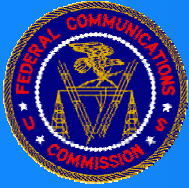# Office of Engineering & Technology

Report to the Commission
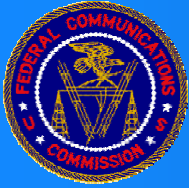## January 17, 2002

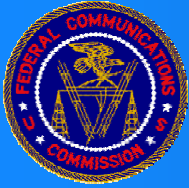# Office of Engineering & Technology

OET's Mission:

Manage the spectrum and provide technical leadership to create new opportunities for innovative, competitive technologies and services for the American public
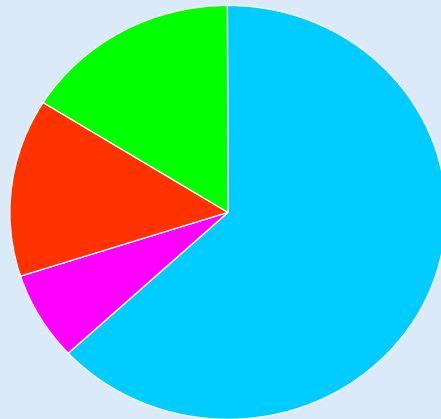
OET's Principle Functions:

* Spectrum Management

* Technical Research and Analysis

* Network Reliability and Technology

* Authorization of Service
  → Equipment Authorization
  → Experimental Licensing

* Technical Education

Creating a Responsive and Efficient Organization
Technical Staffing

Engineers/Scientists as a %
of Total OET Staff

- **Engineers/Scientists**
- **Attorneys**
- **Other Professionals**
- **Support staff**

✳ Reversed 20% attrition rate in engineering staff:

➔ In OET, hired 18 new technical staff

➔ Agency-wide, hired 12 new entry level engineers with plans underway to hire 18 more

✳ Enhanced OET's networking expertise

➔ Hired four broadband networking experts

➔ Doubled the size of Network Technology Division

Creating a Responsive and Efficient Organization Excellence in Engineering (EIE) Program

EIE Program consists of:

* Tutorials conducted by industry experts
* Courses for technical staff that address communications issues relevant to current work underway at the FCC
* Courses for non-technical staff to provide knowledge of basic concepts underlying the technical matters involved in FCC work
* Advanced Engineering Course Work
* Web-based training
* Attendance at Technical Conferences
* Development of a technical reference library

Office of Engineering & Technology

Creating a Responsive and Efficient Organization
Excellence in Engineering Program

EIE Accomplishments:

* Internal EIE Training Web-site

* 13 industry tutorials

* 6 on-site technical courses for engineers

* 57 University/professional engineering courses

* 4 on-site basic communications courses for non-engineers

* Network and Radio Technical Primers for Commissioners and FCC staff

* In FY 2001, over 1/3 of FCC's technical staff participated in EIE training
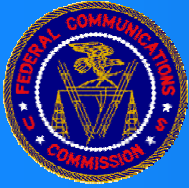
Creating a Responsive and Efficient Organization Improvements to Laboratory Technical Facilities

Major Capital Investment in OET Laboratory -

$1.6M upgrade single largest laboratory investment in past twenty years

* Capability to test new technologies and automate equipment authorization testing
* SAR test capability
* Capability to make higher frequency measurements

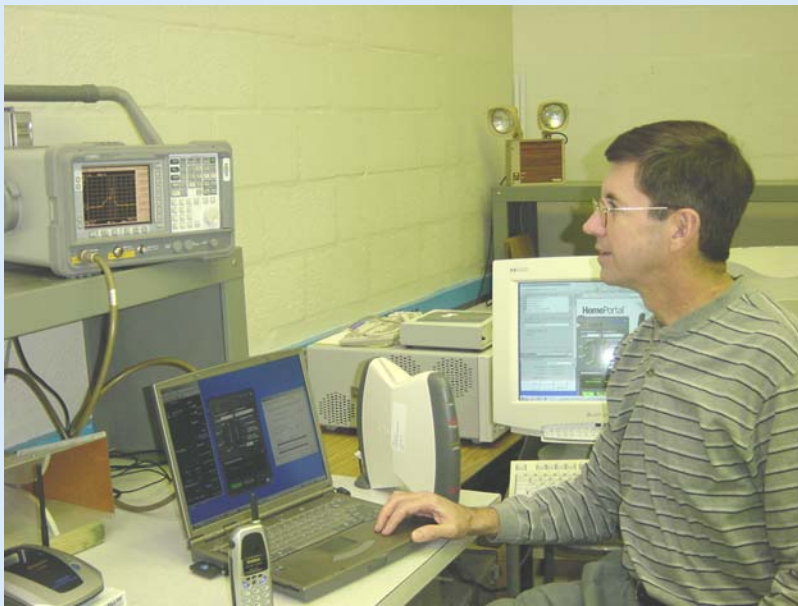## Creating a Responsive and Efficient Organization Improvements to Laboratory Technical Facilities

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Creating a Responsive and Efficient Organization
Equipment Authorization Improvements

No Current Equipment Authorization Application Backlog

* Over 3000 Applications Reviewed/Processed
* Major Backlog Reduction Effort
  * 700 pending applications
  * Less than 200 applications now pending

Speed of Service for Cellular/PCS handsets reduced to about 30 days

TCBs authorized to approve Cellular and PCS handsets

* 2/3 of all equipment authorization applications are now processed through private TCBs

Testing procedures for Cellular/PCS handsets (Supplement C) completed
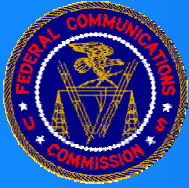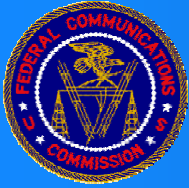
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Broadband

DTV/Media

OET

Spectrum

Homeland Security

Competition

Office of Engineering & Technology

Broadband

Accomplishments

* New Wireless Broadband Approaches
  * 27 MHz - TDD Technologies
  * 3G
* Part 15 Unlicensed Technologies
  * 802.11 (Wi-Fi)/Bluetooth
  * Personal & Community Networks
  * 5.8 GHz & Advanced Spread Spectrum Devices
* Network and Broadband Expertise

Future Challenges

* Deployment of 3G
* Promote New Broadband Technologies
  * 70/90 GHz
  * Powerline
  * Advanced Digital Modulation Techniques
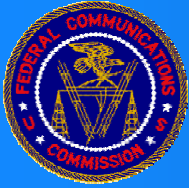
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Spectrum

Accomplishments

* Allocated spectrum transferred under the 1993 and 1997 Budget Acts (Govt, Broadcast)
* Provided additional flexibility for MDS/ITFS
* Allocated spectrum at 50-71GHz
* WRC Implementation
* 3 G or Advanced Commercial Wireless Services
* Software-Defined Radios

Future Challenges

* Expand Useable Spectrum and Spectrum Availability
* More Flexible Market-oriented Allocations
* Encourage Spectrum Efficient Technologies
* Ultra-wideband Technology
* Ensure Interference Protection
* Public Safety Needs

Office of Engineering & Technology

Competition

Accomplishments

* Improved Authorization Processes
  * Reduced Speed of Service Goals
  * Increased Use of TCBs
* Fostered International Competitiveness of US technology and devices
  * MRAs

Future Challenges

* Create Opportunities for New Entry and Competition
* Ensure Rules are Technology Neutral
* Increase Market Surveillance
  * Improve Compliance
  * Consumer Protection and Fair Competition
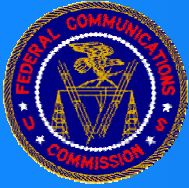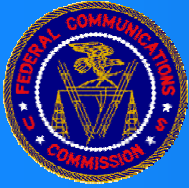
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Homeland Security

Accomplishments

* NRIC Re-chartered with Increased Focus Network Security

* Established Director of National Security and Defense Programs

* TAC focus group on network security issues

* E-911

* CALEA

Future Challenges

* Encourage new technologies to support security

* Enhance expertise in network security and cyber warfare

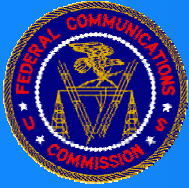* Public Safety Spectrum Issues

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DTV/Media

Accomplishments

* DTV Implementation and Spectrum Recovery
* DTV Standards/Receiver Field Tests
  * → International Promotion of US DTV Standard
* SHVIA
* Technical Aspects of Merger Reviews

Future Challenges

* DTV Implementation and Spectrum Recovery
  * → DTV Receiver Issues and Improvements
* Convergence with New Broadband Technologies
* Compatibility and Set-top Box Issues

Office of Engineering and Technology

Broadband

DTV/Media

OET

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