

1. I contest the underlying assertion -- that pure market orientation is \*good\* -- on the grounds that such an orientation would be a disservice to rural areas.

It seems clear that the only viable way to get affordable broadband Internet service to rural areas, beyond reach of commercial wires (telco or cable) will be an as-yet-unavailable wireless solution.

Just as Rural Electrification and Universal Service rules (and yes, subsidies) were necessary to get 20th century basic services to rural Americans, there will be a similar need for "propping up" in order to get 21st century communications services to truly rural areas. And I do not just refer to the current, trendy definition of rural as "50 miles from a major metropolitan area." I am also referring to those areas in which population is measured in acres per person (versus people per acre).

3.

b. Spectrum policy should be related to likely congestion and/or population density. An area with a population of 1000 in a ten mile radius could justly be allotted enough power -- in a low frequency -- to push through distance and foliage to deliver services to those destinations, with no more legal restriction than that needed to serve a couple of urban blocks.

c. "Households per square mile" would be a helpful metric for estimating both interference risks and power requirements.

4. As outlined above, it is apparent that, left to market forces alone, rural areas will suffer further retardation in the process of acquiring ubiquitous broadband. At least one way to address this problem is for frequency allocation and power rules to vary with both population density and (as appropriate) terrain.

5. Under the current Part 15 rules, allocating miniscule spectrum width in a "junk" (2.4 GHz) band to unlicensed users, an entire industry has sprung forth. Thus far, there has been little interference caused by legitimate use. If unlicensed spread spectrum is permitted within a wider range -- say, a couple of orders of magnitude wider -- it should be possible to minimize interference risk with the aid of software processing and dynamically negotiated hopping sequences.

I would also encourage a change from the requirement of "certified systems" to the allowance of certified components with appropriate limitations on total radiated power. This would still eliminate the Pringle's Can approach, while freeing up both entrepreneurs and field scientists to assemble legal systems that would

serve their needs at minimal cost.

Another weapon against congestion would be locally-run spectrum coordination, if some appropriate balance between such a body's power and the user's freedom could be established and maintained.

6. For starters, a faster turnaround time on applications for experimental licenses.

7. The definition of "harmful interference" will necessarily vary with both the and the information going over it. For example, interference with an analog TV broadcast may be "unharmful" as long as the signal degradation is no more than one would experience from a 1st-generation VHS recording; whereas interference with a digital data signal may be acceptable for non-time-critical data such as e-mail, and yet unacceptable for time-critical data like real-time voice data.

12. As communications technologies move into the digital realm, presumably with collision detection, "harm" may become more and more rare. Particularly if spread spectrum is allowed more elbow room -- again, a couple of orders of magnitude more channels to hop among -- then overlapping spectrum, whether licensed or unlicensed, may require a \*huge\* level of congestion before harmful effects are experienced.

15. As mentioned in #5, some usages (e.g., wireless ISP services) might best be handled by local frequency coordination boards. It is an interesting question as to what level of power should be granted to such bodies.

17. One policy change that would preserve spectrum efficiency, while encouraging spectrum \*effectiveness\*, would be to vary the rules -- both regarding power and regarding carrier frequencies -- according to population density and terrain.

18. Conversely, the current Part 15 rules, identical for densely populated cities and unpopulated deserts alike, render unused or lightly-used spectrum virtually useless in rural areas, where longer distances are needed to provide both function and economic viability.

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c. I believe subjective measures are a can of worms. Objective measures will lead to much less unnecessary litigation among competing interests.

d. As indicated above, for the sake of rural Americans who will not be served effectively by current or

anticipated wires or fibers, it is absolutely paramount that scarcity, population density, and terrain be taken into account when forming rules, standards, and guidelines.