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Microsoft

October 28, 2008

Dear Senator/Representative:

As you know, in a week, the Federal Communications Commission (FCC) is scheduled to vote on rules to allow unused spectrum to be safely deployed for broadband. On behalf of Microsoft, I urge you to support this action. In a very rapid period of time "Wi-Fi" has become commonplace and has redefined the way we live and work. Supporting the FCC in allowing the vacant channels in the television broadcast band to be made available for unlicensed use will result in wireless broadband opportunities that will exceed that which we have seen with Wi-Fi. This means new broadband options for consumers, innovation that remains American, and the tremendous benefits of economic growth that accompanies this new market.

The white spaces will allow wireless signals to travel farther and more easily through obstacles than spectrum currently being used for wireless broadband devices. For example, a signal sent using the white spaces will travel two to three times farther than one sent at 2.4 GHz where Wi-Fi operates today. As a result a community can be served more cost effectively using this spectrum. Unlicensed use of this spectrum will unleash innovation in a new generation of more powerful wireless broadband devices that will enable offerings such as: 1) wireless broadband service in rural areas delivered more cost effectively by WISPs; 2) self-forming mesh networks capable of routing traffic at speeds of 20 megabits per second and above within the mesh; and (3) the wireless distribution of content throughout the home and among devices. These uses will thrive in an unlicensed framework, while licensing this spectrum will not give rise to such a vibrant wireless broadband marketplace.

The reality too is that no one has any interest or desire to interfere with incumbent licensees in the band. And, white spaces advocates have taken great care in making a variety of technical proposals that will protect existing users against interference.

> Low Power Spectrum Sensing-only Devices Should be Approved. Before a device that employs only spectrum sensing technology transmits on a channel, the spectrum sensing technology will "listen" to that channel (as well as the surrounding channels) to determine channel usage. If a channel is being used by a licensed service, then the white spaces device will not use (or "talk" on) that channel. If a licensed service starts to operate on a previously vacant channel, the device will sense the change and immediately vacate the channel. The spectrum

sensing technology is so sensitive that it will cause a white spaces device to vacate a television channel even if the licensed television signal that the device detects is 1,000 times below the level at which a television receiver can receive and display a picture. That is to say, white spaces devices will detect television signals that televisions cannot even detect. Spectrum sensing technology also will detect other licensed users such as wireless microphones, thus avoiding harmful interference to these services as well.

These devices will transmit at very low powers. Less than one-tenth of a watt. In comparison, full power television broadcast stations generally transmit at power levels of up to 1 megawatt or 1 million watts.

Higher-Power Geolocation Devices Provide Belts-and-Suspenders Protection. Out of an abundance of caution, some white spaces advocates have proposed the use of both sensing and geolocation for higher-power devices that transmit up to 4 watts. The geolocation capability will enable a device to know its location and will check with a database to confirm that it is not close to a television station before the white space device can transmit.

The FCC Will Certify Only Safe Devices. The FCC also has protections in place to ensure that white spaces devices that enter the marketplace will not interfere with incumbent licensees. The FCC's certification process ensures that no white spaces device will be manufactured or sold unless it has been certified by the FCC to comply with the FCC's technical requirements. If a device fails one requirement, the FCC will not allow it to enter the marketplace. Thus, no white spaces device will be permitted to be sold to consumers unless it is shown that the device will not interfere with licensed users.

White Spaces Devices Will Not affect the Digital Television Transition. To the extent the FCC adopts rules at its November meeting, white spaces devices will not be in the marketplace at the conclusion of digital television transition in February 2009, given the time needed to develop and build devices once an FCC decision is made. White spaces devices present no risk to the digital television transition.

There Are Strong Business Interests in Preserving Over-the-Air Television Service. Some white spaces advocates also intend to have devices that will use the white spaces for broadband connectivity while allowing the consumer to access over-the-air television on the same device. Consumers value both experiences and many intend to deliver both on the same device.

This proceeding has been open for over 4 years. The FCC has taken over a year to do field and lab tests and has received 32,811 comments which have helped it to develop proposed rules. The reports of the FCC's proposed rules suggest that they have taken a much stricter approach than even the conservative proposals made by white spaces advocates. From what we understand, the draft order includes a substantial power

reduction; reserves plenty of channels below channel 21 for wireless microphones; creates a reserved channel and emission mask for medical telemetry; and imposes severe adjacent channel limits. In light of the diligence with which the FCC has approached this proceeding there is simply no reason to further delay a decision.

Given the interest by other countries in developing white spaces technology and the ever growing need for broadband options here in the United States, I respectfully ask that you support the FCC's effort to deliver on all of the broadband potential of the white spaces and encourage the FCC to conclude its proceeding on November 4th and allocate the white spaces for unlicensed use. The white spaces represent the only opportunity for unlicensed use below 1 GHz for the foreseeable future. If this spectrum isn't made available, America will not receive the benefits of this broadband innovation.

Sincerely,

Craig Mundie
Chief Research and Strategy Officer