The New White Space Database

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Abstract

• A discussion of general administrator coordinated geographic spectrum sharing with TV Bands white spaces as a use case

• Suggestions for administrator communication features that may accommodate varying parameters required for operation in different regions, spectrum allocations, and application types.
White Space Potential Not Limited to TV Bands

Many geographic spectrum sharing strategies are possible. Consider, for example:

- **Public re-use scenarios**
  - Administrator-assisted spectrum sharing can support coexistence in many additional bands beyond VHF/UHF

- **Private re-use scenarios**
  - Consider example of “private commons” where private spectrum is made available for other internal applications
  - Example: Employ aircraft training spectrum for other Government-only uses when aircraft aren’t flying
White Spaces are Not Always Suitable for Use

Devices must understand their Spectrum Environments

A White Space administrator can provide comprehensive situational awareness to devices including:

• Legal spectrum availability
  • e.g. Channel lists

• Presence & impact of other devices
  • e.g. by frequency

• Channel power in band at location
  • e.g. total and component

• Spectrum environmental details
  • Transmitter distance & heading
  • Service types and TX power
  • Schedule and duty cycle
  • Etc.
White Spaces Require Secure Communication

- All White Space transactions require mutual authentication
- Recommend White Space ecosystem follow the example set by WiMAX and adopt as standard:
  - Public Key Infrastructure
  - Signed digital certificates for all administrators
  - Embedded digital certificates in devices
  - In firmware or hardware (not software)
White Spaces Not Limited to 6 MHz Channels

Recommend a message query/response format that accommodates diverse White Space operations that supports:

- Non-UHF frequencies
- Non-channelized allocation
- Sub-channelized assignments
- Variable emission allowances

- Not all White Space devices may accommodate all available spectrum (e.g. UHF between CHs. 18-21 …)
  - Let devices communicate their capabilities

- Some devices may prefer certain frequencies over others (e.g. prefer above 614 MHz …)
  - Let devices communicate their preferences

- Some devices may prefer certain channel widths over others (e.g. 25 KHz SCADA …)
  - Let devices communicate their intended application
Current Activities and Schedule

- **February 28, 2011**
  - Amendments to verify compliance with the final Rules must be submitted to the FCC

- **March 10, 2011**
  - First FCC-organized workshop to address administrator operation, consistency and compliance and to schedule public trials

- **Scheduled Activities**
  - Expect 2 to 3 additional workshops
  - Each separated by 3 to 4 weeks
  - Opportunity for public trials of administrator services
  - Demonstration of availability
  - Verification of compliance
  - Expect multiple administrators may become commercially available May/June/July time frame.

- **Receive weekly updates via DSA-Announce Google Group**
  - [http://groups.google.com/group/dsa-announce/subscribe](http://groups.google.com/group/dsa-announce/subscribe)

- **Contribute through the Wireless Innovation Forum**
  - [http://www.wirelessinnovation.org](http://www.wirelessinnovation.org)

- **Start listening to IETF PAWS**
  - [https://www.ietf.org/mailman/listinfo/paws](https://www.ietf.org/mailman/listinfo/paws)

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References