1.What role does the signal source block play? (0.5 points)

The signal source block is responsible for the generation of signals based on properties like frequency,
phase, amplitude. In this case, source block is used to set the values we want to listen to on the SDR
receiver.

2.Which is the minimum gain value such that we still receive the radio signal?(0.5 points)

The minimum gain value such that we still receive the radio signal is 0.1

3.What happens when we change the sample rate?(0.5 points)

Sample rate is one the factors determining the sound quality in the signal. Increasing sample rate
can mean better signal quality at the cost of processing power.

4.How do we select the cut-off frequency? What property of the signal affects this parameter?
(1 point)

Cut off frequency is determined by the carrier and baseband frequency. Given the carrier frequency of 95.3
Mhz and sample rate of 2Mhz, we select the cut off based on these values.
Baseband frequency affects the cut-off frequency.

5.Why is there a need to add Rational Resampler?(0.5 points)

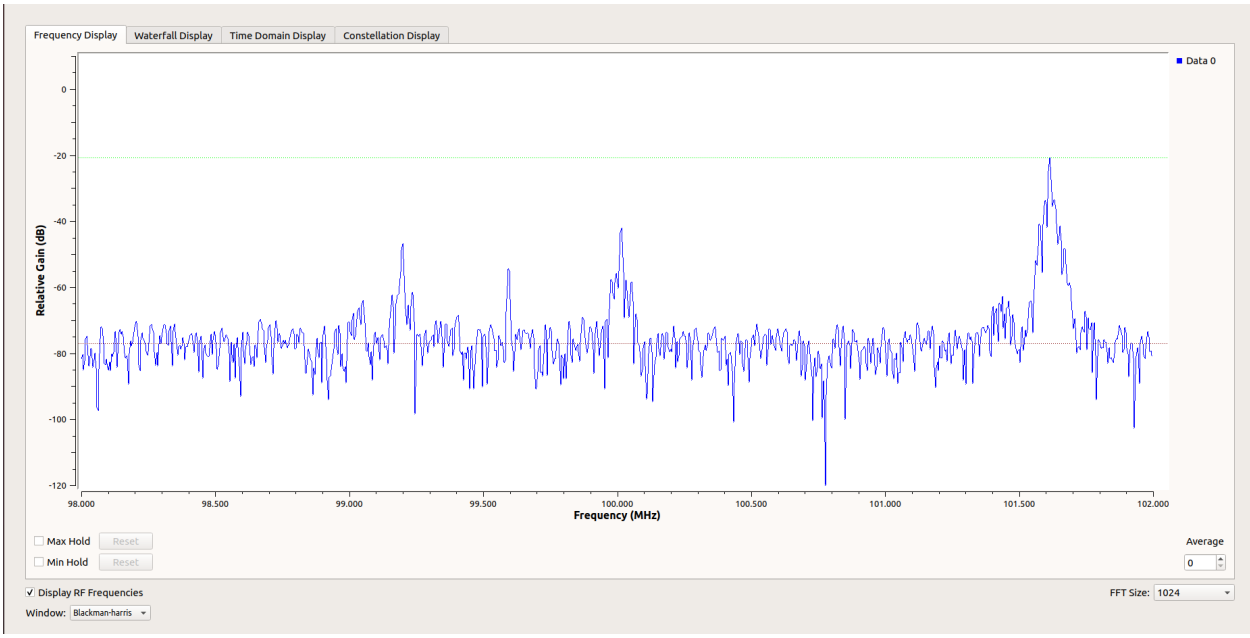
The resampler deals with sampling rate. To interface systems that operate at different frequencies
of samples. We resample the frequencies to higher or lower values between different blocks in the
flow graph

6.Can you tell why we choose a 48KHz sample rate? What happens when we change it?(1 point)

48KHz is standarized across the audio industry. It is compatible with many devices, it is within the audible
range for human beings and doesnt need a lot of processing power.
We can still hear the FM radio signals but not very clearly and it may also change the power needed to
process the signal. We also need to change the rational resampler accordingly.

7.At what frequency do you see a peak?Do you see any other neighbouring peaks?Why? (0.5 points)

The peak can be seen at 101.7 MHz. Yes neighbouring peaks can be seen at 99.6 MHz ,100.1Mhz, 99.2. This neighbouring peaks show the other channels present in the band possible to tune in. It gives a general idea about other reachable frequencies.



8. Why do you think specific antenna lengths work better?(0.5 points)

Length of the antenna can affect the signal in many ways such as gain, directivity and more. Longer antennas typically have more gain and directivity which helps in picking up weak signals. the length of an antenna is proportional to the wavelength of the electromagnetic wave, and the specific relationship between the two depends on the type of antenna and its operating frequency. A longer antenna will generally have a broader frequency range than a shorter antenna, but it may also have a more directional radiation pattern and be more susceptible to wind loading and other environmental factors.