An Overview of the Institute for Telecommunication Sciences (ITS)

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ITS Mission

- Work with US Government agencies and private industry to

  - Explore, understand and improve the use of telecommunications technologies and principles

  - Investigate and invent new technologies

  - Overcome telecommunications challenges

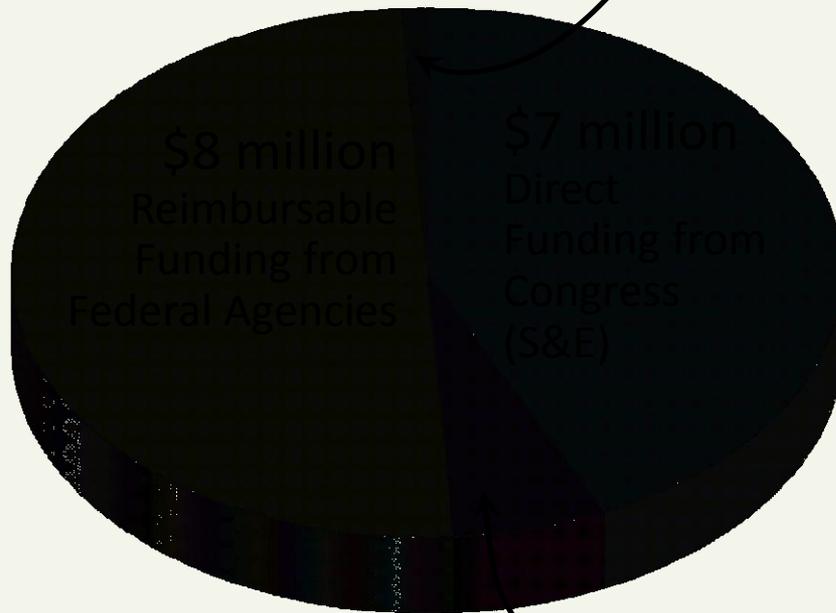# ITS Contributions to NTIA Strategic Objectives

ITS Contribution	DOC Strategic Objectives
• Spectrum and propagation measurements	• Promote U.S. telecom and information infrastructure development
• Standards development	• Improve foreign trade opportunities for U.S. telecom firms
• Joint research with industry • Testing and assessment of new technologies • Audio, video and multimedia quality research	• Enhance domestic competitiveness
• Spectrum sharing research	• Facilitate more efficient and effective use of radio spectrum

ITS Funding

Total: $16.1 million

Cooperative Research and Development Agreements (CRADA) — $100K

$8 million Reimbursable Funding from Federal Agencies

$7 million Direct Funding from Congress (S&E)

$1 million Office of Spectrum Management (OSM)

- 50% Direct Funding

- 50% Reimbursable

Major Research Programs

- Spectrum Sharing Research

- Spectrum Measurement Research

- Radio Propagation Research

- ITU-T and ITU-R studies

- Public Safety Communications Research

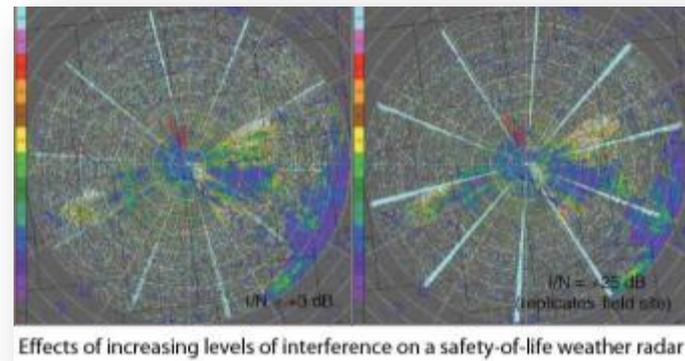- Audio, Video and Multimedia Quality Research

Spectrum Measurement Research

- Spectrum Measurements
  - Occupancy
  - Individual Transmitters
  - Noise
- Field measurement efforts to resolve and prevent interference
  - Radars
  - Communication Systems
  - Radio-Jamming Systems in Prisons

- Spectrum-Sharing R&D
  - Dynamic Frequency Sharing (DFS) Research in Radar Bands
  - Dynamic Spectrum Access (DSA) Testbed for LMR bands
  - Interference Protection Criteria (IPC) for Spectrum-Sharing

Effects of increasing levels of interference on a safety-of-life weather radar

Radio Propagation Research

- Development and Maintenance of Propagation Models
- On-Line Propagation Models and Data via TA Services
- Geographic Information System (GIS) Applications

- Recent Development of Short-Range (<1 km) Propagation Model
- Ultra-Low Antenna Height Modeling and Measurements
- Development of a Ground-Conductivity Measurement System

ITU-T and ITU-R Studies

- Leadership of ITU and U.S. Telecommunications Standards Committees and Contributions
  - U.S. Standards Proposals
  - ITU Recommendations and Associated Industry Standards
  - Technical Support for U.S. Administration in ITU-R Study Group 3 and Working Parties 3J, 3K, 3L, 3M, 5B, 5D, 6C, and ITU-T Study Group 9
  - ITU-R U.S. Chair of Study Group 3
  - ITU-T U.S. Chair of Study Group 9
  - ITU-T International Chair of Study Group 9

Public Safety

- Joint effort between ITS and NIST Office of Law Enforcement Standards (NIST/OLES)

- One of the longest-running Other Agency-funded efforts (≈14 yrs)

- Supports DOJ and DHS interoperable public safety communications efforts

- Areas of research

  - Land Mobile Radio Standards

  - Broadband Standards

  - Interoperability device testing
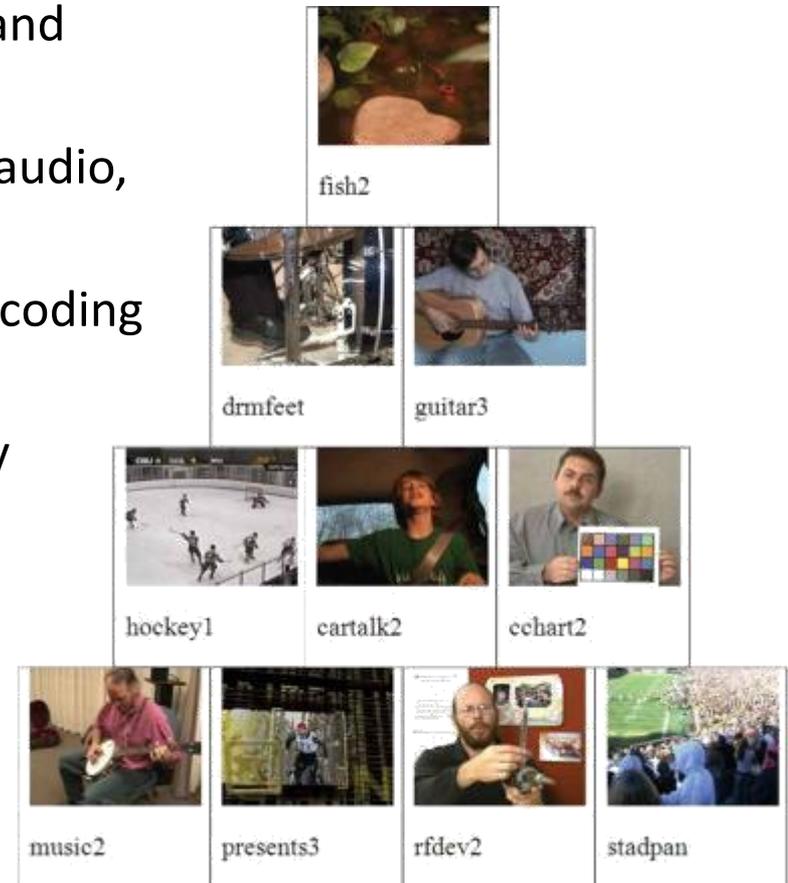
  - Emerging standards and technologies

www.pscr.gov

Audio, Video and Multimedia Quality Research

- Measurements of speech, audio, video, and multimedia quality

- Assessments of algorithms for encoding audio, video, and multimedia

- Development of better algorithms for encoding audio, video, and multimedia

- Improve competitiveness of U.S. Industry

- Technical inputs to U.S. policies on advanced media technologies

- Contributions supporting the U.S. Administration's goals in ITU-T, VQEG and other national and international forums

Video Source Material Used In Video and Multimedia Research

RSMS Van

Table Mountain "Quiet Zone"

Questions?

Visit the ITS website and download publications at www.its.bldrdoc.gov

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