

With regards to Spectrum Policy Task Force Inquiry
ET Docket No. 02-135

Comments:

Per the request for comments of June 6th, 2002, with regards to the policy of License Exempt bands and their use, we submit the following:

We are a new startup Rural Wireless Internet Service Provider in the far northwestern towns of Chicago, Illinois. Our deployment is in an area that is currently un-serviced or under-serviced by either cable or DSL provisions, and out of need of our community, this service was born. According to 2000 census figures, our area consists of 17,765 households, of which 1/3rd have school age children, and 60.6% are estimated to be Internet users with office or management workplace roles. With our nominal deployment, we are geographically able to reach most of these households, and our plans for expansion will easily cover this territory for millions of dollars less than the next competing technology.

With regards to questions that are asked, we will attempt to address them in the numbered order, only where we have relevant experience:

1. We feel that the current auctioning of spectrum, prevents a small company such as ourselves from competing in the marketplace. In addition, the equipment for most available licensed spectrums is prohibitively expensive due to lower volumes and niche markets, and would prevent us from being competitive. We do not feel that money should be the deciding factor in determining who will get which frequencies in this business.

Currently in our rural area, the problems we face, are not so much that of over-crowding of multiple outdoor deployments, as background interference from non-related "indoor" devices. Compounded with reflectivity/absorption by the canopy of tree's (especially at higher frequencies), we find ourselves with difficult installations that require a great deal of ingenuity and time, equipment, and money, to work out, and in the longer term, may not be possible if the current trend of other new startup companies come into our area.

We would like to see a lower frequency spectrum open up for EXCLUSIVE outdoor deployment use, that would not be shared with other 'indoor' uses, or other modulation schemes that could diminish the use of the bandwidth. We would also like to see larger channel availability, and if possible "SMART SYSTEMS", that can detect and use spectrum as efficiently as possible.

We would also like to see regulations written so as "NOT" to be required to "shutdown our operations" without 'due process' and determination of a violation. As of right now, "we are the lowest man on the totem pole".

2. It appear's to us, that some spectrums are allocated, but do not remain at 100% capacity, and if they were allowed to be shared, combined with the design of smart-devices, these could be utilized without interference to a licensed spectrum holder. Perhaps technology itself is the real answer, with noise levels being the

determining factor in some areas.

3. The spectral use compare with geography is more likely effected in cities than rural, and on the coasts than the Midwest, however, the "overall use of a specific band" is what will keep equipment pricing down. If we have one area of the country that has a particular frequency, it is possible that they would be penalized due to lack of hardware and pay more accordingly. It would be better to have modulation and channel schemes that can work around noise and occupied spectrum "in the overall", than attempting to segment frequencies by region.

4. We are finding that the service that we offer, is also desired by municipalities for public safety and overall use, and in fact, we are trading some, "water tower antenna space" in exchange for our services. To allocate frequency for that specific use, in actuality, would imply that they have special needs which often times, our low cost service is better than they can get, due to the "mass-availability" nature of what we are offering.

5. Much more spectrum should be set aside as "unlicensed" or "limited license", that is, easily attainable, but would require that all users are registered and tracked, and the "database" is publicly attainable, will also assist in new deployments and planning.

6. - no opinion at this time -

7. Interference can be a vague issue that needs clarification, and different ways of dealing with it, especially in unlicensed spectrums.

Technology should be the first line defense (as mentioned before) "Smart Systems", followed by clarifications and resolution of interference for example, "two WISP's competitors should be required to resolve their differences with binding arbitration".

8. In the ISM spectrum, any flexibility of our usage with be an improvement to the WISP.

9. Incumbent users should be given some weight, but not at the expense of poor design implementation's, so everyone is NOT just throwing anything up, just so they are the ones that "got there first".

10. Flexibility of power in rural areas, and stipulation of how to "power back" will be the key to deployments of a "new band", without re-creating the same situation that exists or will, in current ISM bands. Again, using smart technologies may be the answer, especially in an Internet connected medium such as WISP's are in, which means web-based technology could control radios much the way the Cell industry controls cell phones, using a similar architectures to Internet DNS servers.

11. The commission should work with industry groups (like IEEE.org) to make recommendations as to protocols and capacities, and working together, establish what would be in the best interest of design, capacity, and rule making.

12. Everything is always relative to current technology, but technology by itself should not be exclusive. Economics does play a major role, as billions of dollars of investment has been made already in equipment, and although better efficiencies could be attained, existing systems should be allowed to run until which time they are so outdated, as to be thought to hamper innovation and cause interference with other services.

The remaining topics 13 to 28 questions either fall outside our direct involvement., or have already been covered above.

We would like to address a couple of issues not directly asked by the commission, but have come up as topics of discussions recently:

First is the issue of "Installation Certification". It has been suggested recently, that every WISP go through a rigorous training course and certification process to be able to install systems. It has also been suggested that a "RF engineer" sign off on installations in an attempt to hold someone accountable. Current FCC regulations, already cover this situation, fairly adequately, and though we agree that some requirements are a good idea, we should consider the consequences of having too many stipulations that will really not fix anything, and could cause major expenses for all parties that would not be necessary. We fail to see how a certification could make someone any "more accountable", any more than having them file for a license. The law is the law, if they break it, they should be held accountable. Since manufacturers are already being held accountable for the design of their equipment, and since WE as WISP's are not allowed to legally to put together non-certified systems, how is a certification process going to prevent someone from "doing whatever they want" anyway ? It all comes down to enforcement, and it appears that the commission is looking for a better way to limit their need for involvement in the enforcement of the regulations. What makes the current system so flawed ? We shouldn't believe that restricted access, is an answer, any more than throwing money at it, would fix it. Currently the regulations allow for someone using two 24db antennas pointed at each other to transmit across the street. It may be legal, but that doesn't make it a good idea.

And for those in crowded metro area's; every device may need less output power. What determines this ? If WISP's were on our own band, what will prevent this from happening all over again ? In rural area's, we may need more power, unless we are allowed to use lower bands, where this could be less of an issue, because we would have better penetration, less attenuation with trees. It seems to us, that the answer is in the design that the cellular industry used in their phones of self reducing power to a margin over noise. It has been referred to as "smart devices". If the cellular industry can have hundreds of transceivers functioning in a given sector, without interference, and cooperating with one another (and in a much smaller radius) why can't we as WISP's.

Part of the noise problem, could be also reduced with better antenna design that has a pre-determined radiation angle that would NOT allow "infinite horizon", but X degree's of down-tilt (to be mounted between Y and Z elevations), with a fairly controlled fade

point. Better engineering and documenting of the radiators could be done at the manufacturing and certification lab levels.

We agree that any form of "protection" or "boundaries", is going to stifle us as WISP's, and does not promote free enterprise, it would be impossible to manage, and would only create more bureaucracy.

The answer is technologies that are self healing, and cooperative with one another. Let as many WISP's operate, as a market will bear. Just provide a wide enough bandwidth that overlapping channels and modulation schemes will prevent us from tripping over each other. Obviously there will be some physical limits, but the reality of 2-6 providers in a given area should not be beyond our capabilities of design.

Certifications and more structure would be virtually unnecessary, if the radios would reduce power automatically. It wouldn't matter if the rogue WISP installs a 24db dish for a link across the street, because the radio will reduce his power down to a level that is just sufficient enough to get there. Why not in addition to protocols, have required software functionality requirements, or is that mandated with the protocols ?

It has also been implied that the use of an omni-directional antenna installation is a poor design. This is not true, especially when you are distributing to a smaller market that cannot support the quantity of subscribers that larger sectorized' towers would. Re-use of channels are still accomplished, just on a larger scale between towers instead of all on one. Multi-sector antenna's can be the cause of cross interference between areas, and since they usually have more gain, produce more output, and many have been certified to be used as point-to-point (even if they are truly multi-point). Manufactures love them because they triple the deployment on towers, but not everyone needs to go with sectors.

And a final point with regards to equipment certification; if a lab working for a manufacture certifies "an antenna" at a particular specification (i.e. DB output at a frequency, with certain down-tilt specifications), that "antenna" (based on it's specifications) should now be allowed to be combined with any other certified equipment by any another manufacturer, so long as the operator can show evidence of that all items in his installation are certified with proper specifications. This encourages free enterprise, while remaining certified, and allows smaller manufacturers the ability to compete.

Technology is the answer, we as WISP's are successful due to less government, not more.

Sincerely,

John Martoccio,
Lake County Broadband (a new WISP)