

AFRL

THE AIR FORCE RESEARCH LABORATORY



Air Force Research Laboratory Space Vehicles Directorate Infrared Radiation Effects Laboratory (IRREL)

Unique Research and Test Facilities:

The Infrared Radiation Effects Laboratory (IRREL) tests focal plane arrays (FPAs) which provide the retina of imaging systems. The combination of unique laboratory capabilities with experts in FPA and detector characterization positions the IRREL team as the foremost authority on the evaluation of space-based imaging sensors. The lab's adaptable equipment is capable of characterizing sensors from across industry for a variety of missions ranging from visible through long wavelength infrared detection. The lab is fully mobile, allowing researchers to conduct tests at radiation sites around the country to address the performance of FPAs in the harsh radiation environment of space and through potential man-made threats.

Critical Service to Air Force and all parties supporting National Security Space Electro-optic Systems:

IRREL provides in-depth detector performance characterization and flight qualification in benign and high radiation environments for all Air Force missile-warning and surveillance spacecraft (SBIRS, STSS, SBSS), Missile Defense Agency, NASA, and Intelligence Community spacecraft. The lab conducts extensive pre- and post-radiation characterization of sensors vital to all National Security Space programs.



Space Based Infrared System (SBIRS) used for launch detection and missile warning



Space Based Space Surveillance (SBSS) used for space situational awareness

Space Vehicles Directorate

Be the best and team with
the best; Be ahead and
stay ahead in Space S&T!



Advancing Technology:

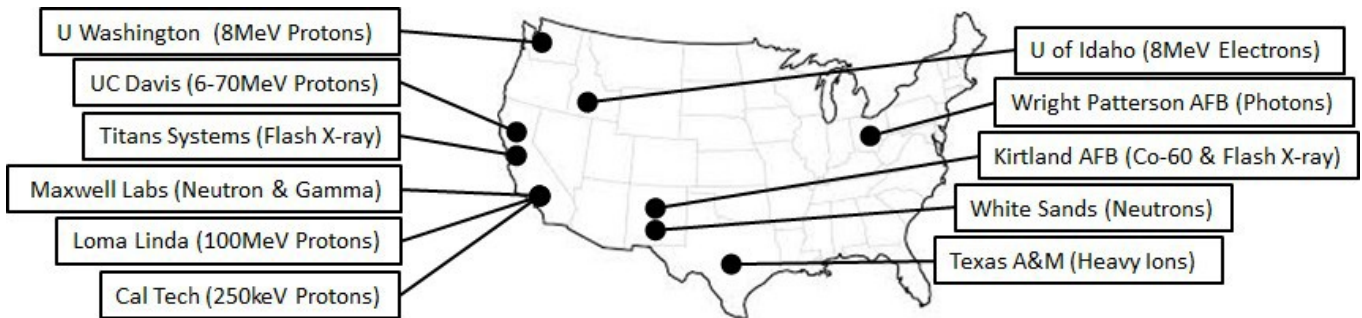
IRREL's data is used not only to provide comparisons and flight qualification of focal planes and detector material, but is also leveraged by broader research efforts investigating fundamental detector material and architecture properties of optical sensors. The results guide the investment strategies and research efforts of industry, academia, and other government agencies in the areas of visible and infrared focal planes.

Benefits to the Warfighter and Nation:

This independent government laboratory allows for unbiased verification of key performance metrics across multiple space missions and industry providers. The centralized in-house capability is leveraged by system program offices across the government as well as industry partners including but not limited to Lockheed Martin, Raytheon, BAE Systems, and Ball Aerospace who pay operating costs, allowing for lower government cost, higher quality testing, and a broad in-depth view of the state of visible through long wavelength infrared FPA and detector technology.



Infrared Radiation Effects Laboratory team at the AFRL Space Vehicles Directorate on Kirtland Air Force Base, N.M. The map below represents the radiation sources where the lab conducts testing.



Contact 377 ABW Public Affairs for more information: (505) 846-5991 DSN 246-5991
Current as of December 2016

http://www.kirtland.af.mil/afrl_rv/index.asp

Approved for Public Release – OPS-16-11986