



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Telecommunications and**  
**Information Administration**  
**Washington, DC 20230**

**National Telecommunications and Information Administration**  
**U. S. Department of Commerce**  
**2006 Annual Report**

**Purpose and Mission**

The National Telecommunications and Information Administration (NTIA) (a) advises the President on telecommunications policies pertaining to the Nation's economic and technological advancement and to the regulation of the telecommunications industry; (b) promotes access and competition in domestic and international markets; (c) manages all federal use of the electromagnetic spectrum and promotes efficient use of spectrum; (d) conducts telecommunications technology research, including standards-setting, in partnership with business and other federal agencies; and (e) awards public telecommunications grants. The agency's expertise encompasses every aspect of telecommunications, including domestic and international policy, spectrum management, and technical telecommunications research and engineering.

For the purpose of this annual report, NTIA activities are divided into three sections: digital television related grant programs, allocation of radio spectrum, and promotion and support of the availability of advanced telecommunications and information services.

**I. Digital Television Related Grant Programs**

- **Digital Television Transition and Public Safety Communications:** On February 17, 2009, full power television stations will stop analog broadcasting and return their analog channels so those channels can be put to other uses. To assist with the transition to digital broadcasting, Congress passed the Digital Television Transition and Public Safety Act of 2005 (Public Law 109-171, Title III of the Deficit Reduction Act of 2005) in February 2006. The Act authorizes NTIA to administer nine programs that will be funded through the proceeds from the auction of recovered analog spectrum in June 2008. The Act gives NTIA borrowing authority in order to begin some programs in Fiscal Year 2007. Funding for other programs will not be available until after the spectrum is auctioned in 2008, the largest of these programs are the DTV Converter Box Program and the Public Safety Interoperable Communications Program. During 2006, NTIA began the administration of these programs.
  - **Digital Television Converter Box Program.** In July 2006, NTIA issued a Notice of Proposed Rulemaking (NPRM) and Request for Comment proposing rules regarding consumer eligibility, converter box technical features and performance specifications, and requirements for retailers wishing to participate in the coupon program. Over 100 comments from key industry participants and members of the public were received for analysis and consideration as NTIA developed its Final Rule.

NTIA accessed the resources of the Government Accountability Office (GAO) to study a range of issues related to the creation of various subsidy and consumer assistance programs. GAO studies and personal interviews were helpful in identifying potential issues and in suggesting best practices for structuring an efficient program while minimizing waste, fraud, and abuse.

NTIA worked with its contracting office, NOAA, to initiate market research regarding the level of industry capability and interest in providing program administration for the converter box coupon program. Based on strong responses to a Request for Information issued in July, NTIA determined that it should solicit competitive proposals for an integrated end-to-end contract solution. NTIA's consultants provided expertise in structuring the plan for a performance-based contract containing a mixture of fixed price and variable prices for segments of the services. This approach is consistent with industry suggestions and will reduce the government's risk exposure.

- **Public Safety Interoperable Communications:** Section 3006 of the Deficit Reduction Act of 2005, Pub. L. No. 109-171, directed the Assistant Secretary for Communications and Information, in consultation with the Secretary of Homeland Security, to establish and administer a new \$1 billion matching grant program to assist public safety agencies in the acquisition of, deployment of, or training for the use of interoperable communications systems that can utilize or enable utilization of reallocated public safety spectrum (700 MHz band) for radio communication. The recently enacted Call Home Act of 2006, Pub. L. No. 109-459, requires that the grants be awarded no later than September 30, 2007. The Department of Commerce is committed to improving the state of interoperable communications among our Nation's first responders in all 50 States.

Leveraging NTIA's expertise in the area of public safety interoperable communications, cutting-edge communications technologies, and its relationships within the public safety community, NTIA has aggressively begun to implement the Public Safety Interoperability Communications (PSIC) grant program. Within a few short weeks of the President having signed the Deficit Reduction Act into law, NTIA initiated the required consultations with the Department of Homeland Security (DHS) and began meeting with representatives from the public safety community and other stakeholders with an interest in the program. On June 1, 2006, NTIA entered into an agreement with the Department of The Treasury to allow NTIA to borrow necessary funds to implement the program as of October 1, 2006.

NTIA, in consultation with DHS, intends to design the PSIC program as a one-time grant opportunity that will achieve a meaningful improvement in the state of public safety communications interoperability and provide the maximum amount of interoperable communication systems with a minimum of impact to or replacement of existing state, tribal, and local radio communications assets. NTIA has been in discussions with the DHS SAFECOM Program regarding its existing federal grants guidance on public safety interoperability. NTIA intends to use its existing expertise, its background research from

public safety stakeholders, and the SAFECOM public safety communications interoperability “Statement of Requirements” to explore the use of all available technologies that can be used by first responders to advance overall interoperability. NTIA expects to make PSIC grant awards to all 50 States no later than September 30, 2007, as required by the Call Home Act of 2006.

## II. Allocation of Radio Spectrum

- **President’s Spectrum Policy Initiative:** In a 2003 Executive Memorandum, President Bush established the Spectrum Policy Initiative to promote the development and implementation of a U.S. spectrum management policy for the 21<sup>st</sup> Century. This initiative will foster economic growth, ensure national and homeland security, maintain U.S. global leadership in communications technology development and services, and satisfy other vital U.S. needs such as public safety, scientific research, federal transportation infrastructure, and law enforcement.

In response to the President’s directive, the Secretary of Commerce established a Federal Government Spectrum Task Force and initiated a series of public meetings to address improvements in policies affecting spectrum use by the Federal Government, state and local governments, and the private sector. Based on this information, the Department submitted to the President two reports containing 24 recommendations for improving spectrum management policies and processes. In 2004, the President issued a second Executive Memorandum directing the federal agencies to implement the recommendations in the two reports. NTIA’s efforts in implementing these recommendations during 2006 are as follows:

- **Commerce Spectrum Management Advisory Committee:** The Commerce Spectrum Management Advisory Committee was established to advise the Commerce Department on key elements of The President’s Spectrum Policy Initiative for improving management of the Nation’s airwaves. Committee members offer expertise and perspective on reforms to enable new technologies and services, including reforms that expedite the American public’s access to broadband services, public safety, digital television, and long-range spectrum planning. Secretary of Commerce Gutierrez announced the appointment of Committee members on November 3. The first meeting of the Advisory Committee was held on December 13. Where a chair of the committee was named.
- **Working Level Groups:** NTIA led seven interagency working level groups to obtain advice on implementing the 24 recommendations from the two reports on the President’s Spectrum Policy Initiative.
- **Plans and Policy Steering Group:** NTIA established a senior level plans and policy steering group, which consists of representatives of the major federal agencies that use

federal spectrum to provided advice on spectrum issues to the NTIA Administrator. The group met twice during 2006.

- **Incentives for Efficient Use of the Spectrum:** NTIA completed the “Plan to Identify and Implement Incentives That Promote More Efficient and Effective Use of Spectrum” as required by the President’s Spectrum Policy Initiative. The plan establishes nine specific projects that, once completed, will result in further recommendations to the President on how to use market incentives to increase spectrum efficiency. NTIA completed the first two projects of this plan:
  - **Convene a Public Forum on Spectrum Incentives:** NTIA held a two-day workshop entitled, “Identifying and Implementing Incentives for Efficient use of the Spectrum” at the National Academies of Sciences (NAS) in Washington, D.C. in early 2006. The workshop gathered experts from around the world to discuss how economic incentives could improve U.S. spectrum management practices. NTIA’s Office of Spectrum Management (OSM) worked collaboratively with NTIA’s Office of Policy Analysis and Development in developing the program and identifying speakers for the NAS Workshop.
- **Public Safety Demonstration Program:** NTIA worked on a report on the District of Columbia Office of the Chief Technology Officer (DC OCTO) Wireless Accelerated Responder Network (WARN), the spectrum-sharing approach and ongoing demonstration selected to be the first demonstration project to comply with Presidential direction on implementing recommendations contained in two reports submitted to the President. The report is in the coordination and approval process. After being published, the report will complete implementation of one the recommendations approved by the President.
- **Spectrum Sharing Innovation Test-Bed:** NTIA issued a Notice of Inquiry inviting parties to file comments on issues related to establishing the Spectrum Sharing Innovation Test-Bed. These issues include identification of technologies and services; establishment of processes, principles and guidelines; identification of candidate frequency band(s); and activation, termination and evaluation of the test bed. The Test-Bed is a key recommendation of President Bush’s Spectrum Policy Initiative and will enable federal and non-federal users of spectrum to test ideas on new ways to share the radio frequency spectrum. The Test-Bed will build on the successful sharing arrangements between federal and non-federal users at 5 GHz and in the 70, 80, and 90 GHz bands and will drive future innovation and the expansion of sharing to benefit federal and commercial users.
- **Relocating Federal Spectrum Users:** The 1710-1755 MHz band was identified by NTIA as spectrum that could be allocated for new commercial services without disrupting communications systems critical to the missions of federal agencies. On December 23, 2004, President Bush signed into law the Commercial Spectrum Enhancement Act (CSEA), which

provided a funding mechanism through which federal agencies can recover the costs associated with relocating their radio communications systems from the 1710-1755 MHz band to be auctioned for commercial purposes. NTIA, working with the federal agencies, completed a report on the costs to move incumbent federal users. This report showed that the cost to move the federal users was far less than previous estimates. A total of 2,240 frequency assignments will be relocated by 12 federal agencies. As directed by the CSEA, NTIA will transmit a final report on the cost of relocating these federal operations. The FCC completed the advanced wireless service auction, which included this spectrum, in September 2006 with net bids of over \$13.7 billion. NTIA continues to work with the federal agencies to implement the relocation.

- **World Radiocommunication Conference Preparations:** In preparation for the International Telecommunication Union World Radiocommunication Conference (WRC) to be held in 2007, NTIA completed draft Executive Branch proposals for all Conference agenda items and provided them to the State Department and the FCC for further coordination and consideration in the development of the final positions of the United States when addressing the agenda items by the U.S. delegation at the WRC.
- **5 GHz Compliance Measurement Procedures:** NTIA completed the measurement procedures and pass/fail criteria for Unlicensed National Information Infrastructure devices employing Dynamic Frequency Selection (DFS). The compliance measurement procedures are necessary to show compliance with the Federal Communications Commission DFS rules. By utilizing DFS, unlicensed devices may detect and avoid transmitting on channels being used by military radars vital to national defense. The completion of the compliance measurement procedures makes 255 MHz of additional spectrum available for unlicensed devices on a non-interference basis. Using the compliance measurement procedures, the Federal Communications Commission began certifying commercial devices. The use of adaptive techniques such as DFS is an example of innovative spectrum sharing between federal and non-federal users, and meets a key goal of the President's initiative on using the Nation's airwaves more efficiently.

NTIA's ITS Labs conducted field measurements to determine compatibility between prototype 5-GHz Dynamic Frequency Selection (DFS) devices and a 5-GHz defense radar. DFS is a method by which a radio local area network (RLAN) device, using the 5-GHz band for unlicensed operations, will detect the operations of any nearby radar on the same frequency and promptly evacuate the channel if the radar is present. The test results will help determine whether this technology can be moved forward toward deployment in commercially available RLAN-type communication devices.

- **High-Powered Ultrawideband Device Rules:** NTIA developed rules to permit the operation of fixed ultrawideband (UWB) devices by Federal Government agencies with power levels that exceed the Federal Communications Commission (FCC) unlicensed device rules. An example of the type of UWB devices that are permitted to operate under the new NTIA rules are Federal Government surveillance systems used to augment security and

defense systems, providing an advanced warning of potential intruders to sites that have strategic, military or significant commercial interests, such as public utilities, nuclear power plants, public water supplies, petroleum sites, industrial sites, and national landmarks. The rules were implemented in NTIA's Manual of Regulations and Procedures for Federal Radio Frequency Management. The rules developed by NTIA use a coordination process to protect federal systems from higher powered fixed UWB systems. The FCC is currently considering a waiver of the Part 15 Rules for UWB to support non-federal operations using an approach similar to that adopted by NTIA.

- **Spectrum Coordination:** NTIA's web-based coordination capability in the 71-76 GHz, 81-86 GHz, 92-94 GHz, and 94.1-95 GHz bands has been operational for over one year. As part of the President's Spectrum Policy Initiative, NTIA coordinates and approves fiber-speed wireless communications links in these frequency bands for non-federal use in a matter of minutes. Since the inception of the web-based capability, over 180 non-federal frequency assignments have been successfully coordinated. This automated coordination capability is an example of how the combination of information technology and engineering analysis capabilities can enable non-federal users to gain faster and easier access to the radio frequency spectrum.
- **Assessment of Interference Effects in Radar Receivers:** Working closely with NTIA's Office of Spectrum Management, engineers at NTIA's Institute for Telecommunication Sciences (ITS), which is located in Boulder, Colorado, completed a major, five-year study on the effects of interference in radar receivers. The study assessed the feasibility of sharing spectrum between radars and non-radar systems such as mobile phones and digital communications. A landmark NTIA Report (NTIA Report TR-06-444, "Effects of RF Interference on Radar Receivers") was published in 2006. The report exhibits conclusive evidence that radars suffer significant performance losses at interference levels that are six to ten decibels below their own internal noise floors. The results call into doubt the feasibility of sharing spectrum between radars and communication systems. These findings are significant to the U.S. Administration in its efforts to promote efficient use of the spectrum, and have been used to support the Administration's positions on spectrum use both domestically and in the international forum of the ITU - Radio Communication Sector (ITU-R).
- **ITU-R Study Group 3 Meetings:** NTIA's ITS Labs is a main contributor to the ITU-R Study Group 3, by holding the position of U.S. Chair. This year the U.S. delegation held a special workshop on site specific and site general propagation models at the ITU headquarters in Geneva, Switzerland. It's expertise in propagation prediction models places the U.S. Administration in an optimum position to assist other governments with their spectrum planning, while simultaneously promoting the U.S. Administration's radio interests.
- **Standardization of Project 25 Interfaces:** NTIA's ITS Labs facilitated the development of Project 25/Telecommunications Industry Association (TIA) Standards for radio system

interfaces and interoperability critically needed by users. Through direct and extensive intervention with government and industry representatives, and technical contributions across many sectors, more progress occurred in the P25 Steering Committee, the P25 and the TIA TR-8 technical committees during 2006 than in the previous 10 years combined. ITS was instrumental in the completion of critical specifications standardized by TIA. Most notably, the Inter-RF SubSystem Interface (ISSI) Messages and Procedures Draft Standard (TIA-102.BACA-A) was finished and approved in 2006. Also, U.S. House of Representatives Report (H.Rep. 108-796) to the Department of Homeland Security Intelligence Reform Bill for Fiscal Year 2005 required for accelerating the development of national voluntary consensus standards for public safety interoperable communications, a schedule of milestones for such development, and achievements of such development. The Messages and Procedures Standard is the protocol for this House Report and hence the most important standard of the ISSI suite.

- **Frequency Assignments:** In 2006, NTIA continued to improve its client service to agencies for federal spectrum management, reducing the minimum process time from 14 days to 9 days. Through the Frequency Assignment Subcommittee (FAS), NTIA processed 80,121 assignment actions during 2006. In 2006, NTIA released Version 4.2.2 of the Spectrum XXI program to allow data exchange of directives for frequency assignment proposals. Spectrum XXI provides an automated mechanism for preparing, circulating, tracking and assessing frequency requests. As a result of this improved capability and changes in procedures, the average approval time required for applications has been reduced by 6 days from that of 2005.
- **Spectrum Certifications:** During 2006, NTIA's Office of Spectrum Management (OSM) approved 134 certifications of spectrum support. In support of the spectrum certification activity and with the assistance of the Interdepartment Radio Advisory Committee (IRAC) Spectrum Planning Subcommittee, OSM staff completed 110 engineering reviews of radiocommunications systems being developed and deployed by federal agencies. Results of the reviews were documented in reports providing spectrum management guidance for systems having a wide variety of functions, including voice and data communications, radiolocation and radionavigation operations, satellite communications, and experimental research. In 2006, NTIA released Version 5 of the EL-CID program to allow the electronic submission of requests for spectrum support. EL-CID is an automated mechanism for preparing, tracking, and assessing spectrum certification requests and for compiling an automated database of parameters characterizing federal radiocommunications systems. This program also provides the first demonstration of the use of the NTIA Data Dictionary. The capability of electronic filing of requests, in the EL-CID format, not only ensures that applications are complete and accurate, but approved applications are transferred directly to the system review database.
- **E911 Support:** NTIA completed a Memorandum of Understanding (MOU) between NTIA and the National Highway Transportation Safety Administration (NHTSA) to implement the Management Plan and formally establish the joint NTIA/NHTSA E-911 Implementation

Coordination Office (ICO). NTIA/NHTSA implemented the initial ICO organizational structure and submitted an Annual Report to Congress on the status of the ICO which included NTIA/NHTSA outreach with stakeholders on the forefront of E9-1-1 implementation efforts, including state and local public safety experts, experienced emergency personnel, leading equipment manufacturers, PSAP operators, national public safety organizations, and expert Federal agencies.

- **Publications:** NTIA published NTIA Report 06-440, *Federal Land Mobile Operations in the 162-174 MHz Band in the Washington D.C. Area*, which is part of a multi-phase analysis effort assessing spectrum efficiency in the federal land mobile radio frequency bands. NTIA also published NTIA Report TR-06, *Effects of RF Interference on Radar Receiver Performance*, to be used in the development of the Best Practices in Spectrum Management Handbook.

### **III. Promoting and Supporting the Availability of Advanced Telecommunications and Information Services**

- **Internet Domain Name and Addressing System (DNS):** NTIA conducted a public consultation process to seek input from interested stakeholders on the continued transition to the private sector of the coordination of the technical functions related to the management of the Internet domain name and addressing system (DNS). Based on the assessment of 700 comments filed in a Notice of Inquiry and more than 100 participants at a public meeting, NTIA extended the Joint Project Agreement with the Internet Corporation for Assigned Names and Numbers (ICANN) for three years, focusing on the need for enhanced accountability and transparency in ICANN's decision-making.
- **Internet Assigned Numbers Authority (IANA):** NTIA issued a sole source contract, for a term of one year (with 5 one-year possible extensions), to ICANN to continue to perform a set of interdependent Internet management functions crucial to the Internet's stability and security called the IANA functions. In this process, NTIA continues to maintain the U.S. Government's historical role in authorizing changes to the root zone file.
- **.US and .EDU Internet Domains:** NTIA maintained the successful operation of both the .US and .EDU domains by effectively managing the contract and cooperative agreement process with the domain name registry operators. This included a five-year extension of the agreement for .EDU and a review and approval of the one-year extension to the .US contract, consistent with the Dot Kids Implementation and Efficiency Act of 2002.
- **Internet Governance Forum:** NTIA facilitated the convening of and participated in the inaugural meeting of the Internet Governance Forum (IGF). The creation of the IGF was the compromise reached during last year's contentious discussions at the United Nations World Summit on the Information Society (WSIS) where the role of NTIA with respect to Internet domain names and addresses was directly challenged by a majority of nations. The IGF, the

first truly multi-stakeholder event to be held under UN auspices, provides a test case for broader UN reform.

- **ICANN Government Advisory Committee (GAC) Participation:** NTIA represented the United States at the meetings of ICANN's Governmental Advisory Committee and among other things advanced U.S. Government policy goals regarding access to and accuracy of WHOIS data, which provides technical and administrative contacts for domain name registrants, a key concern of the law enforcement community.
- **International Telecommunication Union (ITU) Plenipotentiary Conference:** NTIA successfully defeated proposals to expand the mandate of the ITU with respect to the Internet and information security, as well as an enhanced role for the United Nations (UN) in Internet Governance issues broadly. NTIA also promoted U.S. principles for UN reform so that a more transparent, responsible, and effective management structure with strong membership oversight can be further developed in the ITU.
- **ITU World Telecommunication Development Conference:** At the 2006 ITU World Telecommunication Development Conference (WTDC), NTIA successfully negotiated structural and management reform of the Development Sector so as to increase private-sector participation and transparency in the implementation of the Development Sector's Six Thematic work programs. NTIA also led the adoption of the two new U.S. proposed Study Group questions: disaster mitigation, detection and prediction and best practices for cybersecurity and was able to incorporate the results of WSIS into the ITU-Development work program consistent with the core competencies of the ITU and in line with the requirement for a balanced budget.
- **Cybersecurity:** NTIA continues to work with the Department of Homeland Security and the General Services Administration (GSA) to deploy a new, more secure Internet Protocol called DNSSEC in the .GOV domain. NTIA also is working with various governments, industry and country-code top-level domain operators to deploy various methods to increase cybersecurity worldwide.
- **China, Japan, and India High-Level Policy Consultations:** NTIA, in coordination with the State Department and the FCC, undertook extensive telecommunications policy consultations with governmental counterparts in Japan and China in October, and India in December. NTIA successfully championed Administration policy objectives, especially those related to spectrum management, ICANN, and the ITU.
- **Satellite Policy:** NTIA, with the State Department and the FCC, promoted and protected, pro-competitive U.S. Government and commercial interests during three contentious inter-governmental Assemblies of Parties, two within the International Telecommunications Satellite Organization (ITSO) in January and July, and one within the International Mobile

Satellite Organization (IMSO) in September. The U.S. Government continues to champion multiple competitive markets worldwide for established and new satellite services providers, especially for newly developed broadband services and maritime safety services.

- **Organization for Economic Co-operation and Development (OECD):** NTIA helped launch several new influential OECD studies supporting deregulatory treatment of new technologies and services, on issues such as flexible spectrum management, next-generation networks, unlicensed wireless technologies (e.g., Wi-Fi, Wi-MAX), voice and video over Internet Protocol, and Internet traffic exchange. NTIA also participated in the OECD's Task Force to promote international cooperation to reduce unsolicited commercial e-mail or spam.
- **Telecommunications Development:** NTIA worked closely with the State Department, U.S. Agency for International Development, and the FCC to reform the Telecommunications Leadership Program and the Digital Freedom Initiative, to improve technical knowledge and policy making skills among developing country telecommunication leaders (e.g., in Jordan, Central America, Western Africa, Pacific Islands, Vietnam and the Philippines). NTIA also engaged in ministerial-level outreach with eight African telecom ministers during the June African Growth and Opportunity Act (AGOA) forum in Washington.
- **Development of Public Safety Statement of Requirements for Wireless Communications and Interoperability:** Development of Public Safety Statement of Requirements for Wireless Communications and Interoperability: ITS continued to lead the “Public Safety Statement of Requirements for Communications and Interoperability” (SoR) project for the DHS Office of Interoperability and Compatibility’s SAFECOM project. SAFECOM is the program name coined by the Office of Management and Budget as an E-initiative for Public Safety Communications. The SoR document defines future requirements for voice and data communications for federal, state, and local public safety and first responder interoperable communication system users. ITS led the day-to-day development of the document and provided the long-term strategy and vision for its maturation and use.

In October 2006, SAFECOM released Volume II of the SoR document, which covers three main areas: speech, video, and network performance. ITS conducted the voice and video testing, and partnered with the National Institute of Standards and Technology’s (NIST) Advanced Networking Technology Lab for the networking testing. ITS, on behalf of NIST’s Office of Law Enforcement, also acted as the technical manager for a practitioner working group that helped review and revise the SoR.

- **Economic Security Component of Critical Infrastructure Protection (CIP):** In support of the Department of Commerce’s mission to implement the economic security component of critical infrastructure protection, CIP planned and conducted four Economic Security Working Group meetings from January to November 2006.

- **International CIP Outreach:** CIP continued to represent the Department's interests in economic security and provide support to the Department of State in bilateral discussions on physical and cyber security issues in meetings with India, Japan, and Egypt.
- **NTIA's Public Telecommunications Facilities Program (PTFP):** During 2006, PTFP issued grants totaling \$19.7 million for 95 projects in 36 states and the District of Columbia. NTIA awarded funds for 49 public radio grants, 31 digital television conversion grants, ten public television equipment replacement grants, and five distance learning grants. NTIA awarded \$12.3 million of the funds for projects that are upgrading and converting public television facilities. As of October 2006, 341 public television stations are transmitting a digital signal.
- **Assistant Secretary for Communications and Information:** John M. R. Kneuer was nominated by President George W. Bush on May 1, 2006, and confirmed by the U.S. Senate on December. 9, 2006, to be Assistant Secretary for Communications and Information and Administrator of the National Telecommunications and Information Administration.

For more information on NTIA programs and issues, visit [www.ntia.doc.gov](http://www.ntia.doc.gov).