New Spectrum, New Ideas

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The FCC will soon authorize new millimeter-wave spectrum at 71 - 76, 81 - 86, and 92 - 95 GHz. These allocations will provide vast amounts of bandwidth in virtually empty spectrum, a welcome combination.

The allocations will also challenge the FCC to develop a regulatory framework that fosters real innovation, development, and competition. The regulations are important. If less than optimal, they will act as a brake on the deployment of equipment and services.

Complicating the FCC's job are several competing uses of the same spectrum. Each of these bands has parallel allocations to the federal government. Some are also slated to be shared by satellite interests, amateur radio, and radio astronomers. Whatever rules the FCC develops for commercial terrestrial applications must also accommodate these other users.

The FCC has proposed to apply forms of regulation already used in other bands:

1. Geographic licensing. Under this scheme (used in PCS and many other services) the FCC divides the country into 50 to 500 geographic regions and auctions exclusive licenses in each. In one variation, commercial &quotband managers&quot are permitted to bid for the license and sub-lease rights to others for a profit.
2. Site licensing. Licenses go on a first-come, first-served basis to applicants who show they will not interfere with licensees already in place. The approach is widely used for point-to-point microwave, private land mobile radio, and satellite earth stations. Usually a third-party frequency coordinator must certify that the new installation is compatible with existing users.
3. Unlicensed. The FCC authorizes the transmitter, not the user. Once approved, the transmitter can be used by anyone, anywhere in the U.S., without a license. Examples include Wi-Fi, cordless telephones, keyless entry systems for cars, and countless others.

Each approach has disadvantages. Geographic licensing requires a bidder to value the spectrum long before either costs or revenues can be predicted, and then relies wholly on the winning licensees to make the spectrum work. Site licensing will entail hundreds or thousands of separate links in each area, creating administrative costs and burdens for both users and the FCC. Unlicensed operation is generally limited to very low power applications, and the lack of interference protection sometimes deters investors. We need new ideas. Licensing serves to keep users from interfering with each other, but licensing is not the only way to accomplish that. Doug Lockie of Endwave Corporation suggests that frequency coordination could be handled automatically through a paid website in near-real-time. The website would accept an applicant's proposed station or link data, identify possible interference victims from a database, and query those parties automatically by email. But once that coordination is complete, licensing itself may be superfluous. Lockie's proposal suggests a new kind of regulatory regime: unlicensed operation,

but subject to prior frequency coordination. The combination should offer interference protection together with the ease and flexibility of unlicensed operation. Problems may appear (e.g., warehousing and coordination disputes), but surely can be solved.

Perhaps others will come forward with better ideas. Fresh spectrum warrants a fresh look at regulation.

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