Chart Testing at ISTB4

Location: South side of ISTB4
Data taking time: 10:30-11:30
By: Arib Islam

Intro:

Not much went into planning this test run. The purpose of this was to see if Chart was sensitive enough to see the 21 cm line in a more urban area. The same setup was used as in the Canyon Lake memo. Baby Chart was tested, but once again failed to give results so Chart was mainly used. The Nooelec filter paired with the RTL-SDR was used and the Raspberry Pi with Raspberry Pi OS was used as the operating system. A portable power source small enough to fit enough the wooden box and there were no visible power concerns.The installable package from the CHART Github repo was used to collect data

The parameters for this trial are as follows:

- freq_i=1418 (Initial Frequency in Mhz)
- freq_f=1422 (Final Frequency in Mhz)
- nint=200 (Number of integrations)
- int_time=0.5 (integration time in seconds)
- biasT=True (Whether or not the onboard biasT on the RTL-SDR was active)

Data:

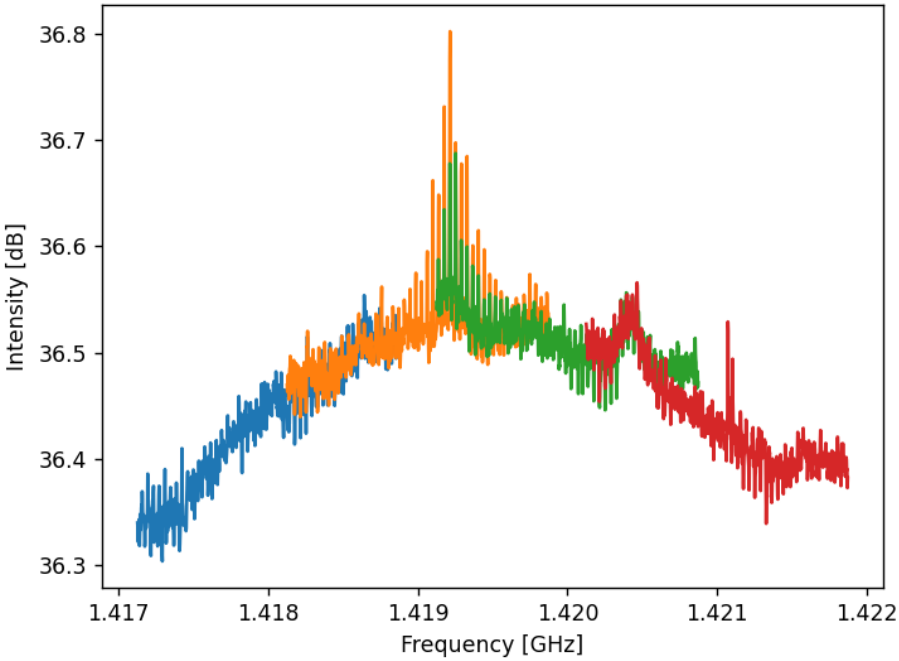

Figure 1: Chart is pointing up

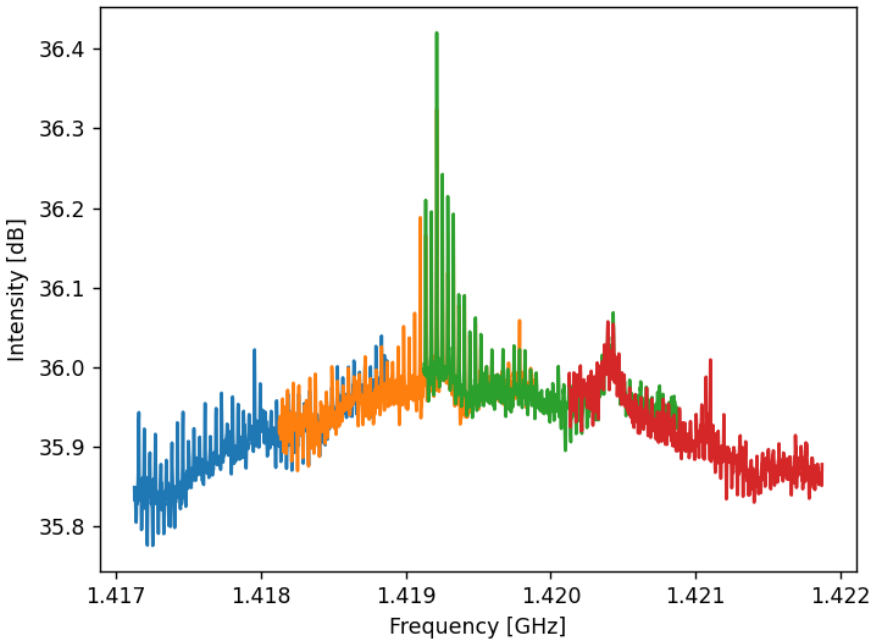

Figure 2: Chart is pointing south

Although not as strong as Canyon Lake, Chart was still able to detect the 1420 Mhz signal and it is visually distinguishable and easy to tell that the signal was there. On both graphs, there seems to be a spike at 1419 Mhz. This spike was also present in one of the graphs from Canyon lake, but it was much much less distinguishable.

Conclusion:

This quick test run concludes that Chart should be able to and is sensitive enough to handle more urban areas. For future trials it might be a good idea to set up Chart at places such as the busy parts of Phoenix or downtown Tempe. Also a run on top of ISTB4 would be good to see how much effect elevation has. I would also like to take Chart around different areas of ASU to see different settings affect the spike at 1419 Mhz.