

Directed Energy Bioeffects Division (RHD)

The Directed Energy Bioeffects Division (RHD) has played a key role in directed energy weapons development for more than 50 years, starting with atomic bomb eye protection.

The Directed Energy Bioeffects Division is futuristic and predictive...their research captures and quantifies the biological effects of directed energy weapons, so researchers can develop non-lethal weapons and the defensive means to protect our own men and woman from this type of weapon.

Through research that gathers the best available information on biological effects of these weapons, RHD can make sure our troops are trained to safely communicate, fight and win on battlefields of the future that may well be saturated with directed energy.

To accomplish this goal, RHD relies on its core competencies in optical radiation, radio frequency radiation, microwave radiation, electromagnetic propagation in biological materials and biotechnology research.



Photo courtesy AFRL/DE

An Active Denial System prototype system is mounted on a Humvee vehicle for testing and demonstration.

RHD Mission

The mission of the Directed Energy and Bioeffects Division is to predict and mitigate the bio-effects of directed energy on personnel and mission performance and to exploit the bio-effects of directed energy for non-lethal applications. RHD's vision is to provide maximal exploitation of directed energy for national defense.



Photo by John Schutte AFRL/RH

Air Force 2nd Lt. Paul LaTour is illuminated by a brilliant flash of green laser light as he sits in the pilot's seat of a Boeing 737 flight simulator during a landing approach.

RHD Organization

Biobehavioral Systems Branch (RHDJ): The mission of the Biobehavioral Systems Branch is to develop technologies to enable the design of scalable nonlethal directed energy and novel effects weapons, and to characterize and quantify the physiological and psychological effectiveness and risks of those weapons in support of Air Force and joint forces operations.

Optical Radiation Branch (RHDO): The mission of the Optical Radiation Branch is to conduct research to enhance combat survivability and systems effectiveness by transitioning technologies that enable deployed forces and support units to counter optical threats, while exploiting optical systems for non-lethal applications.

Radiofrequency Radiation Branch (RHDR): The mission of the Radiofrequency Radiation Branch is to protect Air Force personnel from RFR hazards, while minimizing negative operational impact. The branch conducts extensive research in the dosimetry and bioeffects of RFR. Research results are transitioned and transferred to health and safety standards used by safety officers, bioenvironmental engineers, and other health physics consultants. The advent of high-power microwave and ultrawide band directed energy weapons make the branch's products and services more essential today than ever.

Veterinary Sciences (RHDV): The mission of the Veterinary Sciences Branch is to support all Brooks City-Base R&D requiring animal use, and to provide accredited laboratory animal veterinary medical and surgical support, including procurement, quarantine, colony management, quality control, research consultation and regulatory oversight. The veterinary Sciences branch also provides full service veterinary pathology support and ensures the humane care and treatment of laboratory animals.

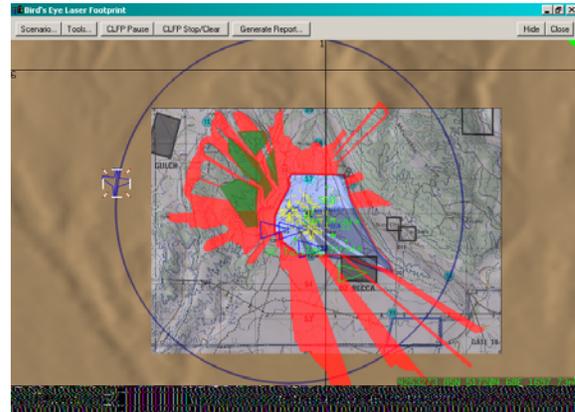


Photo by Stu Hutchinson AFRL/RHDO
(Karta Technologies, Inc.)

This image from the Laser Range Management Software indicates if a laser footprint would go off-range (shown in red) for a laser targeting device being directed from an aircraft.

Project Reliance - Tri-Service Research

Collaboration: The mission of the RHD Project Reliance is to determine risks for wide range of military threats, conduct multi-level research from molecules to humans while reducing operating costs and eliminating duplication of effort. This specific effort shares Army and Navy facilities and equipment with Air Force assets, access to special expertise, while maintaining the underlining capability to address service-unique requirements. *Click for more info on our collocated service units:*

- Army WRAIR - wrair-www.army.mil/
- Navy NHRC - www.nhrc.navy.mil/

Air Force Health Study (RHDA): The Air Force Health Study (AFHS) was established by White House direction in 1980 as an epidemiological study of Air Force personnel assigned to Operation Ranch Hand, the unit responsible for aerial spraying of herbicides, during the Vietnam War. The study sought to determine whether Ranch Hand veterans experienced adverse health and whether those effects, if they existed, could be attributed to exposure to herbicides. This matched cohort study compared the morbidity, mortality and reproductive outcomes of the participating Ranch Hand members to a comparison group of C-130 personnel whose duties during the Vietnam War did not include spraying of herbicides.

For more information contact...

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