
Table Mountain Research Program

Outputs

- Tests of a prototype 3-axis antenna designed to study the total incident field and polarization of a radiated signal.
- New NOAA Weather Radio testing laboratory.
- Upgrades to the turntable facility at the Table Mountain field site to improve capability for testing the performance of antenna systems mounted on vehicles.
- Simulations of complex signals such as UWB, DTV, and man-made noise.

The Table Mountain Field Site and Radio Quiet Zone supports fundamental research into the nature, interaction, and evaluation of telecommunication devices, systems, and services. To achieve this goal, the Table Mountain Research Project

actively solicits research proposals from inside the Institute as well as from external agencies.

The results of this work are disseminated to the public via reports, technical papers, journal articles, conference papers, web documents, and computer programs. Activities this year have included:

Digital Television Project:

NTIA has been tasked with the development of a program for the distribution of digital to analog converter boxes to facilitate the transition to digital television (DTV) broadcast scheduled to take place on February 17, 2009. To support this program, a system capable of generating DTV signals was assembled, allowing ITS to study the characteristics of the signals in a controlled environment. Additionally, a study to identify DTV performance metrics and to develop the procedures needed to evaluate the performance of DTV converter boxes was initiated.



Testing the pattern of antennas mounted on a mock-up of an unmanned aerial vehicle (UAV) at the Table Mountain field site, part of the cooperative research and development agreement (CRADA) between ITS and Johnson's Jobs (photograph courtesy of Russ Johnson, Johnson's Jobs).



Set-up for testing of 3-axis antenna at Table Mountain field site (photograph by R.N. Statz).

NOAA Weather Radio Testing:

To help ensure that radios displaying the NOAA Weather Radio emblem meet the NOAA performance criteria, ITS established a laboratory at the Table Mountain field site to measure the performance of these radios. This leverages earlier work undertaken in FY 2004 where ITS examined the overall performance of the NOAA Weather Radio system from signal generation to signal reception. This test facility provides NOAA with performance data based on tests outlined by the Consumer Electronics Association standard CEA-2009.

FY 2006 Cooperative Research and Development Partners

- Eton Corporation
- Johnson's Jobs
- RF Metrics Corporation
- Lockheed Martin/Coherent Technologies
- Deep Space Exploration Society
- University of Colorado, Ad Hoc UAV Ground Network (AUGNet)

Recent Publications

J. Diverdi, "Simple mapping project (SMP) Interim Report," Deep Space Exploration Society, Jun. 2006.

F. Sanders, J. Wepman, and S. Engelking, "Development of performance testing methods for dynamic frequency selection (DFS) 5-GHz wireless access systems (WAS)," in "Proceedings of the International Symposium on Advanced Radio Technologies: March 7-9, 2006," P. Raush and K. Novik, Eds., NTIA Special Publication SP-06-438, Mar. 2006, pp. 39-48.

D. Henkel and T.X. Brown, "On controlled node mobility in delay-tolerant networks of unmanned aerial vehicles," in "Proceedings of the International Symposium on Advanced Radio Technologies: March 7-9, 2006," P. Raush and K. Novik, Eds., NTIA Special Publication SP-06-438, Mar. 2006, pp. 29-38.

R. Howe, "Detection of gamma ray bursts and X-ray transient SGR 1806-20 with VLF radio telescopes," *Open European Journal on Variable Stars*, ISSN: 1801-5964, OEJV# 0022, Feb. 2006.

F. Sanders and B. Ramsey, "Phased array antenna pattern variation with frequency and implications for radar spectrum measurements," NTIA Technical Report TR-06-436, Dec. 2005.

F. Sanders and B. Ramsey, "Comparison of radar spectra on varying azimuths relative to the base of the antenna rotary joint," NTIA Technical Memorandum TM-05-430, Aug. 2005.

T. Brown, S. Doshi, S. Jdhav, D. Henkel, and R. Thekkekkunnel, "A full scale wireless ad hoc network test bed," in "Proceedings of the International Symposium on Advanced Radio Technologies: March 1-3, 2005," J.W. Allen and J. Ratzloff, Eds., NTIA Special Publication SP-05-418, Mar. 2005, pp. 51-60.

J.W. Allen, "Gain characterization of the RF measurement path," NTIA Report TR-04-410, Feb. 2004.

J.W. Allen and T. Mullen, "Digital television (DTV) field strength and video quality study," NTIA Technical Memorandum TM-03-405, Aug. 2003.

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