Lab: Bandwidth

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, such as 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 are weather radio stations all across the US, one is likely nearby. You can find a list of the available stations at: <http://www.nws.noaa.gov/nwr/coverage/station_listing.html> 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?

Answer the following comprehension questions:

1. What is the difference between WFM (wideband FM) and NFM (narrowband FM)? Why do stations that typically broadcast music use WFM while weather radio typically uses NFM?
2. When you only use part of the datastream, such as when you cut WFM’s bandwidth down, can you still hear part of the signal? Why or why not?