

Everything You Need to Know About Wireless Spectrum

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Spectrum is going to be a hot issue in the upcoming year. Freeing up spectrum is a major part of the Federal Communications Commission's (FCC) National Broadband Plan, and last week Congress passed a law allowing TV stations to auction their spectrum to the highest bidding wireless broadband companies.

But what is spectrum, you wonder? I'm glad you asked.

All wireless signals — TV, radio, GPS and, yes, mobile broadband — fly through the air on public, invisible signals called spectrum. The name comes from the fact that wireless signals can be sent on a range — a spectrum — of frequencies (the electromagnetic spectrum, to be precise).

Spectrum is most easily recognizable when you tune your car radio: is your favorite local station, say, 101.3 FM? That means it's broadcasting on a frequency located at 101.3 megahertz (MHz). But if you keep driving for a while, you'll eventually encounter a new radio station on 101.3 FM, because wireless signals are limited in how far they can reach.

In the U.S., part of the FCC's job is to ensure that no two signals are being broadcast on the same slice of spectrum in the same geographic area. If that happened, the signals would get confused and become useless.

Spectrum is such a crucial issue right now because it's finite — there are only so many available frequencies with which to broadcast in a given area. And thanks to smartphones and tablets, we're witnessing an unforeseen explosion in demand for mobile broadband, which relies on spectrum. Smartphones use 24 times more data than traditional "feature phones," and tablets such as the Apple iPad consume 122 times more data than feature phones.

Mobile broadband only has a certain amount of spectrum allocated to it and the licenses for which are auctioned to providers, so they can't simply use more spectrum than they've bought to make life better for their users (they can, however, erect more cell towers). So they're fighting to get more blocks of spectrum from places such as broadcast TV channels as some of those companies are thinking about shutting down. That would increase the speed of mobile devices across the country.

Want to learn more about spectrum? Check out [this infographic](#) [1] from the FCC.

Posted by Ron M. Seidel, Editorial Intern

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