30 <b>IC</b> -40	).00 dB		1		_	2			3	-1.00 dBm
Cont	-50										Input Atter 10 dB
	-60 -70										Auto Manu Scale/Div
V. ₽T	-80 -90										10.00 dB
¢₹ 	-100 (dB)Start Fre RBW	<b>q</b> 143.00 3.000		VBV	<b>V</b> 3.0	)00 kHz			top Freq WT	146.00 MHz 333.33 ms	Scale Type
Ċ.Ŵ	Marker Table										Units
MV Bhirili	Marker 1D	Trace 1	*	<b>Type</b> Frequency		<b>X Axis</b> 144.195000 Mi	Hž	<b>Amp</b> -41.0			dBm
	2D	-3 ¶∦ ∞		Frequency	- -	144.820000 M	Hz	-41.1	0 dB		Ref Offse
AGAV Matti	ं3D	18		Frequency		145.850000 M	Hz	-41.1	8 dB		<b>0.00 dB</b> 1/2

144MHz ANT2 to com isolation is about -40dB

## 2x1 Switch Isolation Ant1 to COM SO239 shielded and compensated

RIG			20:2	22:43 2014-09-29		++ Local	Marker	
tatus My Peak	<sub>0.0</sub> Ref -1.00 ( -0.1 -0.2 Mar	dBm *Att	10 dB	2	Marker2 144.821	MHz -0.09 dB	Select Mk	
rrig Free	-0.2 -0.3 <b>14</b> 4	.820000 MHz )9 dB					Normal	
Cont	-0.4 <b>-0.</b> 4 -0.5 -0.6	59 UB					Delta	
	-0.7						Delta Pai Ref De	
	-0.9 -1.0 Start Freq (dB) RBW	143.00 MHz 3.000 kHz	VBW	3.000 kHz	Stop Freq SWT	146.00 MHz 333.33 ms	Span Pai Span Cen	
:.W.	Marke	er Table						
∕∿vo itārili	Marker	Trace	Туре	X Axis	Amp		Off	
Λ	1D	1	Frequency	144.195000 MHz	-0.11 dB			
M <sub>arw</sub> Blank	2D	<b>1</b> 3 38	Frequency	144.820000 MHz	-0.09 dB		Mkr Trace	
Ary tatti	(3D	1	Frequency	145.850000 MHz	⊱-0.08 dB		Auto 1/2	

144MHz ANT1 to COM transfer loss is about -0,11dB

Switch is usable at 144MHz too, but only as switch between antennas! The isolation between ports is small (-40dB) so I do not recommend this switch as TX/RX relay, especially in case of switching high power. Or you have to use another separate small switch before the RX port to short the RX input to the ground during transmit.

All HF measurements were done by N2PK VNA. 144MHz measurements were done by RIGOL DSA815TG spectrum analyzer with the tracking generator.

Karel Odehnal, OK2ZI

October 2014