

FACT SHEET

August 30, 2015

**Wireless and Mobile Communications**

Wireless or “mobile” devices send information one-to-one (like mobile phones or wireless computer mice), one-to-many (like AM or FM radio), or many-to-many (like Wi-Fi Internet access). Wireless devices send and receive signals along the electromagnetic spectrum in the form of waves similar to visible light, sound, or X-rays. The use of radio frequency spectrum is regulated by the Federal Communications Commission (FCC) in cooperation with the National Telecommunications and Information Administration (NTIA) in the U.S. Department of Commerce, which manages the federal government’s use of the radio frequency spectrum.

The FCC generally either assigns spectrum for the exclusive use of a paying entity (a *licensee*) or allocates spectrum for use by multiple parties on an unlicensed basis. Exclusive use licensees operate under regulations designed to protect their signals from interference of other operators’ signals. Users of unlicensed spectrum operate with the knowledge that their signals could be interfered with, and, have adopted protocols to minimize that likelihood. The FCC is also pursuing flexible spectrum management models and technologies, such as wireless devices that use software to manage access to spectrum, and databases that enable licensed and unlicensed wireless devices to dynamically share the same radio spectrum.

Since 1994, the FCC has used [auctions](#) to assign exclusive use licenses. The FCC generally provides licensees the flexibility to deploy their chosen technology or business model, subject to service and technical rules meant to minimize the likelihood of interference among competing uses.

Overview**These issues arise in discussions of wireless technology:**

- Can more spectrum be allocated for new uses as demand for wireless grows? How can public policy encourage more efficient use of spectrum resources?
- What technical rules should be established (if any) to minimize the likelihood of interference from and among competing users of the spectrum?
- What should the ground rules be for the FCC’s spectrum auctions?
- What technical standards should be established for new services such as High Definition Television (HDTV) and multi-gigabit wireless networks?
- How should regulators resolve the tension between their desire to treat wireless and wireline competitors fairly and the legal, economic, and technical factors that may dictate differential treatment?
- What measures should be taken to assure privacy and security of wireless networks? What level of access to network data should be allowed, by the government, network administrators/carriers, or other entities?
- How should public safety and emergency services obtain their communications services? Who should make these communications interoperable, and how?
- Should the scope of the Universal Service Fund (USF) and other government subsidies for telephone services be expanded to include wireless services?
- Is the wireless/mobile industry competitive enough? Are consumers adequately protected (e.g. through wireless service contracts)?
- Should regulation of wireless carriers be limited to the federal government, or should state and local governments have some regulatory authority?

Relevant Academics[Dale N. Hatfield](#)

University of Colorado at Boulder

Dale.Hatfield@colorado.edu[Jonathan Levin](#)

Stanford University

jdlevin@stanford.edu[Randall Picker](#)

University of Chicago School of

Law

r-picker@uchicago.edu[Gregory Rosston](#)

Stanford University

grosston@stanford.edu[Kevin Werbach](#)

The Wharton School of Business

werbach@wharton.upenn.edu**Media Contact**

For media inquiries on a range of TAP topics, or for assistance facilitating interviews between reporters and academics, contact TAP@techpolicy.com.

- How can radio tower permits be made available to wireless carriers so they may more efficiently deploy and expand networks?

Wireless and Mobile Sources

These sources are a good place to start in understanding wireless issues. In “[The Case for Unlicensed Spectrum](#),” [Jonathan Levin](#) and co-authors Assaf Eilat and Paul Milgrom examine the benefits of unlicensed radio spectrum. [Dale Hatfield](#) and [Phil Weiser](#) look at the future of spectrum policy in “[Toward Property Rights in Spectrum: The Difficult Policy Choices Ahead](#).” In “[The Wasteland: Anticommons, White Spaces, and the Fallacy of Spectrum](#),” [Kevin Werbach](#) examines options for how to allocate the white spaces around broadcast TV channels. Jeremy Bulow, Jonathan Levin and Paul Milgrom’s paper “[Winning Play in Spectrum Auctions](#)” talks about strategies for bidding on spectrum. Richard Thanki examines “[The Economic Value Generated by Current and Future Allocations of Unlicensed Spectrum](#).” Finally, [Greg Rosston](#) and his colleagues look at how regulators can support more competition between different wireless services in “[Using Spectrum Auctions to Enhance Competition in Wireless Services](#).”

“The United States currently has one of the most competitive and best-performing wireless communications industries in the world. ... As a result, American consumers are among the world’s most intensive users of broadband wireless communications.” *Gregory Rosston from his policy brief, “[Competitive Implications of the Proposed Acquisition of T-Mobile by AT&T Mobility](#),” SIEPR Policy Brief, April 2011*

Please note that all links on this fact sheet are accessible from the online version at www.techpolicy.com/wirelessmobile.aspx.

The TAP website (www.techpolicy.com/) is facilitated by Microsoft. Microsoft respects academic freedom, and is working to enable the dialogue on the most critical technology policy issues being debated.