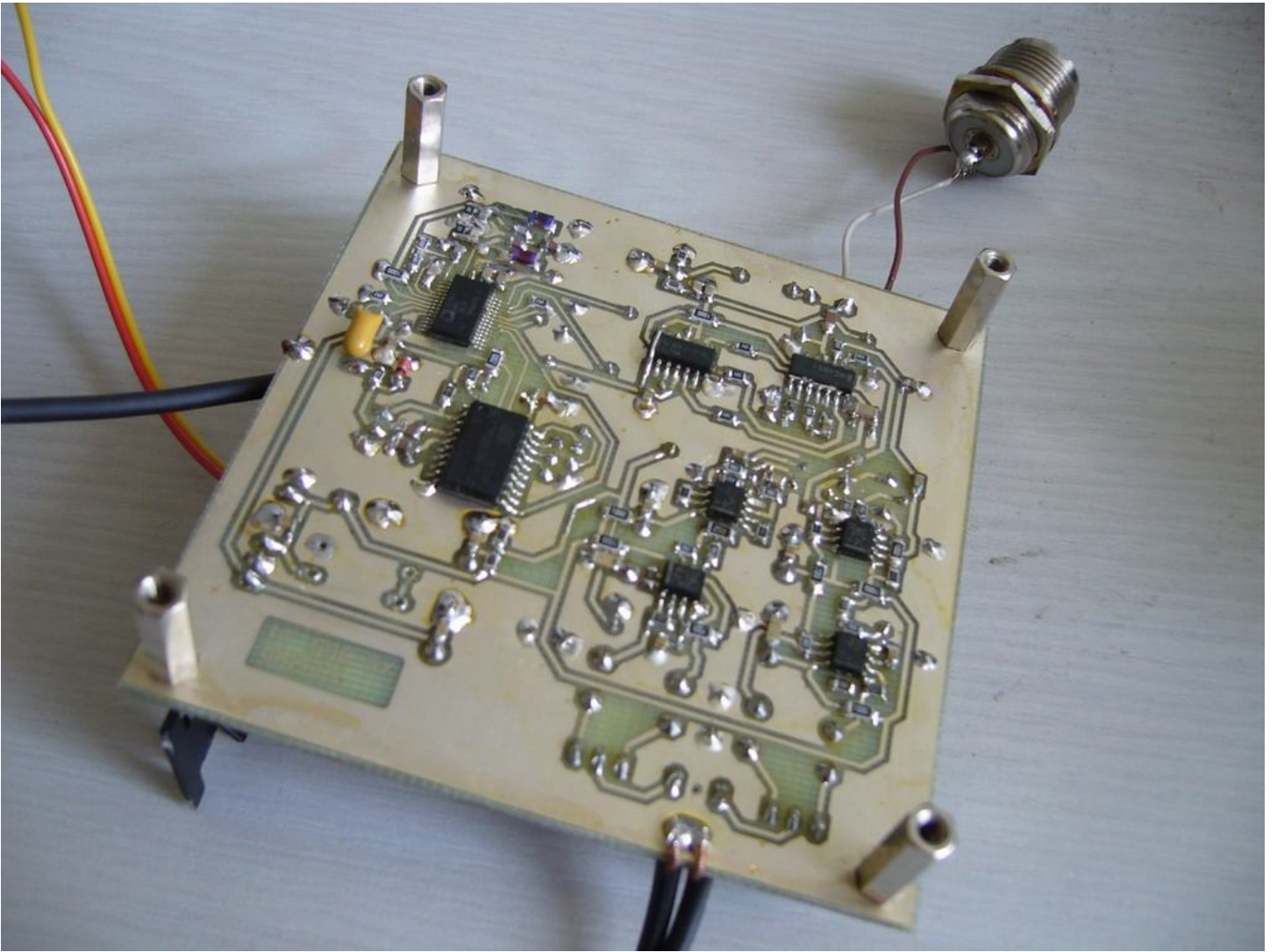


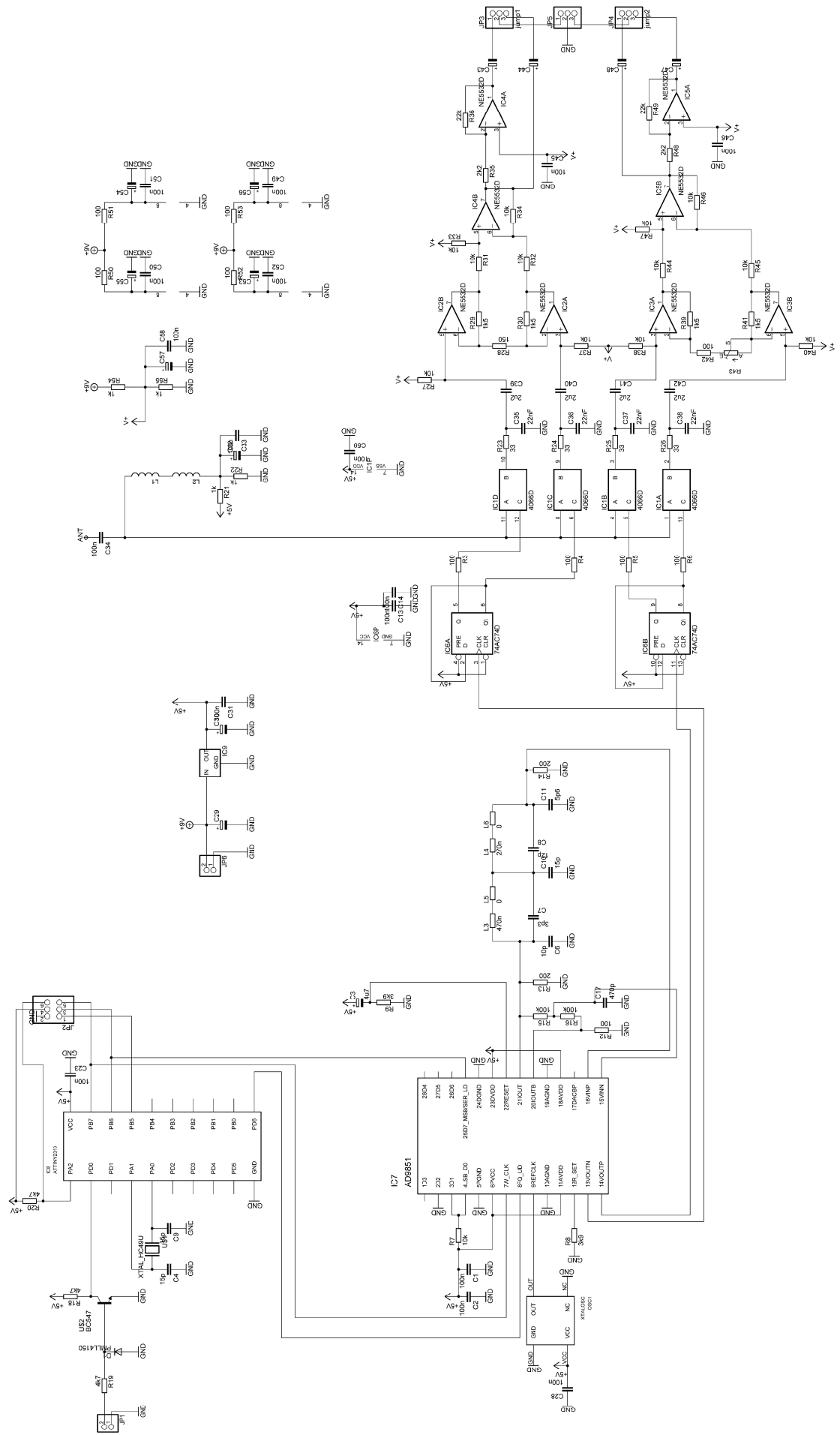
# SMT HF SDR S/H Sample and Hold Receivers Based on DR2A+ design by Petr OK2CPV

Petr Vagner OK2CPV & Dipl. Ing . Tasić Siniša –Tasa YU1LM/QRP

I received over 1500 E-mails in last 3 years. Some authors gave me their realizations based on my initial designs. One of them is SMT HF SDR receiver with integrate DDS local oscillator realized by Petr OK2CPV. I am expressing my gratitude for all who ware sharing your work!







Our correspondence

Hi Tasa,

I had built SDR receiver based on your DR2A++ and I have to say that it works excellent. As a clock generator I used AD9851 which has internal comparator with complementary CMOS output. Each output is divided by 2, so just 2 times higher frequency is necessary to obtain IQ clock signal for the 74HC4066. I use WINRAD software (thanks to I2PHD - I like this software very much) with external DLL library to command the DDS (by OK2CFM).

The parameters of the RX are really excellent. I didn't notice IMD even when receiving very strong and close HAM stations.

Only one problem was with extremely strong AM radio station at 7 MHz, but this would fix some attenuator easily. The sensitivity I think is also very good (compared to Kenwood TS570). But the best are the digital filters and the possibility to see 96kHz of the spectrum. I will never use any classic receiver anymore :-). Just one question: In the Winrad I always see several kHz wide peak in the middle of the spectrum (on the frequency corresponding with half of the sampling frequency). I don't know exactly what is it (its intensity changes with frequency tuning) ...can I eliminate it somehow?

So thank you for publication of your ideas on the internet, I think it is nice inspiration for many HAMs. I send you photos of my design and the schematic if you are interested.

Good luck in the future SDR design.  
73! Petr OK2CPV

Hello Petr,

Thank you very much for nice photos. I was surprised that you realized the same ideas as I do. I made new SDR transceiver name AVALA-02 all band HF with AD9851 and RX the same like your version of DR2A+(+) Hump at the centre of spectrum is determined by low frequency response of your sound card. Better card no or small hump H!!! Can you send me a some details about USB interface to DDS and how the control looks like. Do your control DDS directly from WINRAD.

VY 73/72 GL in SDR homebrew Tasa YU1LM/QRP

Thanks for reply Tasa,

For tuning DDS I am using ATTINY2313 microcontroller. It has USART interface, so you only have to invert logic levels by one transistor and than it can be connected directly to PC COM port. Next useful feature of ATTINY2313 is universal serial interface - USI - that is used to feed the DDS with synchronous serial data. I set DDS LO frequency directly from Winrad.

External library (by Martin OK2CFM) for Winrad is used to get frequency from Winrad, complete the tuning word and send it through COM port to the DDS. If you don't have COM port on your PC, the USB to

RS232 interface chip FT232 would be the solution. We can help you with your problem with the new "USB only :-)" notebook. I think that very universal solution would be something like USB to AD9851 interface using FT232 and ATTINY2313 - so it would be connected directly to the USB and to the DDS. If we make some modifications in the existing library that I already have, it will work with Winrad with no problems. If you are interested so I can contact our software guru :-). OK2CFM and we can try to help you.

Petr

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