



# Company Background

- More than 50 years of excellence in **Infrared Technologies**
- Design and manufacturing of **Electro-Optical** systems
- **US Company** parts of **Carlyle Group**
- **Headquarters** in **Igny, France**
- **Sales offices** in **China, USA, India, Singapore**  
Worldwide agent network
- **ISO9001** certified for design, development, manufacturing, marketing and service

# Company Products

## Wide-Area Surveillance

### Infrared Search & Track Panoramic Systems





# IR Technologies : Detect and Track

## The Spynel Solution

Xavier ELBAZ  
Sales Engineer and Tech Lead

# The Threat : Piracy



# Piracy in Commerce Industries



## Records of 2018

<https://www.icc-ccs.org/index.php/piracy-reporting-centre/live-piracy-map>

 = Attempted Attack    = Boarded    = Fired upon    = Hijacked    = Suspicious vessel

# Piracy in Commerce Industries



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  = Boarded  
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## Records of 2019

<https://www.icc-ccs.org/index.php/piracy-reporting-centre/live-piracy-map>

### Location detail:

Around 16nm NW of Pulau Damar

### Narrations:

**21.07.2019:** 1925 UTC: Posn: 02:55.8N – 105:10.8E, Around 16nm NW of Pulau Damar, Indonesia.

Seven pirates armed with a pistol and knives in a small speed boat boarded a bulk carrier underway using a ladder attached with a hook. Master and the second officer taken hostage, tied up and assaulted by the pirates. The pirates stole cash and crew personal belongings before escaping. Incident reported to Korean Authorities.

# Piracy in theater



📍 = Attempted Attack  
 📍 = Boarded  
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 📍 = Suspicious vessel

## Records of 2019

UK to seek European maritime mission to counter Iran's 'illegal acts of piracy'





# Piracy in the theater



 = Attempted Attack    = Boarded    = Fired upon    = Hijacked    = Suspicious vessel

## Records of 2019

**American warship destroys Iranian drone in Strait of Hormuz**



# The Port Security advices



# Port Security Advisory (2-09)

- **Establish an anti-piracy plan commensurate to the threat level and vulnerability of the vessel that can be practiced and implemented by the crew. The anti-piracy plan should include:**
  - A. Hardening the vessel against intrusions.**
  - B. Non-lethal methods for repulsing intruders.**
- **Equip vessel with non-lethal means to disrupt, disorient, and deter boarders; e.g:**
  - **loud acoustic devices,**
  - **high energy light beams or other equipment to repulse attackers is recommended. j,**
  - **Outfit vessel with enhanced detection equipment (night vision devices, high beam search lights, cameras, etc.).**

# The technologies to protect you

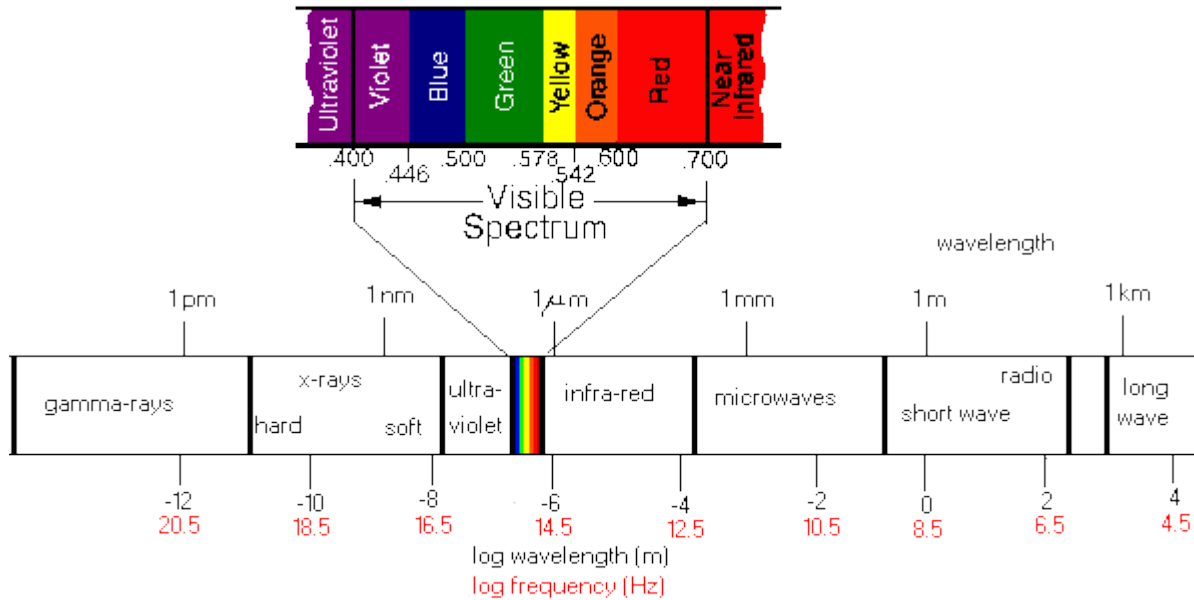


# RADAR

- No Image
- Can be detected and identified
- Can be jammed
- Issue to detect small objects (jet-ski, RIB, skiff, swimmer...)
- One for Air targets, one for Maritime targets



# The IR Technology



- IR is based on heat signature and thermal contrast
- IR sensors are completely passive
- IR based technologies are undetectable and not sensitive to jammers

# EO-IR Sensor : PTZ

- Very narrow field of view
- Can not track multiple targets
- Can record video in one single direction

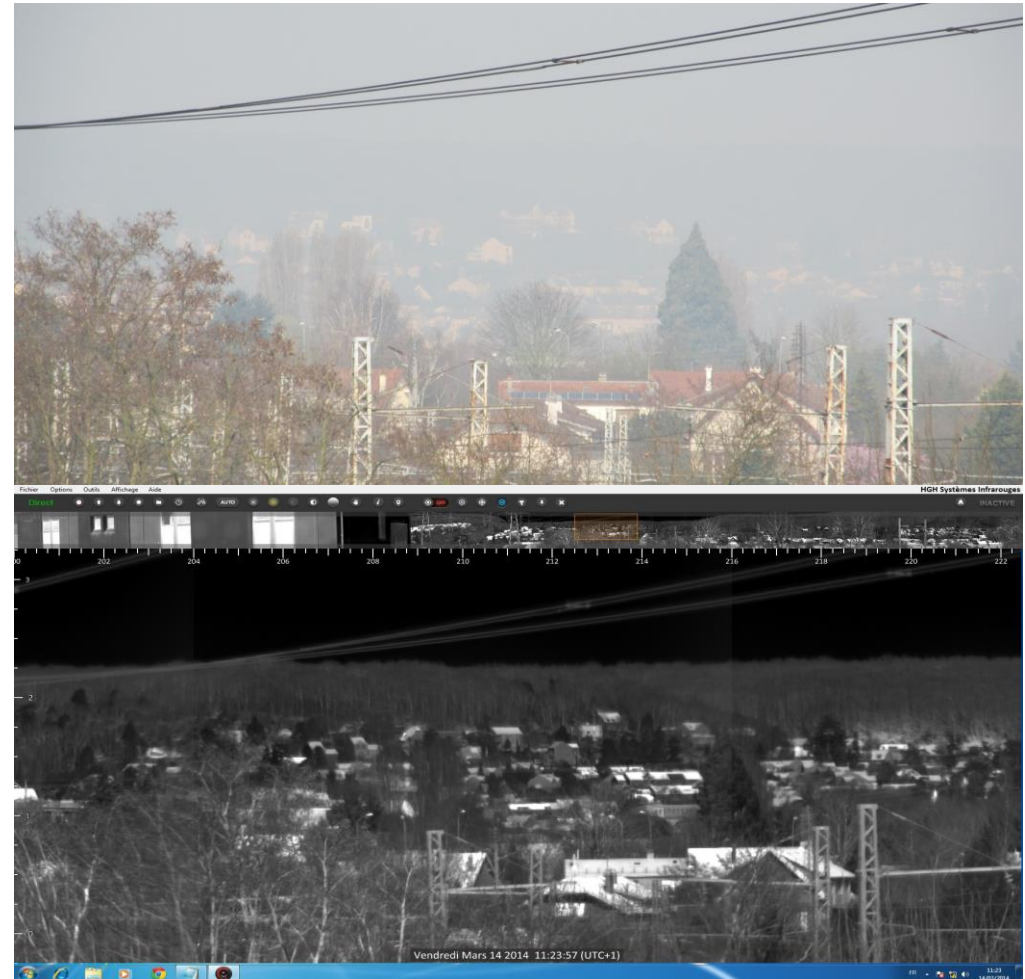


# The IR Technology





# The IR Technology



# The IR Technology

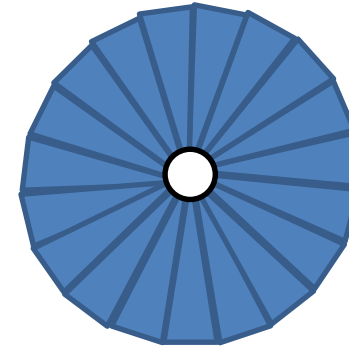


# Spynel vs PTZ

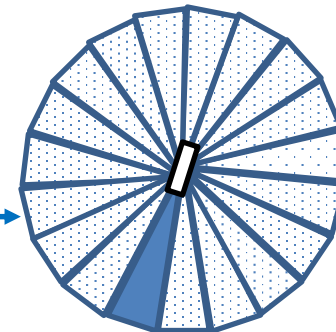
## The SPYNEL Concept



What Spynel sees



What a Pan&Tilt camera sees



# EO-IR Sensor : Spynel



- **Cost effective for wide area/perimeter surveillance**
- **Automatic Detection & Tracking capabilities**
- **Recognition of multiple intruders simultaneously**
- **UAV, RIB & human detection capabilities**
- **Proven and COTS technology**
- **Passive detection (undetectable, no EM disturbance)**
- **Automatic tracking before and after intrusion**
- **Fast & easy deployment (mobile/temporary surveillance)**
- **Insurance to record all intrusions (360° video recorded)**

# EO-IR Sensor: Spynel Typical installations



Oil&Gas facilities (FPSO, FLNG, CPF...)



Boats (Commercial boats, OPV, yachts, Frigates, USV...)



Harbour & Coastal surveillance

# EO-IR Sensor : Spynel



# Thank you

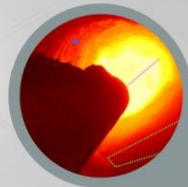
Security & Defence



Test & Measurement



Industrial Thermography



[www.hgh-infrared.com](http://www.hgh-infrared.com)