

Update: FCC Adopts “Final” White Space Rules

BY STEPHEN E. CORAN

As expected, the FCC adopted “final” white space rules at its meeting in September 2010, opening the door for the roll-out of unlicensed “personal/portable” devices championed by Silicon Valley and fixed broadband networks that will enable affordable service to rural, Tribal, unserved, and underserved areas. The new services and devices will operate on vacant TV spectrum – known as white spaces – to usher in what some call Super Wi-Fi. While the rules are generally positive, the FCC imposed new requirements that could preclude many existing towers from obtaining white space tenants.



Changes to the Rules

The FCC’s decision makes several significant changes to the initial rules that were adopted in November 2008:

- Elimination of the sensing requirement – At the top of the list, the FCC eliminated the need for devices to both use spectrum sensing and rely on a geolocation database that identifies incumbent “stay-away” areas where interference to TV stations could occur. Instead, devices must utilize either spectrum sensing or the database. For now, the database will be the mechanism of choice, and spectrum sensing technologies develop over time for use with machine-to-machine applications and other uses. The elimination of the sensing requirement will decrease the cost of devices and thus make services more affordable.
- Reservation of spectrum – The FCC also reserved spectrum for unlicensed wireless microphones and established procedures by which they can continue to be used in concert halls, arenas, houses of worship and karaoke bars.

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- Restriction of tower height – The FCC did not grant requests from Wireless ISPs (WISPs) to enable base stations to be installed more than 30 meters above ground level. In fact, the FCC limited the locations where WISPs can install white space stations by restricting the Height Above Average Terrain (HAAT) for tower sites to 76 meters in order to afford broadcast stations an additional level of protection. Thus, in areas where white space channels are available, the tower site must not exceed 76 meters above average terrain. If the site is below that threshold, then the base station can only be 30 meters up the tower. Both of these restrictions must be met before a WISP can get the “all clear” from the database administrators.

Effects of the New Ruling

In adopting the HAAT restriction, the FCC may have prohibited many owners of high-site towers from leasing sites to WISPs and eliminated large areas of the country from receiving fixed service. For instance, WISPs will be unable to use a number of existing towers in West Virginia for white space operations because the HAAT of such sites exceeds 76 meters.

Accordingly, in order to serve an area, WISPs must build new towers at lower elevations that cannot provide service to the other side of the mountain ridge, which involves the time and expense of zoning, engineering, and construction to serve a smaller area.

In hilly rural areas where the population density cannot support these additional burdens and costs, WISPs may not be able to create a business model that will justify sustainable service; therefore, WISPs may simply elect not to provide service. Given the preclusive nature of this restriction, it is expected that wireless ISP interests will ask the FCC to reconsider the order and relax the HAAT limits.

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What to Expect

In light of the elimination of the sensing requirement, the FCC staff is considering changes to the database administration process. Nine companies have applied to become administrators and all are expected to be designated by the FCC. However, until the FCC issues an order designating the administrators and establishing procedures, white space networks cannot be deployed, except on an experimental basis following FCC approval.

While equipment manufacturers now know the technical requirements for their devices, it will take several months for the "final" rules to be fine-tuned, equipment to be certified by the FCC, databases to be designated and established and mass market networks to be deployed. In the interim, we can expect "custom" white space networks to be constructed for health care facilities, smart grids, smart cities and other special cases.

About the Author

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