TV White Space
Geolocation Database

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**Topics**

- Background
- Status
- Issues
- Approach
- Next Steps
**Background**

- In Nov, 2008, the FCC officially called for a geolocation database to enable TV White Space devices by providing lists of available channels
  - 47CFR15.711: Interference Avoidance Mechanisms

- In Feb, 2009, a lawsuit was filed by MSTV and NAB

- Also in Feb, 2009 an ad hoc group formed to address issues with the database including formats and protocols

- By May, 2009 over 15 Petitions for Reconsideration were filed
  - A total of 50 filings from 30 entities

- In Nov, 2009, the FCC issued a PN inviting proposals for TV Band Device Database Managers
  - Nine companies submitted proposals

- In Jan, 2010, the FCC issued a R&O and FNPRM on wireless microphones

- In Mar, 2010 the FCC issued the National Broadband Plan

- Since Nov, 2008 there have been over 150 ex parte visits or filings at the FCC
• Pending Notice of Inquiry on fixed, high power point-to-point operation in rural areas

• Pending rulemakings on wireless microphones
  – Licensing status

• Public Notice for geolocation database
  – Decision after the ruling on Petitions for Reconsideration (we hope)

• Waiting for FCC decisions on
  – Petitions for Reconsideration
  – Wireless microphones
  – Database administrators
Status

- Standards bodies and industry associations
  - IEEE 802 committees (.11af, .19, .22.1)
  - Wireless Innovation Forum (formerly SDR forum)
  - Ecma-392 CogNeA (Cognitive Networking Alliance)

- Alliances forming
  - Atheros, Broadcom, Dell, HP, Marvell Semiconductor, Microsoft, Motorola, Nokia, Philips, and WISPA ("TVWS Group")
  - Wi-Fi Alliance
  - FiberTower, Sprint Nextel, Rural Telecommunications Group (the “Coalition”)
  - Dell & Microsoft

- International
  - Ofcom
  - CEPT

- Trial systems deployed
Issues

- Continuing regulatory process
  - Petitions for Recon
  - Legal challenges and lawsuits

- Broadcast spectrum repurposing
  - How long will it take?
  - How much is left for TV/WS?

- Wireless microphones
  - Who gets protection in the database?

- Number of database administrators
  - Data and calculational consistency – Motorola work in White Space group
  - Data sharing
  - MOU process with FCC

- Geolocation

- Amount of spectrum for TV/WS
Issues - Spectrum Availability

TV White Space Spectrum Availability Map - Fixed
Number of Available Channels by Census Block Groups

[Map of the United States showing spectrum availability with color coding]

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Issues - Spectrum Availability

TV White Space Spectrum Availability Map - Mode II
Number of Available Channels by Census Block Groups

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Our Approach – Functional Architecture

COMSEARCH INTEGRATED WHITE SPACE DATABASE SYSTEM

FCC

Complete incumbent dataset plus calculation code module

Registration information

Future

WSD

Generic

Mode I

Mode II

Device with embedded database and analysis capability

Fixed

Internet

Query/provision available channels

Future

Fixed device registrations

Other Databases

TV/WS Database

Incumbent Database

Comsearch Database

Protected Entities

NON-FCC DATA
Headends
Wireless Mics
Video Assist
TV Rx

TV Bands dataset (including protected entities and fixed registration)

Protected Entities

FCC CDMS ULS

FCC DATA
TV
BAS
PLMRS
CMRS
Offshore

Interface to send “No channels available” messages to database provider and provide reports to FCC

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Our Approach - Security

- Agree with Dell, Microsoft, Motorola, and Google
  - “…all database proposals should contemplate security that complies with standards for other commercial online operations.” (Dell & Microsoft ex parte, 8/27/09)
  - “…the Commission [should] not require strict device security…”, “Strict device security provides no additional protection benefits” (Motorola ex parte, 10/13/09)
  - “…the WSDB should not act as an up-front enforcer” (Google ex parte, 9/18/09)
  - “The database should not be considered a barrier to the operation of devices that might function outside of the Commission’s rules.” (Comsearch ex parte, 9/23/09)

- Use database authentication (e.g., shared secret methods) (Motorola)
  - Use password-based accounts with the database to assure device identity
  - Can be used to reasonably assure device identity without significant additional costs to consumers

- Comsearch handles millions of dollars a year through online database transactions using manual authentication and password-based security methods
Additional Services

- Channel List Optimization
- On-demand frequency planning
- Leverage to other spectrum/bands
What’s Next?

• FCC action by Q310 (end of September)
  - Petitions for Recon
  - Repurposing of broadcast spectrum
  - Wireless microphones
  - Selection of database admins
    • Commence MOU negotiation

• Development of guidelines for:
  - Data-sharing
  - Calculations
  - Data consistency

• Ongoing standards work

• International harmonization
Questions?