

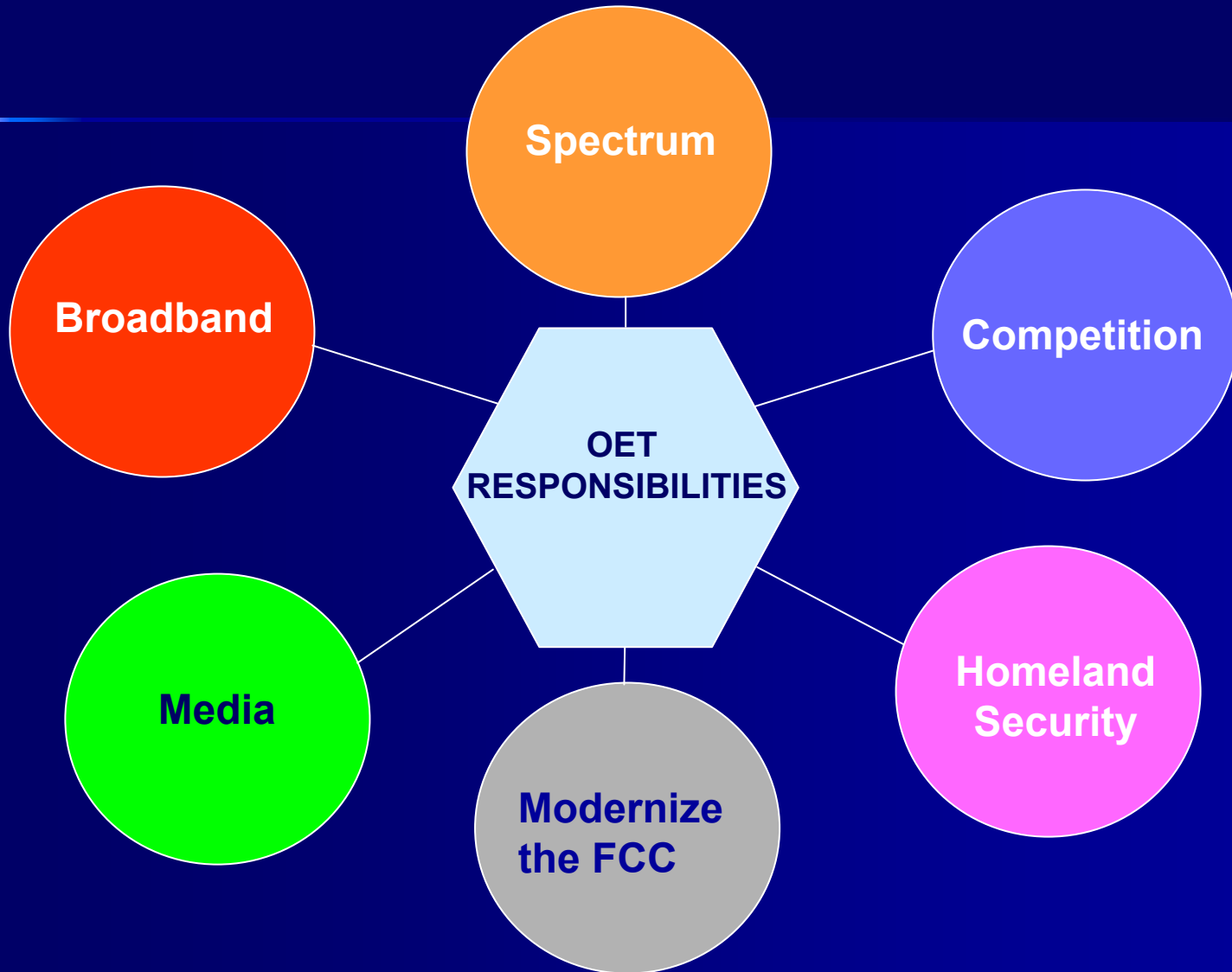
# Office of Engineering and Technology

Agenda Meeting  
January 15, 2004

# OET's Mission

**Manage the spectrum and provide technical leadership to create new opportunities for innovation and economic growth.**

# FCC 6 Strategic Goals



# OET Projects (1)

OET Project	Spectrum	Broad-band	Competition	Media	Homeland Security	Modernize the FCC
Cognitive Radio	X	X	X	X	X	
Interference Temperature	X	X	X	X		
Receiver Standards	X	X	X	X	X	
U-NII 5 GHz	X	X	X	X		
OET Lab Facility upgrade	X	X	X	X	X	X
AWS 90MHz Allocation	X	X	X			
AWS 30 MHz Allocation	X	X	X			

# OET Projects (2)

OET Project	Spectrum	Broad-band	Competition	Media	Homeland Security	Modernize the FCC
800 MHz Public Safety IX Study	X				X	
CALEA	X				X	
NRIC					X	
Network Outage Reporting					X	X
TAC	X	X	X	X	X	X
RF Health Hazards	X	X	X			
Unlicensed White Paper	X	X	X	X	X	
BPL	X	X	X		X	

# OET Projects (3)

OET Project	Spectrum	Broad-band	Competition	Media	Homeland Security	Modernize the FCC
Unlicensed Spectrum	X	X	X		X	
Above 28 MHz WRC Implementation	X		X		X	
Below 28 MHz WRC Implementation	X		X		X	
DTV Implementation Analysis	X	X	X	X		
Plug and Play Analysis	X		X	X		
Broadcast Flag Analysis	X		X	X		
Equipment Authorization	X	X	X	X	X	X

# OET Projects (4)

OET Project	Spectrum	Broad-band	Competition	Media	Homeland Security	Modernize the FCC
RF Health Testing	X	X	X	X	X	
Part 15 Smart Antenna	X	X	X			
Growth Zones	X	X	X			
Part 74 Rewrite	X			X		
2 GHz BAS/FS	X			X		

# Cognitive Radio

- Dynamic New Technology
- Senses RF Environment and modifies frequency, power or modulation
- Allow for Real Time Spectrum Management
- Significantly Increases Spectrum Efficiency

**SPECTRUM**   **BROADBAND**   **COMPETITION**   **MEDIA**   **HOMELAND SECURITY**



# Interference Temperature

- Sets a maximum “Threshold” for RF energy within a band thereby protecting incumbent operations
- Allows sharing by devices that stay below the “Threshold”
- Creates opportunities for new services and innovative technologies

**SPECTRUM**

**BROADBAND**

**COMPETITION**

**MEDIA**

# Broadband Over Power Line

- Provides broadband services to consumers over existing power lines
- Third “Pipe” into the home providing competition to DSL and Cable Modems
- “In House” BPL allows for networking of electronic devices over existing house wiring

**SPECTRUM**

**BROADBAND**

**COMPETITION**

**MEDIA**

# Advanced Wireless Services (3G)

- New voice, data, and broadband services
- Competitive services with other CMRS
- 1710-1755 MHz/2120-2155 MHz
  - 45 MHz Reallocated from Federal Government
  - Difficult and technical challenging negotiations
- Considering additional spectrum from 2 GHz MSS and other services
  - 1910-1920 MHz, 1990-2000 MHz, 2020-2025 MHz, 2165-2180 MHz

**SPECTRUM**

**BROADBAND**

**COMPETITION**

# Trends In Unlicensed (Part 15)

- Great Success
- Tremendous Growth
  - Over 400 Million Part 15 Transmit Devices in the US
  - Already About \$3 Billion Annual Sales of wireless Networking Products – Expected to exceed \$5 Billion by 2005

# Unlicensed Technologies

- U-NII (5 GHz WiFi) - 255 MHz new unlicensed spectrum
- Using White Spaces – Unused TV Channels
- Unlicensed Spectrum – 3650-3700 MHz
- Smart Antennas
- Above 90 GHz

# OET Homeland Security Initiatives

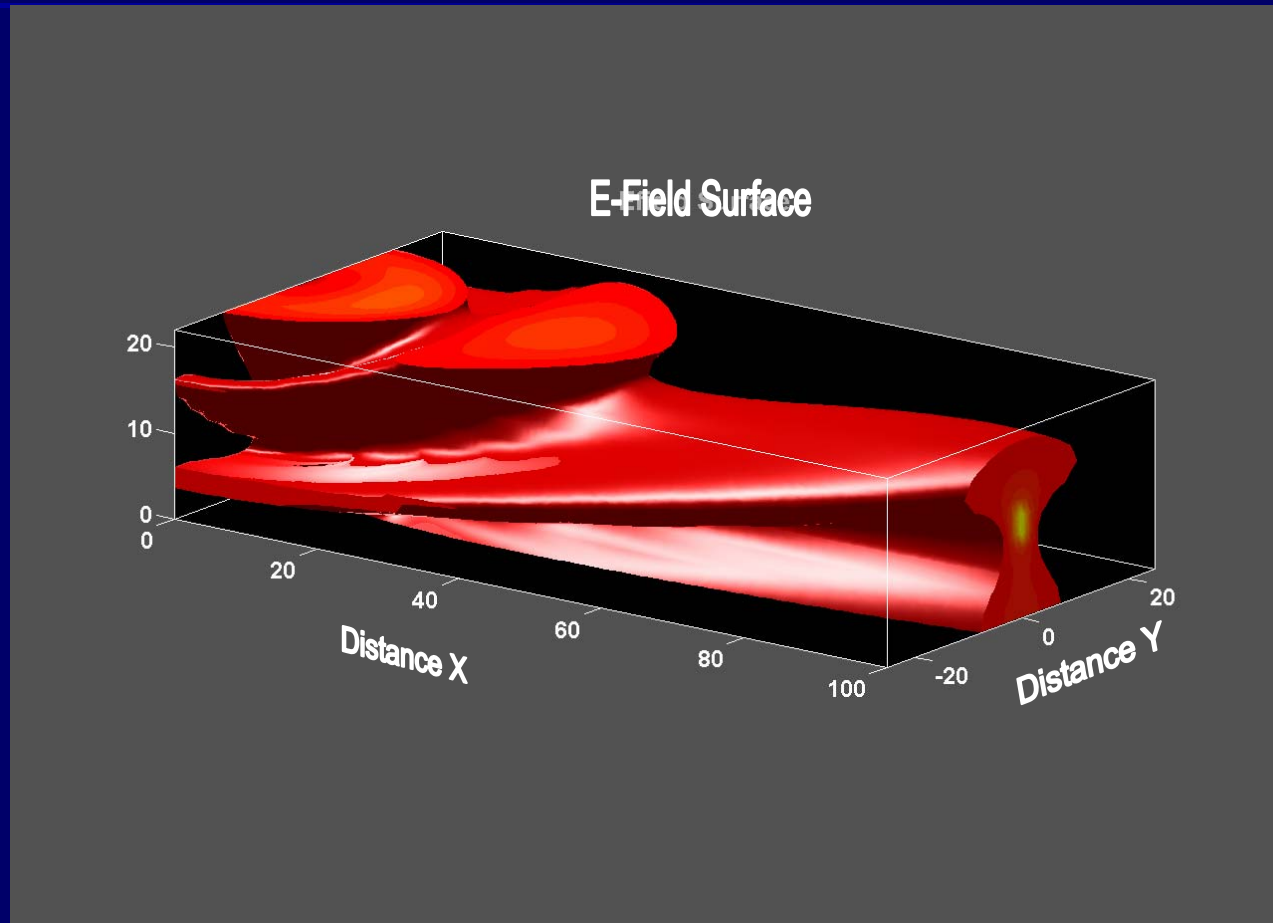
- NRIC
  - Commission's post 9/11 Initiative
  - Network Reliability Concerns
  - Best Practices
- 800 MHz Public Safety Interference
  - Interference Analysis
- CALEA
  - Coordinate Agency CALEA Activities
- UWB
  - Ground Penetrating Radar
  - Through Wall Imaging

**HOMELAND  
SECURITY**

# OET Technical Capabilities

- Theoretical Analysis
- Empirical Studies

# EM Modeling





# FCC Laboratory – Columbia, MD



# RF Test Lab



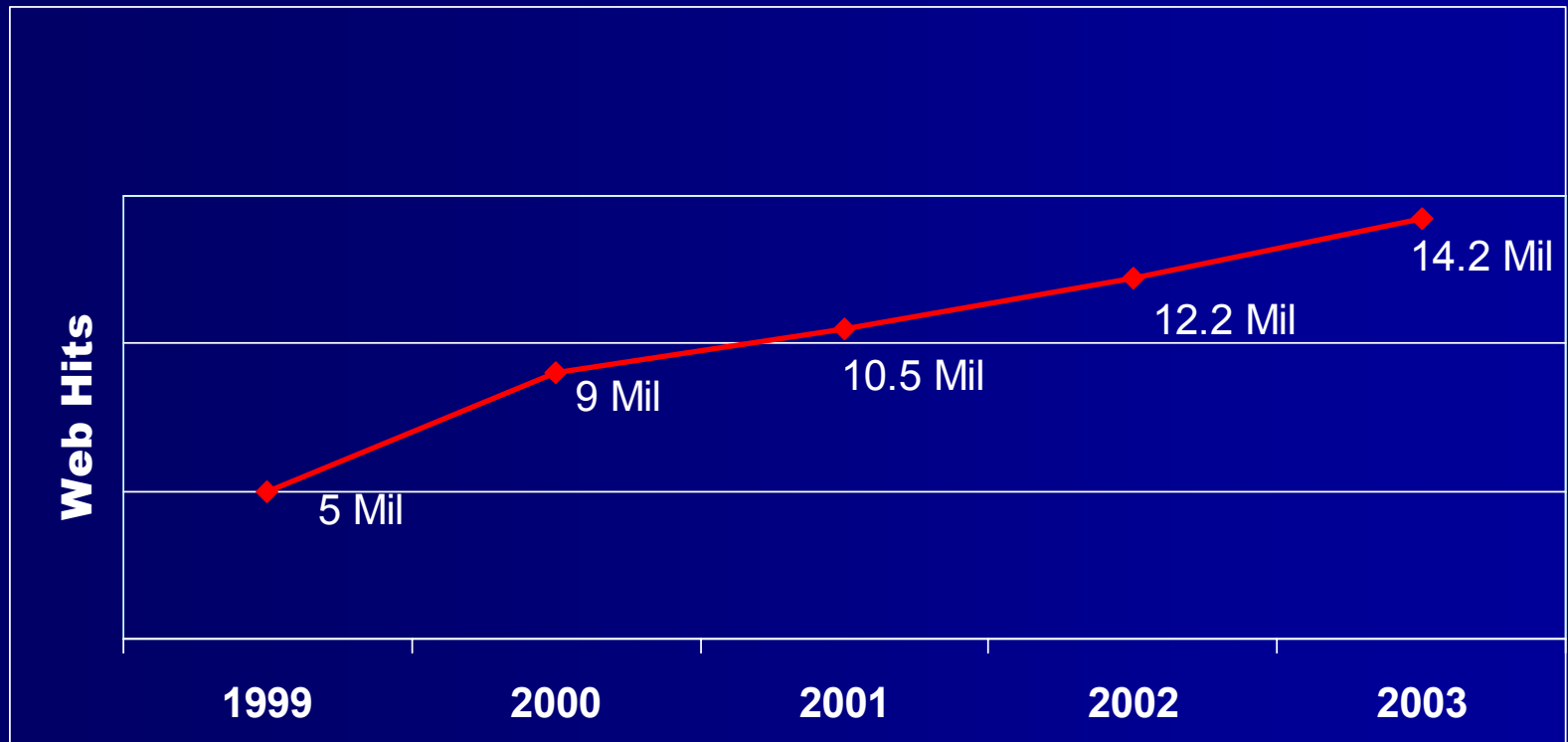
# Digital TV Lab



# SAR Lab



# Equipment Authorization System (EAS) Annual Activity



**39,000 web hits per day**

# OET Backlog Reduction

- In the past year OET has eliminated all backlogged items older than 24 months

# Future Directions

- Identify and Understand Emerging Technologies
- Recognize and Reduce Technical Regulatory Barriers
- Facilitate Improvements to Network Security, Reliability and Integrity