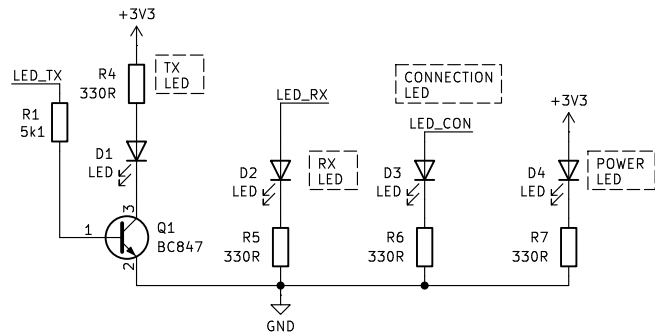
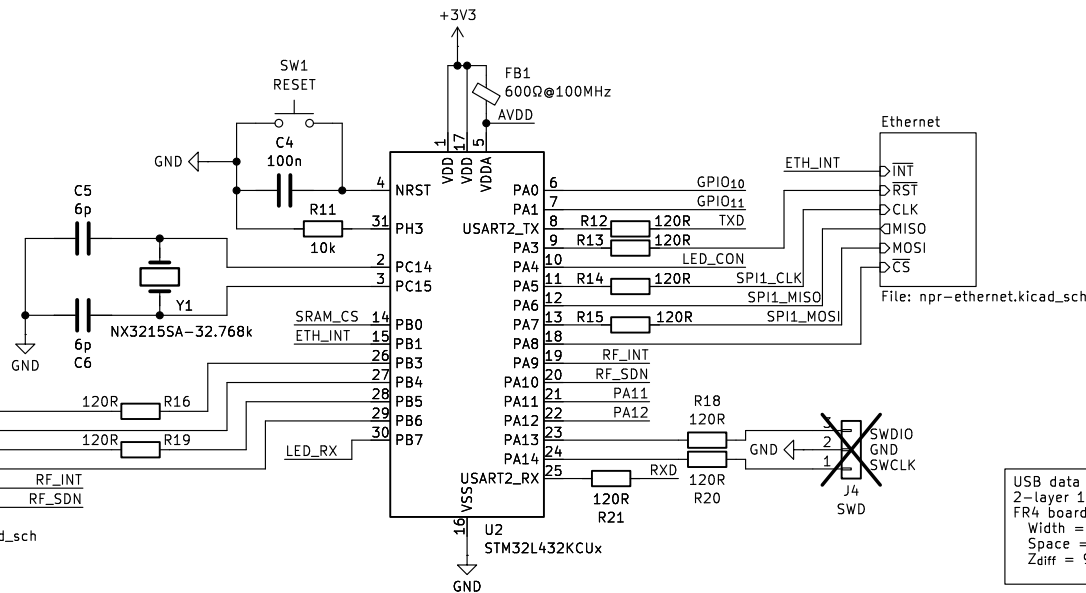
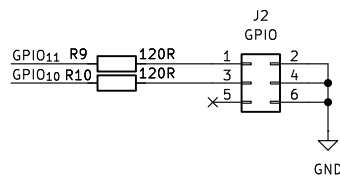
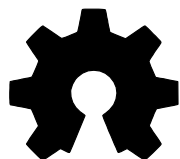


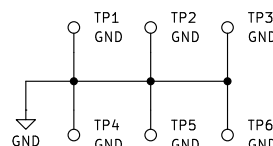
PIN	FUNCTION
PA0	GPIO10
PA1	GPIO11
PA2	UART TX
PA3	ETH Reset
PA4	LED Connection
PA5	SPI1 CLK (ETH+SRAM)
PA6	SPI1 MISO (ETH+SRAM)
PA7	SPI1 MOSI (ETH+SRAM)
PA8	ETH CS
PA9	Radio Interrupt
PA10	Radio SDN
PA11	PA11 / USB D-
PA12	PA12 / USB D+
PA13	SWDIO
PA14	SWCLK
PA15	UART RX
PB0	SRAM CS
PB1	ETH Interrupt
PB3	Radio CLK
PB4	Radio MISO
PB5	Radio MOSI
PB6	Radio CS
PB7	LED Receive



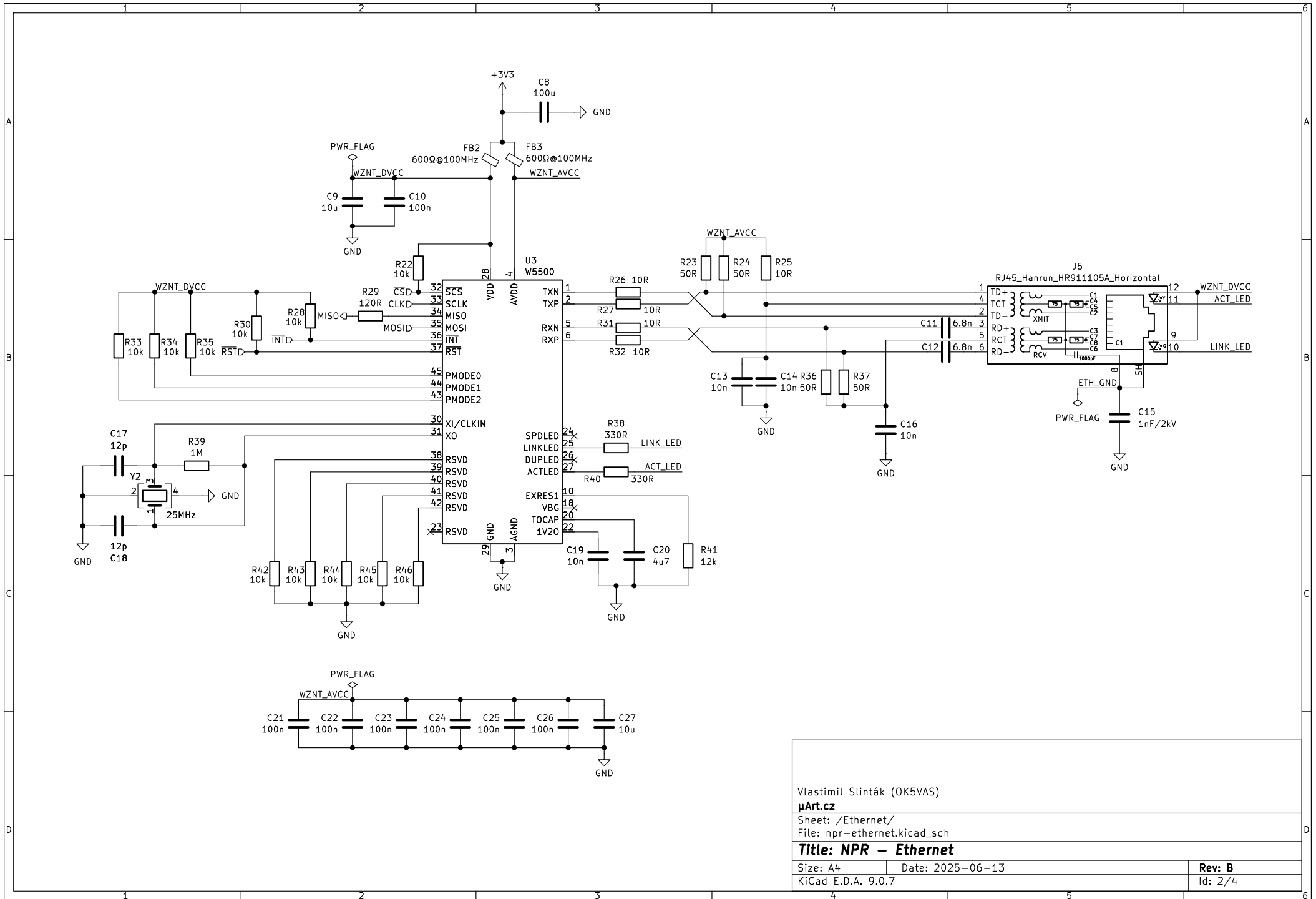
USB data lines on a 2-layer 1.6 mm thick FR4 board:
Width = 0.8 mm
Space = 0.16 mm
Zdiff = 90.18 Ω



This design is Open-Source Hardware.
Based on the project by F4HDK.
Current version by OK5VAS.



Vlastimil Slinták (OK5VAS)	
μArt.cz	
Sheet: /	
File: npr-revB.kicad_sch	
Title: The New Packet Radio (NPR)	
Size: A4	Date: 2025-06-13
KiCad E.D.A. 9.0.7	Rev: B
	Id: 1/4



Vlastimil Slinták (OK5VAS)

µArt.cz

Sheet: /Ethernet/

File: npr-ethernet.kicad_sch

Title: NPR – Ethernet

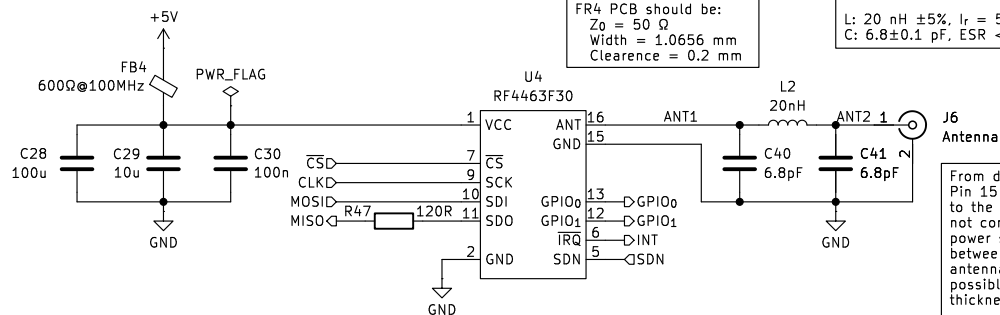
Size: A4

Date: 2025-06-13

KiCad E.D.A. 9.0.7

Rev: B

Id: 2/4



ANT trace for 1.6 mm
FR4 PCB should be:
 $Z_0 = 50 \Omega$
Width = 1.0656 mm
Clearance = 0.2 mm

Lowpass filter:
3rd order Chebyshev Lowpass filter.
Cutoff frequency: 480 MHz
S21 @ 868 MHz ~ -10.00 dB
S21 @ 920 MHz ~ -11.80 dB
L: 20 nH $\pm 5\%$, $I_r = 550$ mA, $R_{pc} = 150$ m Ω , SRF = 4.5 GHz
C: 6.8 ± 0.1 pF, ESR < 90 m Ω , Q ~ 550

From datasheet:
Pin 15 (ANT GND) is connected
to the ground of antenna, do
not connect to the ground of
power supply. The routing
between antenna pad and
antenna shall be as short as
possible, and
thickness larger than 1mm.

Vlastimil Slinták (OK5VAS)

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Sheet: /Radio/

File: npr-radio.kicad_sch

Title: NPR - Radio

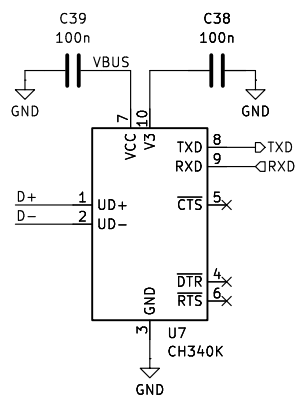
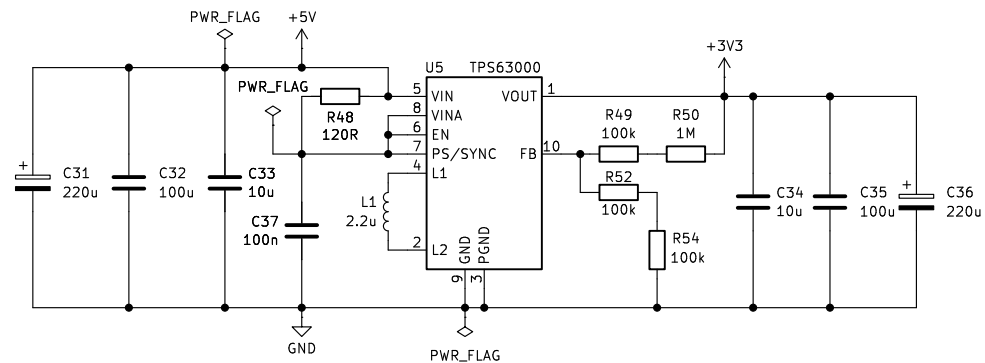
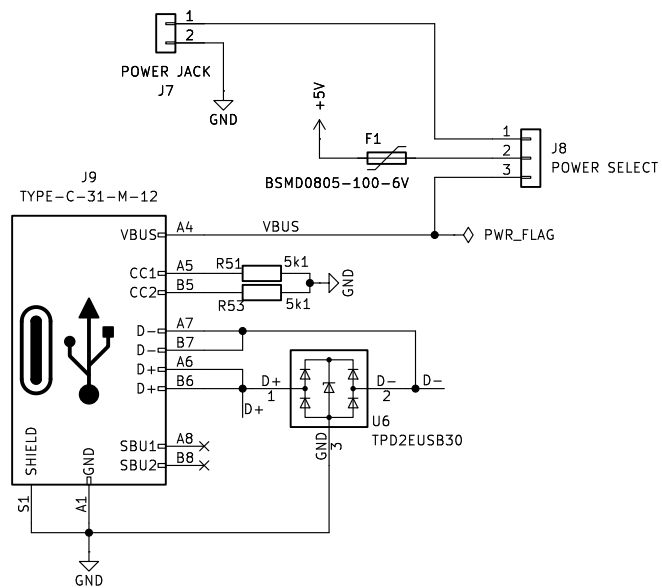
Size: A4

Date: 2025-06-13

Rev: B

KiCad E.D.A. 9.0.7

Id: 3/4



Vlastimil Slinták (OK5VAS)

μArt.cz

Sheet: /Power/

File: npr-power.kicad_sch

Title: NPR - Power

Size: A4

Date: 2025-06-13

KiCad E.D.A. 9.0.7

Rev: B

Id: 4/4