Lab: Bandwidth

# On Campus Students

Using an RTL-SDR, find a piece of software that allows you to connect the radio receiver to your computer. Install a software package that allows you to tune the radio, demodulate the signal, and adjust the bandwidth. One great option is SDRSharp, but many others are available both for Windows and Linux.

* Take a *picture* (not a screenshot) showing your laptop with the radio connected and the spectrum waterfall on your computer
* Tune to the local radio station, 103.1 MHz. What is the normal bandwidth of an FM radio station? Include this answer in your submission after the picture.
* Modify the bandwidth to 1/4 of the “normal” bandwidth. What happens? Include the question answer and a screenshot of your modification in your answer.
* There is a weather radio tower outside of Arlington. You may need to go outside to pick it up. It doesn’t use the WFM setting of SDRSharp (or wideband FM in other software). Why is this? What is the difference? Show the website you found the Arlington weather radio frequency on and submit a screenshot of the signal you receive from it.

\*\*If you are an on-campus student, you MUST complete the on campus mini lab.

\*\*\*Submit your answer file as a single PDF.

# Online Students

If you have an RTL-SDR, just go ahead and complete the lab that on-campus students would! If you want to grab your own, you can get them for around $20 here (but you’re not required to): <https://hakshop.com/collections/wireless-gear/products/software-defined-radio-kit-rtl-sdr>

Otherwise, conduct some research online and answer the following questions:

* Why do FM radio stations in the US always have an odd decimal? (eg, 103.1 MHz, never 103.2 MHz)
* What is the bandwidth of an FM stereo broadcast?
* Weather radio blankets the United States. It uses Narrow-Band FM instead of Wide-Band FM. Why? What is the difference?
* Where can you go to lookup your local weather radio station?

\*\*\*Submit your answer file as a single PDF.