



Technology Transfer



Institute for Telecommunication Sciences (ITS)

- **FTTA of 1986 allows Federal laboratories to enter into Cooperative Research and Development Agreements (CRADAs).**
- **ITS has a long history of cooperation with industry through CRADAs and standards bodies.**
- **ITS is actively engaged in research involving emerging technologies.**

Federal Technology Transfer

The Federal Technology Transfer Act of 1986 (FTTA) allows Federal laboratories to enter into cooperative research agreements with private industry, universities, and other interested parties. This Act provides labs with clear legal authority to enter into these arrangements and thus encourage technology transfer from Federal labs to the private sector. Under this Act, a Cooperative Research and Development Agreement (CRADA) can

be implemented that protects proprietary information, grants patent rights and provides for user licenses to corporations, while allowing Government expertise and facilities to be applied to interests in the private sector.



Photo by D.J. Atkinson

Cooperative Research with Industry

ITS participates in technology transfer and commercialization efforts by fostering cooperative telecommunications research with industry where benefits can directly facilitate U.S. competitiveness and market opportunities. ITS has participated for a number of years in CRADAs with private sector organizations to design, develop, test and evaluate advanced telecommunication concepts. Cooperative research with private industry has helped ITS accomplish its mission to support industry's productivity and competitiveness by providing insight into industry needs. This has led to adjustments in the focus and direction of other Institute programs to improve their effectiveness and value.

Research has been conducted under agreements with the following companies and universities:

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| • American Automobiles Manufacturers Association | • General Electric Company | • Motorola, Inc. |
| • ARINC | • GTE Laboratories, Inc. | • Netrix Corporation |
| • AudioLogic, Inc. | • Hewlett-Packard Company | • Telesis Technology Laboratories |
| • Bell South Enterprises | • Industrial Technology, Inc. | • University of Pennsylvania |
| • Bell Atlantic Mobile Systems | • Integrator Corporation | • US WEST Advanced Technologies |
| • East Carolina University's Brody School of Medicine | • Intel Corporation | • US WEST New Vector Group |
| | • Lehman Chambers | |
| | • Lucent Digital Radio | |
| | • Lucent Technologies | |

Emerging Technology Activities

New and emerging telecommunication technologies, including third generation wireless (3G), wireless local area networks (WLANs), digital broadcasting, and intelligent transportation systems, hold a great commercial importance. Because of the potential economic impact of these technologies on the industry, ITS plans to pursue technology transfer to the private sector through CRADAs and thereby contribute to the rapid commercialization of these new technologies. In addition, ITS plans to commit some of its own resources to the development and standardization of these new technologies. All four Divisions at ITS participate in CRADAs.

History

ITS began in the 1940's as the Interservice Radio Propagation Laboratory, which later became the Central Radio Propagation Laboratory (CRPL) of the National Bureau of Standards of the Department of Commerce. In 1965, CRPL became part of the Environmental Science Services Administration and was renamed the Institute for Telecommunications Sciences and Aeronomy (ITSA). In 1967, the telecommunications function of ITSA was

transferred into the newly formed Office of Telecommunications (OT). Finally, under the President's Reorganization Act #1 of 1977, OT and the Office of Telecommunications Policy merged to form NTIA. Since that time, ITS has performed telecommunications research and provided technical engineering support to NTIA and to other Federal agencies, on a reimbursable basis. More recently, ITS has pursued cooperative research with the U.S. industry under the provisions of the Federal Technology Transfer Act of 1986.

Activities

The Institute for Telecommunication Sciences (ITS), located in Boulder, Colorado, is the chief research and engineering arm of the National Telecommunications and Information Administration (NTIA) of the U.S. Department of Commerce. The majority of our employees are electronics engineers with a complement of mathematicians, physicists, computer scientists and computer programmers. The Institute performs telecommunications research, planning and engineering in the following areas:

- **Spectrum and Propagation Measurements:** ITS designs, develops and operates state-of-the-art, automated spectrum measurement and propagation measurement systems; measures spectrum occupancy trends and patterns; measures emission characteristics of Federal transmitter systems; identifies and resolves radio frequency interference involving Federal systems; and, performs radio propagation measurements for model development.
- **Telecommunications and Information Technology Planning:** ITS plans and analyzes existing, new, and proposed telecommunications and information technology systems and services, improving the efficiency and enhancing the technical performance and reliability of those resources, for example, P25 radios and their interoperability in national security and emergency preparedness (NS/EP) environments.
- **Telecommunications Engineering, Analysis and Modeling:** ITS evaluates and enhances the technical performance characteristics of existing, new, and proposed individual telecommunication systems, to improve their efficiency and enhance their technical performance.
- **Telecommunications Theory:** ITS develops and enhances innovative telecommunication technologies and engineering tools through the use of electromagnetic theory, digital signal processing techniques, models of human perception,— broadband wireless systems performance; advanced antenna designs; audio and video quality assessment; advanced spectrum sharing concepts; and noise analysis.

Office of the Director

Al Vincent	Director
avincent@its.blrdoc.gov	303-497-3500

Brian Lane	Executive Officer
blane@its.blrdoc.gov	303-497-3484

Spectrum & Propagation Measurements Division

Eric D. Nelson	Division Chief
enelson@its.blrdoc.gov	303-497-7410

Telecommunications & Information Technology Planning Division

Jeffrey R. Bratcher	Division Chief
jbratcher@its.blrdoc.gov	303-497-5132

Telecommunications Engineering, Analysis & Modeling Division

Patricia Raush	Division Chief
praush@its.blrdoc.gov	303-497-3568

Telecommunications Theory Division

Frank Sanders	Division Chief
fsanders@its.blrdoc.gov	303-497-7600

Institute for Telecommunication Sciences
325 Broadway, Boulder, Colorado 80305
<http://www.its.blrdoc.gov>