



Fig. 1: HEMS operation at night: laser pointer attacks can be dangerous to sight if aimed at the eyes (Photograph: J. Paillaugue)

Laser pointer attacks: What kind of protection?

The danger for aircraft pilots of being dazzled by laser beams is a major problem – also in HEMS. Handheld laser pointers can be bought by anyone. The availability of laser pointers to the general public should be limited in order to prevent accidental damage. They are however easily available – also at online shops. These laser pointers mostly do not have any official EU certification and are not meant for industrial or research use. With their very long range, laser pointers are often misused. This is considered particularly hazardous in the case of aircraft pilots, who may be dazzled or distracted at critical times.

Author:

Mathieu Vandevenne
HEMS pilot
Association Nationale
pour le Service Médical
d'Urgence
par Hélicoptère
French National
HEMS organization
ANSMUH

In the USA, 700 laser pointer attacks had been reported for the period between 2004 and 2009. And for the years 2009 and 2010, altogether 2,100 incidents were reported (figures according to the FAA). In the United Kingdom, 29 such laser attacks have been reported for 2007 and 737 for 2009 (Civil Aviation Authority UK – CAA). In Germany, 30 such laser attacks were reported per month in 2009:

That summed up to 360 attacks in just one year (Bundespolizei/Vereinigung Cockpit). These figures clearly show that attacks with laser pointers are an increasing and very serious problem.

Suburban kids might think it is fun to shine laser at cars on the road, police patrol and of course all sorts of aircraft, especially law enforcement and EMS helicopters

flying low-level over cities, approaching or leaving landing pads at hospitals. In other cases of malicious use, people misuse the laser pointer to express their discontent with low-level flights and flight corridors that are regarded to be too close to their neighbourhood. But people misusing laser pointers have not realized the real dangers this might cause. Due to the very bright and small laser spot, it can be dangerous to sight if aimed at the eyes, apart from distracting aircraft pilots. In addition to potential dangers this may cause to sight, the risks of accident also



The different models tested were "Milan" frame (metallic) with salmon/pink colour night lens, "Milan" frame with brown day lens and "XC" frame (plastic) with brown day lens as well as "XC" frame with salmon/pink colour night lens. Salmon/pink colour glasses protect against green laser, brown glasses protect against green and red laser. Comparing these models, test pilots found the "XC" frame to be the most comfortable, as the frame (made of plastic) is ergonomic and fits well under a headset and of course under a helmet. "Milan" frame can only be used with a light headset. Test pilots rather used the salmon/pink colour night lens during night flights as major laser attacks (with green laser) usually take place during night or sunset. With the salmon/pink colour glasses there was no trouble viewing the instrument panel lights. Pink glasses were found to be best for flights during sunset since they increase the contrast when brightness decreases.

ANSMUH is presently collecting feedback from test pilots and will finally evaluate the results. Another HEMS operator, Air Zermatt, currently carries out trials with protective glasses against laser dazzling as well. The goggles

Fig. 2: The laser protection visor for the LH250 MSA-Gallet helmet is easy to fix onto the helmet, but the green colour visor was found to be not the best colour for flying during sunset (Photographs: M. Vandenavenne)



Fig. 3: The Laser-2000 XC goggles proved to be the most appropriate ones for LASER protection (Photograph: M. Vandenavenne)

increases dramatically when the laser is shone during landing or take-off procedures – especially in single-pilot operations (as in French HEMS).

In France, all people owning a laser above class 2 have to declare this to the authorities. Due to the difficulty of owner control and repression, the French National HEMS organization (ANSMUH) inquired with manufacturers about potential ways of protecting pilots against such laser attacks. The first product that ANSMUH tested was a laser protection visor for the LH250 MSA-Gallet helmet.

It is easy to fix onto the helmet and replace the standard visor. This laser protection visor is very comfortable to wear in flight. But during trial flights, ANSMUH found that the green colour visor is not the best colour for flying during sunset. Furthermore, trials also showed that it cannot be used as protection against laser pointers commonly used in those laser attacks mentioned above: This visor was developed for the army and only to protect against laser that have a wavelength range invisible to the human eye (860-1072 nm). Indeed, laser commonly misused have a wavelength that is visible to the human eye: 532 nm green laser. The second product tested at ANSMUH was laser protection goggles: Laser-Guard from Laser-2000 company. Two different kinds of glasses are available (one for daylight and another for night use) on two different kinds of frames (plastic or metal).

manufactured by Ruag of Switzerland are called MultiLaser Protector (see page 9) and also aim at countering the risks of eye injuries and serious accidents in HEMS. One thing is sure: Joining experience and expertise, the HEMS world will find a solution to this major problem. ☉

For more information, visit:

- » www.smuh.fr
- » www.msasafety.com
- » www.laser2000.fr

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Kuerzi Avionics AG
CH-9506 Lommis
+41 (0)52 376 22 27
info@kuerzi.com
www.kuerzi.com