



uSDX QO-100

Moderator : TA1DE Volkan SAMLI



Baris Dinc
TA7W / OH2UDS

Nedir uSDX ?

- SDR QRP Telsiz
- 0 - 100 Mhz (HF + 6m)
- All Mode (AM/FM/SSB/CW + Digital)
- 2.4 Khz (~3.8 KHz BW)
- DSP Filtre (50/100/200/500/1700/2500/4000 Hz)
- ~5 Watt PEP SSB (Class-E)
- VOX, AGC, ATT, NR, MORSE ENCODE/DECODE
- Atmega 328p (Arduino Uno)
- -135dBm dinleme hassasiyeti (28MHz, 200 Hz BW)
- ATT (zayiflatici) 0..-73dB
- CAT Destegi



Hikayesi

QRP Labs



DC transceiver;

NorCal 2030 by *Dan Tayloe (N7VE 2004)*

Hi-Per-Mite Active Audio CW Filter David Cripe (NMØS).

Low Pass Filters *Ed (W3NQN 1983)*,

a key-shaping circuit by *Donald Huff (W6JL)*,

BS170 CMOS driven ATS MOSFET PA *Steven Weber*
(KD1JV)

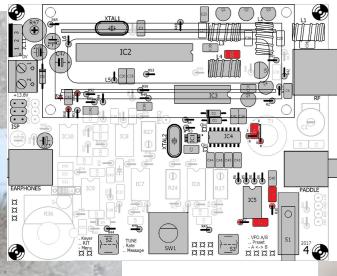
Ghetto-class-E filter-network Paul Harden (NA5N)

ATMEGA328P + HD44780 LCD + SI5351

Software Raspberry Pi digital SSB Guido (PE1NNZ)



PE1NNZ - Guido



Hans Summers (GOUPL)

RSGB YOTA summer camp 2017

Analog Faz Cevrimi ile SSB yerine SDR

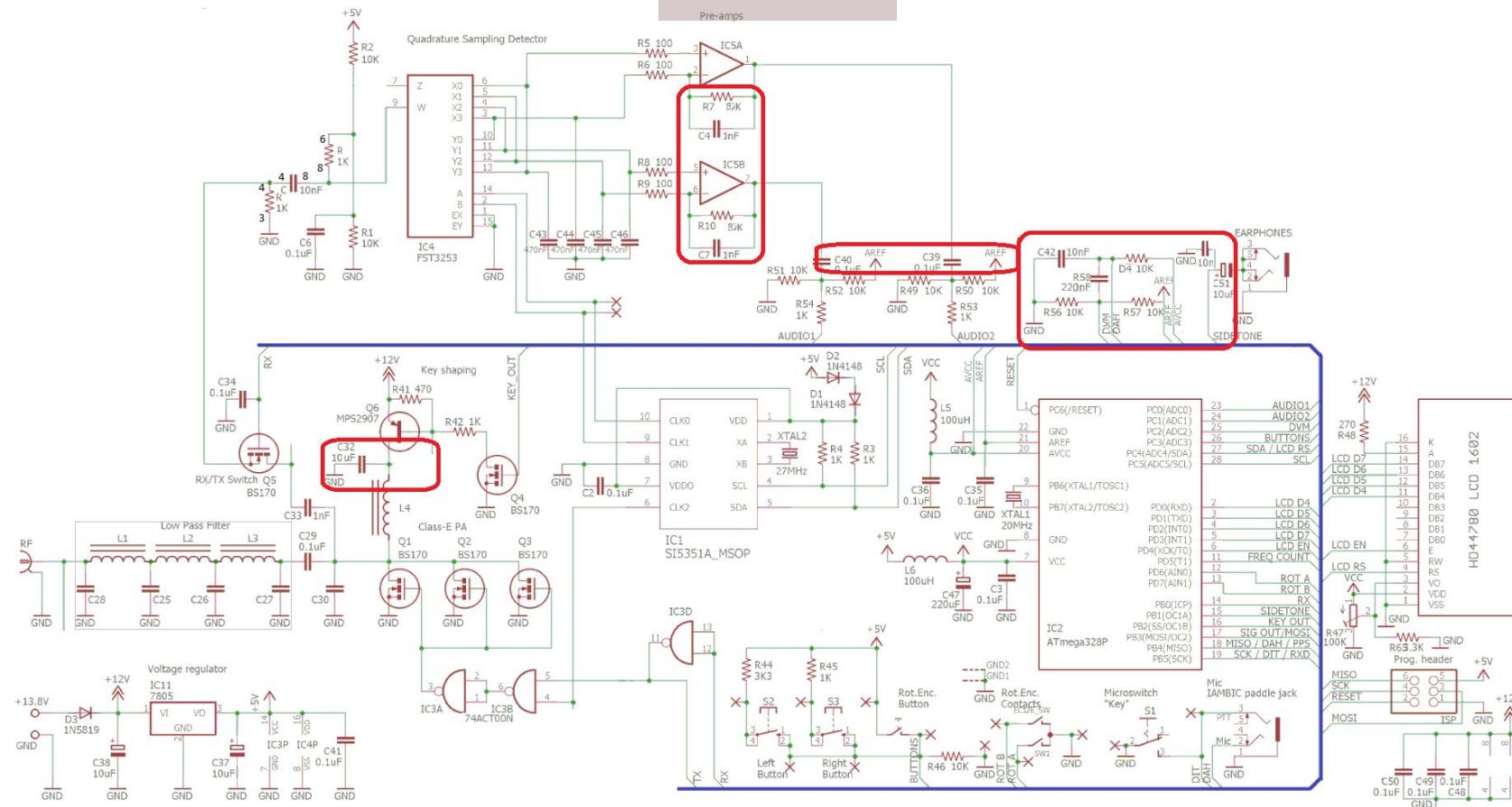
LSB/USB : Si5351 CLK0/CLK1 arasında 90 derece faz kaydırması

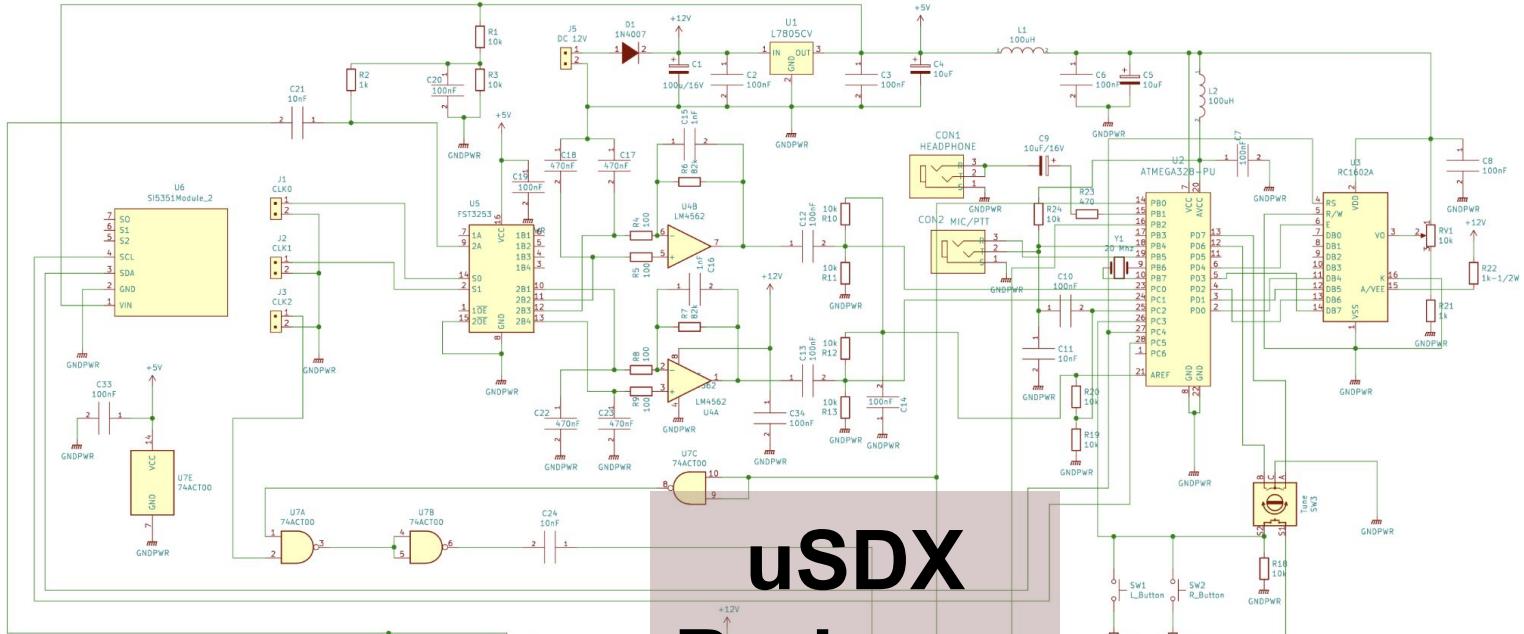
ATMEGA328P over-sample ADC (62kHz) ->

Hilbert-transform

10-bit ADC 72dB dinakim aralik li 2.4kHz SSB

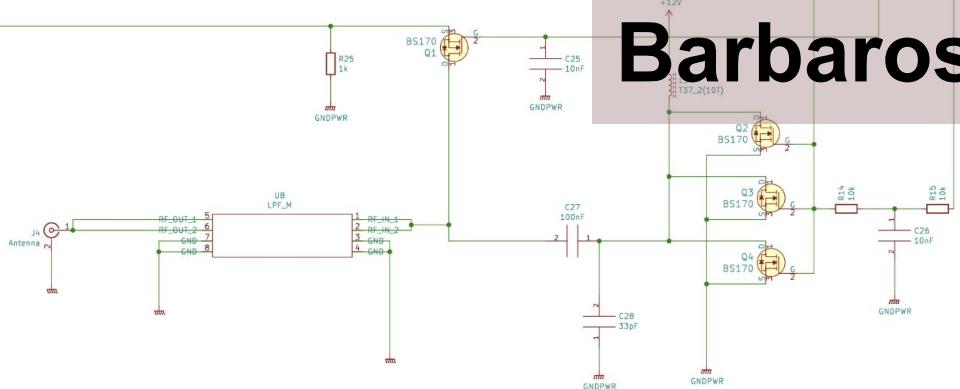
uSDX

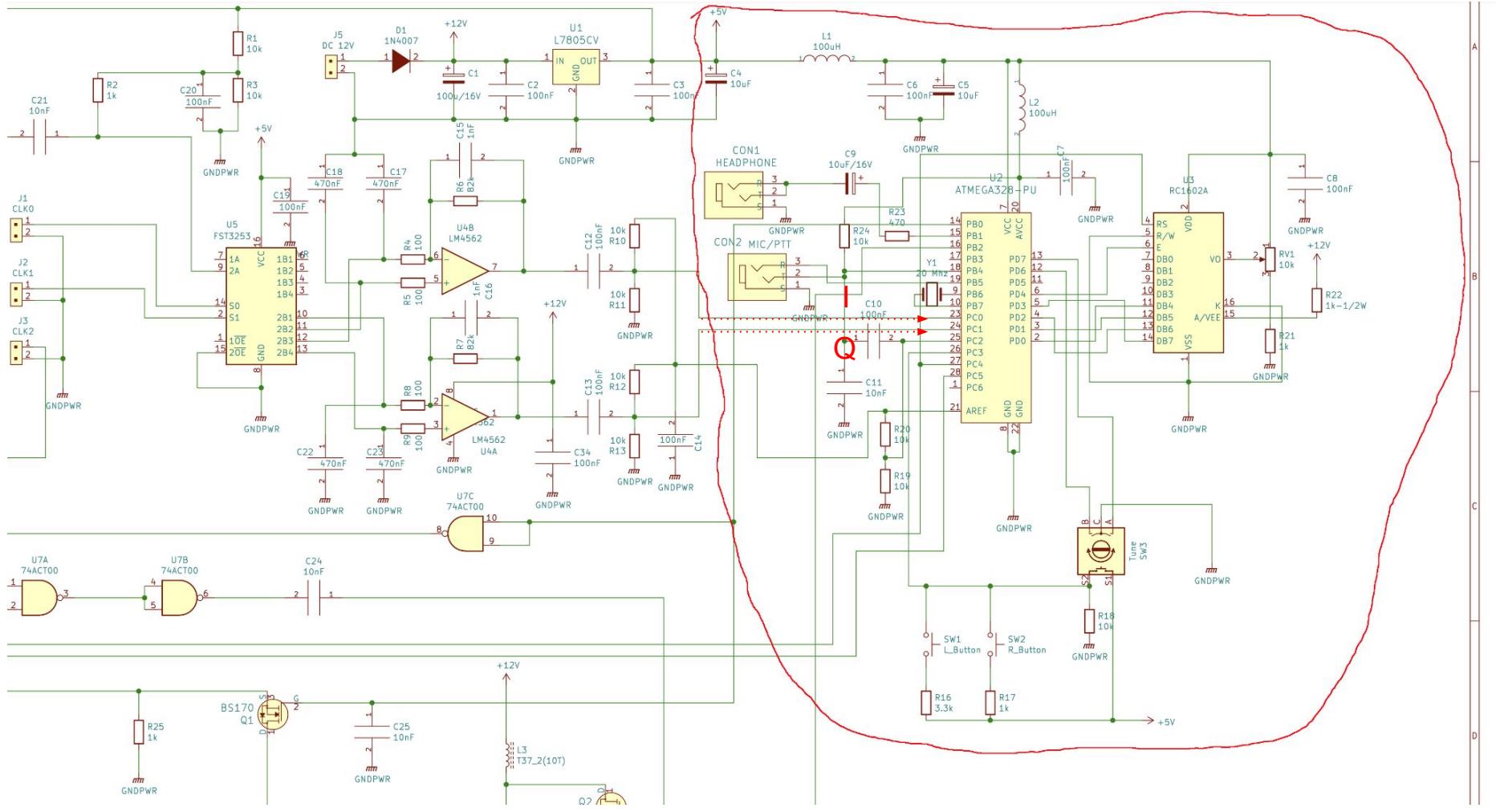


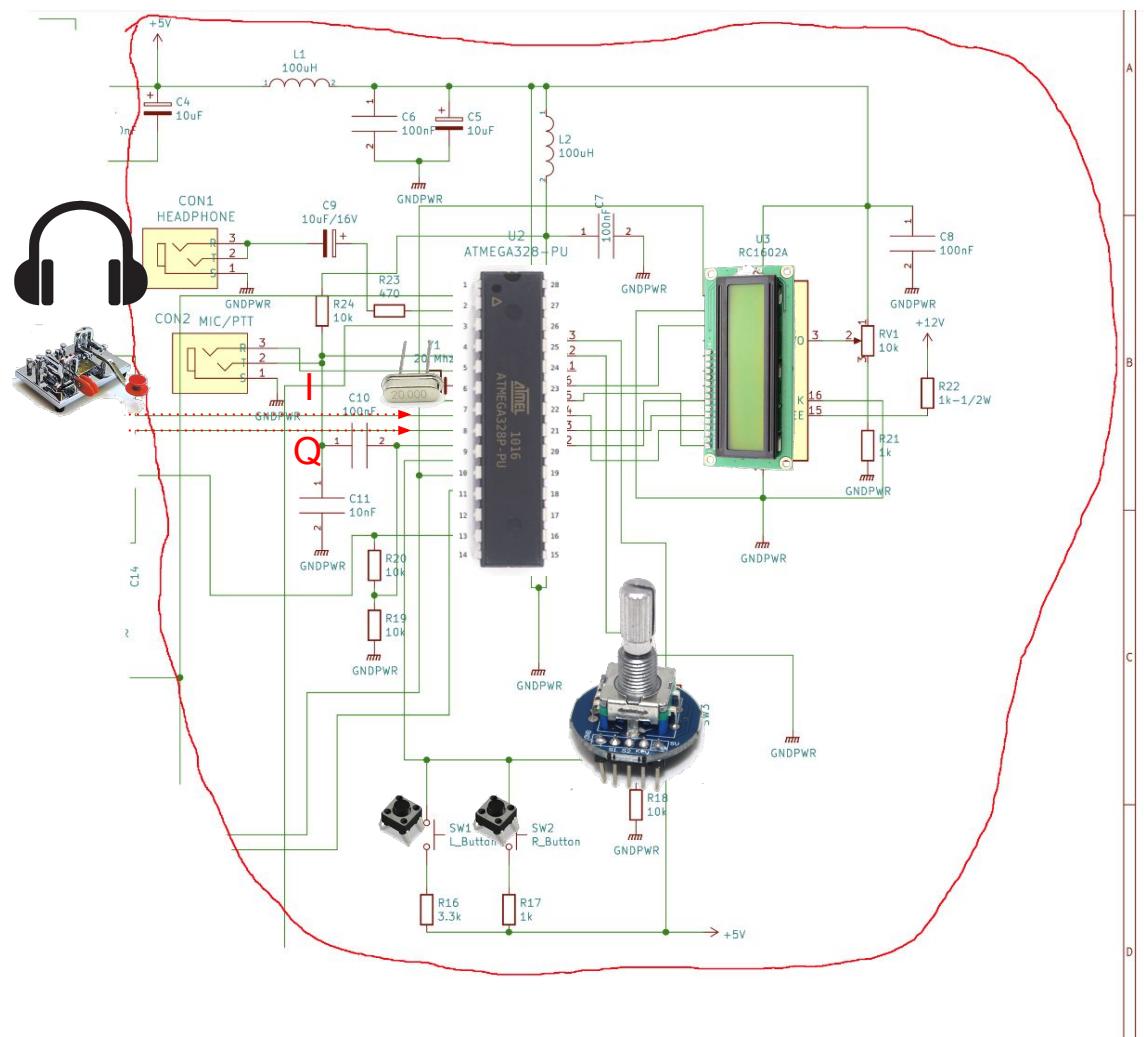


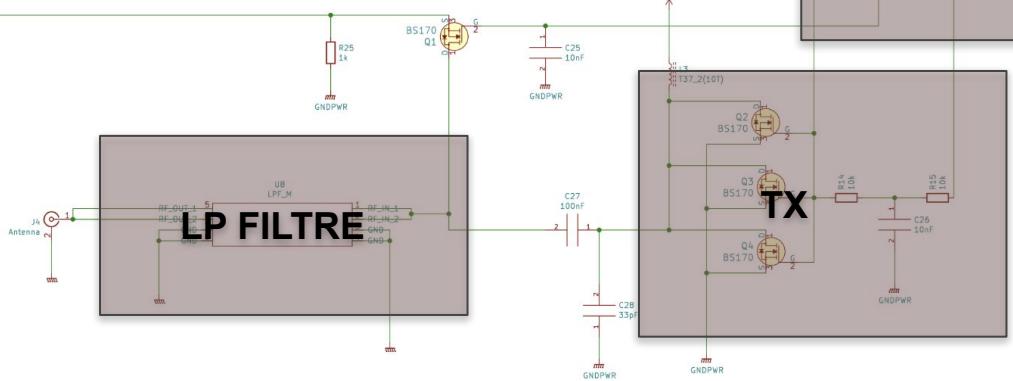
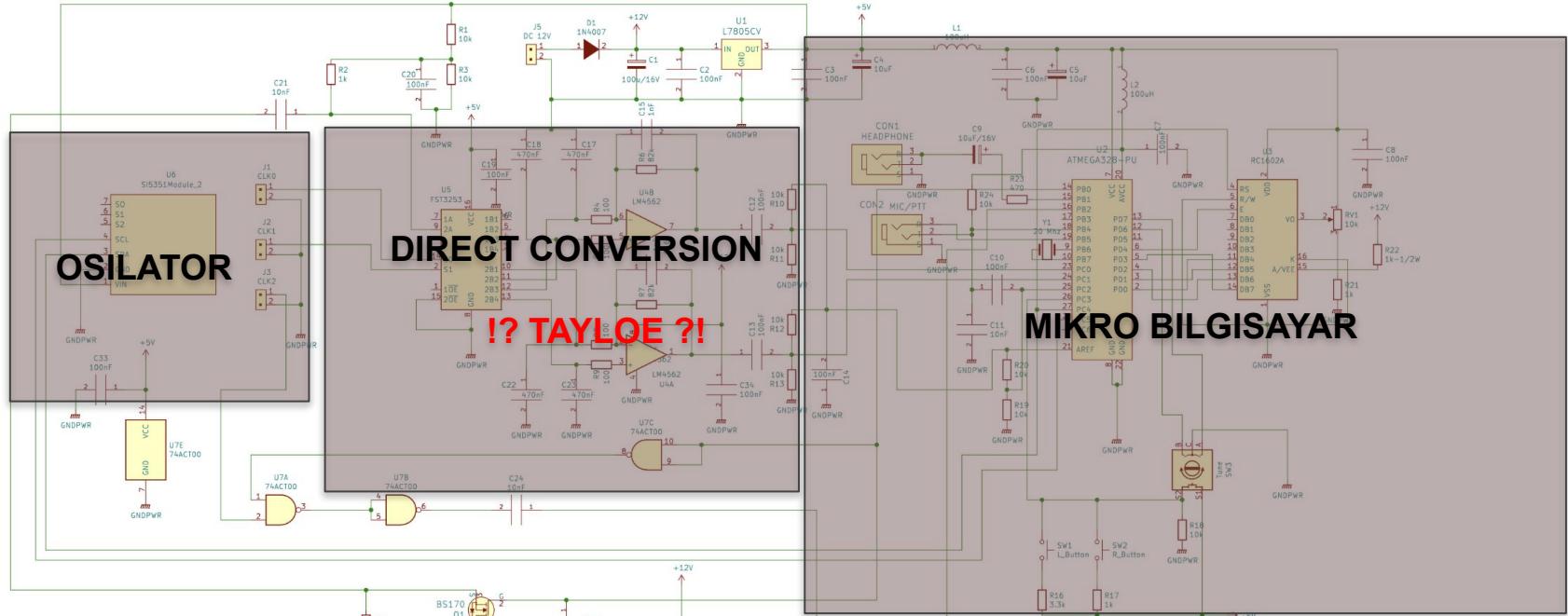
uSDX

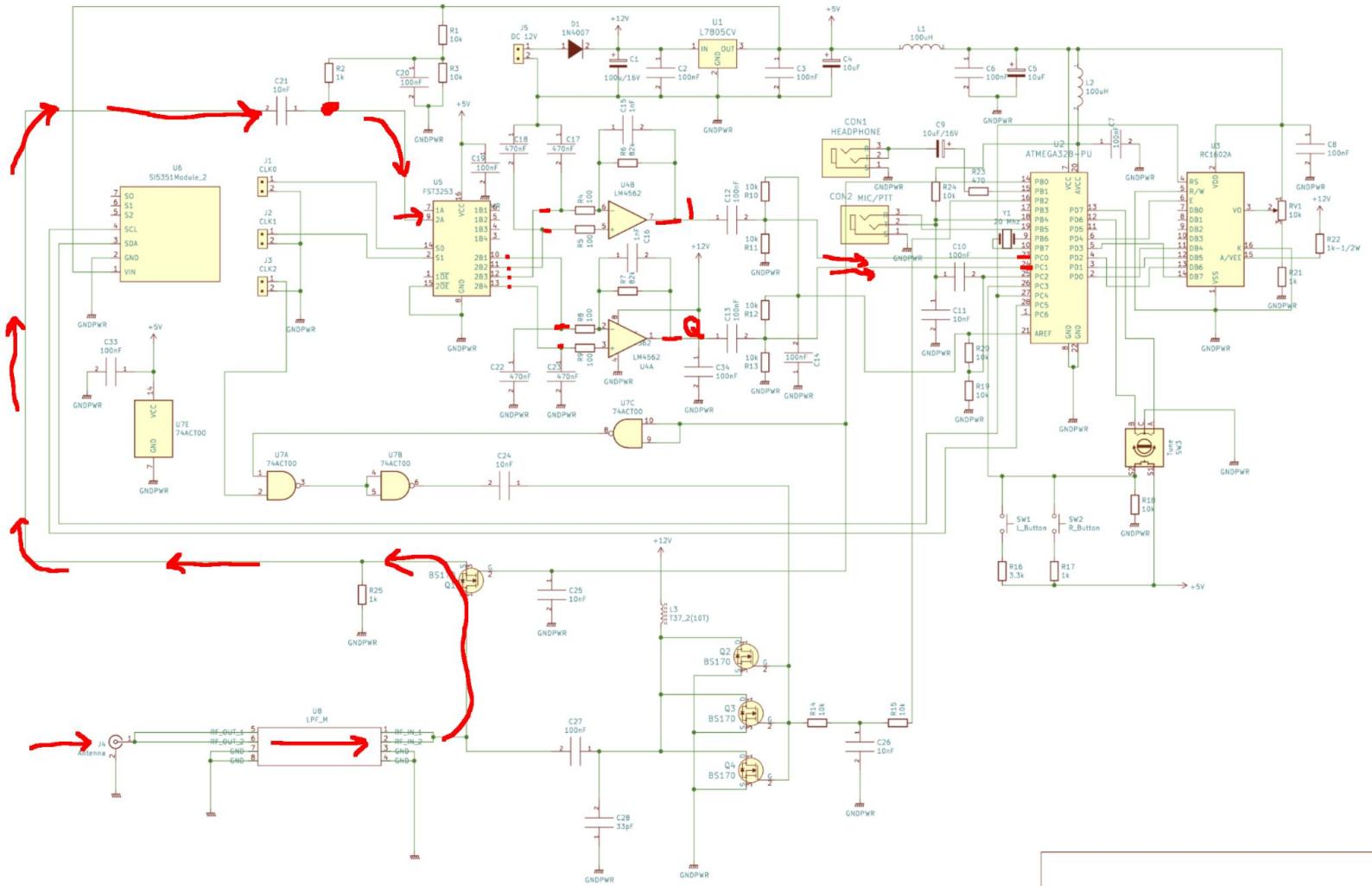
Barbaros

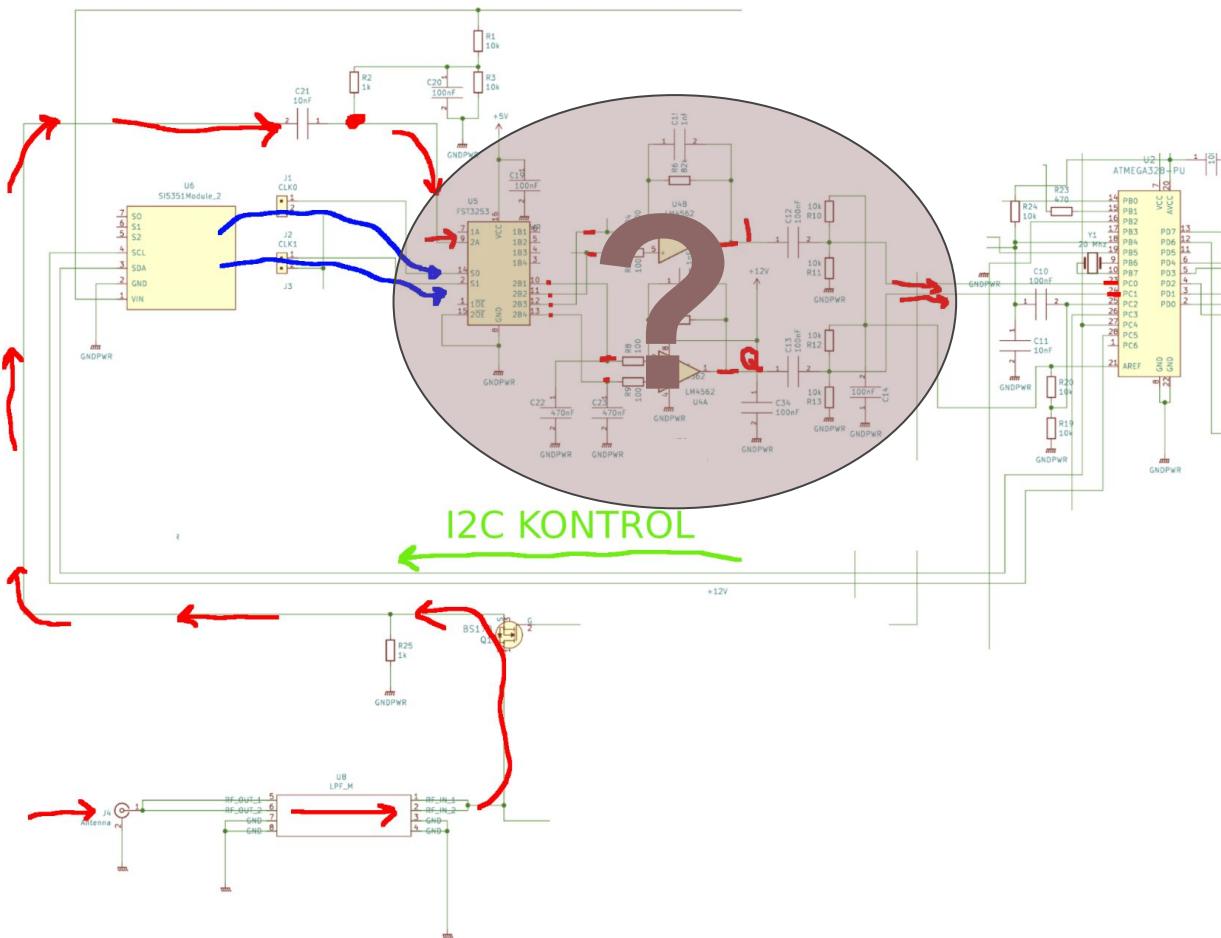


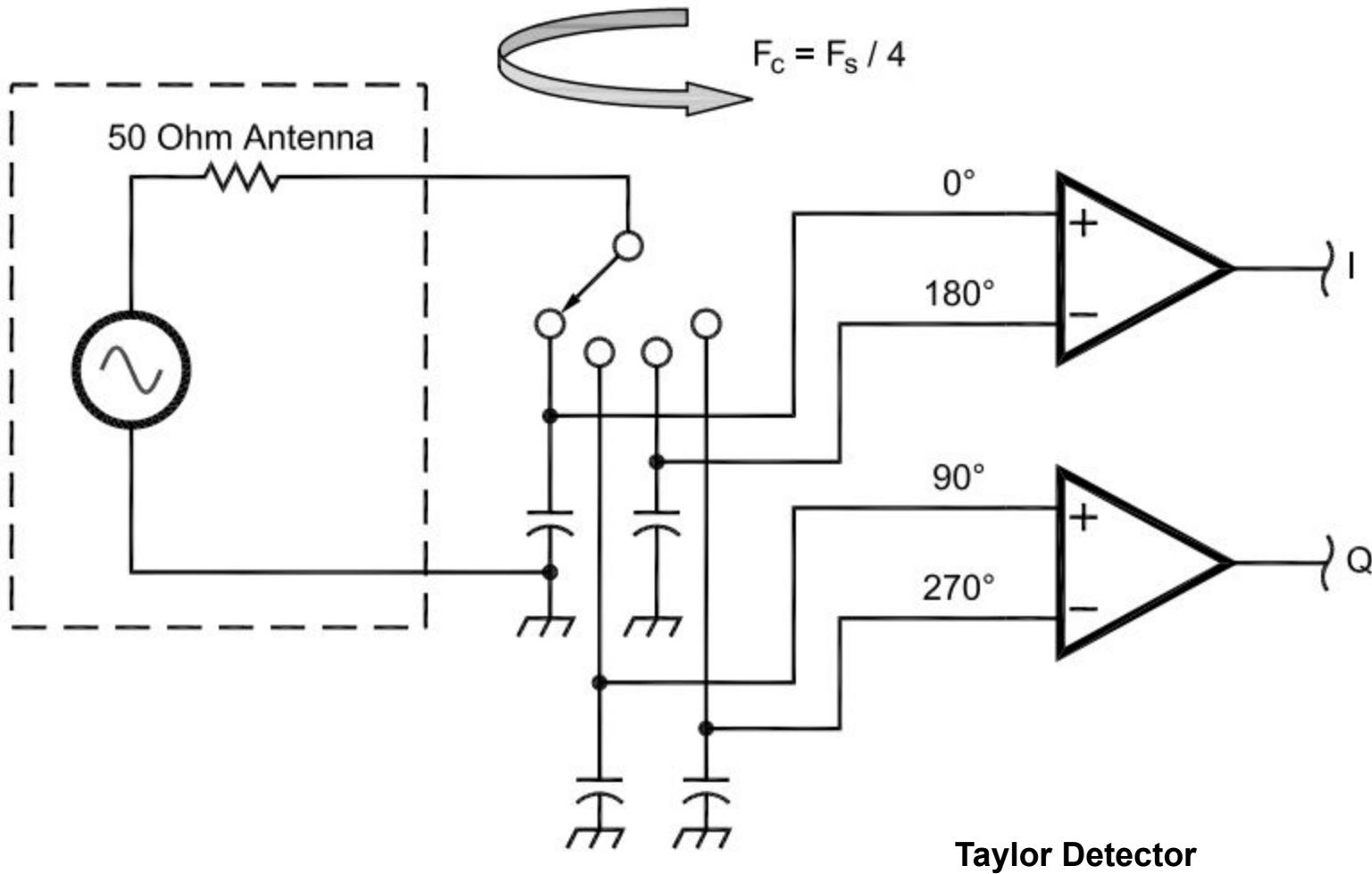












Tayloe Quadrature Product Detector

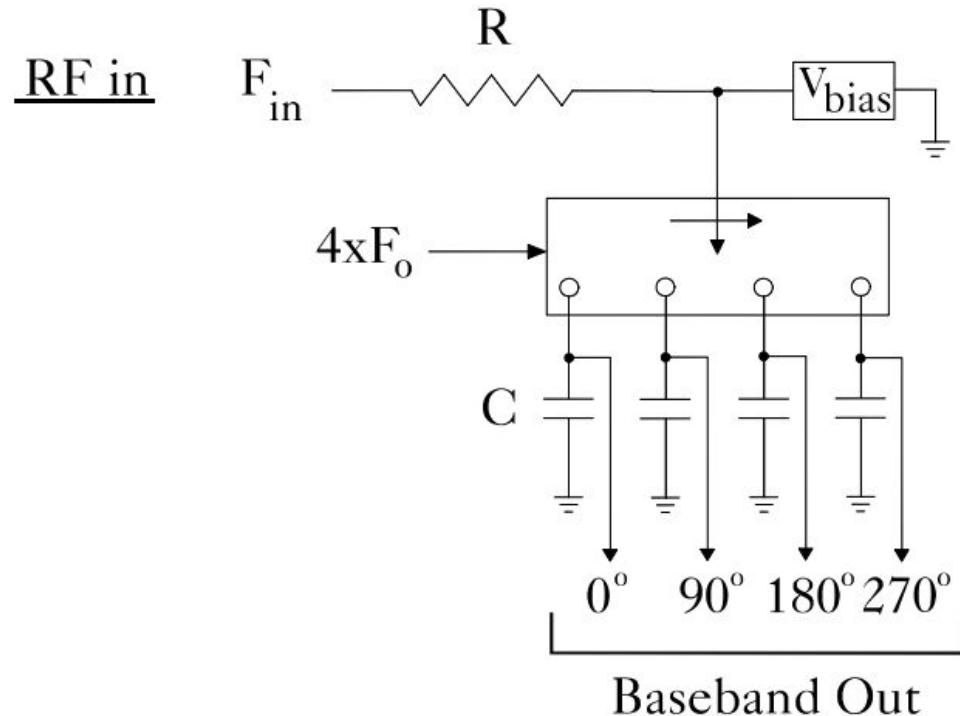
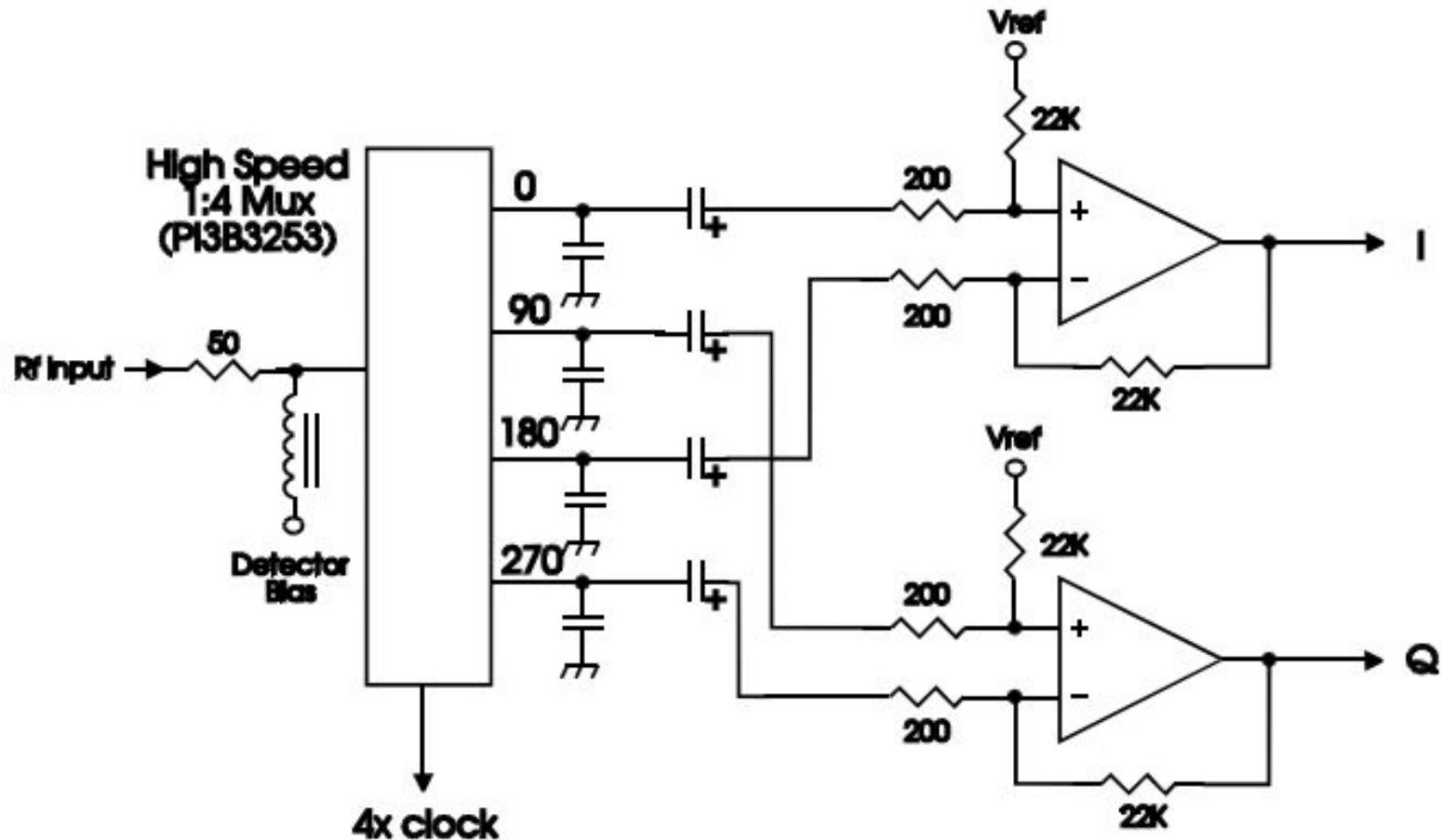
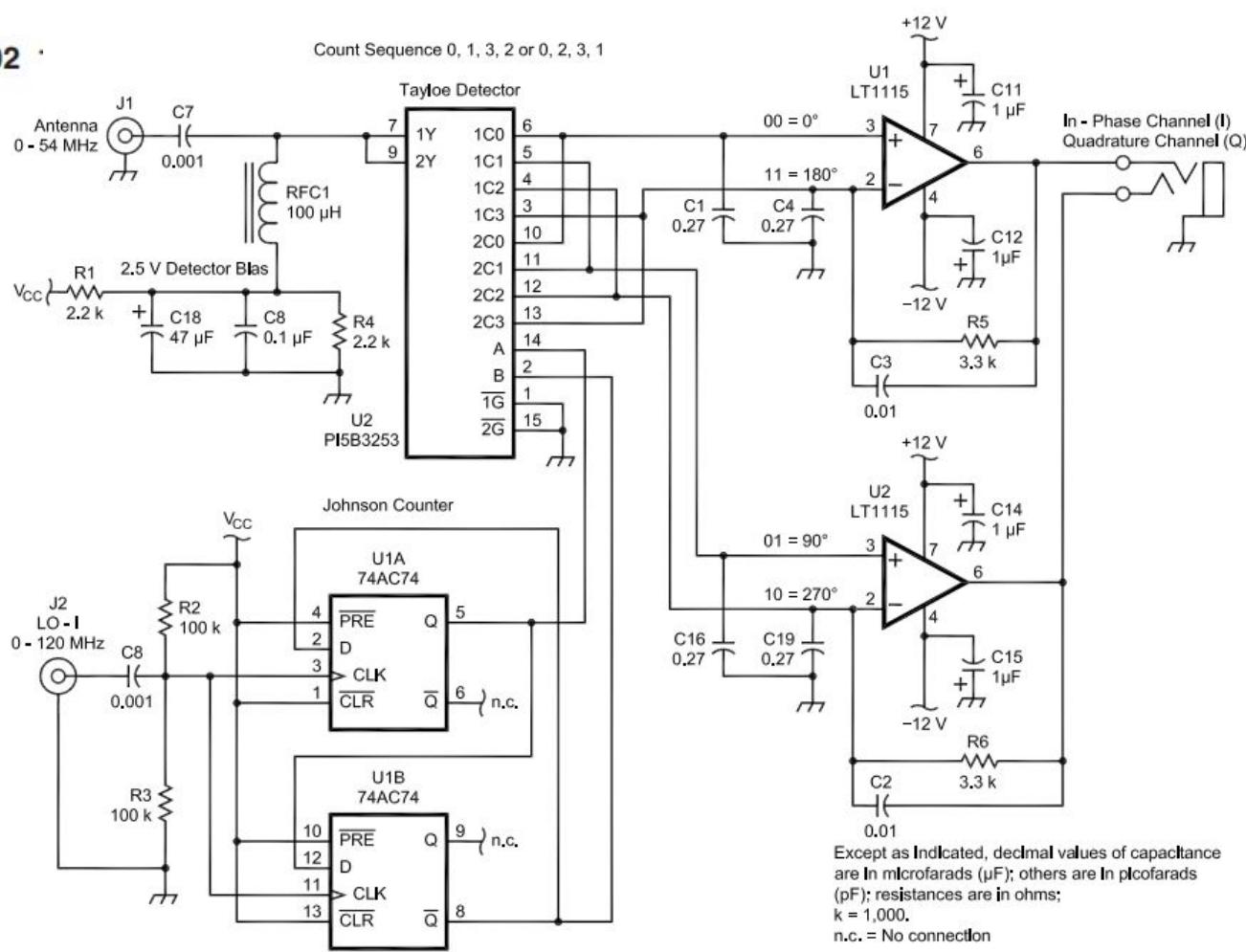


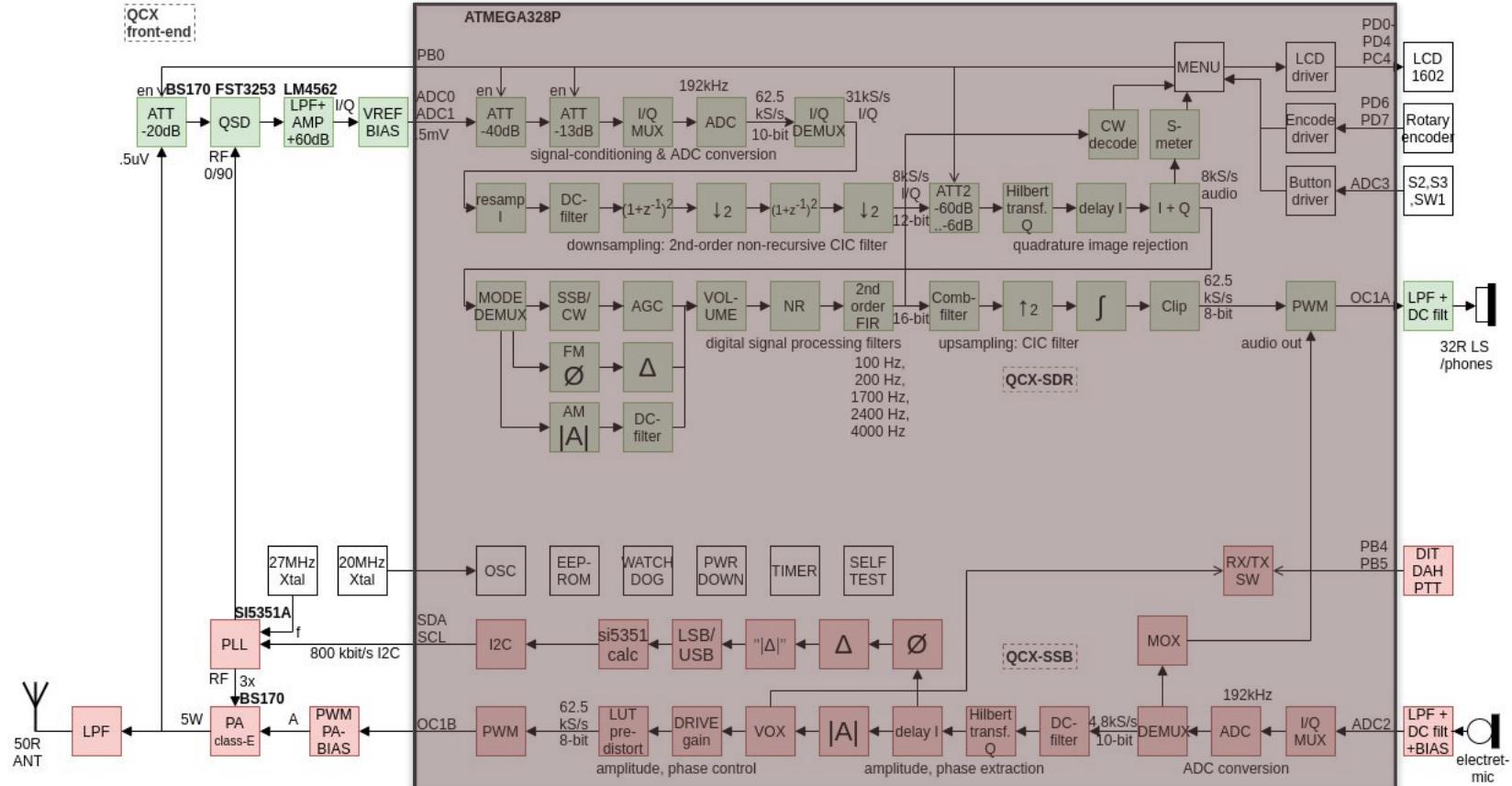
Figure # 1 Tayloe Quadrature Product Detector

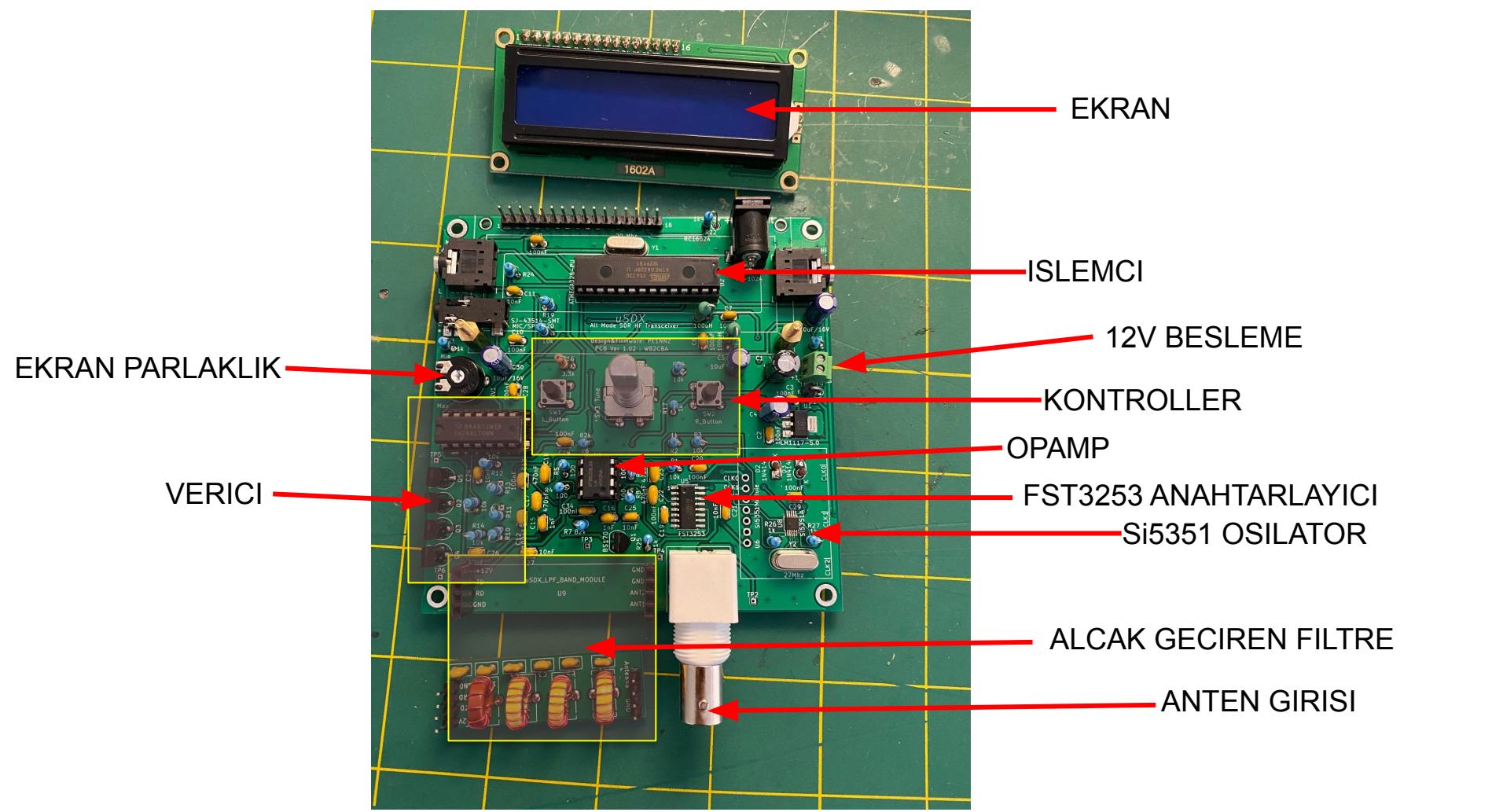


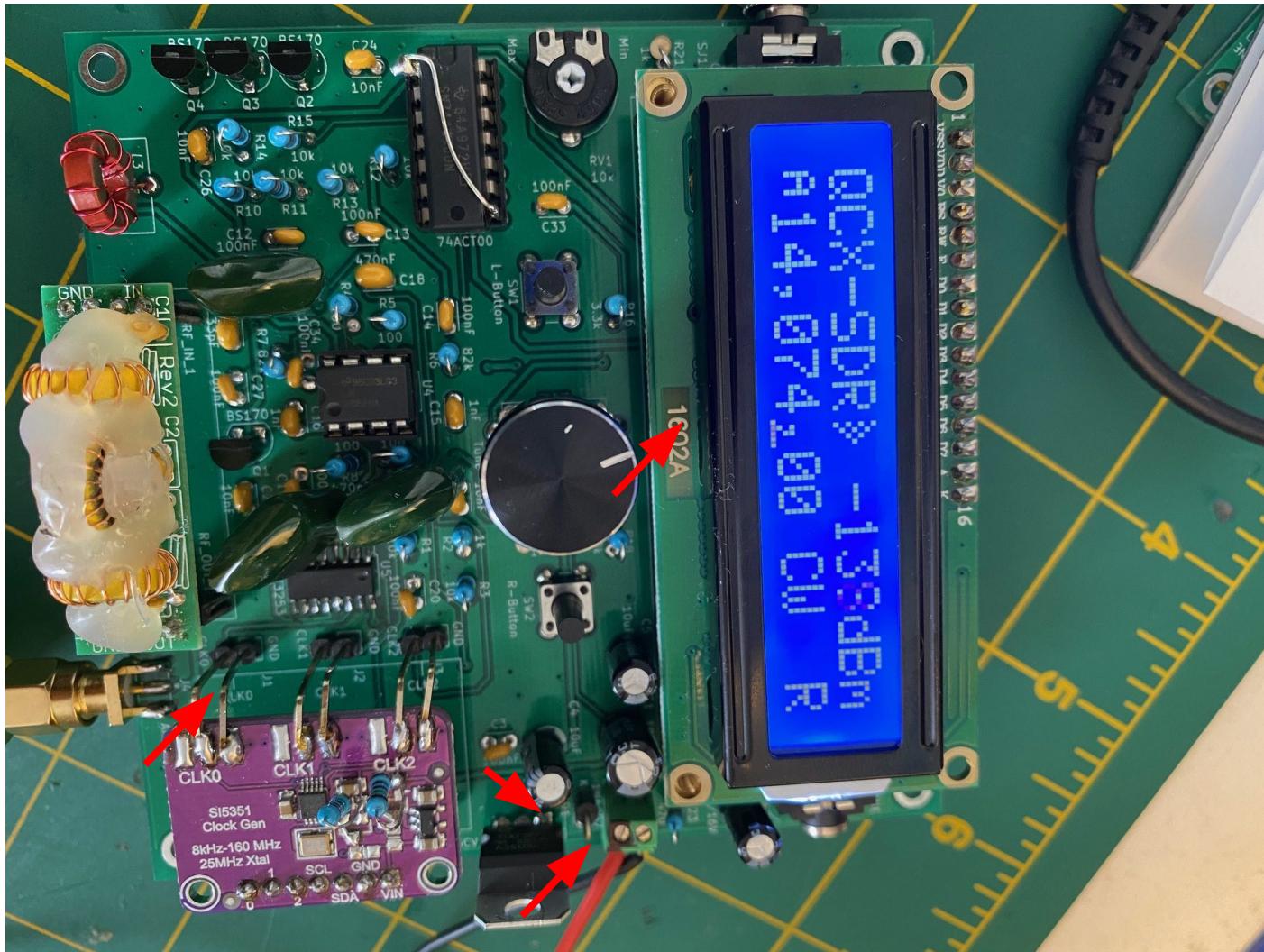
Count Sequence 0, 1, 3, 2 or 0, 2, 3, 1



Ve ARTIK HERSEY YAZILIM







PORTABLE QO-100 SDR TRANSCEIVER

Get the freedom of using satellites
wherever you go.....

“Future is in the sky..!”
M.K.Ataturk

Manpack Satellite KIT



Open Source Cubesat
Workshop 2020

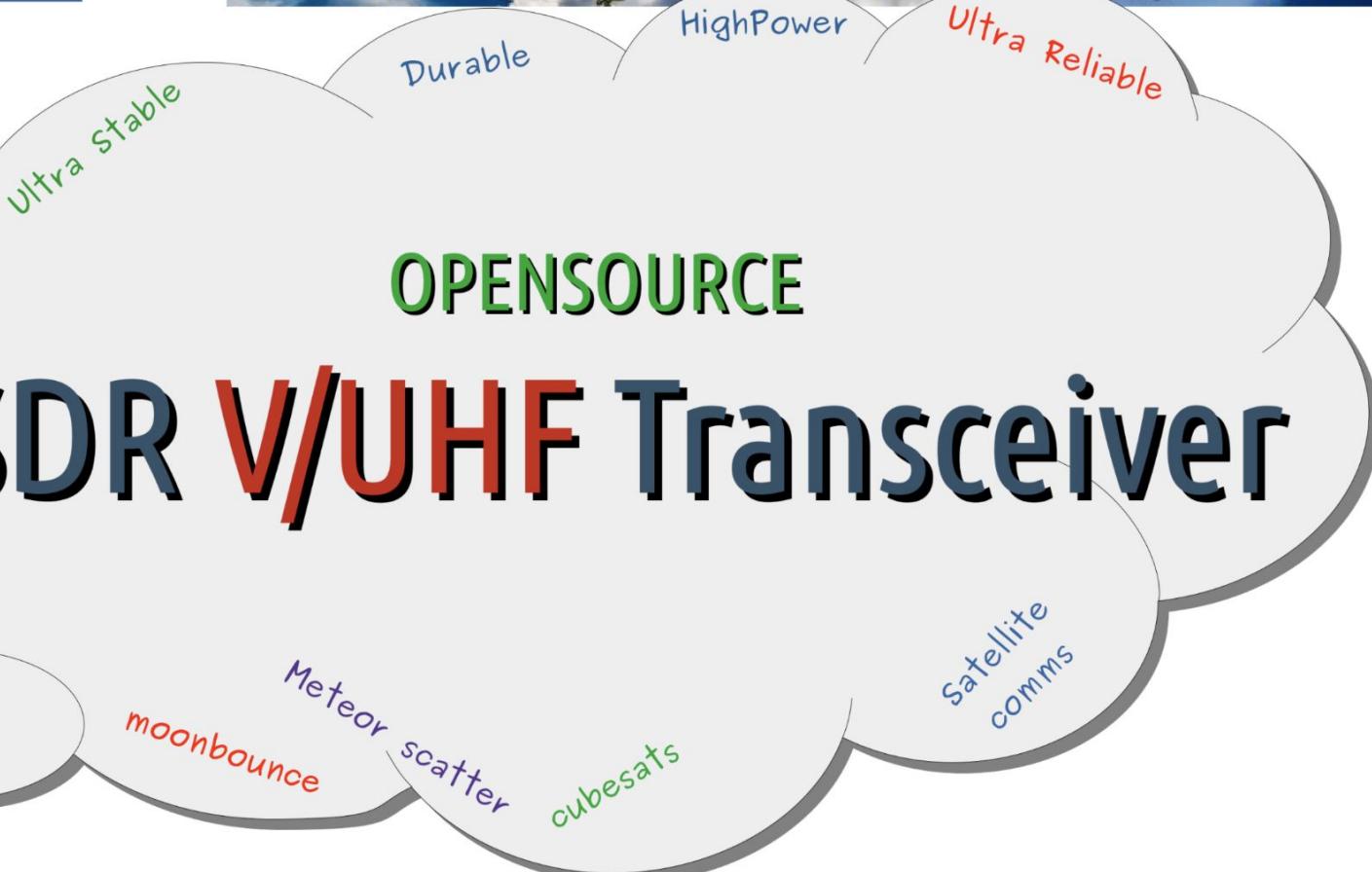
Baris Dinc, OH2UDS
Mars on Earth Project
www.marsonearthproject.org



THE STORY

PORTABLE QO-100 SDR TRANSCEIVER

OPENSOURCE SDR V/UHF Transceiver

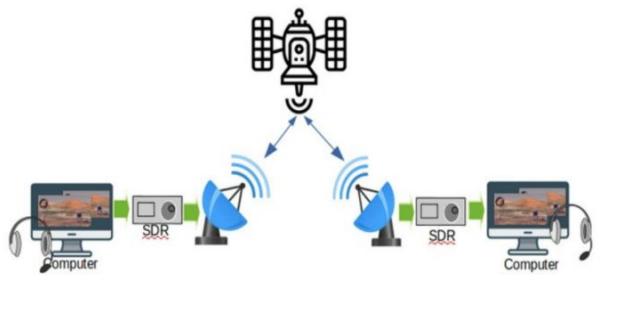


THE PROJECT

PORTABLE QO-100 SDR TRANSCEIVER



OPENSOURCE



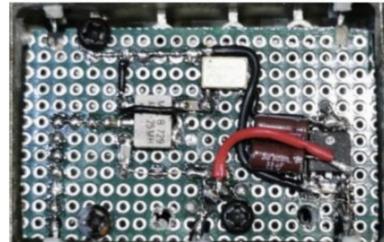
QO-100 Transceiver

SOLUTION OVERVIEW

PORTABLE QO-100 SDR TRANSCEIVER



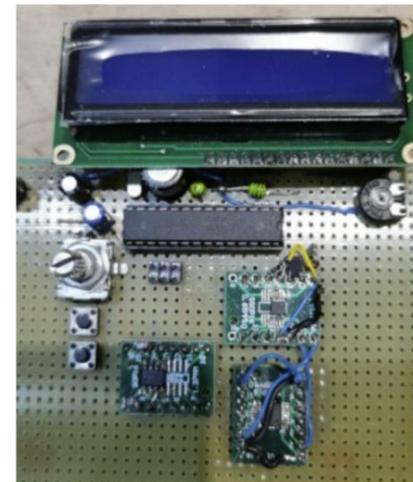
10GHz → 739 MHz



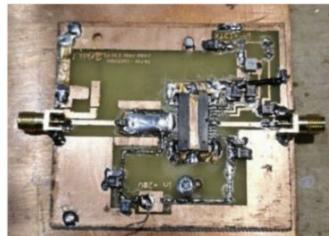
Dish+LNB

144 or 28 MHz

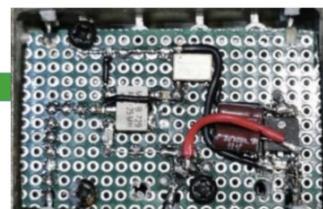
IF SSB Radio X2



2.4 GHz Antenna



Power Amplifier

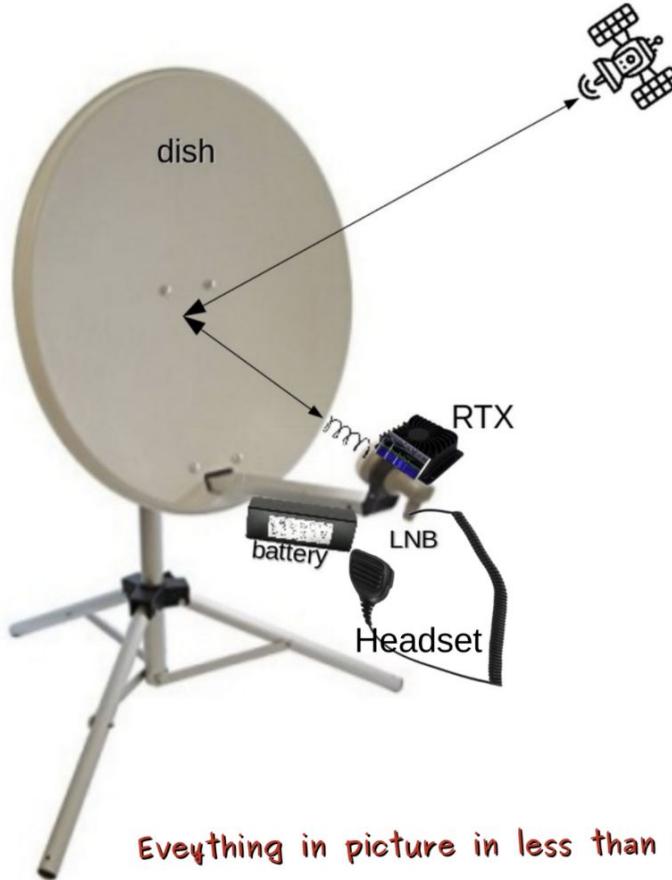
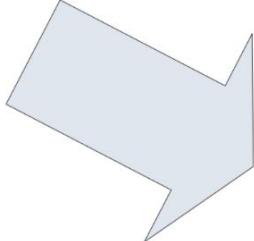


Up Converter

Our QO-100 Satellite Setup

THE GOAL

PORTABLE QO-100 SDR TRANSCEIVER



Specification

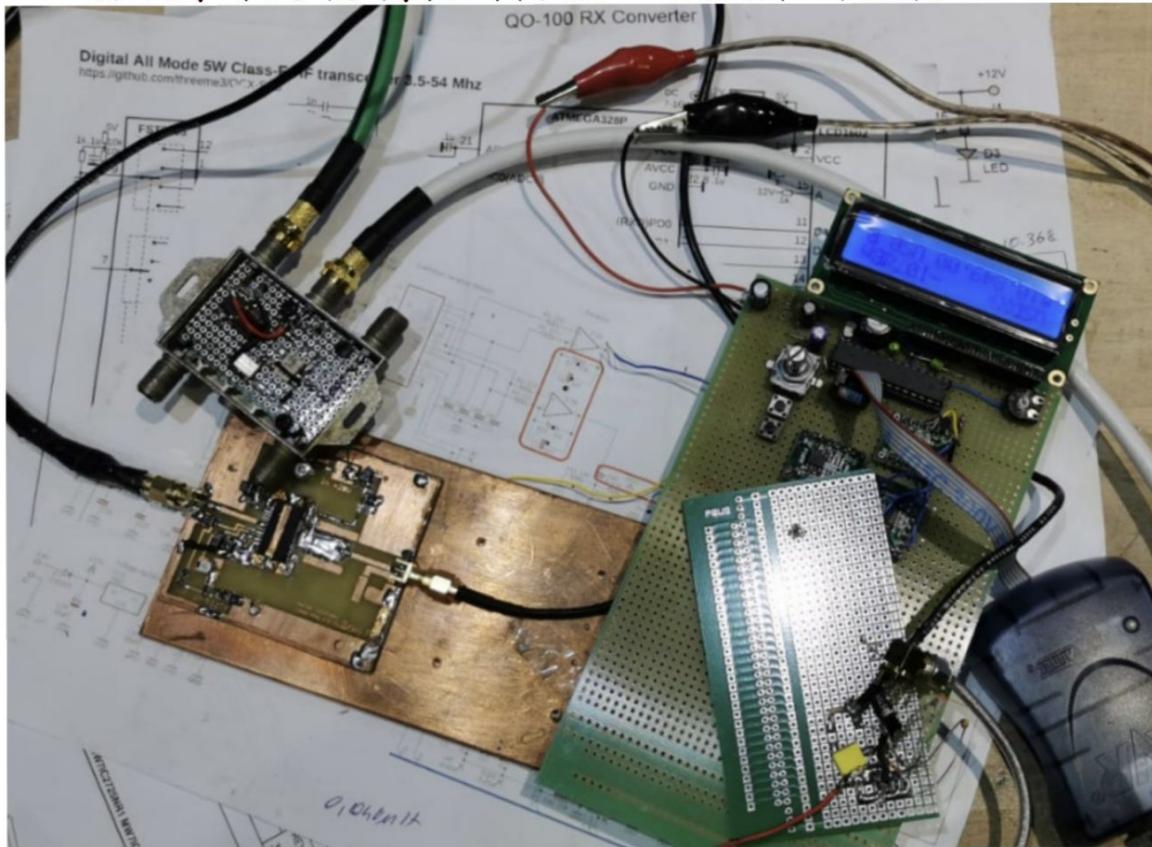
- 10 GHz Downlink
- 2.4 GHz Uplink
- 1–10 Watts RF Power
- 10 Hz steps
- 50 MHz IF
- CW/AM/SSB Modulation
- FT8, SSTV, KG-STV...
- ~5Kg

Everything in picture in less than 100 Euros budget

PROJECT STATE

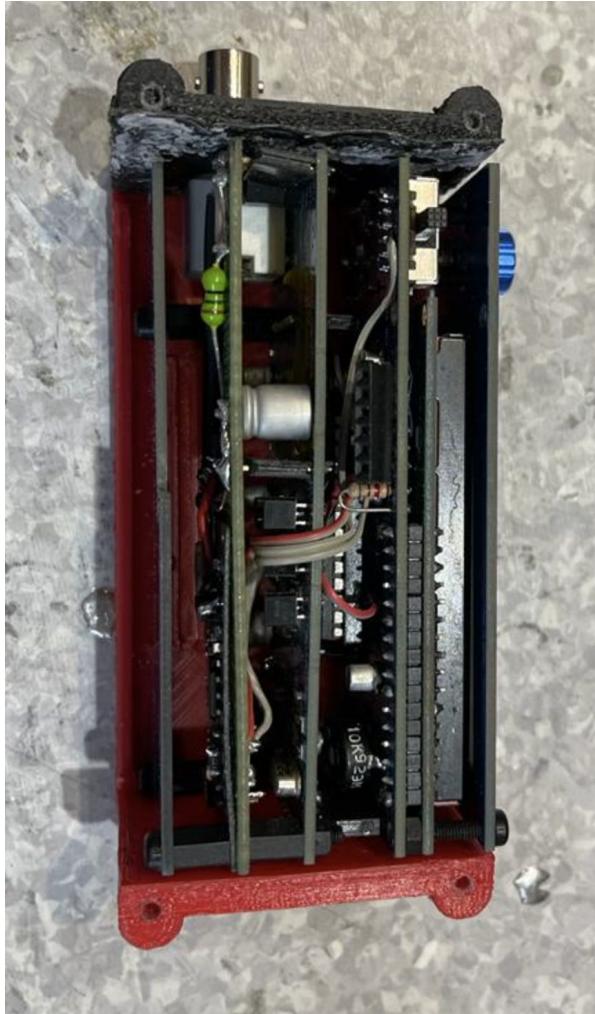
PORTABLE QO-100 SDR TRANSCEIVER

EARLY PROTOTYPE PHASE - BENCH TESTING

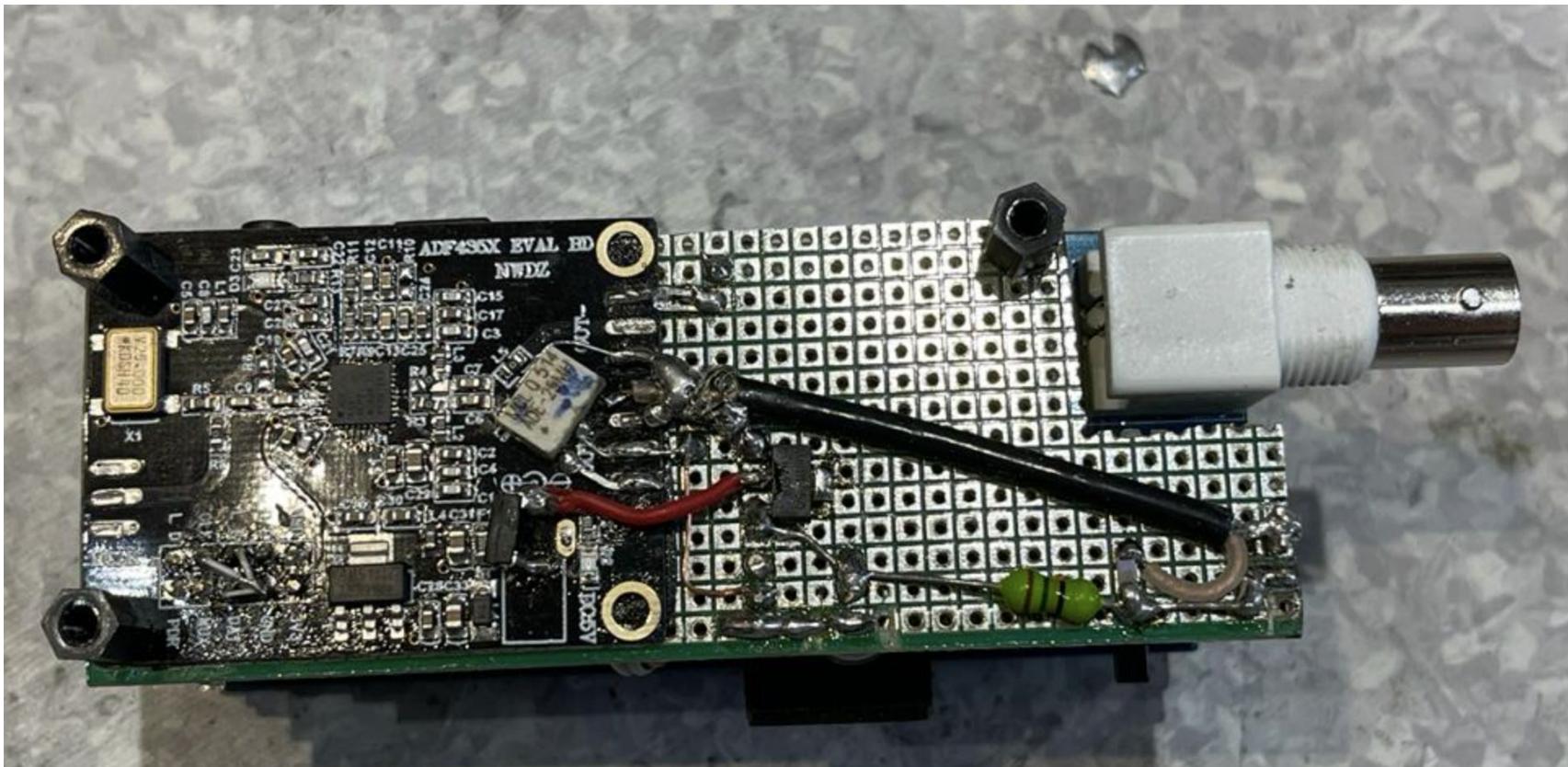


uSDX MoNo

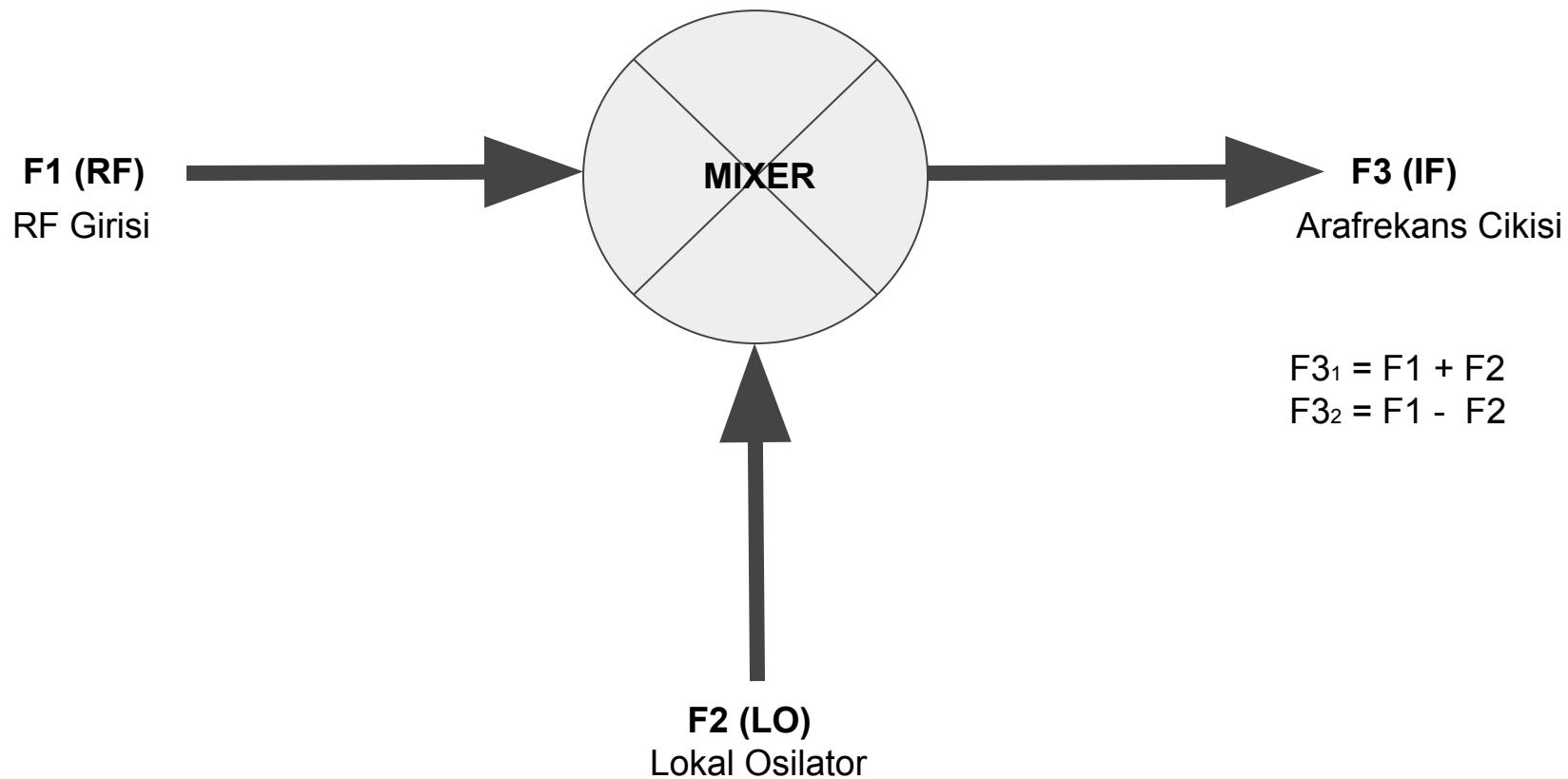




uSDX QO-100 Eklentisi V0.1

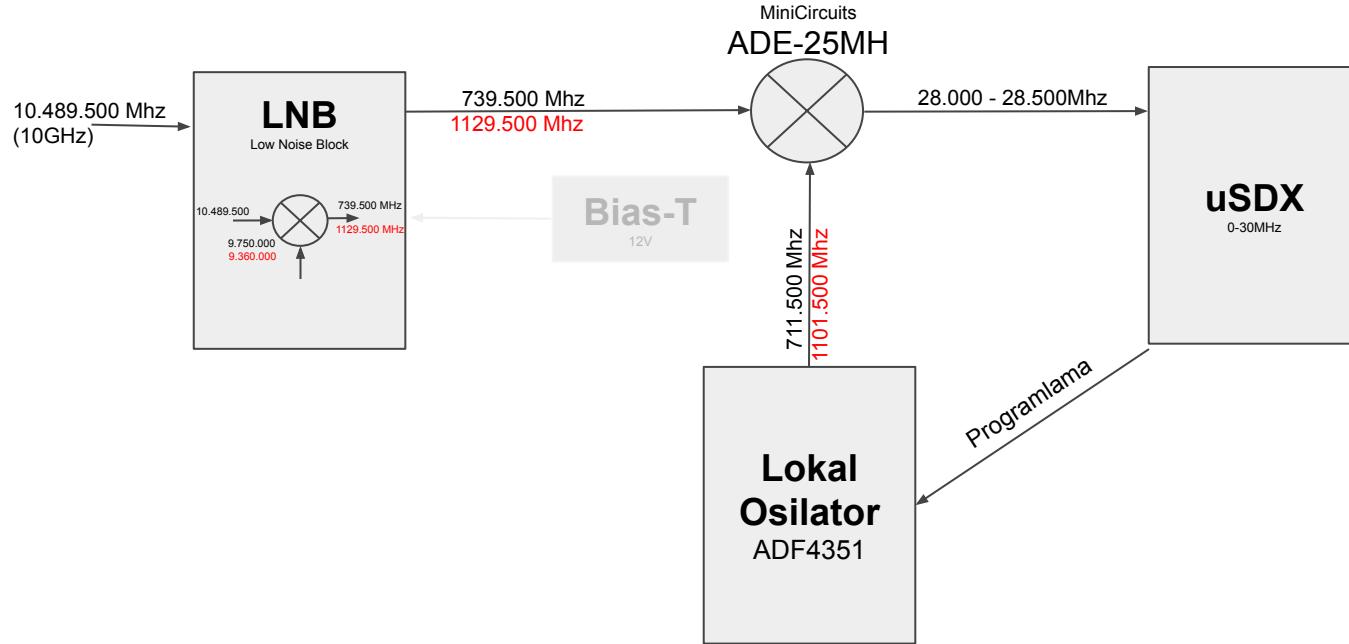


MIXER Nedir ?



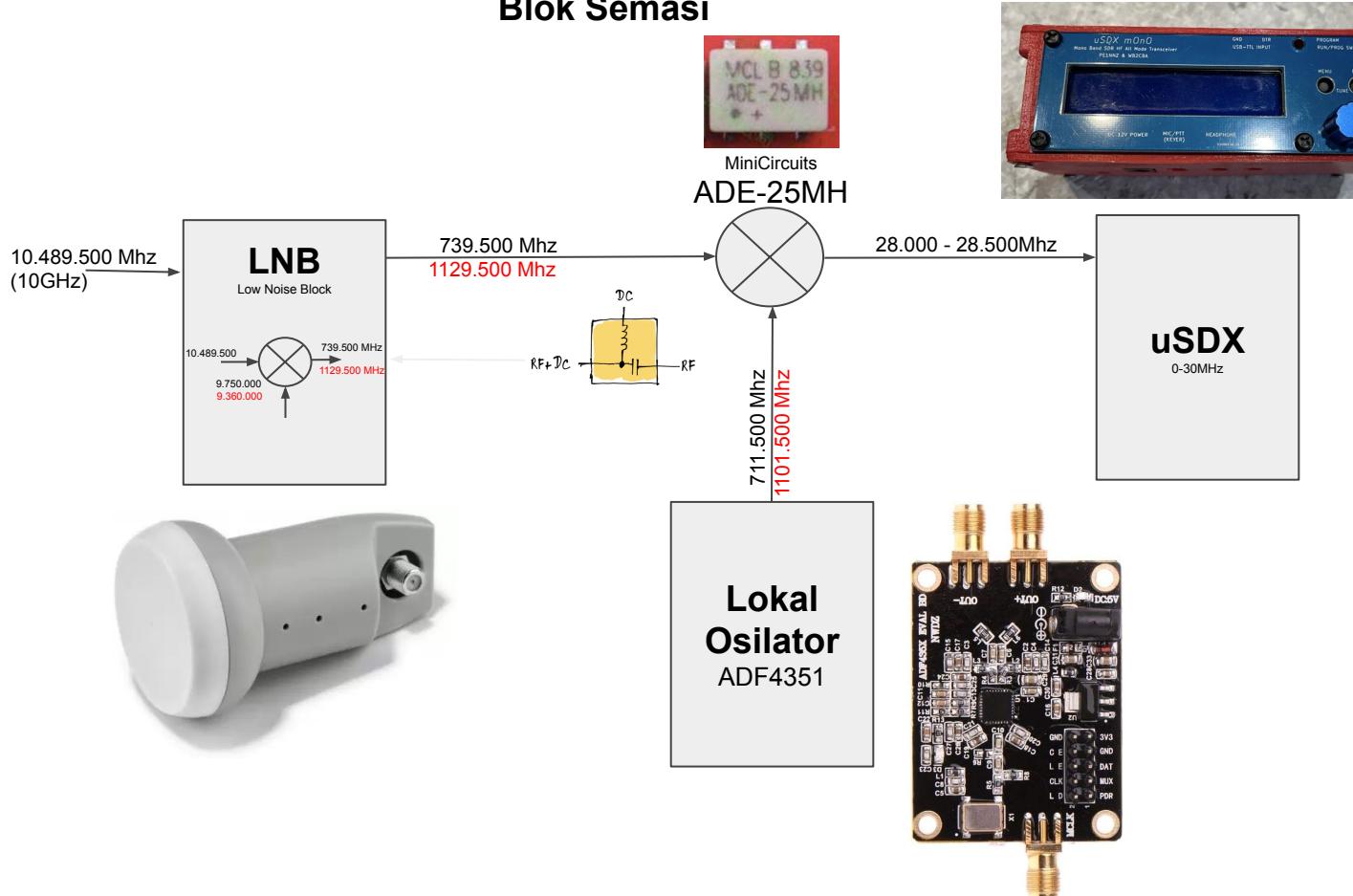
uSDX QO-100 Eklentisi V0.1

Blok Semasi

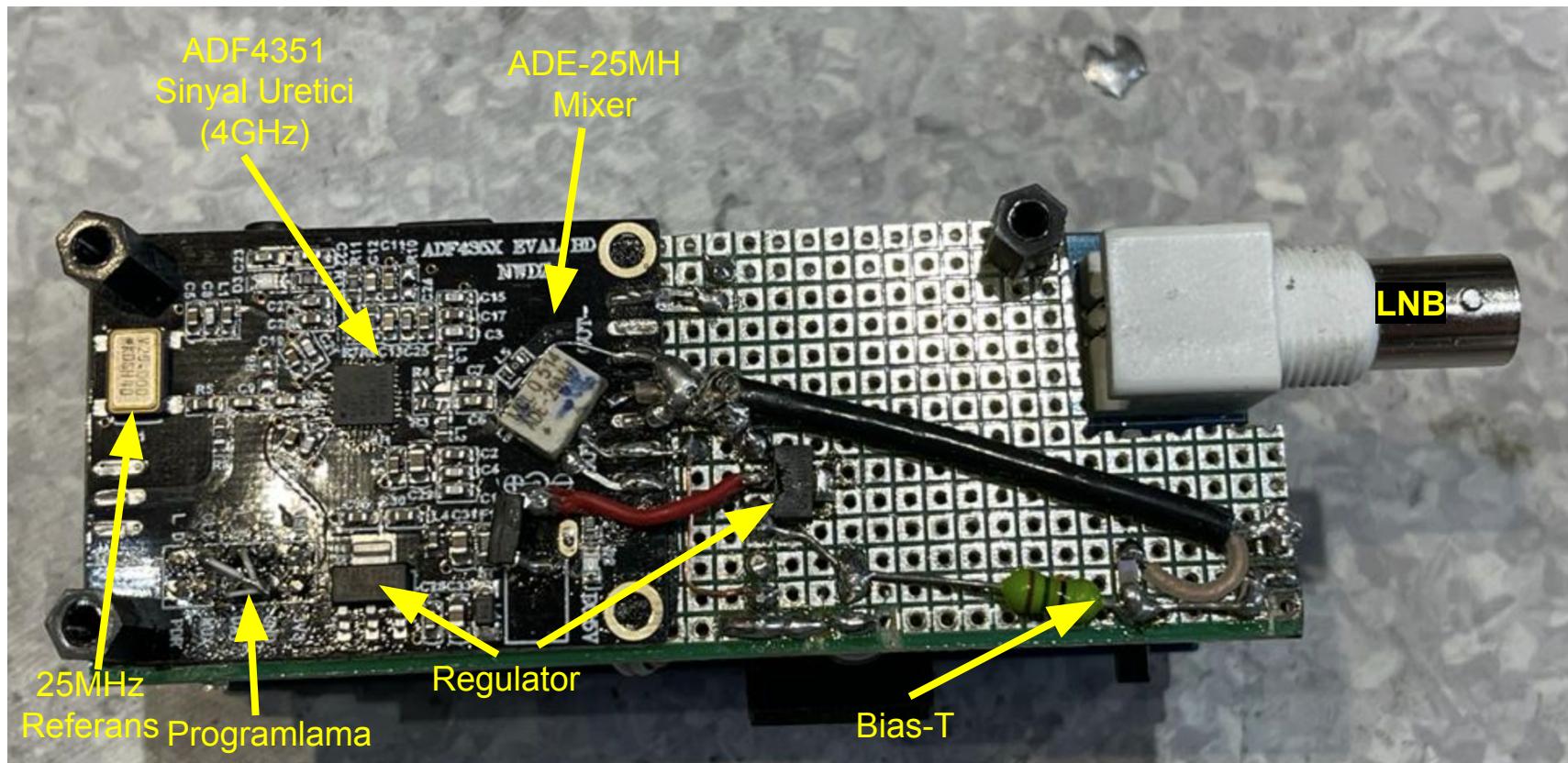


uSDX QO-100 Eklentisi V0.1

Blok Semasi



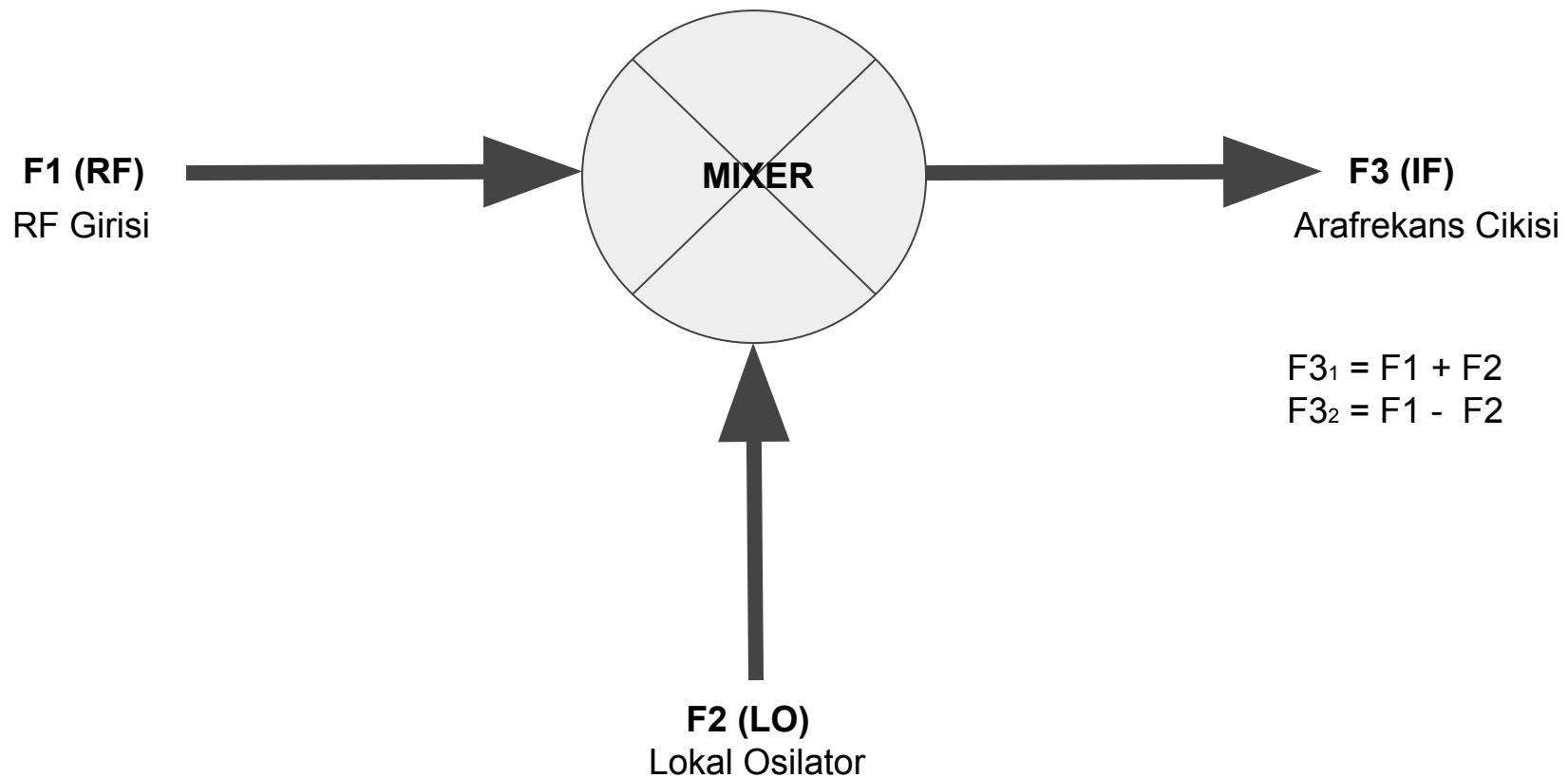
uSDX QO-100 Eklentisi V0.1



**PEKİ AMA GONDERMESİ
OLMAYACAK MI ?**

**OLACAKSA NE KADAR
KARISIK OLACAK ?**

MIXER Nedir ?



F1 = 28 MHz

F3 = 2400 MHz

F2 = ? Mhz

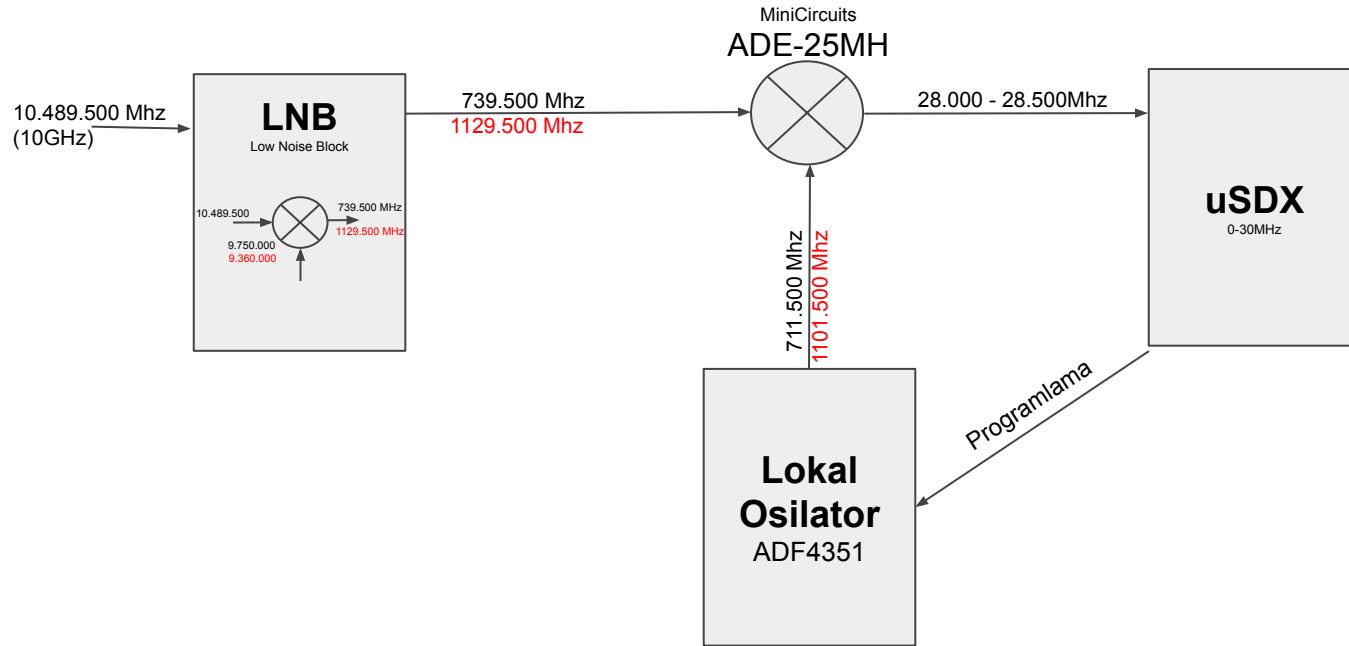
F1 = 28 MHz

F3 = 2400 MHz

F2 = 2372 veya 2428 Mhz

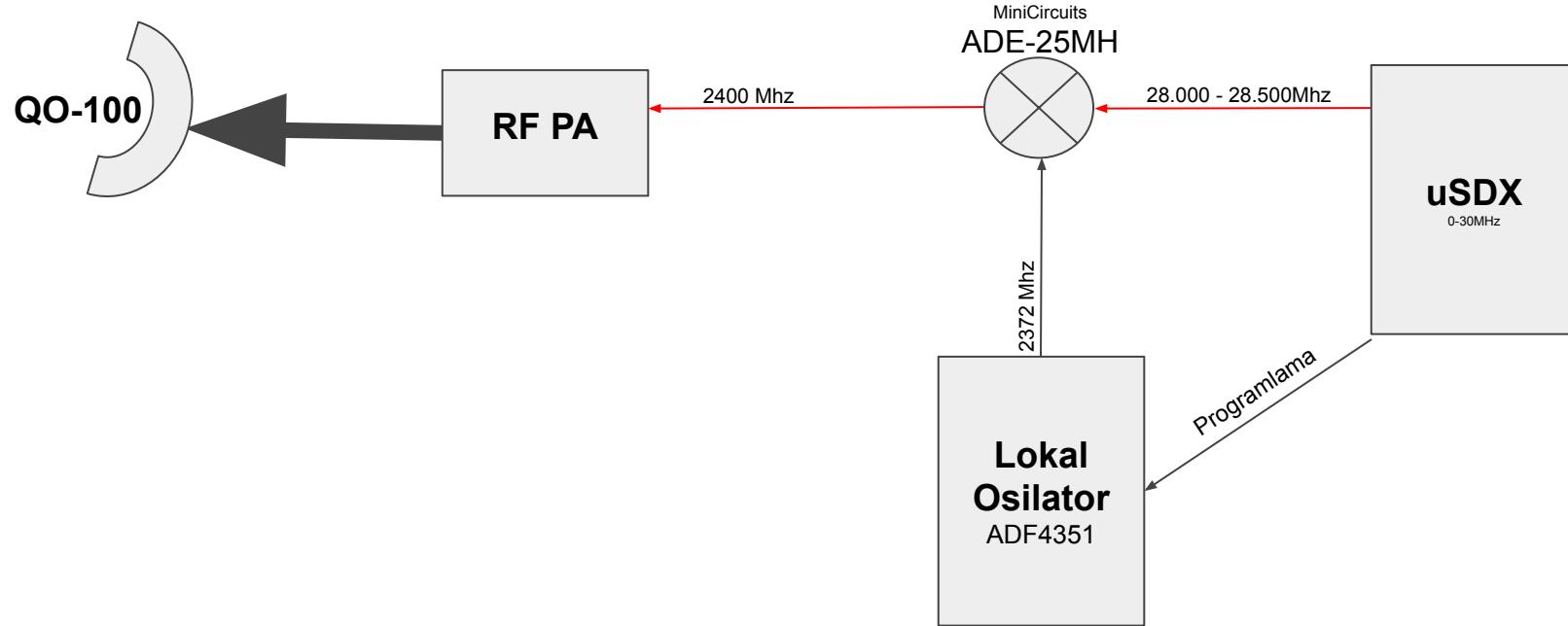
uSDX QO-100 Eklentisi V0.2

Blok Semasi

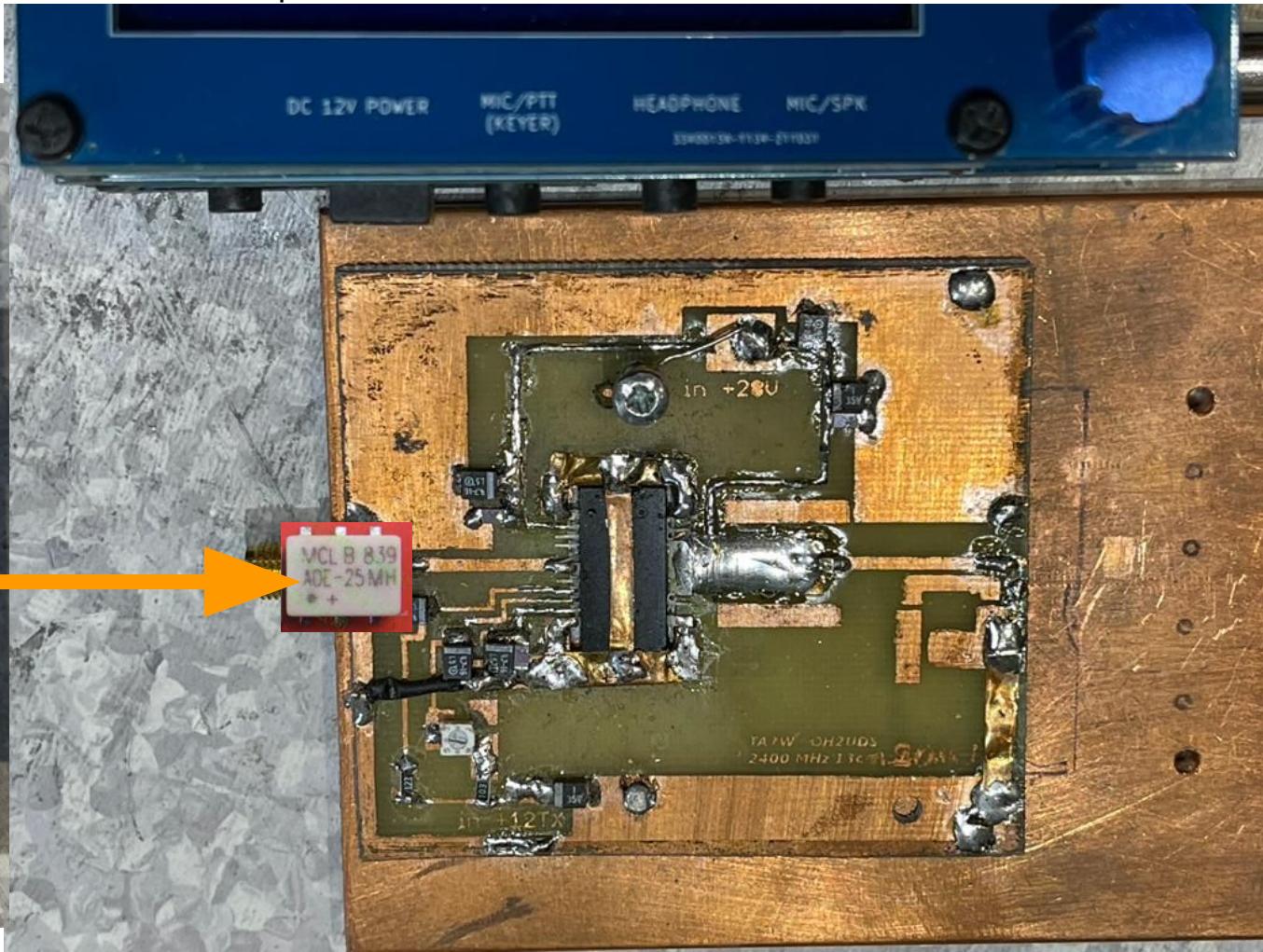
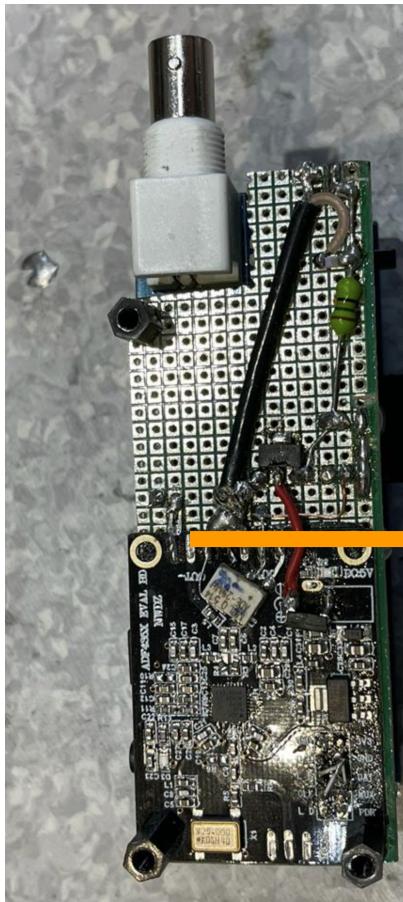


uSDX QO-100 Eklentisi V0.2

Blok Semasi



Power Amplifier





TESEKKURLER