ITS Projects in FY 2008

NTIA S&E Projects

Audio Quality Research
Develop and evaluate new techniques for encoding, decoding, and analyzing 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
svoran@its.bldrdoc.gov

Broadband Wireless Research
Deploy state-of-the-art measurement systems for collecting broadband radio-wave propagation data, to promote spectrum extension, aid in the development of 3G and 4G cellular systems, and evaluate proposed short range unlicensed device interference.
Project Leader: Robert T. Johnk (303) 497-3737
rjohnk@its.bldrdoc.gov

Broadband Wireless Standards
Provide leadership and technical support to committees (e.g., ITU-R SG 3/WP 3K, 3J, 3M, and 3L, TIA TR-8) developing broadband wireless communications standards that affect Federal agencies' use of the services. Building on previous ITS work, develop model comparisons for each propagation model.
Project Leader: Paul M. McKenna (303) 497-3474
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
rachatz@its.bldrdoc.gov

Network Interoperability
Conduct research in multimedia quality, enterprise architecture planning, and various methodologies in developing and documenting interoperable architectures. Participate in P25/TIA TR-8 and other standards organizations (e.g., VQEG, ATIS, IETF). Investigate multimedia applications and establish baseline interoperability for multimedia applications.
Project Leader: Arthur A. Webster (303) 497-3567
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
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: Robert B. Stafford (303) 497-7835
rstafford@its.bldrdoc.gov

Noise and Spectrum Occupancy Measurement Research
Characterize and track over time the levels of radio channel noise in various frequency bands and environments. Identify areas of greatest need, design and implement systems to perform measurements in those areas, and report on the results. Conduct spectrum usage surveys.
Project Leader: Jeffery A. Wepman (303) 497-3165
jwepman@its.bldrdoc.gov

RSMS Enhancements
Support RSMS operations through the development and maintenance of software, hardware, systems, and equipment for FY 2008 operations tasks.
Project Leader: John E. Carroll (303) 497-3367
jcarroll@its.bldrdoc.gov

RSMS 4th Generation Development
Provide new and innovative measurement hardware and software tools for current and future RSMS capabilities. Project future needs and develop long-term strategies for building the necessary tools.
Project Leader: J. Randy Hoffman (303) 497-3582
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: John E. Carroll (303) 497-3367
jcarroll@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
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 in order to expand ITS' knowledge base, identify emerging technologies, and develop new measurement methods.
Project Leader: J. Wayde Allen (303) 497-5871
wallen@its.bldrdoc.gov

Third Generation Wireless Interference Modeling and Characterization

Present technical contributions on PCS interference effects to ATIS Technical Subcommittee WTSC-RAN. Contribute to related fora (e.g., ITU-R WP 5D, SG 3K and 3M) as appropriate. Develop a technology-independent, multi-channel PCS interference model for use in the evaluation of CMRS and other potentially affected (e.g., public safety) systems.
Project Leader: Timothy J. Riley (303) 497-5735
triley@its.bldrdoc.gov

Video Quality Research

Develop technology for assessing the performance of digital video transmission systems. Improve measurement technology for multimedia definition (MD) and high definition (HD) video systems. Facilitate the development of international video quality measurement standards by participating in both the Independent Lab Group (ILG) of the Video Quality Experts' Group (VQEG) and as a proponent for new RR measurement technology for both Standard Definition (SD) and HD TV systems.
Project Leader: Stephen Wolf (303) 497-3771
swolf@its.bldrdoc.gov

NTIA/OSM Projects

Antenna Polarization Mismatch

Perform measurements of antenna polarization mismatch loss that can be used in analyses to determine EMC between antennas using the same radiocommunication service or operating in different services. Perform measurements to determine the variation of antenna gain over frequency.
Project Leader: Brent L. Bedford (303) 497-5288
bbedford@its.bldrdoc.gov

Characterization of Low Noise Amplifiers

Characterize the response of low noise amplifiers (LNA) from several manufacturers to single and multiple interfering signals. Attempt to gain insight into the effects of manufacturer design choices on the performance of LNAs.
Project Leader: Yeh Lo (303) 497-3393
ylo@its.bldrdoc.gov

Development of 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
mcotton@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
rachatz@its.bldrdoc.gov

Minimum Detectable Signal in GPS Bands

Perform technical measurements and analyses to investigate the problem of determining minimum detectable signal levels in GPS bands, at and near 1575 MHz. Report results to OSM.
Project Leader: Yeh Lo (303) 497-3393
ylo@its.bldrdoc.gov

Initial Spectrum Testbed and Antenna Harmonic Characterization

Perform technical planning related to the spectrum testbed effort, and provide outputs to Working Level Group E (WLG-E). Perform measurements of electrical characteristics and beam-forming properties of various antennas at their harmonic frequencies.

Project Leader: Frank H. Sanders (303) 497-7600
fsanders@its.bldrdoc.gov

International Symposium on Advanced Radio Technologies (ISART)

Develop and conduct ISART 2008. The focus will be on noise and interference and propagation prediction modeling for more effcent spectrum management. Gather information on these technologies and applications relevant and useful to NTIA/OSM's mission.

Project Leader: Patricia J. Raush (303) 497-3568
praush@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
fsanders@its.bldrdoc.gov

Short-Range Mobile-to-Mobile 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
pmckenna@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
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
jbratcher@its.bldrdoc.gov

Analysis, Demonstration, T&E

Project Leader: DJ Atkinson (303) 497-5281
datkinson@its.bldrdoc.gov

Assessment of Integration Strategies

Project Leader: Kameron A. Behnam (303) 497-3830
kbehnam@its.bldrdoc.gov

Development of Requirements, AF Interoperability Standards

Project Leader: Andrew P. Thiessen (303) 497-4427
athiessen@its.bldrdoc.gov

Public Safety Architecture Framework (PSAF)

Develop a User's Manual for the Public Safety Architecture Framework (PSAF).

Project Leader: Christopher Redding (303) 497-3104
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. Analyze data and write a report on the results.

Project Leader: Dr. Carolyn Ford (303) 497-3728
cford@its.bldrdoc.gov

Speaker ID in Public Safety Communications

Produce a qualitative assessment of how speaker identification (SID) is degraded by several example Public Safety Communications systems.

Project Leader: Stephen Voran (303) 497-3839
svoran@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.
Project Leader: Raian F. Kaiser (303) 497-5491
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
rdebolt@its.bldrdoc.gov

Department of Defense / U.S. Air Force

Development of RNSS Sampled Waveforms
Measure the emission spectra and capture I/Q waveforms for four RNSS SV transmission modulations in the 1215-1400 MHz frequency band.
Project Leader: Brent L. Bedford (303) 497-5288
bbedford@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
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
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
datkinson@its.bldrdoc.gov

Department of Transportation / Federal Aviation Administration

Wind Turbine Radar Interference Assessment
Provide an independent and objective assessment of the effects that wind turbines may have on air traffic control radar operations and suggest methods for mitigating such effects if found to be harmful.
Project Leader: Frank H. Sanders (303) 497-7600
fsanders@its.bldrdoc.gov

Department of Transportation / 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
jvanderau@its.bldrdoc.gov

National Archives and Records Administration

NARA E-Government Study
Demonstrate and evaluate the "Information Portal" concept to allow NARA to offer a system that will improve knowledge sharing across the organization and complement their physical records storage practice with an electronic version of the same.
Project Leader: Alan W. Vincent (303) 497-3500
avincent@its.bldrdoc.gov

Various Federal & Non Federal Agencies

Telecommunications Analysis Services
Develop and maintain TA Services analysis tools (propagation models) and their corresponding interfaces to users and databases, including maintenance and development of GUIs and various databases.
Project Leader: Robert O. DeBolt (303) 497-5324
rdebolt@its.bldrdoc.gov

Cooperative Research and Development Agreements (CRADAs)

Areté Associates

Coded Aperture Ladar for Long Range Applications
Support Areté Associates in testing and demonstrating laser radar technologies at the Table Mountain Field Site.
Project Leader: J. Wayde Allen (303) 497-5871
wallen@its.bldrdoc.gov

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
wallen@its.bldrdoc.gov

Lockheed Martin Coherent Technologies

Laser Testing at Table Mountain
Support LMCT's field-testing and characterization of components, subsystems, and systems for eyesafe coherent laser radar at Table Mountain Field Site.
Project Leader: J. Wayde Allen (303) 497-5871
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
wallen@its.bldrdoc.gov

Sensis Corporation

X-Band Radar Emission Measurements
Assess the compliance of a new X-band radar's RF emissions with the radar spectrum engineering criteria (RSEC).
Project Leader: John E. Carroll (303) 497-3367
jcarroll@its.bldrdoc.gov

Spirent Communications

IP-Based Video Quality Measurements
ITS and Spirent will work cooperatively to develop new video quality measurement technology for IP-based TV and video telephony services being deployed by service providers.
Project Leader: Stephen Wolf (303) 497-3771
swolf@its.bldrdoc.gov

State of Wyoming

Public Safety Radio Testing Program
Test and evaluate P25 subscriber units from a variety of different vendors, in order to provide the State of Wyoming with technical results to aid in determining the viability of using multi-vendor P25 subscriber units in the WyoLink Statewide system.
Project Leader: John M. Vanderau (303) 497-3506
jvanderau@its.bldrdoc.gov

University of Colorado

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