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Myth vs. Fact

The Rhetoric and Reality of Progress in Allocating More Spectrum for Unlicensed Use

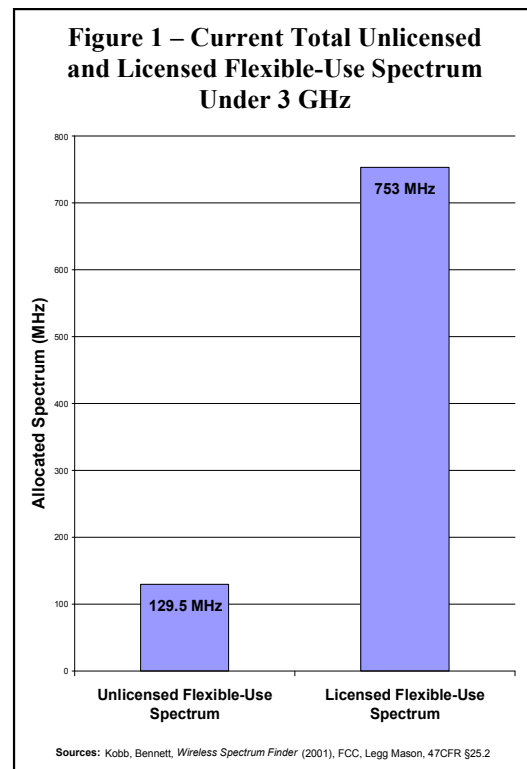
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Background. In November 2002, the FCC's Spectrum Policy Task Force released a report calling for shifting large amounts of spectrum from the current command and control allocation system to both unlicensed and licensed flexible-use service.¹ Since then, the FCC has started numerous proceedings to follow through on these recommendations. But whereas the proceedings granting flexible use to incumbent license holders and others have been fast tracked and completed, the proceedings seeking to allocate more unlicensed spectrum have, with only one notable exception, been sidetracked.

Despite the WiFi boom—and the proven utility of unlicensed frequencies to deploy inexpensive wireless broadband networks—there is actually less unlicensed spectrum available today in the high-penetration, “beachfront” frequencies below 3 GHz than there was in 2002. The time has come to call attention to the difference between the rhetoric and reality of progress in allocating more spectrum for unlicensed use.

Congress has recognized the problem. This month, Sen. Ted Stevens (R-Alaska), chairman of the Senate Commerce Committee, along with a bipartisan foursome of Commerce Committee members (Sens. Allen, Sununu, Kerry and Boxer) introduced similar bills to open vacant (and currently wasted) TV band spectrum for unlicensed use by wireless broadband providers. These bills order the FCC to complete its rulemaking (Docket 04-186) that proposes to allocate the unused spectrum between TV channels 2 and 51 (called “guard bands” or “white space”) to unlicensed use—a widely-supported reallocation that has been stalled since the departure last year of Chairman Michael Powell. To understand the economic logic of unlicensed spectrum, see New America's Issue Brief on the topic.²



¹ FCC, “Spectrum Policy Task Force Report,” November 2002. Available at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-228542A1.doc.

² See Snider, J.H., “Reclaiming The Vast Wasteland: The Economic Case for Re-Allocating to Unlicensed Service the Unused Spectrum (White Space) Between TV Channels 2 and 51,” New America Foundation, Wireless Future Program Issue Brief #18, February 2006. Available from: www.spectrumpolicy.org

Myth: Comparing licensed and unlicensed spectrum totals is an “apples to apples” comparison.

Fact: Verizon Wireless has been distributing a “spectrum math” sheet on Capitol Hill claiming that 739.5 MHz is available for unlicensed service below 6 GHz.³ Verizon’s spectrum comparison is based on a double standard—it focuses solely on the *quantity* of unlicensed spectrum available, but ignores the critical question of *quality*. Like real estate, access to the airwaves is all about location, location, location. Low-frequency spectrum has propagation characteristics ideally suited for mobile applications and is to spectrum what Manhattan is to real estate. 100% of the spectrum Verizon uses to provide its own service to customers is in the high-quality “beachfront” spectrum below 2 GHz. In contrast, only 3% (26 MHz) of the unlicensed spectrum it identifies is below 2 GHz—and that narrow band is occupied by tens of millions of cordless phones and other consumer devices.

In fact, only 16% of the spectrum Verizon identifies as unlicensed is even below 5 GHz. Frequencies above 5 GHz can be very useful for line-of-sight transmissions but are not well-suited—unlike TV frequencies—to penetrate buildings and trees, and hence are not as economical for consumer wireless broadband networking. Verizon also fails to note that 97.6% of all spectrum below 5 GHz is allocated for licensed use. Moreover, not even its 739.5 MHz figure is accurate.⁴

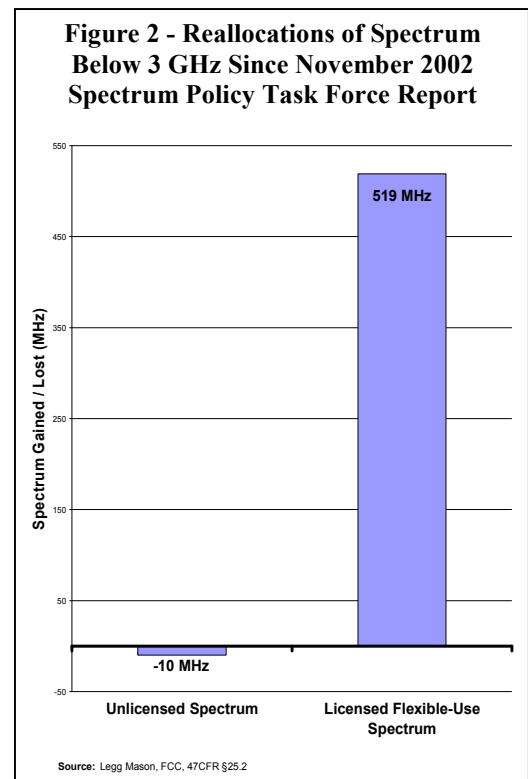
Myth: The total amount of low-frequency unlicensed spectrum exceeds the total amount of low-frequency flexible-use licensed spectrum.

Fact: A more accurate comparison is the 342.65 MHz currently allocated for licensed mobile telephone spectrum below 2 GHz and the 26 MHz Verizon notes is available for unlicensed sharing. Even if, following industry convention, one extends the definition of beachfront spectrum to include anything below 3 GHz,⁵ the comparison would still be a stark ratio: 753 MHz of flexible-use licensed spectrum compared to only 129.5 MHz for unlicensed.⁶ (See Figure 1)

Moreover, 100% of unlicensed spectrum below 3 GHz are located at frequencies commonly called the “junk bands.” In these bands, unlicensed devices must share spectrum with licensed users or devices such as microwave ovens that emit radiation as a byproduct of their operation.

Myth: Since the FCC Spectrum Policy Task Force Report came out in November 2002, the FCC has allocated more spectrum to unlicensed than licensed.

Fact: Since November 2002, the amount of beachfront spectrum allocated to unlicensed below 3 GHz has actually *declined* by 10 MHz, while the amount of spectrum for flexible use licensed service has increased by 519 MHz. (See Figure 2)



³ See Verizon Wireless Capitol Hill lobbying handout on the “Unlicensed Spectrum Landscape,” September 2005. Shure, Inc., a manufacturer of wireless microphones that operate on the TV band, presented a similarly misleading comparison in its February 17, 2006 House and Senate staff briefings.

⁴ Verizon mistakenly included the 4940-4990 MHz band as unlicensed spectrum. Although it was proposed for unlicensed use, it was licensed in 2003 to public safety agencies for their exclusive use.

⁵ We agree with Verizon’s decision to include as unlicensed spectrum only that which is allocated for flexible use above 100 milliwatts of power. However, we subscribe to current industry convention concerning the boundary of mobile (“beachfront”) versus fixed (“inexpensive”) spectrum, which sets the boundary at 3 GHz rather than 2 GHz.

⁶ For details on all the spectrum allocation calculations included in this sheet, see Snider, *supra* Note 2.