INTELLIGENT computing solutions

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Intelligent Computing Solutions supports the WISPA proposal with regards to Licensed Lite usage of TV whitespaces, with a few modifications. Intelligent Computing Solutions is a Wireless ISP in DeKalb, IL (about 70 miles west of Chicago). We have some unique challenges in that our county is mostly rural while we are also home to the main campus of Northern Illinois University. Many residents of DeKalb County have come from more populated areas with more widespread access to broadband services. Wireless broadband goes a long way toward filling the digital divide, but many areas are still not cost effective due to signal attenuation. The TV whitespaces provide the spectrum necessary to deliver low cost broadband to these rural residents while simultaneously better allowing us to offer competition to the duopoly that is DSL and cable.

We believe that Licensed Lite is best because it offers many of the same benefits that unlicensed does, such as low barrier to entry for providing service, a wide selection of vendors, quick time to deployment, and low regulatory overhead, with the added protection from consumer electronics and other operators.

Perhaps a scheme similar to that used in 3.65 GHz can be used. Ccertain spectrum (such as channels not adjacent to broadcast use) can be used with a first round of certified gear. A following round of equipment would be held to tighter out of channel emissions requirements, allowing the use of all white spaces, including those adjacent to broadcast use.

Perhaps the first round of gear would be forced to use an assumingly conservative geolocation method, while the provision for sensing gear remains, allowing vendors to submit gear for certification, but being held to non-interference to broadcasters.

The Commission should require a synchronization feature, allowing for frequency reuse. This would reduce the amount of frequency needed by operators to deliver a certain speed over their coverage area. Along these lines, channel bonding should be available. 6 MHz of space is currently only good for a little under 20 megabits/s. If the US is to catch up with other countries in broadband penetration and broadband speed, base stations should be able to deliver several multiples of that, permitting client speeds of over 10 megabits/s.

No doubt the consumer electronics vendors are after this space as well. We believe that their gear is best left to the existing unlicensed bands. They have access to almost all of the bands between 5 GHz and 6 GHz. While we have access to most of these as well, the limited power in most of that space results in limited range and penetration when reaching out to our clients. The distances these bands permit are sufficient for consumer use.

I believe IEEE 802.22 has the cooperation of the broadcast industry and provides for the best technical path to what we need, though I'll admit I am not fully versed on 802.22. Whatever regulations the commission passes, be sure that they are not technology limiting, causing future advancements to be hindered by regulation.

The commission should also start receiver guidelines. A TV set with a low quality receiver could receive interference from a whitespaces device, even though the whitespaces device is within regulation. The TV sets (as all receivers) should have a certain level of out of channel rejection. I believe the SPTF issued a similar directive in the past. Automatic Transmit Power Control (ATPC)

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should be a requirement for all two-way communications devices to allow for plenty of fade margin, but with the least amount of power needed to do so, resulting in less spectrum pollution.

Wireless Internet service needs long range, cost effective, high capacity bands. TV whitespaces are the best fit for us to get high speed Internet out to rural America and to provide the necessary competition to cable and DSL.

Sincerely,
Mike Hammett
President
Intelligent Computing Solutions, Inc.