

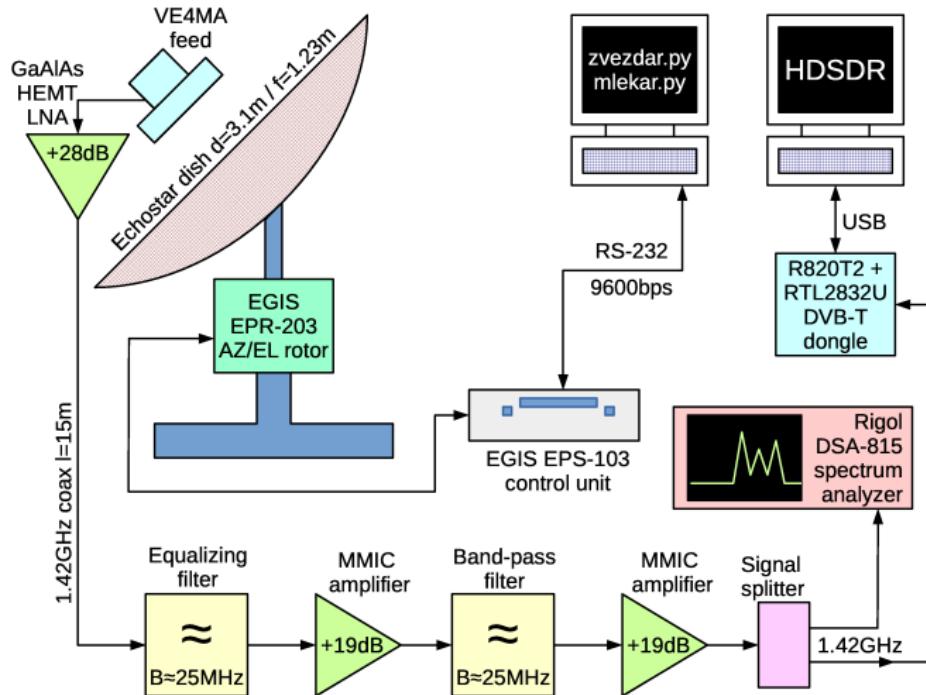
# Hydrogen-line and pulsar observations with a small antenna

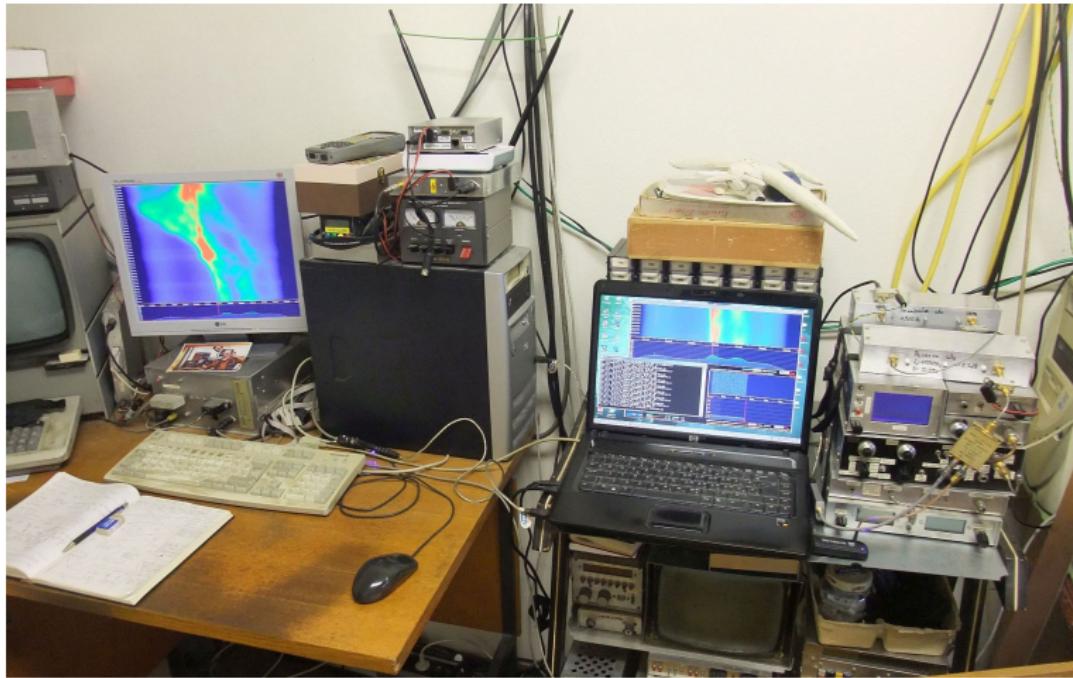
Tadeja Saje, Matjaž Vidmar

# Mesh reflector with feed, LNA and azimuth/ elevation positioner

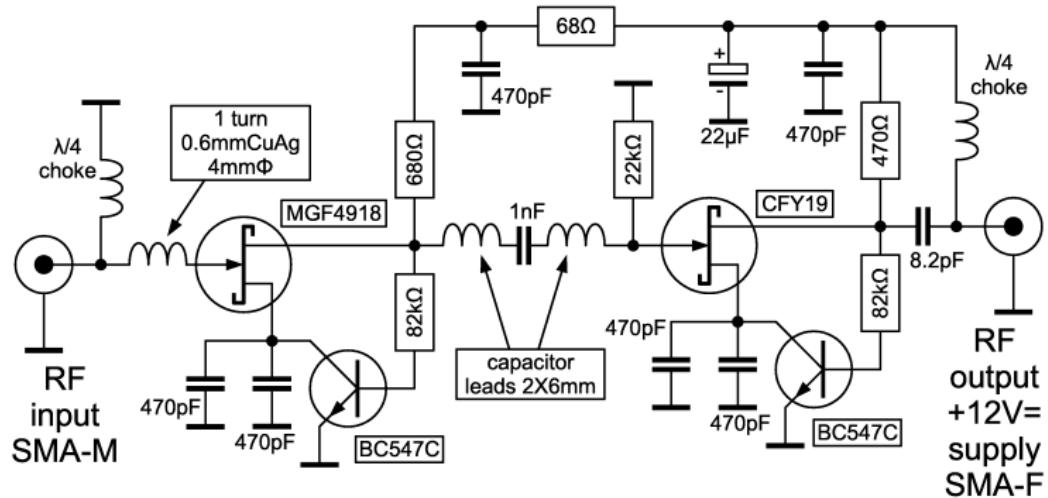


# Block diagram of a compact hydrogen-line radio telescope

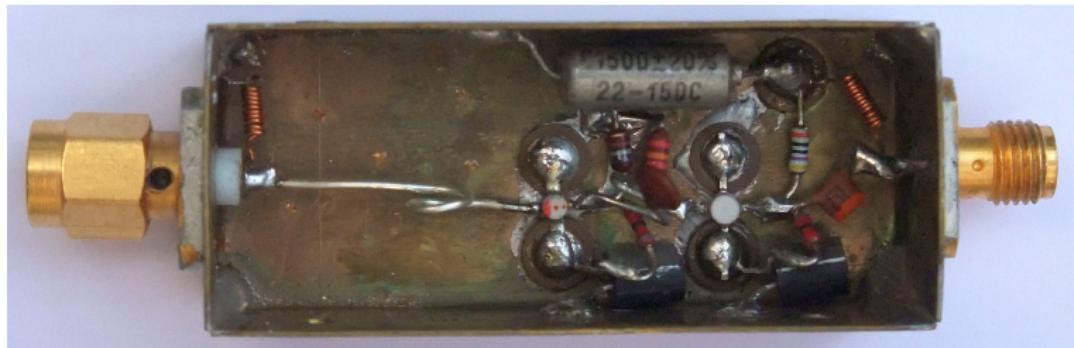




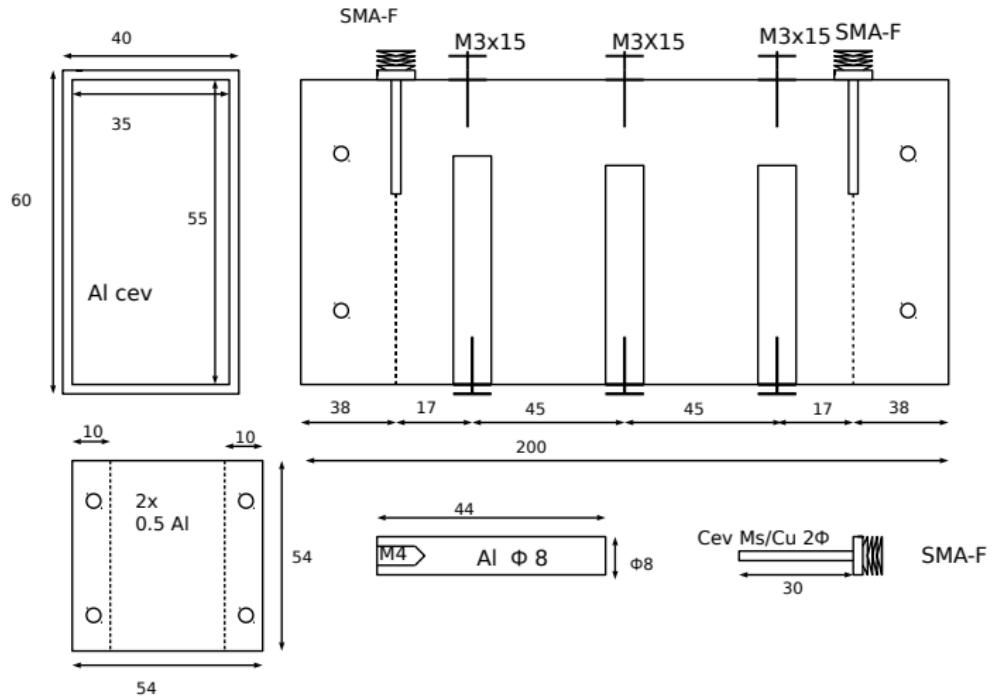
# LNA circuit diagram



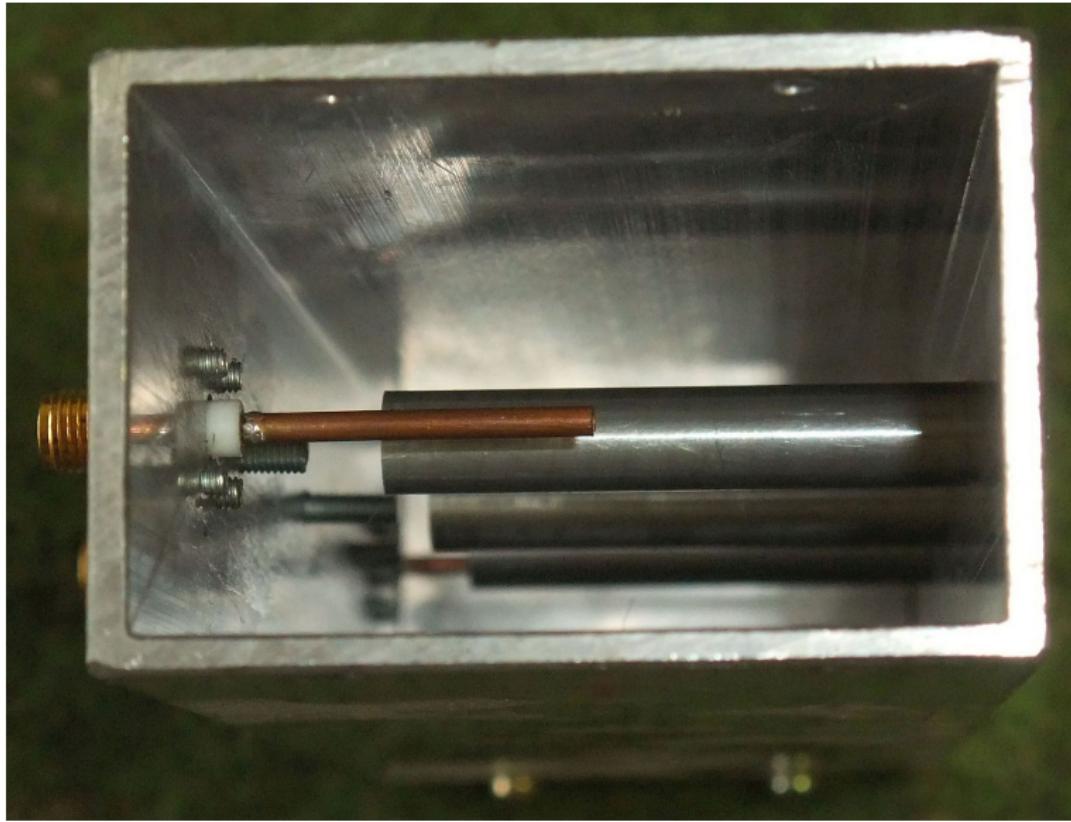
# Practical implementation of the LNA



# Comb-filter design



# Inside the comb-filter cavity

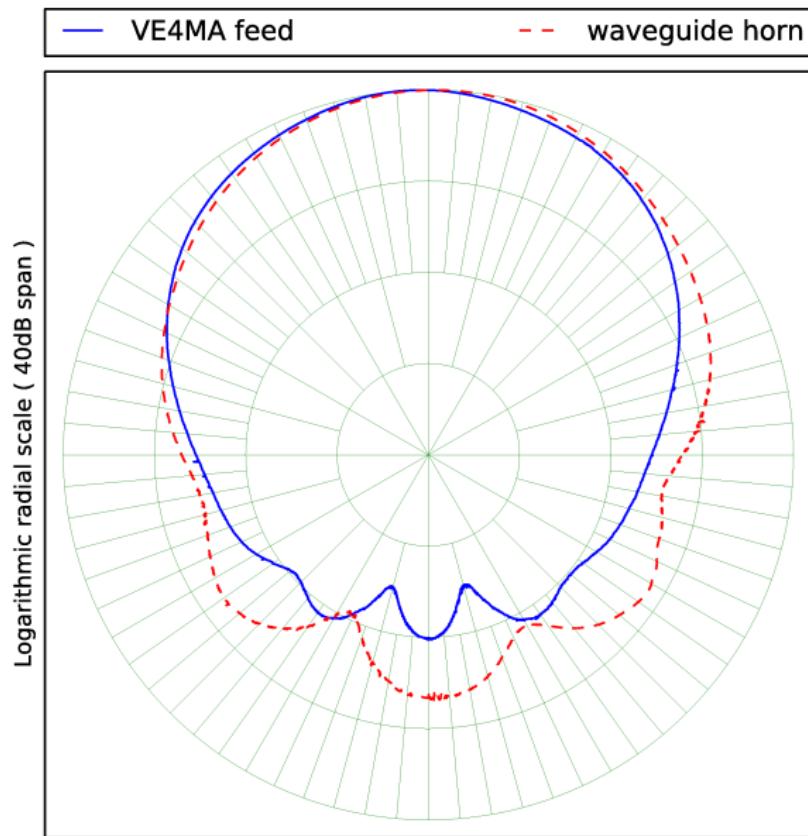


# Measurements: the radiation pattern of the feed



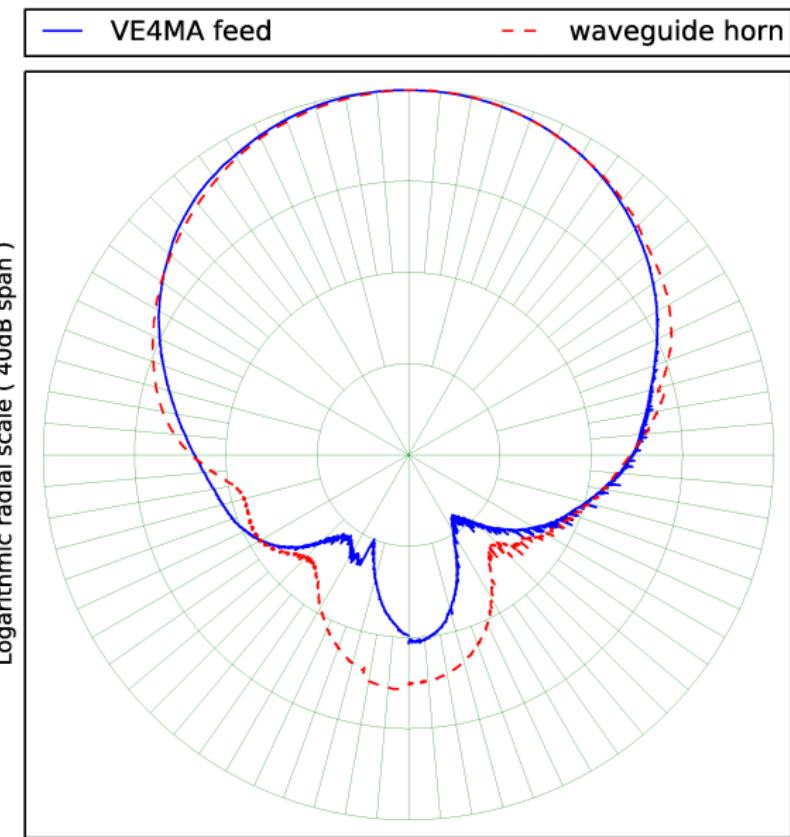
# Practical implementation of the VE4MA feed



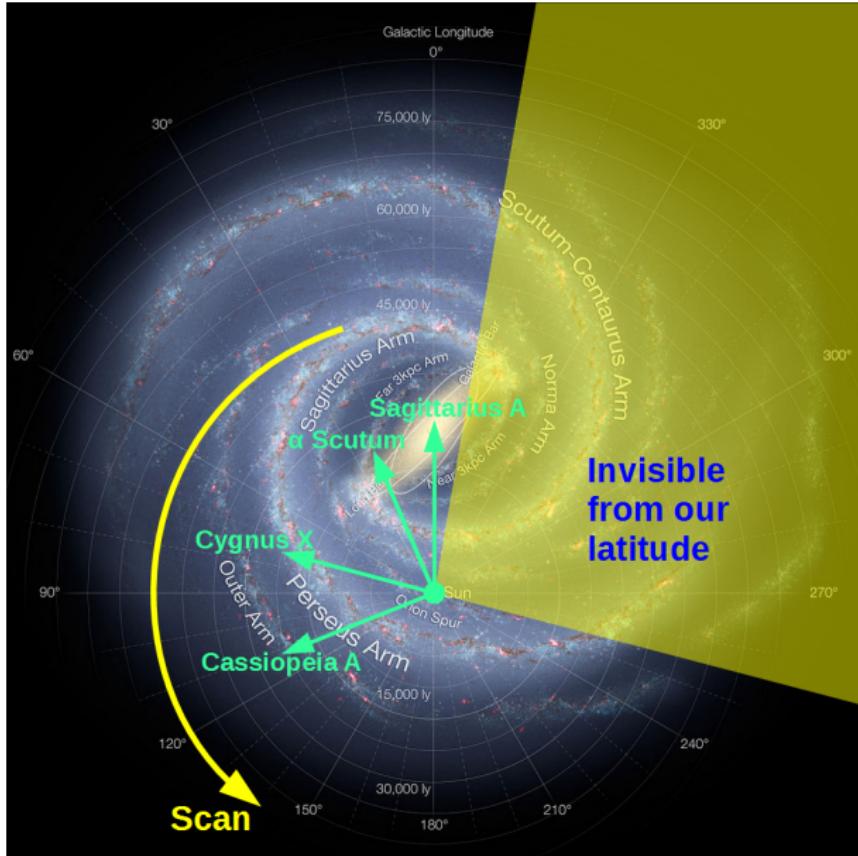


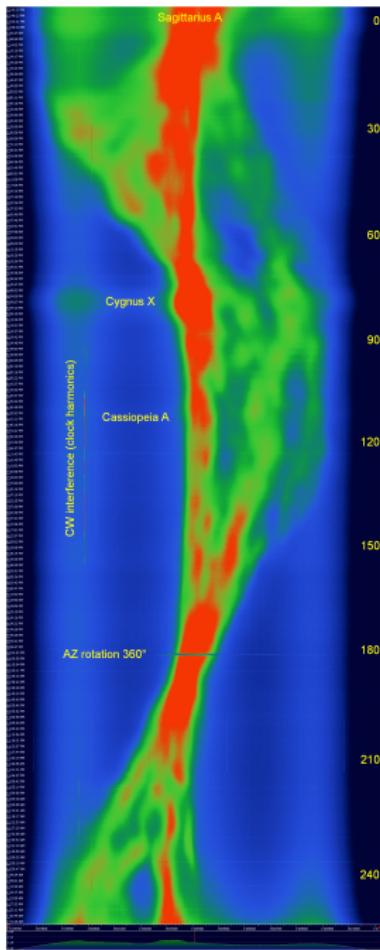
E-plane radiation pattern

VE4MA feed -3dB Beamwidth: 76.6 Directivity:  $6.8 = 8.34 \text{ dBi}$   
waveguide horn -3dB Beamwidth : 75.2 Directivity:  $5.6 = 7.52 \text{ dBi}$

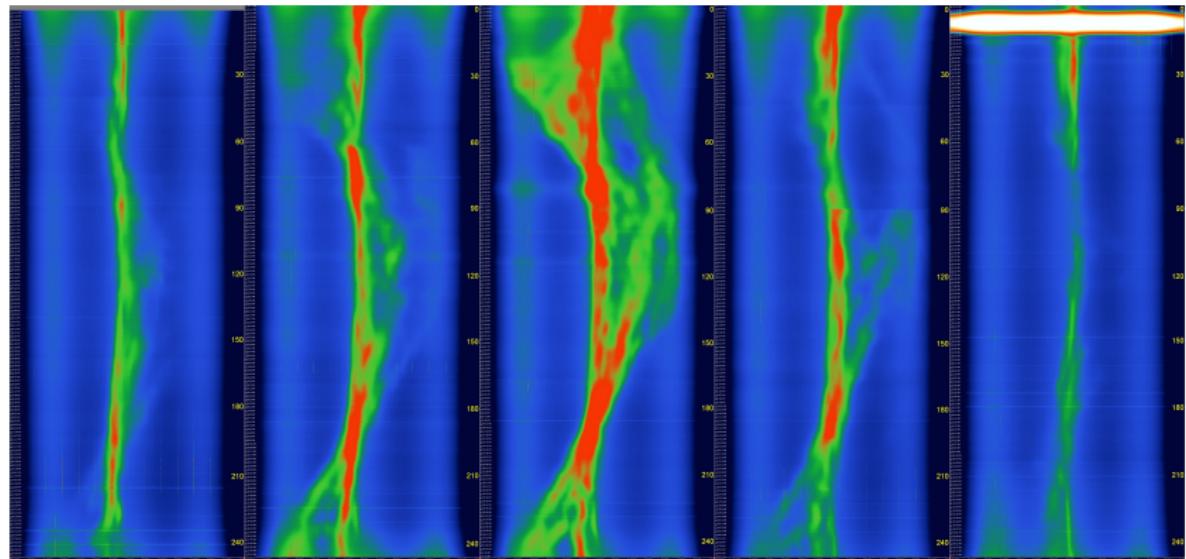


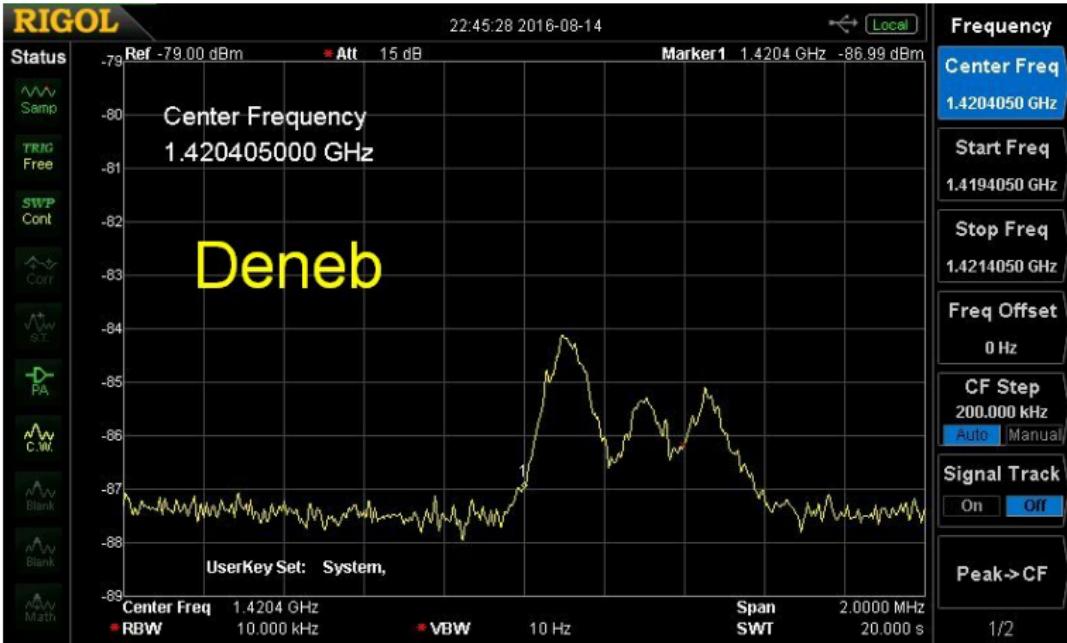
VE4MA feed -3dB Beamwidth: 72.6 Directivity:  $7.5 = 8.75 \text{ dBi}$   
waveguide horn -3dB Beamwidth : 70.2 Directivity:  $7.2 = 8.59 \text{ dBi}$



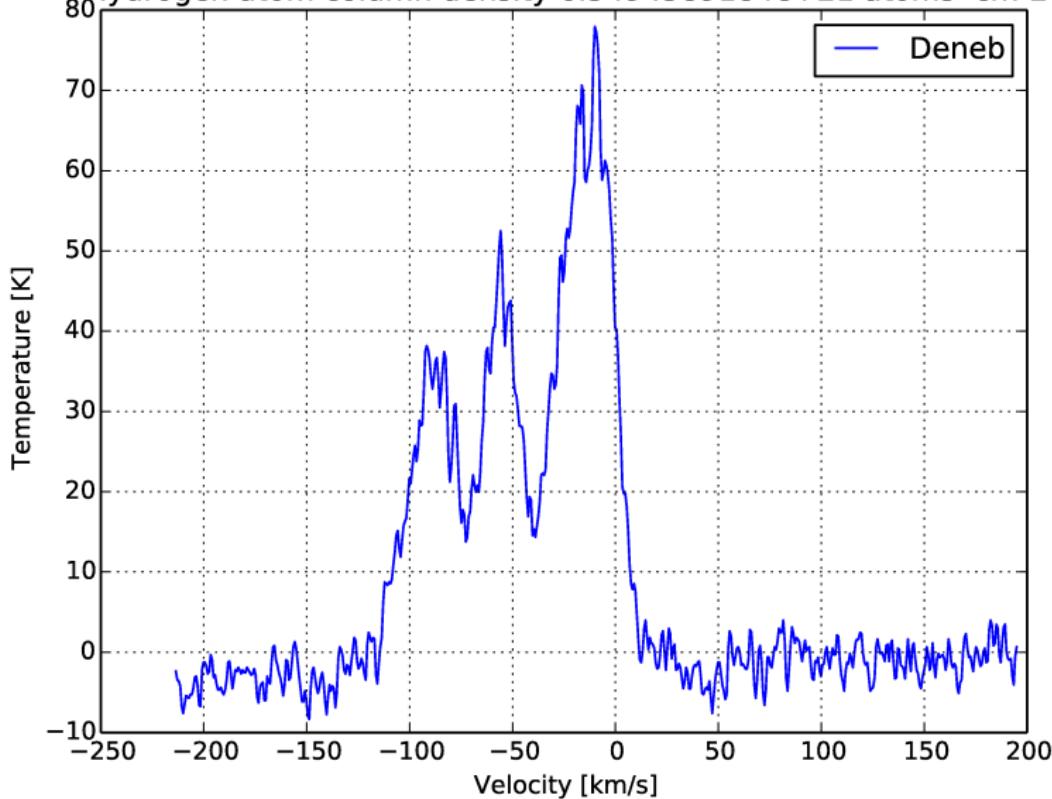


# Measured 3D map of the Milky Way

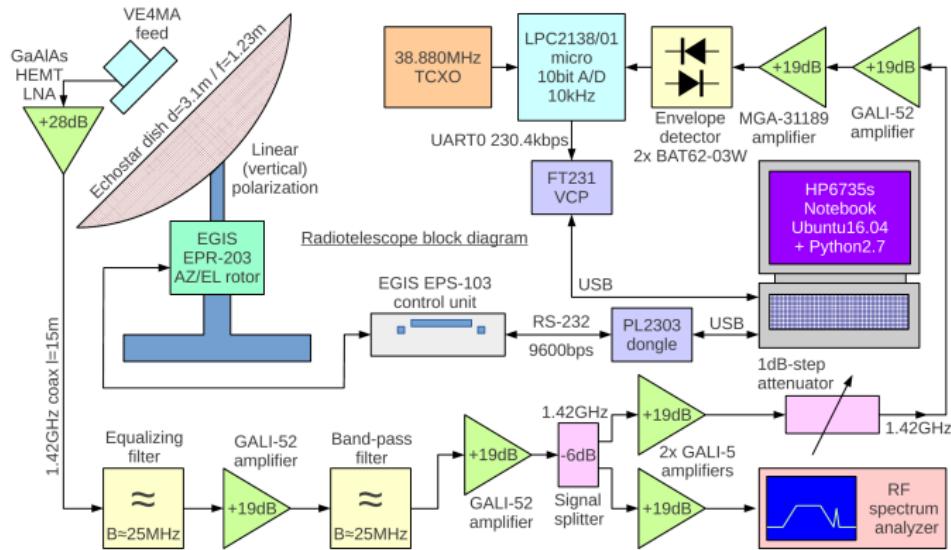




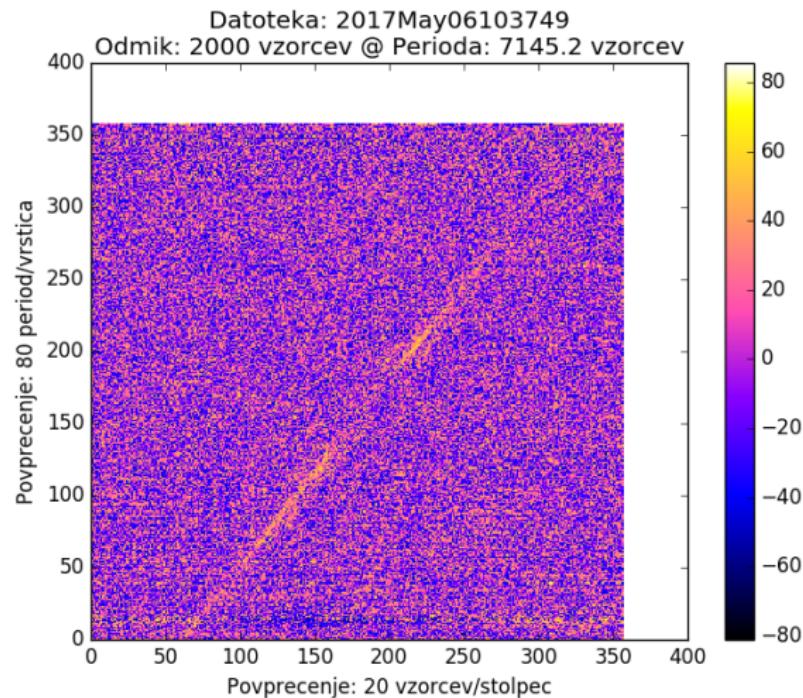
Hydrogen atom column density  $6.5494589184\text{e+}21$  atoms  $\text{cm}^{-2}$



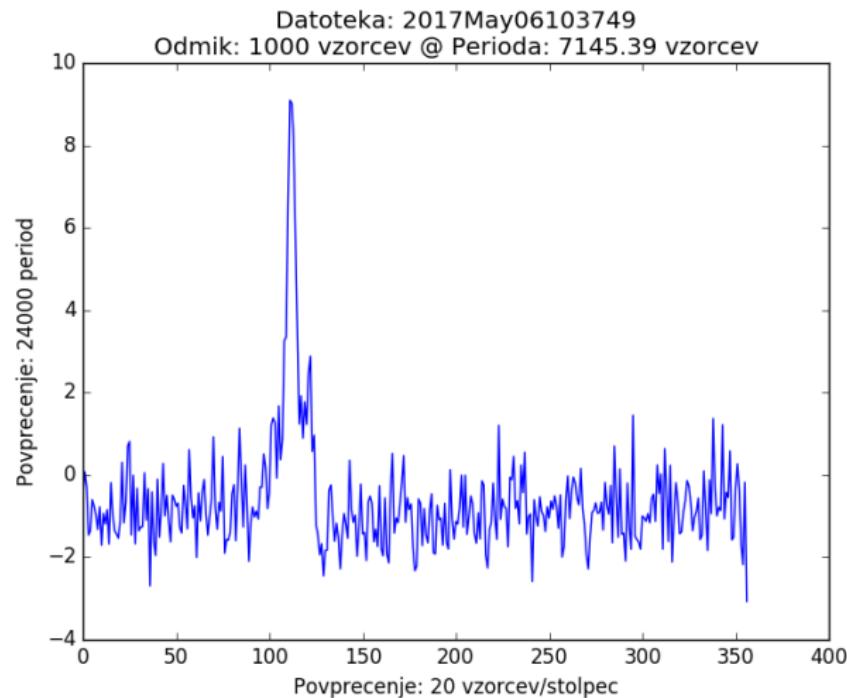
# Pulsar observation B0329+54



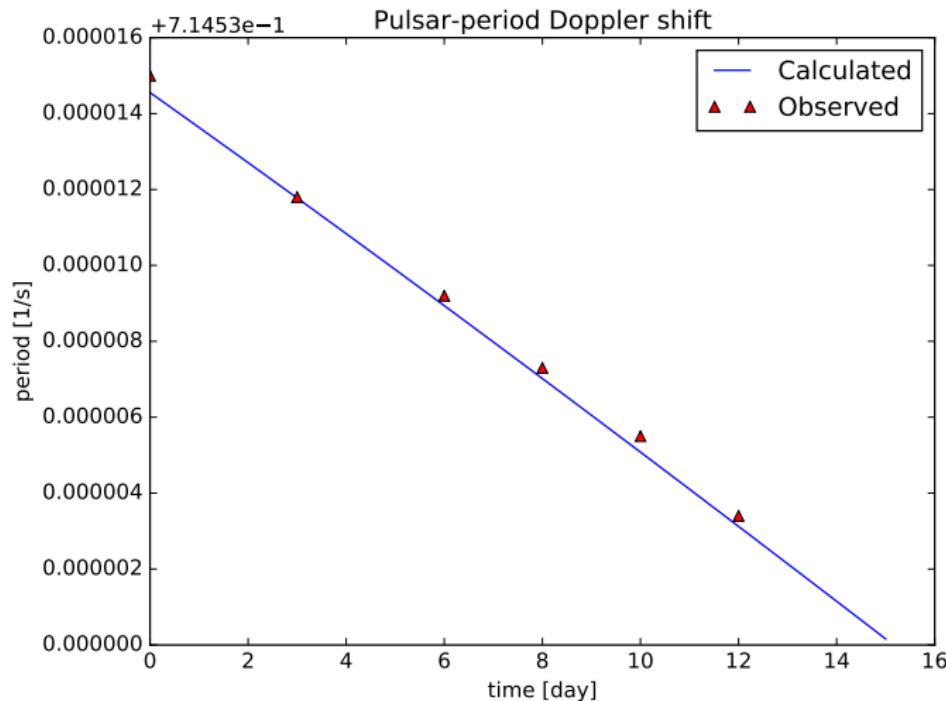
# Pulsar observation B0329+54



# Observation pulsar B0329+54



# Pulsar B0329+54



# Tornado: June 25, 2017



# New antenna 3.7 m

