



I believe that our nation would be well served if more spectrum were made available for unlicensed use. However, I cannot back up that simple assertion with analytic support—I am unable to see how to demonstrate that this conclusion is sound policy. Nevertheless, I believe it to be true.

With regard to the rules for such unlicensed operation, I think the Commission should require, whenever possible, that unlicensed devices incorporate automatic power control systems that turn the power down on such systems to the lowest level needed for adequate operation.

### **III. Question 9**

The Task Force asked, “Are more explicit protections from harmful interference of incumbent users required?”

Licensees should be provided with more explicit notification of the likely future interference environment. Over the last few years the Commission has had to deal with several disputes regarding the extent to which existing licensees would have to accept interference from new classes of emitters. Northpoint and ultrawideband are perhaps the two most prominent examples of this type of dispute, but other examples exist as well.

If licenses contained clauses stating that licensees would have to accept up to some specific level of additional co-channel and adjacent-channel energy, then some such disputes would be easier to resolve, or might not be disputes at all.

For example, consider a PCS license. Suppose that a C-block PCS license had contained a clause of the form, “The FCC reserves the right to authorize additional operations in the 1895-1910 MHz and 1975-990 frequency range. However, the total energy received by a PCS base station antenna from such additional emitters will not

increase the noise figure of a receiver with a 3 dB noise figure by more than 1 dB. In more than 99% of the geographical locations in the license area, the total energy received by a PCS mobile or portable unit will not increase the noise figure by more than 1 dB assuming a 5 dB noise figure for the mobile or portable receiver.”<sup>1</sup> If PCS licenses had contained this clause or a similar, then PCS licensees could not as easily argue that authorizing a service like ultrawideband would take away from them something to which they had a right. Rather, authorization of ultrawideband in the PCS band would use up some of the FCC’s noise budget for the PCS band. Similar clauses could be drafted regarding operations in adjacent bands. For example, the FCC might wish to give licensees fair warning that adjacent bands might include emitters operating at powers up to 30 dB W.

This idea is not so much one of explicit protection, but rather the opposite—notification to the licensee of what is not protected. Explicit unprotection so to speak.

#### **IV. Question 14**

The Task Force asked, “Should the Commission consider developing receiver standards or guidelines for each radio service that would be used in judging harmful interference? For example, should such standards or guidelines aim to protect receivers that meet or exceed the standards or guidelines, but allow users to use less robust receivers at their own risk?”

I have long been dubious regarding Commission regulation of receiver performance. However, I believe that a strong case can be made for regulating the performance of broadcast receivers. The transition to digital television would be

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<sup>1</sup> This example is only illustrative. Developing reasonable and effective versions of such clauses will be difficult work.

enormously speeded up if, at some point in the future, the Commission required all TV receivers to be able to receive digital broadcasts. One disadvantage of such a regulation is that it would probably eliminate, for a few years, the lowest cost receivers on the market.

## **V. Concluding Comments**

Spectrum management has changed enormously over the last three decades—mostly for the better. The Commission and the Commission staff deserve much of the credit for these improvements. The increasing attention to economic analysis has paid great dividends. However, one must keep in mind that radio engineering defines the nature of the possible economic tradeoffs and that failure to pay attention to radio engineering can result in substantial harms. The Commission needs to maintain a balance between the economic and engineering inputs to the spectrum management process.