The 1Volt QRP Transceiver
The 1 Volt Antenna

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Our Goals:

Save the resources of our earth, save the earth
Reduce battery waste
Reduce required materials
As much fun as possible, so make a **real** useful **transceiver**

Modern solid state technologie makes it possible to design RF transmitters and receivers with a powers supply as low as 1 Volt with good efficiency. The mainly power consumpting parts, the AF end-amplifier and the RF-PA have to be designed very carefully to give good results and to meet the goals. The efficiency today would be optimal at 3 Volt. This experimental design will be the base for a 3 Volt Transceiver with an RF power of > 0.5 Watt.

Results:

$U_{Batterie}$	I_{RX}	$U_{AF\text{-}max}$	I_{Tx}	$P_{out\ at\ 50\ Ohm}$
1.1 Volt	5 mA	$0.73V_{pp}$	0.2A	80mW
1.3 Volt	7 mA	$0.89V_{pp}$	0.27A	130mW
1.5 Volt	9 mA	$0.97V_{pp}$	0,33A	180mW

Gain : $U_{AF\text{-}out} / U_{RF\text{-}in}$ = 90 dB
2^{nd} harmonic –32 dB, 3^{rd} harmonic –42 dB

What´s a txvr withot an antenna? Nothing! So we designed **The 1 Volt Antenna** matching the new transceiver. It is an ultralight high efficiency portable antenne which (if packed) is as small as the transceiver. It needs no ATU and no transmition line.

DL-QRP-AG Activity group QRP and homebrew, the German language QRP Club
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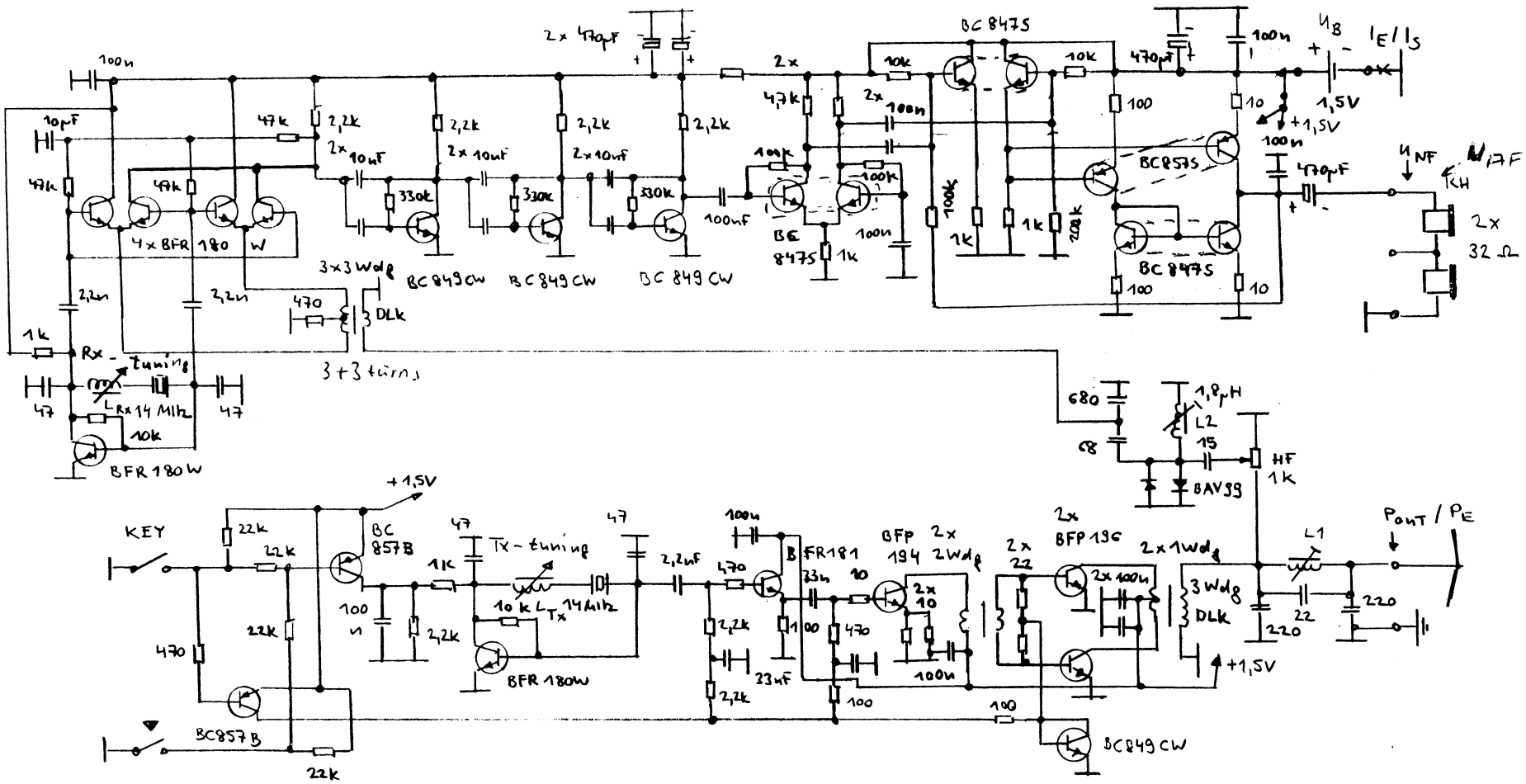


L1 8 turns 0,2mm enamel wire on Neosid 7.1k / 9,5nH
L2 1,8 uH Neosid 7A-04, Q=110 / 10 MHz
LRX=LTX 30 turns 0,14 mmenamel wire on Neosid 7.1k / 9.5nH
DLK=DoubleHole (pig-nose) 4,6*7,6*4mm 0,8 uH /WL

$U_{batterie}$	I_{-RX}	U_{AF-max}	I_{TX}	$O_{-out\ at\ 50\ Ohm}$
1.1V	5mA	0.73Vpp	0.2A	80mW
1.3V	7mA	0.89Vpp	0.27A	130mW
1.5V	9mA	0.97Vpp	0.33A	180mW

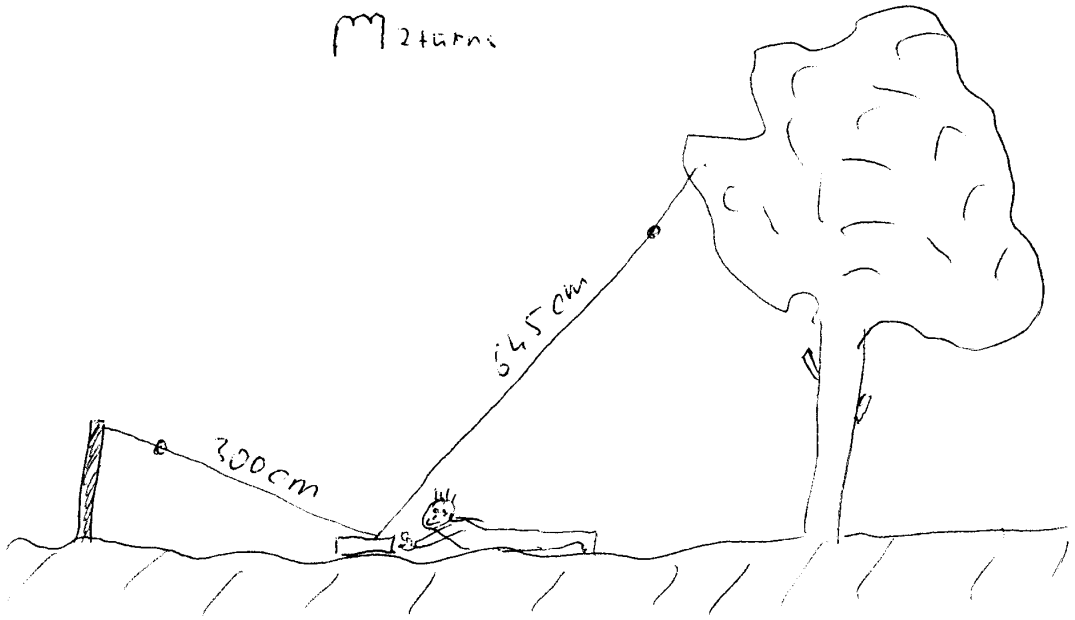
RX -3dB=600/1100 Hz -10dB=1600Hz -20dB=2000Hz

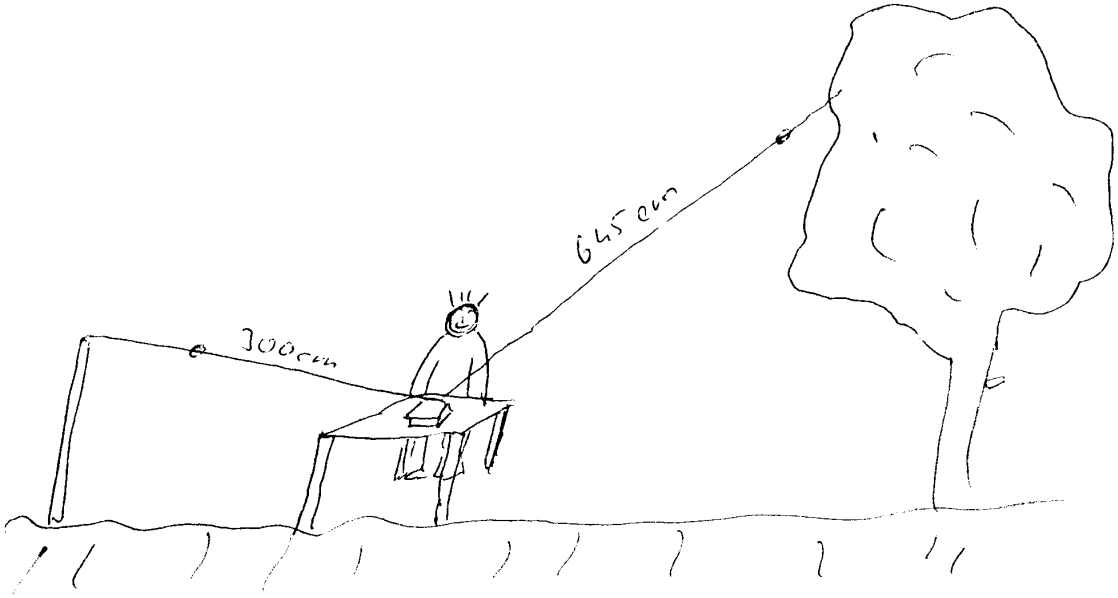
Gain RX U_{AF}/U_{RF}=90dB

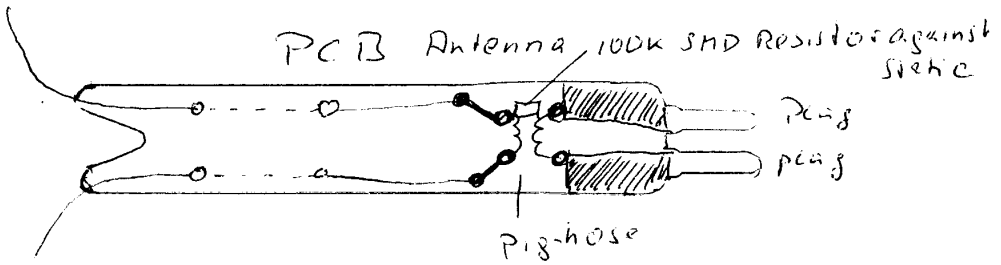
Pig nose 0,8µH/WL
4 turns

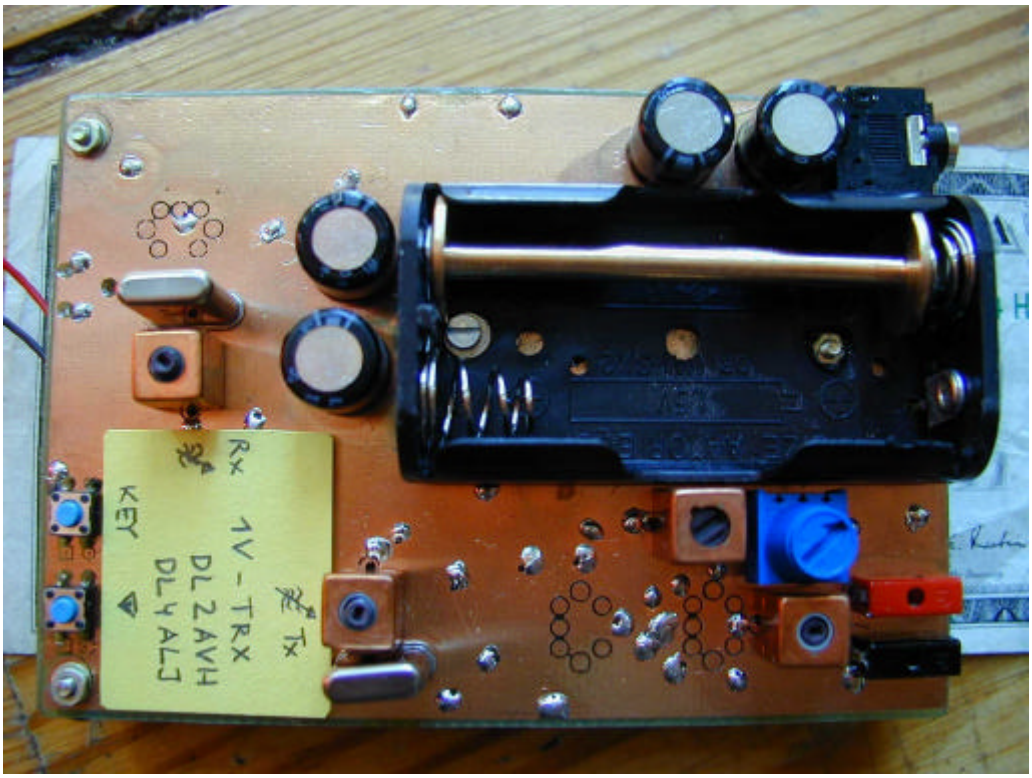
300cm 645cm

2 turns









1Volt transceiver top view

1 Volt Antenna