

September 14, 2010

VIA ECFS

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Re: Notice of Ex Parte Communication, ET Docket No. 04-186

Dear Ms. Dortch:

On September 13, 2010, the undersigned along with Dr. Mark McHenry, Founder, President and CTO of Shared Spectrum Company (SSC) and Edward Melick, Vice President for Strategy at SSC, met with Jennifer Flynn, Legal Advisor to Chairman Genachowski to discuss matters related to the above-referenced proceeding. On the same day, the SSC representatives met with Angela Giancarlo, Chief of Staff to Commissioner McDowell on these matters.

SSC expressed its support for flexible but meaningful guidance on an acceptable range of capabilities that TV band devices (TVBDs) and systems must now and over time possess. Which capabilities are required to earn equipment certification could depend on the intended implementation of a particular device or class of devices, interference avoidance test results and other factors. With such flexibility, an entrepreneurial, innovation-based ecosystem for TVBDs will flourish. In particular, SSC discussed how preserving a predictable path for sensing-only TVBDs, as well as those that have geolocation/database capabilities and other interference avoidance approaches, will promote innovation not only in the TV White Spaces, but across the spectrum.

We pointed out that Shared Spectrum Company was the first company to advocate sharing of unused TV channels, especially in rural areas (2000)¹ and to demonstrate a fully functioning, frequency-agile cognitive radio system for the DARPA XG program (2006).² In addition to the initial filing in 2000, SSC's representatives also highlighted other technical contributions the Company has made in this and related proceedings regarding the availability of spectrum,³ innovative interference avoidance methods,⁴

¹ See Comments of Shared Spectrum Company in ET Docket No. 00-47, *Inquiry Regarding Software Defined Radios* (June 14, 2000), available at <http://fjallfoss.fcc.gov/ecfs/document/view?id=6511357196>.

² See Press Release, "Shared Spectrum Company Successfully Demonstrates Next Generation (XG) Wireless Communications System" (Sept. 18, 2006), available at http://www.sharedspectrum.com/inc/content/press/XG_Demo_News_Release_060918.pdf.

³ See Comments of Shared Spectrum Company in ET Docket No. 04-186, *Unlicensed Operation in the TV Broadcast Bands* (Nov. 30, 2004), available at <http://fjallfoss.fcc.gov/ecfs/document/view?id=6516883619> and <http://fjallfoss.fcc.gov/ecfs/document/view?id=6516883620>.

solutions to the “hidden node” problem⁵ and factors to determine the optimal sensing threshold for TVBDs to detect wireless microphones.⁶

SSC disclosed that it will soon be testing software code for specialized TVBD detectors that meet (or exceed) the Commission’s sensing requirements. These inexpensive ATSC-DTV detector and wireless microphone detector software modules are designed to run on any TVBD’s general purpose microprocessor (GPP). The modules can work together with a geolocation database or on a stand-alone basis to maximize both incumbent protection and available TVBD bandwidth. Depending on the outcome of the final rules in this proceeding, SSC expects to begin field testing these detectors by the end of October and have them ready for OEM customers by the first quarter of next year.

SSC also explained how certain changes to the rules would impact innovation in sensing-based interference avoidance technologies and affect the future of spectrum sharing of the TV band as well as other bands. In particular, we stressed the importance of retaining a sensing requirement for TVBDs, at least as an alternative interference avoidance mechanism. Retaining the sensing requirement enables deployment of un-tethered or ad hoc TVBD networks and provides end users and broadband service providers a choice of interference avoidance approaches that provide them the best performance and protection for their particular application. Spectrum sensing data could also provide a valuable, independent check on the accuracy of localized information regarding protected operations contained in or missing from the geolocation database or in the likely case where the geolocation of the TVBDs cannot be accurately determined (*e.g.*, indoors) or where TVBDs are operating at higher elevations.⁷

In addition, we expressed support for the pending requests for reconsideration seeking to remove the additional procedural and substantive burdens imposed on sensing-only personal/portable devices contained in Section 15.717 of the rules.⁸ While all TVBDs should be subject to a transparent certification process that requires applicants to adequately demonstrate that each device will not cause harmful interference to protected incumbents, the rules and procedures need not unreasonably discriminate against sensing-only TVBDs. Open, fair, and expedient equipment testing procedures will

⁴ See Comments of Shared Spectrum Company in ET Docket No. 02-380, *Inquiry into Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band* (April 17, 2003), available at <http://fjallfoss.fcc.gov/ecfs/document/view?id=6513982765>, and Reply Comments of Shared Spectrum Company in ET Docket No. 04-186 (Jan. 31, 2005), available at <http://fjallfoss.fcc.gov/ecfs/document/view?id=6516982991> and <http://fjallfoss.fcc.gov/ecfs/document/view?id=6516982990>.

⁵ See Shared Spectrum Company *ex parte* presentation in ET Docket Nos. 02-380 and 03-108, *Facilitating Opportunities for Flexible, Efficient, and Reliable Spectrum Use Employing Cognitive Radio Technologies* (Sept. 29, 2003), available at <http://fjallfoss.fcc.gov/ecfs/document/view?id=6515182975>.

⁶ See Shared Spectrum Company Technical Report, “The Impact of Man-made Noise on Protection Requirements for Wireless Microphones” (commissioned by Microsoft Corp.), submitted as an attachment to *ex parte* letter from Edmond Thomas, Wiltshire & Grannis LLP, to Julius P. Knapp, Chief, Office of Engineering and Technology, in ET Docket No. 04-186 (Oct. 26, 2009), available at <http://fjallfoss.fcc.gov/ecfs/document/view?id=7020243395> (demonstrating that conservative exclusion zones of 130 meters and sensing threshold of -110 dBm would more than adequately protect wireless microphones when taking into account man-made noise).

⁷ We also raised questions about recent speculative and unsupported assertions that sensing would be too costly to make TVBD deployment economical, especially since SSC’s sensing approach is completely software based. At the same time, we noted that the marginal cost of implementing the geolocation requirements (including the fees charged by database managers) is currently unknown.

⁸ 47 C.F.R. § 15.717. See also Petition for Reconsideration of the Public Interest Spectrum Coalition at pp. 19-24 (Mar. 19, 2009), Petition for Reconsideration of Adaptrum, Inc. at pp. 8-9 (Mar. 18, 2009).

provide an “incentive to continue to develop this technology”,⁹ but an unnecessary politicized process is more likely to chill innovation and investment in TVBD development. Moreover, such an unusual procedural rule calling for full Commission action for all initial equipment authorizations of sensing-only devices is unnecessary since the authorization grants are already subject to reconsideration and review.¹⁰

Finally, SSC suggested that the TVBD rules could present a “win-win” for licensed television broadcasters by providing digital full power, Class A, and LPTV licensees the flexibility to offer “ancillary or supplementary services” using TVBDs. For example, broadcast station licensees should be able to negotiate or internally implement more flexible TVBD co-channel and adjacent channel operational requirements that both enable such services and ensure against disruption of TV service and electronic news gathering. Such cooperation will also enable implementation of return paths for new interactive and mobile video and broadband services offered by the TV station licensees as well as in-home video transfer applications. Furthermore, reconfigurable TVBDs that utilize a combination of sensing and database approaches accommodate, if not enable, future incentive auctions in the TV bands and provide a seamless transition to new broadband services offered by new entrants or the broadcasters themselves.

Pursuant to Section 1.1206 of the Commission’s rules, a copy of this letter is being filed via ECFS in the above-captioned proceedings. Please do not hesitate to contact the undersigned with any questions.

Sincerely,

/s/ Peter A. Tenhula
Peter A. Tenhula
Vice President and General Counsel

cc (via e-mail): Jennifer Flynn
Angela Giancarlo

⁹ Unlicensed Operation in the TV Broadcast Bands, *Second Report and Order and Memorandum Opinion and Order*, 23 FCC Rcd 16807 at ¶ 257 (2008).

¹⁰ See 47 C.F.R. §§ 2.923, 1.106 and 1.115.