



# ACTIVE LASER IMAGING (ALI)

Situational Awareness and Positive target Identification



The Active Laser Imaging (ALI) system is an active system utilizing an eye-safe infrared laser beam (1550 nm wavelength) to illuminate a target and a Focal Plane Array (FPA) to collect the backscattered radiation.



The ALI operates under any illuminations condition ranging from complete darkness to bright sunlight, even in presence of fog, rain or smoke.

Acquisition by ALI in active mode



Acquisition by low light TV camera or ALI in passive mode



ALI is a tool conceived to perform environmental surveillance, detection and identification of targets in many operative situations involving:

- + **Border and large area surveillance;**
- + **Protection of high-value and strategic targets;**
- + **Homeland security and police activities;**
- + **Environmental surveillance**  
(pollution, wood fires, oil spills...).

The advantages of ALI over a thermal infrared camera are:

- + Reading vehicles license plates or identification signs;
- + Detection in proximity of thermal sources;
- + Looking through glass panels, windows or transparent doors. IR cameras can not perform these tasks since glass and plastic are not transparent at IR thermal wavelengths.
- + Video and picture recording for court evidence.

The system has the following characteristics  
 (\*: value selectable by operator in the specified range):



## LASER

- Energy → 10 mJ
- Duration → 10 ns
- Repetition rate\* → from single pulse to 30 Hz
- Divergence\* → 0.5 ÷ 10 mrad
- Diameter of lightened area\* → 4 ÷ 20 m (at any range between 0.2 and 10 Km)

## TELESCOPE

- Aperture → 250 mm
- Focal length → 2000 mm

## FPA DETECTOR

- Material → InGaAs
- Resolution → 640 x 512 pixel

### SIZE and WEIGHT

- 440 x 410 x 720 mm
- 42 Kg



**ALI** performances according to Johnson's criterion; due to limitations in the maximum laser energy required by a safe laser, to detected light by the single camera pixel and to the atmospheric transmission and turbulence, the maximum range is 20 km.

Maximum detection ranges (km)			
Target	Detect <sup>1</sup>	Recognize <sup>2</sup>	Identify <sup>3</sup>
Crawling person	10	2.5	1.5
Standing person	14	8	4
Medium vehicle	20	16	10
Car plate <sup>4</sup>	-	-	1
Truck or ship label <sup>5</sup>	-	-	4

Legend:

- 1: denotes the presence of a target;
- 2: type of target is discerned (i.e. person or vehicle);
- 3: specific target is discerned (i.e. woman or man);
- 4: characters of 1.5 cm x 8 cm;
- 5: characters of 8 cm x 50 cm.

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