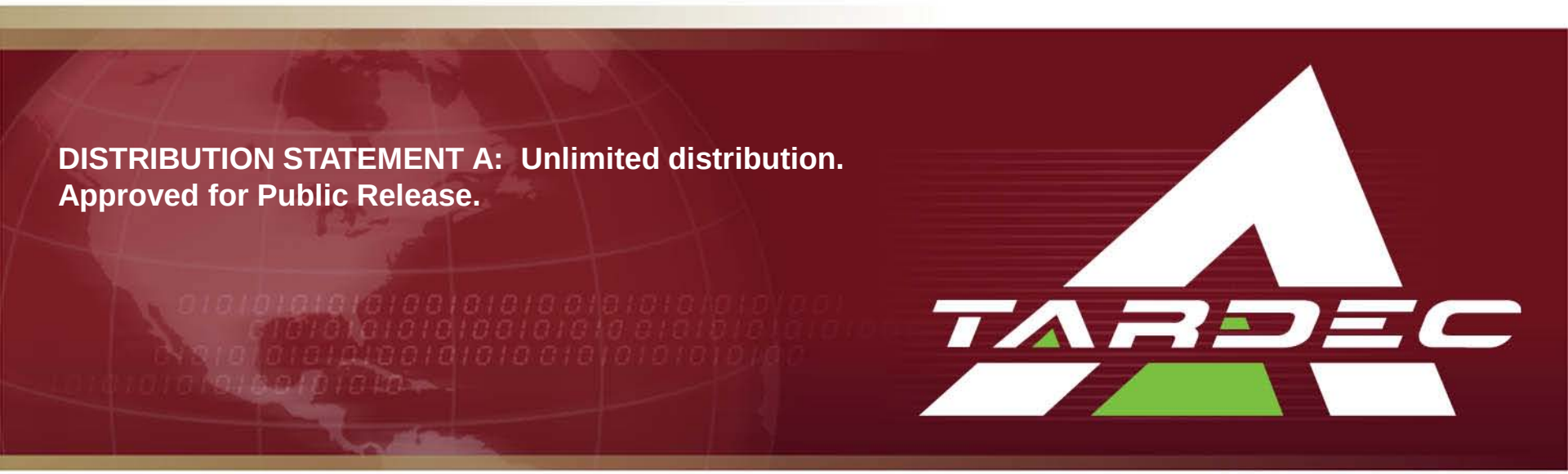
Vision Protection From Lasers Overview
for
Dr. Beagley, Australia



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Rob Goedert
US Army TARDEC
RDTA-RS, MS 263
Warren, MI 48397-5000

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Vision Protection From Lasers
Protection for Eyes Day Cameras from Lasers

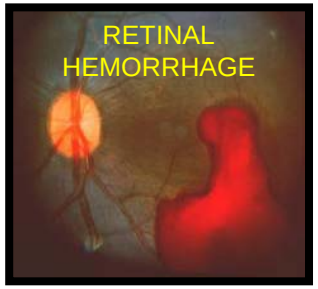
Problem: Lasers can disable vision systems

Mission:
- Provide solutions protecting eyes and day-vision cameras from laser weapons.

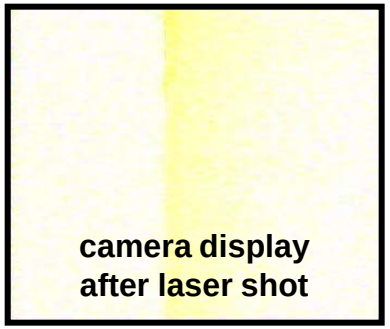
Objective:
- Develop materials that limit the amount of light energy allowed to the sensor
- Develop new optical system designs allowing the integration of advanced laser protection materials

Method:
- Integrate protection materials into optical systems and test in lab & field.
- Demonstrate relevant designs to combat vehicle PMs.

Eye Damage

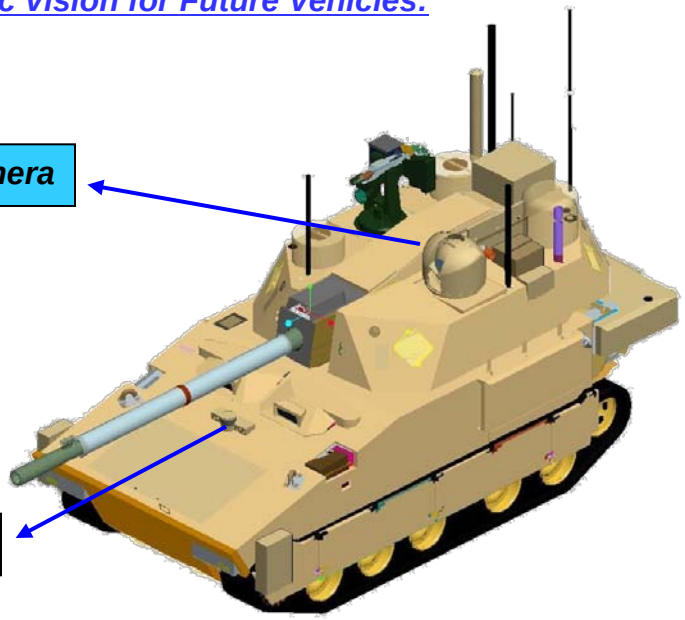


Camera Damage



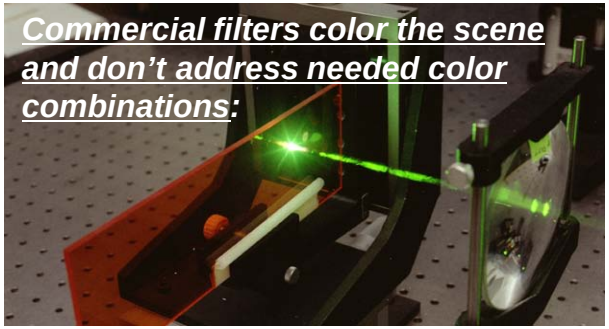
TARDEC Demo Areas

Protect Electronic Vision for Future Vehicles:

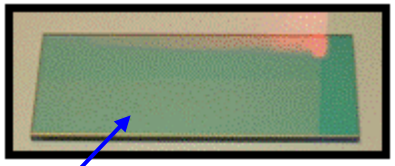


Protect Eyes for Today's Vehicles:

Commercial filters color the scene and don't address needed color combinations:

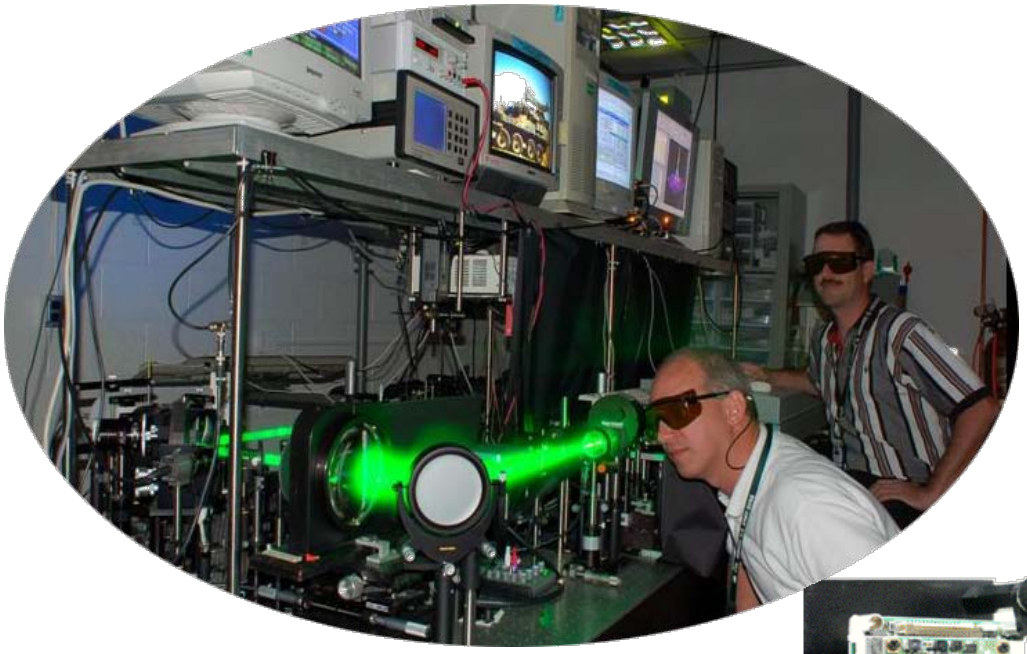


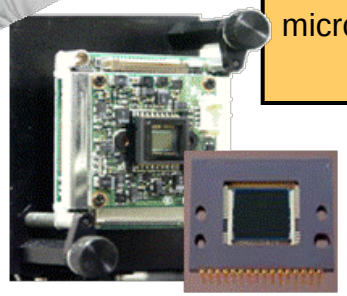
Fielded Hazard Protection:



Fielded Filter protects from laser rangefinders & designators

Laser Protection Research & Integration Laboratory





The Laser Protection Laboratory is used to develop and evaluate techniques to harden combat vehicle surveillance vision optics against multiple battlefield laser hazards and threats. In this laboratory, engineers and scientists conduct various optical performance tests on vision devices and laser protection filters, as well as conduct advanced research in nonlinear optical materials and novel optical design development. The laboratory is located in a Class 100,000 clean room and the available equipment includes several laser sources, detection devices, spectrometric instrumentation, optical test benches, laser beam profiling systems, optical microscopes, and computer support facilities.

Possible Areas of Information Exchange

- Protection technologies that do not require previous knowledge of wavelength.
- Protection technologies that respond to continuous wave through short pulse lasers.
- Published & Unpublished data for promising nonlinearly transmitting materials for eye protection.
- Techniques for incorporating nonlinear protection materials, maximizing protection performance in specific types of optical systems.
- Laser protection techniques/technologies that do not require a focal plane.
- Laser-induced threshold values for commercial cameras. There are a lot of cameras out there! We could reduce duplication & greatly expand our data base by sharing data.
- Laboratory methods for determining laser-induced damage thresholds for cameras.