LASER ASSAULT AWARENESS

Laser pointers, or counter-optical lasers, have been used against law enforcement officers and emergency responders during protests and incidents of civil unrest. Lasers pose a threat to responding personnel by disrupting or degrading human vision. Lasers can interrupt a tactical response by startling, distracting, or causing a diversion and can also disable surveillance cameras, inhibit facial recognition systems, and interfere with drone operations (Unmanned Aerial Systems).

LASER DISRUPTION

LASER is an acronym for Light Amplification by Stimulated Emission of Radiation. A laser is a concentrated beam of light that emits more energy than other light sources because of this increase in coherent radiating light. A laser beam of the same power as a flashlight will appear brighter because of that concentration.

Lasers are disruptive because of the distraction of the light and the potential for damage to eyes. Initially, these disruptive lasers were red laser pointers with minimal power and range, they have advanced to more powerful and damaging devices (typically green or even blue in color). Laser disruption can:

1. Cause potential eye damage.
2. Create a startle reaction. A laser can cause a scatter effect when the light hits glass (car windshields) or clear plastic (face shields). This can cause a diversion of attention.
3. The scatter effect may mitigate potential for eye damage, but may also create an effect similar to looking into a large, bright light, making it difficult to see anything.
4. Lasers can dazzle, distract, or temporarily flashblind personnel.

WHAT TO DO DURING A LASER ASSAULT

1. Do not look directly at the beam of laser light. Blink, look down, or look away.
2. Block the beam with an opaque object (e.g, clipboard, memo book) in front of the eyes. If available, wear laser protective eyewear.

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WHAT TO DO DURING A LASER ASSAULT, *cont.*

3. Do NOT look for the source with binoculars, rifle scope, camera lens or anything that augments sight. The optical characteristics of these devices amplify the effect of the laser. Corrective lenses also amplify the effects on the eye.
4. The most successful countermeasure is to disrupt the beam and cause the laser to be turned off. Be prepared to direct a spotlight on the source from a different angle.
5. Identifying the user is not of immediate concern, as lasers can be easily passed to others, hidden or discarded. In a tightly packed crowd, the user would not be easily identified.
6. Document the incident, including personnel illuminated (exposed), details of laser use (color of beam; red/green/blue); number/type of laser beams (one, many, different angles, etc.). Documentation is important for developing countermeasures, assessing indicators and early warning signs.
7. Seek medical attention and evaluation from a qualified vision specialist if personnel are injured or are experiencing eye injury or aftereffects from the laser exposure.

MORE DETAIL

Lasers were first identified in the U.S. as disruptive devices in the 1990's. Initial targets were commercial airliners, public safety aircraft, and, outside of the U.S., military aircraft. Later, groups of protesters used lasers as a distraction to disrupt riot control operations. Laser pointers were first used in civil unrest and riots when protesters (mainly anarchists) used lasers against police during the "Battle for Seattle" in 1999. More recently they have been employed against personnel in Santiago, Chile; Hong Kong; and Portland, Oregon.

Generally, lasers used at protests are unlikely to cause permanent eye injuries due to the low-power of the laser beam, stand-off distance (the closer the source the greater the risk), and the ability of personnel to take countermeasures. Personnel experiencing pain, are potentially injured, or are concerned about aftereffects, should seek evaluation from a qualified vision specialist (ophthalmologist or optometrist).

Injury from lasers can be to the hard, clear outer part of the eye (cornea) or to the retina internally, depending on the power level of the laser, the laser-to-eye distance, and the time of direct eye exposure to the light beam. Effects on vision can be minimal to severe depending on those three conditions.

Common colors for lasers are red, green and blue. Each color is a specific wavelength and protective eyewear must be tuned to block the specific wavelength. Each layer of wavelength protection will darken the eyewear, which at some point will make it difficult to see in low- light conditions. The wavelength of green is the easiest to see and will seem to be the brightest because it is in the middle range of the visible light spectrum of the human eye.

As a standoff, less-lethal weapon, lasers have several advantages. The beam travels at the speed of light, the "ammunition" is unlimited—that is "deep clip"—as long as there is a power source. Lasers are also difficult to trace because it essentially disappears when turned off and there is no sound associated with its use.

Developed by LtCol (ret) Matt Begert, Dr. Robert J. Bunker, and Dr. John P. Sullivan. These visor cards are intended as guidelines only. Regulations of the appropriate local and national law enforcement agencies should also be consulted.