

# Resilient Communications



MITRE's resilient communications programs support communications and networking capabilities used by U.S. military and international partners across all domains (underwater, surface, aerial, and space). Our work focuses on radio frequency (RF) communications, networking, modeling and simulation, systems integration, and communication software development.

## **Our Mission**

MITRE develops communications and networking capabilities to support U.S. and coalition operations by achieving communications resiliency, survivability, network federation, and information ecosystems.

MITRE assists our sponsors in designing systems that apply communications capabilities to enable net-centric elements and achieve communications interoperability. MITRE can test, emulate, and model various aspects of communications systems, from physical layers to application layers, to quickly analyze systems concepts and determine which capabilities best enable connectivity in target environments. We then help our sponsors develop solutions and architectures that embed modern security technologies in networked communications systems.

*Resilient communications systems allow U.S. and Coalition forces to operate cooperatively in highly contested and denied environments.*

## Resilient Communications

### Our Capabilities

**Aerial Layer Research & Development (ALRD) Lab:** MITRE's ALRD Lab supports experimentation to apply leading-edge communications and networking research and technologies to solve systems integration and operational challenges. The ALRD Lab focuses on maturing concepts and capabilities for next-generation tactical data networks across multiple mission areas spanning the full continuum of conflict.

**Tactical Wideband Satellite Communications (SATCOM) Lab:** Our SATCOM Lab provides a modeling and simulation, systems integration, and engineering environment where teams can perform risk-reduction analyses in support of protected anti-jam tactical SATCOM. The SATCOM Lab allows users to assess various military and commercial waveforms in operationally relevant scenarios. The lab has over-the-air SATCOM capabilities for C-band, Ku-band, X-band, and Ka-band.

**Common Data Link (CDL) Reference Implementation Lab (RIL):** MITRE's CDL RIL developed the family of CDL waveforms including the bandwidth-efficient CDL (BE-CDL) waveform. The CDL RIL allows for government ownership of the technical baseline and open competition for implementation. The CDL RIL provides the hardware, software, and processes needed to develop CDL modernization efforts in collaboration with government and industry partners.

### MITRE's Resilient Communications Body of Work

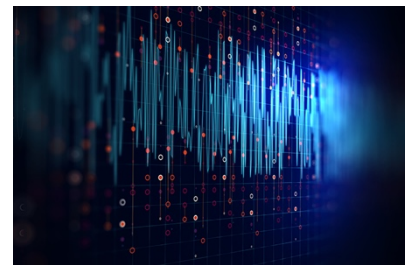
**Anti-Jam UHF Voice & Data:** We developed secure methods for line-of-sight (LOS) communications to defeat or suppress effects from jamming while being interoperable across DoD and NATO.

**Tactical SATCOM:** MITRE is the technical leader for the U.S. government to solve wideband SATCOM enterprise issues, with a focus on user requirements and terminal solutions.

**Effects Chain Analysis:** We develop and analyze mission threads to enable multisource fusion and intelligence in challenging environments to understand communications system solutions.

**Advanced Networking and Information:** MITRE is developing next-generation networking technologies to route and translate various tactical data messages at the tactical edge.

*For information about MITRE's Resilient Communications expertise and capabilities, contact [isee@mitre.org](mailto:isee@mitre.org). For more information about MITRE, visit [mitre.org](https://mitre.org).*



MITRE's *Intro to Radio Frequency (RF) Communication* is available upon request

MITRE is a not-for-profit organization. Our mission-driven teams are dedicated to solving problems for a safer world. Through our public-private partnerships and federally funded R&D centers, we work across government and in partnership with industry to tackle challenges to the safety, stability, and well-being of our nation.