

November 19, 2009

**VIA ECFS**

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

Re: Notice of Ex Parte Communication, GN Docket Nos. 09-51 and 09-157, ET Docket No. 04-186, WT Docket No. 06-150

Dear Ms. Dortch:

On November 13, 2009, the undersigned along with Thomas Stroup, CEO of Shared Spectrum Company (SSC), met with Commissioner Meredith Baker along with Charles Mathias and Paul Murray of Commissioner Baker's staff and the Wireless Telecommunications Bureau, respectively. During the meeting, SSC provided an update on SSC's dynamic spectrum access (DSA) technology and how it would enable robust secondary markets for spectrum resources. We also discussed issues related to the above-referenced proceedings as set forth in more detail below.

In particular, we presented some of the key benefits of DSA critical to wireless broadband deployment and secondary markets, including the following:

- DSA-enabled devices can efficiently and safely use spectrum in lower frequencies in the VHF and UHF bands, including the 700 MHz band and the TV white spaces, to increase link range in rural areas so that existing infrastructure can be used as much as possible to reduce deployment costs;
- The technology enables robust spectrum pooling among peer licensees and cost-effective secondary market access for new entrants or spectrum-constrained service providers;
- DSA reduces propagation loss by selecting the "best" frequency to achieve maximum data throughput and solves building penetration, foliage attenuation and other RF challenges; and
- DSA technology can reduce device hardware costs by eliminating the need for expensive RF filtering components.<sup>1</sup>

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<sup>1</sup> See also Dr. Mark A. McHenry, Shared Spectrum Company, *Presentation and Remarks* at the Broadband Workshop on Wireless Technology (Aug. 13, 2009) (presentation available at [http://www.broadband.gov/docs/ws\\_technology\\_wireless/ws\\_technology\\_wireless\\_McHenry.pdf](http://www.broadband.gov/docs/ws_technology_wireless/ws_technology_wireless_McHenry.pdf) ; transcript available at [http://www.broadband.gov/docs/ws\\_06\\_tech\\_wireless\\_transcript.pdf](http://www.broadband.gov/docs/ws_06_tech_wireless_transcript.pdf)).

We also recommended that the Commission's National Broadband Plan facilitate access to spectrum resources for wireless broadband by:

- Promoting innovation and investment in cognitive radio and DSA technologies;<sup>2</sup>
- Conducting comprehensive and ongoing inventories of spectrum allocations, assignments and utilization;<sup>3</sup>
- Establishing a framework for “multi-purposing” additional spectrum through DSA-enabled sharing with government and non-government incumbents; and
- Enhancing secondary market leasing.

With regard to the final point, SSC highlighted the following ideas – largely raised by others in various proceedings – the Commission could explore further to bolster access to spectrum through leasing transactions:

- Improving access to information regarding spectrum availability and use (*e.g.*, spectrum inventories and pre-filed Form 608<sup>4</sup>);
- Facilitating better understanding of market/economic forces (*e.g.*, transaction costs, information costs, opportunity costs, market confidence and trust among parties and available supply<sup>5</sup>);
- Clarifying or modifying service rules, especially build-out and eligibility rules, to provide incentives to lease (*e.g.*, clarify 700 MHz performance requirements<sup>6</sup> and remove unintended disincentives for leasing compared with disaggregation/partitioning<sup>7</sup>);
- Providing enhanced incentives for licensees to (a) pool spectrum among themselves (*e.g.*, distributed antenna systems; shared infrastructure); (b) lease to new entrants, rural broadband

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<sup>2</sup> See Shared Spectrum Company, *Reply Comments* in GN Docket No. 09-51 (July 21, 2009), available at <http://fjallfoss.fcc.gov/ecfs2/document/view?id=7019917825>.

<sup>3</sup> *Id.*

<sup>4</sup> A pre-filed FCC Form 608 would allow a single party (either a licensee/lessor or a prospective lessee) to submit its proposed leasing terms into the Universal Licensing System (ULS) and/or through spectrum brokers for particular spectrum in a particular area similar to real estate other online listing services that match buyers/lessees and sellers/owners.

<sup>5</sup> See, *e.g.*, Spectrum Bridge, Inc., *Comments* in GN Docket Nos. 09-51 and 09-157 (Sept. 30, 2009), available at <http://fjallfoss.fcc.gov/ecfs2/document/view?id=7020039963>; Google, Inc., *Comments* in GN Docket Nos. 09-51 and 09-157 at 6-7 (Sept. 30, 2009), available at <http://fjallfoss.fcc.gov/ecfs2/document/view?id=7020039948>; AT&T Inc., *Reply Comments* in GN Docket Nos. 09-51 and 09-157 at 48-49 (Nov. 5, 2009), available at <http://fjallfoss.fcc.gov/ecfs2/document/view?id=7020246459> and Michael L. Katz, Market-Based Spectrum Policy to Promote Efficient Wireless Innovation and Investment at 20-22 (Nov. 5, 2009), available at <http://fjallfoss.fcc.gov/ecfs2/document/view?id=7020246462>.

<sup>6</sup> See Blooston Rural Carriers, *Petition for Partial Reconsideration and/or Clarification* in WT Docket No. 06-150 (Sept. 24, 2007), available at <http://fjallfoss.fcc.gov/ecfs2/document/view?id=6519736441>; Rural Telecommunications Group, *Petition for Reconsideration* in WT Docket No. 06-150 (Sept. 24, 2007), available at <http://fjallfoss.fcc.gov/ecfs2/document/view?id=6519736307>; MetroPCS Communications, Inc., *Petition for Clarification and Reconsideration* in WT Docket No. 06-150 (Sept. 20, 2007), available at <http://fjallfoss.fcc.gov/ecfs2/document/view?id=6519731207>.

<sup>7</sup> Compare 47 C.F.R. § 27.15(d) (allowing parties to share or assign responsibility for meeting performance requirements) with 47 C.F.R. §§ 1.9020(d)(5), 1.9030(d)(5) (construction/performance obligations not delegable to spectrum lessee(s)).

providers and those using advanced technologies like DSA (*e.g.*, grant flexible use rights); and (c) establish “private commons”<sup>8</sup>;

- Harmonizing flexible allocations and technical rules so that DSA and cognitive radio technologies can operate seamlessly across multiple bands and services (*e.g.*, in-band/out-of-band power limits and require transmit power control to limit operating power to minimum necessary for successful communication<sup>9</sup>); and
- Expanding applicability of secondary markets policies to all spectrum-based services (*i.e.*, broadcasting, satellite).

With regard to the Commission’s interest in finding additional spectrum for wireless broadband services, SSC’s representatives suggested that the Commission consider establishing a flexible spectrum access framework that includes DSA-enabled sharing with government and non-government incumbents. Such a framework would focus on “multi-purposing” legacy bands with flexible overlay rights (and responsibilities) because traditional “repurposing” or “reclaiming” bands that involve relocating incumbents would be too difficult, too costly, too time consuming and, in light of DSA technology, unnecessary. Under this framework, a winner of the auction for overlay rights would have, for example, the flexibility to choose among several options regarding incumbents, including:

- Protecting incumbent operations with DSA sharing capabilities;
- Relocating or buying out incumbent operations;
- Providing service or leased spectrum access to incumbents; or
- Negotiating other reasonable arrangements with incumbents.

Incumbents could “earn” flexibility to access broadband spectrum by pooling or leasing spectrum access or buying overlay rights.

Finally, SSC raised the following near-term and ongoing spectrum-related opportunities through which the Commission could enhance innovation and wireless broadband access:

- Increase power limits in TV White Spaces and relax transmit mask requirements, especially in rural areas;<sup>10</sup>
- Collaborate closely with the National Telecommunications and Information Administration (NTIA), the Department of Defense (DoD), the National Science Foundation (NSF) and other agencies on research and development funding priorities, test-beds, field demonstrations and DSA use cases; and
- Encourage and rely on industry standards activities surrounding the details for implementing DSA and other cognitive radio technologies, especially IEEE SCC 41/P1900 and the SDR Forum.<sup>11</sup>

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<sup>8</sup> See 47 C.F.R. § 1.9080.

<sup>9</sup> See, *e.g.*, 47 C.F.R. §§ 15.407(h)(1), 15.709(a)(3).

<sup>10</sup> See Shared Spectrum Company, *Ex Parte Letter*, ET Docket No. 04-186 (Oct. 23, 2008), available at <http://fjallfoss.fcc.gov/ecfs2/document/view?id=6520177861>.

<sup>11</sup> See <http://www.scc41.org/> and <http://www.sdrforum.org/>.

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): Commissioner Meredith Baker  
Charles Mathias  
Paul Murray