

Progress Toward Rational Spectrum Rights: Are We Getting Anywhere?

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Analysts from legal, economic, and engineering disciplines have supplied plenty of commentary in the past decade on what ails U.S. spectrum management. We have offered a number of competing proposals for how to define the rights of spectrum users to emit signals, the responsibilities of spectrum users to reject noise, how spectrum rights and responsibilities should be recorded, and how conflicts over interference ought to be adjudicated. We have also provided differing views on the proper balance between the prevention of conflicting spectrum uses (frequently called *ex ante* protections) and the resolution of conflicting uses after the fact (*ex post* dispute resolution), as well as varying suggestions for public and private institutional roles.

Notwithstanding difference in the details, it seems that analysts are converging on some important consensus conclusions. These include the following:

- We need much more spectrum made available for mobile broadband
- We need a combination of exclusive rights and shared rights to access spectrum, recognizing that sometimes we will want “easements” or low impact access to spectrum that has otherwise been assigned for exclusive use, sometimes we will want commons spectrum for unlicensed innovation, and sometimes we will want tightly controlled access for specific rights holders
- More intensive use will and should mean more conflicts over spectrum use
- These conflicts should be prevented before the fact by some combination of FCC zoning of compatible uses and industry performance standards
- These conflicts should be addressed after the fact with expedited adjudications and arbitrations, which depend on the creation of the appropriate administrative apparatus (in both private and public institutions)
- Efficient conflict resolution requires that initial entitlements be stated precisely in the license (or license-free allocation) at the outset, and be further articulated in what will be an evolving “common law” allocating responsibilities for mitigating interference
- What the right rule is for allocating responsibilities in any particular spectrum dispute will depend on the kind of services at issue, the relative ability of the parties to address the problem at the receiver or the transmitter, and other public interests (externalities) that may be implicated
- Spectrum use entitlements, both initial and post-dispute, should be made transparent in publically accessible and user-friendly registries

While these conclusions have been gestating, battles have played out over the allocation of spectrum for unlicensed and exclusive use, and over the modification of existing licenses to allow for more intensive (and valued) spectrum use. One cannot say that spectrum management has changed much over the past decade or that we have made a great deal of progress in implementing the conclusions stated above. Spectrum management is still pretty

much the same as it always has been: highly conservative, protective of incumbents, without clear entitlements and dispute resolution procedures, lacking in the regularity and transparency that would facilitate secondary markets, and, most especially, bogged down in questions of fairness, windfall, strained readings of the public interest, and competitive advantage.

That said, this Commission has made several notable recent decisions to free up spectrum for new uses by modifying existing entitlements and mediating between potential spectrum conflicts. These include the order opening up TV band “white spaces” available for unlicensed fixed and mobile wireless usage and the decision removing obstacles to mobile wireless use of spectrum adjacent to satellite radio. There were some innovations on the spectrum management front here and they are worth building on. The most important decision yet to come will probably concern the reallocation of broadcast spectrum for broadband use.

What can we learn from recent experiences? What would it take to accelerate progress?

1. *Things take longer when no one can be held accountable for interference.* One of the complications of unlicensed use, however desirable it may be, is that it’s hard to assign responsibility for interference. This difficulty buttresses the already existing tendency towards conservative allocations and is one of the reasons the White Spaces decision took so long. Innovative “zoning,” revocable certifications and registrations, and a certain amount of reciprocity for interference prevention ease this problem. Under-explored is the role that interference insurance might play.
2. *Failure or inability to deal with the receiver side of the equation produces sub-optimal entitlements.* Whether or not incumbents should have the obligation to improve receiver performance will depend on many factors, including the type of network deployed and the state and pace of technological innovation. Much more clear is that the FCC should have the authority to mandate receiver performance, or to mandate compliance with industry-set standards.
3. *Harmful interference should be a yield sign, not a stop sign.* The FCC continues to use predicted harmful interference as a gatekeeper to spectrum entry. The concept is in effect BOTH a tool to define rights (new entrant may not cause harmful interference) AND a tool to assign liability (new entrant is responsible for harmful interference it does cause). Instead, the notion of harmful interference should be, among other elements, what gives a spectrum user a “cause of action” to seek redress. Whether the harm is actually redressable, and by what means, should be separate questions.
4. *Confusing efficient spectrum use with distributional issues is recipe for delay.* The public interest in spectrum exploitation and the public (and competitor) interests in preventing licensees from getting windfall benefits are distinct. Whether or not spectrum rights should be expanded, who should get to take advantage of expanded rights, and what

they should have to pay for them are all separate issues and should be handled separately, with mechanisms for redistribution of benefits where necessary.

5. *Consideration of values associated with spectrum use other than efficiency is under-developed.* Reallocation of broadcast spectrum in particular will touch on values that are baked into the current allocation, such as universal service, noncommercial set-asides, and distributed access rights. As with distributional issues, these considerations are conceptually separate from efficient spectrum exploitation, but will need to be dealt with.