



---

# Shared Spectrum Company Briefing



## 802.19.1 Workshop – Panel A

**July 16, 2010**

Ed Melick, 703-863-6131 (Cell)  
Shared Spectrum Company  
[www.sharedspectrum.com](http://www.sharedspectrum.com)



# Shared Spectrum Company (SSC)

---

- Founded in 2000
- TVWS comments in 2000
- Cognitive radio & spectrum management experts
- Pioneering/leading developer of Dynamic Spectrum Access (DSA)
- Developed DoD DSA solution (DARPA XG)
- DoD and commercial focus



# SSC Products

---

- DSA software/technology licensing
- Research & development
- Spectrum strategy and technical consulting
- Software development
- Cognitive radios



# DSA Radio Prototypes & Development Kits

DSA 1000 / DSA 2000 / DSA 2100				DSA 3000
DoD RF Board (MHz)	Public Safety RF Board (MHz)	Wireless (TV) RF Board (MHz)	Commercial RF Board (MHz)	Small Form Factor RF Board (MHz)
225 – 512 1215 – 1390 1435 – 1525 1755 – 1850 2200 – 2290	138 – 174 220 – 512 764 – 869	174 – 216 516 – 806	698 – 941 1390 – 1435 1670 – 2680	225 – 600

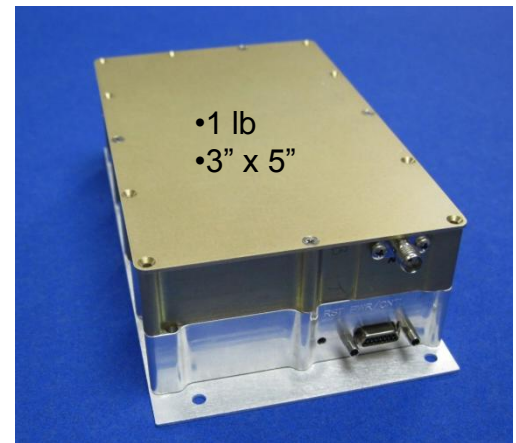


DSA 1000 – Transceiver



- 10 W (1 dB compression)
- 20-1000 MHz
- Antenna diversity

DSA 2100 – High Power, Long Range



- 1 lb
- 3" x 5"

DSA 3000 – Small Form Factor



# DoD Activities

---

- DSA transition to tactical radios
  - Several projects underway
- Goal: Field DSA in 2012
- Other projects: LTE, spectrum management, RF encroachment, etc.



# Commercial Activities

---

- Working with various companies to commercialize DSA technology
- Technical consulting (e.g., analysis to support FCC filings)
- Spectrum monitoring station
- TVWS demo development
- Silicon



# Microsoft White Space Network

## First White Space Network in the World



White Space Network Setup



Shuttle Deployment



WS Antenna on Bldg 42



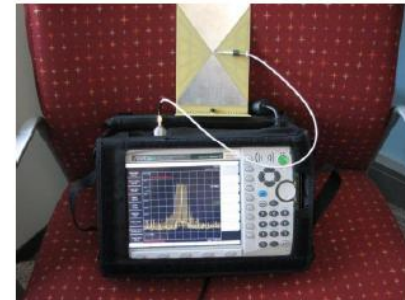
WS Antenna on MS Shuttle



Subcarrier Suppression demo



Microphone testing in Anechoic Chamber



Data packets over UHF



# CTB Networks

---

- Broadcast content delivery network
- “Cellular” architecture
- Optimal multicast/unicast combination
- SSC DSA technology used for
  - In-band return path
  - Additional downlink capacity
  - Assuring no harm
- ATSC receivers (Valups Tivizen)



# Business & Service Perspective

---

- SSC has proven that DSA works
- Countless applications for sharing
- TVWS is the tip of the sharing iceberg
- The killer app is unknown
- Multiple profitable business cases likely to emerge once regulatory dust settles and standards are adopted/implemented



# Next Steps

---

- Final FCC rules
- Standards
- Business cases
- Vendor investment
  - Hardware components
    - Wideband power-efficient PAs
    - Wideband antennas
  - Silicon



# Role of Coexistence

---

- Coexistence importance depends on:
  - Regulation
    - Clear and unambiguous rules for TV/Mic/LMR sharing
    - Amount of bandwidth
  - Variety of devices
  - Demand for interoperability
  - TVWS success