ITS Projects in FY 2007

NTIA S&E Projects

Audio Quality Research
Develop and evaluate new techniques for encoding and decoding speech signals. Provide algorithms, software, and technical expertise to other ITS programs. Provide technical presentations and laboratory demonstrations as requested.
Project Leader: Stephen D. Voran (303) 497-3839
e-mail svoran@its.bldrdoc.gov

Broadband Wireless Research
Continue development of state-of-the-art measurement systems for collecting broadband radio-wave propagation data. Provide measurement tools and propagation data used for simulation of the spectral efficiency of proposed communication systems.
Project Leader: Peter B. Papazian (303) 497-5369
e-mail ppapazian@its.bldrdoc.gov

Broadband Wireless Standards
Provide leadership and technical support to committees (e.g., ITU-R, TIA TR-8) developing broadband wireless communications standards that affect Federal agencies' use of the services. Continue model enhancement by addressing path-specific propagation prediction models.
Project Leader: Paul M. McKenna (303) 497-3474
e-mail pmckenna@its.bldrdoc.gov

Effects of the Channel on Radio Systems
Identify, model, and characterize a small number of radio systems and use these to predict the effects of the channel on others. Use the results to predict how interference introduced by new spectrum engineering methods impacts legacy systems.
Project Leader: Robert J. Achatz (303) 497-3498
e-mail rachatz@its.bldrdoc.gov

Network Interoperability
Conduct research in multimedia quality research, enterprise architecture planning, and various methodologies that exist in developing and documenting interoperable architectures. Participate in Project 25/TIA TR-8 and other standards organizations (e.g., VQEG, ATIS, IETF). Investigate multimedia applications and undertake research to establish baseline interoperability for multimedia applications.
Project Leader: Arthur A. Webster (303) 497-3567
e-mail awebster@its.bldrdoc.gov

Network Performance
Provide objective, expert leadership and key technical contributions in ITU-T and related U.S. industry committees responsible for developing broadband network performance, Quality of Service (QoS), and resource management standards.
Project Leader: Neal B. Seitz (303) 497-3106
e-mail nseitz@its.bldrdoc.gov

Networking Technology
Research, develop, and demonstrate state-of-the-art methods and tools related to the measurement of wireless data networks, such as wireless local area networks (WLANs). Develop network-based measurement methods for Voice over IP (VoIP) quality.
Project Leader: DJ Atkinson (303) 497-5281
e-mail datkinson@its.bldrdoc.gov

Policy Support
Provide engineering and technical support to NTIA in telecommunications policy development.
Project Leader: Alan W. Vincent (303) 497-3500
e-mail avincent@its.bldrdoc.gov

RSMS Enhancements
Support RSMS operations through the development and maintenance of software, hardware, systems, and equipment for FY 2007 operations tasks.
Project Leader: J. Randy Hoffman (303) 497-3582
e-mail rhoffman@its.bldrdoc.gov

RSMS 4th Generation Development
Provide new and innovative measurement tools for RSMS capabilities. Continue to develop and document the architectural design of the core software. Continue to develop all existing instrument Dynamic Link Libraries (DLLs) and build upon the collection.
Project Leader: J. Randy Hoffman (303) 497-3582
e-mail rhoffman@its.bldrdoc.gov

RSMS Operations
Provide NTIA with critical measurement support to determine radio spectrum usage across the U.S.; resolve interference problems involving Government radio systems; and determine the emission characteristics of radio transmitter systems that may affect Government operations.
Project Leader: J. Randy Hoffman (303) 497-3582
e-mail rhoffman@its.bldrdoc.gov

Table Mountain Modernization
Maintain and upgrade the Table Mountain Field Site infrastructure, ensure a safe working environment there, and provide logistical support for research activities at the field site.
Project Leader: J. Wayde Allen (303) 497-5871
e-mail wallen@its.bldrdoc.gov

Table Mountain Research
Utilize the Table Mountain Field Site and Radio Quiet Zone to support fundamental research into the nature, interaction, and evaluation of telecommunication devices, systems, and services that will expand the ITS knowledge base, help identify emerging technologies, and develop new measurement methods.
Project Leader: J. Wayde Allen (303) 497-5871
e-mail wallen@its.bldrdoc.gov

Third Generation Wireless Interference Modeling and Characterization
Present technical contributions on PCS interference effects to ATIS Technical Subcommittee WTSC/G3GRA. Contribute to related fora (e.g., ITU-R TG 8/1, SG 3M) as appropriate. Develop a technology-independent, multi-channel PCS interference model for use in the evaluation of PCS and other potentially affected (e.g., public safety/emergency) systems.
Project Leader: Timothy J. Riley (303) 497-5735
e-mail triley@its.bldrdoc.gov

Video Quality Research
Develop technology for assessing the performance of digital video transmission systems. Create improvements to the existing video quality metric (VQM) software tools. Develop multimedia definition and high definition video quality measurement algorithms and software. Transfer the technology to agencies, standards bodies, and the U.S. telecom industry.
Project Leader: Stephen Wolf (303) 497-3771
e-mail swolf@its.bldrdoc.gov

NTIA/OSM Projects

Antenna Polarization Measurements
Provide guidance on the antenna polarization mismatch loss that should be used in analyses to determine EMC between antennas using the same radiocommunication service or operating in different services. Perform measurements to determine the loss as a function of various misalignment angles between various antennas.
Project Leader: Brent L. Bedford (303) 497-5288
e-mail bbedford@its.bldrdoc.gov

Effects of Receiver Signal Processing on Interference Rejection
Determine the feasibility of using a commercially available computer capability to simulate the signal processing for a range of different error correction schemes. Implement this capability to evaluate the performance of a radio system subjected to signals from other radio links.
Project Leader: Robert J. Achatz (303) 497-3498
e-mail rachatz@its.bldrdoc.gov

Examination of Short-Range, Low-Height Propagation Prediction Model
As part of a multi-year effort to address the need for an under-1 km propagation prediction model, continue looking at this specific scenario and its unique environmental influences. Continue model development and a field measurement campaign to verify and validate those models. Bring the results of the project to the ITU-R and IEEE, as appropriate.
Project Leader: Paul M. McKenna (303) 497-3474
e-mail pmckenna@its.bldrdoc.gov

Initial Spectrum Testbed and Antenna Harmonic Characterization
Perform technical planning and analyses on the spectrum testbed effort, and provide those outputs for Working Level Group E (WLG-E). Also perform measurements of the electrical characteristics and beam-forming properties of a variety of antennas at their harmonic frequencies.
Project Leader: Michael Cotton (303) 497-7346
e-mail mcotton@its.bldrdoc.gov

Methodology for Statistical Combinations of Noise and Interference
Develop guidance/guidelines as to when an interfering signal that is combined with a noise signal can be considered "noise-like." Document the guidance and guidelines in a technical memorandum that will be incorporated into the Best Practices Handbook.
Project Leader: Michael Cotton (303) 497-7346
e-mail mcotton@its.bldrdoc.gov

Radar Support Tasking
Support USWP8B, USJRG, and the U.S. Administration's positions in ITU-R WP8B and JRG 1A-1C-8B by providing position papers, technical reports, and attendance in these forums. Also support the Radar Correspondence Group (RCG) and the JRG 1A-1C-8B and RCG websites.
Project Leader: Frank H. Sanders (303) 497-7600
e-mail fsanders@its.bldrdoc.gov

Spectrum Efficiency of the Radiodetermination Service
With OSM, develop a report on the basic parameters and trade-offs to consider in an analysis of spectrum efficiency of the radiodetermination service, and provide example calculations of spectrum efficiency for some simple radars. Develop an analytical approach to radar spectrum efficiency in general.
Project Leader: Frank H. Sanders (303) 497-7600
e-mail fsanders@its.bldrdoc.gov

Wind Turbine Interference Assessment
Provide an independent, objective assessment of the effects of wind turbines on air traffic control radar operations. Suggest methods for mitigating any harmful effects. Review a study by the British Ministry of Defence on Air Defence and Air Traffic Control radar systems to determine if the conclusions are relevant to FAA radar systems.
Project Leader: Frank H. Sanders (303) 497-7600
e-mail fsanders@its.bldrdoc.gov

Other Agency Projects

Department of Commerce / National Institute of Standards and Technology EEEL / Office of Law Enforcement Standards

Public Safety Telecommunications Interoperability
Provide engineering support, scientific analysis, technical liaison, and test design and implementation to allow the identification/development and validation of interoperability standards for the justice/public safety/homeland security community. Provide technical assessments and evaluations of commercial products and services that may provide interim solutions for various interoperability scenarios.
Project Leader: Jeffrey R. Bratcher (303) 497-4610
e-mail jbratcher@its.bldrdoc.gov

PSAF Data Model Development and Validation
Develop and coordinate the Public Safety Architecture Framework (PSAF) product, data model, and tool for SAFECOM. Finish the preliminary data model and the PSAF tool; plan and conduct a trial of the data model; develop a Users' Manual; determine hosting requirements of the PSAF tool; and specify the parameters of a secure national repository of architecture descriptions and its required operation.
Project Leader: Christopher Redding (303) 497-3104
e-mail credding@its.bldrdoc.gov

Public Safety Video Quality Testing
Develop and conduct video quality tests to assist public safety agencies with telecommunications systems and equipment selections. Gather information on these technologies and applications relevant to, and useful in, applications in NS/EP environments.
Project Leader: Dr. Carolyn Ford (303) 497-3728
e-mail cford@its.bldrdoc.gov

Department of Commerce / National Oceanic and Atmospheric Administration / NOAA Weather Radio Program Office

NOAA Weather Radio Receiver Tests
Compile the characteristics and responses of NWR receivers to various simulated NWR transmissions, under the same conditions as in a previous study.
Project Leader: Raian F. Kaiser (303) 497-5491
e-mail rkaiser@its.bldrdoc.gov

Department of Defense

Enhancements to Communication System Planning Tool (CSPT) for DOD
Enhance the ITS CSPT model through improvements in the incorporated models and addition of models, as well as user support.
Project Leader: Robert O. DeBolt (303) 497-5324
e-mail rdebolt@its.bldrdoc.gov

International Symposium on Advanced Radio Technologies (ISART)
Develop and conduct a symposium that addresses emerging and advanced wireless technologies. Gather information on the technologies for sponsor.
Project Leader: Patricia J. Raush (303) 497-3568
e-mail praush@its.bldrdoc.gov

Department of Homeland Security / Federal Partnership for Interoperable Communications

DHS/FPIC Technical Engineering Support
Provide engineering support to FPIC for public safety radio standards development and testing in the ITS test facility. Assist in the development of P25 standards in accordance with the APCO P25 Interface Committee (APIC) and TIA procedures. Identify conditions advanced by P25 vendors or interested parties that require further engineering analysis by an independent entity.
Project Leader: DJ Atkinson (303) 497-5281
e-mail datkinson@its.bldrdoc.gov

Department of Homeland Security / National Communications System

ETS Standards Development
Facilitate the standardization of NS/EP specifications, protocols, and mechanisms. Develop and/or verify emergency telecommunications service (ETS) mechanisms. Assist NCS in support of PDD-63 and associated CIP initiatives.
Project Leader: Arthur A. Webster (303) 497-3567
e-mail awebster@its.bldrdoc.gov

Department of Homeland Security / Office of the CIO

Standardization of Measurement Methods for Investigative Devices
Provide engineering and technical support to the OCIO Wireless Management Office for development of standardized measurement methods of investigative devices. Conduct measurements on new and/or proposed investigative devices defined by DHS.
Project Leader: DJ Atkinson (303) 497-5281
e-mail datkinson@its.bldrdoc.gov

Federal Highway Administration

ITS EMC for HA-NDGPS
Perform interference analysis for the High Accuracy Nationwide Differential GPS (HA-NDGPS) system to ensure compatibility with existing systems and sufficient spectrum. Determine locations and characteristics of users in the 435–495 kHz band.
Project Leader: Nicholas DeMinco (303) 497-3660
e-mail ndeminco@its.bldrdoc.gov

Federal Railroad Administration

Railroad Telecommunications Study
Continue technical support to the Federal Railroad Administration as it pertains to railroad telecommunications and the activities of the Association of American Railroads' (AAR) Wireless Communications Committee (WCC).
Project Leader: John M. Vanderau (303) 497-3506
e-mail jvanderau@its.bldrdoc.gov

Various Federal & Non Federal Agencies

Telecommunications Analysis Services
Develop, maintain, and make available to other Agencies, and the public, engineering models, scientific and informative databases, and other tools.
Project Leader: Robert O. DeBolt (303) 497-5324
e-mail rdebolt@its.bldrdoc.gov

Cooperative Research and Development Agreements (CRADAs)

First RF Corporation

Installed Performance of Antennas
Support First RF in testing antenna system performance on a number of vehicles including UAVs, using the turntable facility at the Table Mountain Field Site.
Project Leader: J. Wayde Allen (303) 497-5871
e-mail wallen@its.bldrdoc.gov

Lockheed Martin Coherent Technologies

Laser Testing at Table Mountain
Support Lockheed Martin Coherent Technologies' tests at the Table Mountain Field Site to demonstrate test readiness of customer-sponsored eyesafe laser radar sensor systems.
Project Leader: J. Wayde Allen (303) 497-5871
e-mail wallen@its.bldrdoc.gov

RF Metrics

A Study of the Use of a Novel Antenna Pattern Collection Technique for Radar Emissions
Support RF Metrics' attempts to measure a radar system using the test procedures outlined in the ITU-R M-1177 standard and measure the antenna pattern using the technique described in NTIA Report TR-06-436.
Project Leader: J. Wayde Allen (303) 497-5871
e-mail wallen@its.bldrdoc.gov

University of Colorado

Ad hoc UAV Ground Network Test Bed
Support CU's experiments with communication networks between low-cost small unmanned aerial vehicles similar to model RC airplanes, and ground-based radios.
Project Leader: J. Wayde Allen (303) 497-5871
e-mail wallen@its.bldrdoc.gov