Lab: Channels

# Online and On-Campus Students

802.11 wireless is arguably one of the most popular methods of wireless communication. The protocol uses the ISM bands, which in the United States occupies the frequencies 2.4 to 2.5 GHz (note: there are several other ranges of ISM bands, but the 2.4 GHz range is all we’re worried about for this lab). Specifically for this lab, we’ll only be worrying about the B/G/N types of Wi-Fi which operate between 2.401 and 2.483 GHz (Japan has an additional piece of spectrum going all the way to 2.495 GHz).

In order to make configuration easier, 802.11 divides its spectrum up into varying numbers of channels.

* In the United States, what is typically the number of channels?
* What bandwidth is required by these channels?
* What problem exists with this channel plan? Are all channels equally usable? How is this channel plan similar or different to how FM radio stations are allocated in the US?
* What are the most commonly used channels for 2.5GHz wifi? Why are they the most common?
* Using a tool such as NetSurveyor (<http://nutsaboutnets.com/netsurveyor-wifi-scanner/)> , scan the wireless space in your area. Allow the scan to run for at least 5 to 10 minutes. Take a screenshot of the Channel Heatmap and Spectrogram.
* What channels are the most crowded? If you’re having trouble finding a crowded area, conduct your scan at DSU or near a school/apartment building. Which would be the best channels to use to avoid interference with other channels?

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