Protecting military convoys from sniper fire is a priority. A fielded green laser was evaluated for its capacity to interfere with the ability of a shooter to hit moving outdoor targets, both while the laser was on and again just after termination. We tested each subject’s ability to locate, identify, and hit a target using rifle-like armaments, during trials with or without laser exposure. Impairment was defined as fewer target hits during laser trials, compared to no-laser trials. Two trucks traveling in a convoy served as targets. Eight subjects shot during 14 trials. On laser-exposure trials, Target 1 was presented concurrently with the laser, and Target 2 was presented immediately after removal of both Target 1 and the laser. Target 1 & 2 accuracy on laser trials did not differ from no-laser trials. On non-exposure trials, no target accuracies differed. Shooter skill did not affect impairment. Under bright lighting conditions, shooting at moving (but predictable from extrapolation), brief-exposure targets, the maximum eye-safe green laser exposure did not impair targeting success while on the shooters eyes nor afterward. Perceptual mechanism and situational contributors to effectiveness are discussed.
Targeting of Convoy Vehicles is Not Disrupted by a Green Laser: Moving, Predictable Targets in Bright Lighting

Target Behavioral Response Laboratory
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• Protecting military convoys from sniper fire is a priority.
• Soldiers would like to use non-injurious lasers in civilian settings to impair potential shooters to keep convoys safe.

Specific Objectives:
• Determine effectiveness of a green laser under eye-safe conditions against the ability of a shooter to hit a target.
• Test laser effectiveness during laser exposure and immediately after laser exposure.

General Method:
• Test human volunteers shooting outdoors under daytime lighting at moving convoy vehicles
• Compare shooting accuracy on laser-exposure trials with that on non-laser trials.

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Convoys Targets in Targeting Area

Figure 3: Truck targets were closely spaced while passing through the targeting area so the second target entered range as the first target left. Targets were available to hit for about 1.4 sec. The B.E. Meyers GB-III-C laser is mounted on a tripod on the bed of the stationary truck in the background, and shone over the top of the first truck-mounted target.

Shooting While Laser Is On Eyes:

Question: Does the laser interfere with hitting the target while it is on the eyes?
Findings
• Hit percentages for Target 1 when laser was on did not differ from hit percentages when laser was off.

Shooting After Laser Is Turned Off:

Question: Does the laser cause residual interference with targeting after it ends?
Findings
• Hit percentages after the laser did not differ from no-laser trials. There is no residual effect.

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Convoys Protection Test-Bed Layout

Figure 1: Viewed from above (Upper Panel) and from side (Lower Panel). Note the laser path relative to the truck target. The B.E. Meyers GB-III-C laser was shone on the subject's face from the Nominal Ocular Hazard Distance (NOHD) to remain eye-safe.

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Convoys Path and Targeting Area

Figure 2: Convoy targets were visible during their approach to the targeting area. Shots at targets were allowed only when targets were between the white reflector posts. The pink dot on the forward truck's target constitutes a "hit."

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Laser Aimed On Shooter's Face

Figure 4: Medians and quartile boundaries for hit rates on laser-exposure and non-exposure trials for the first target (top plot) and second target (bottom plot) in each trial.

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Gather empirical data on real human behavior in response to non-lethal weapons and systems using real people in tactically relevant situations.