

ARIEL Photonics Assembly

unclassified presentation

Ground Jammers



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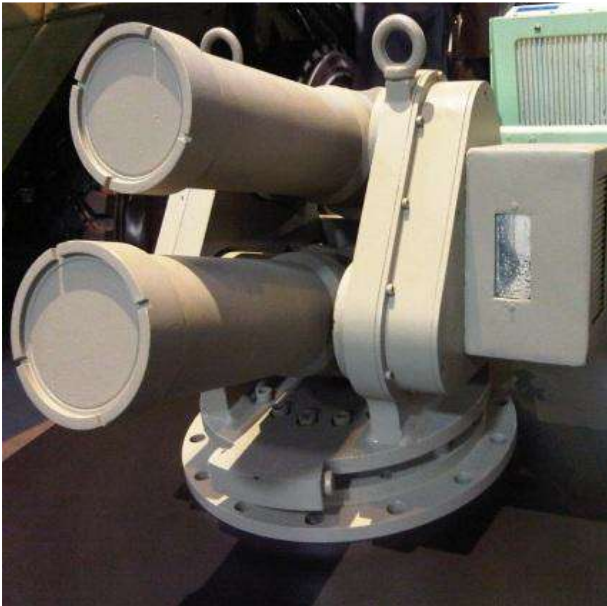
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CLOUD (TRL 8), CLOUDLET (TRL 7)

Ground Jammers

CLOUD is a High-Power Laser based 'Soft Kill' compact lightweight Jamming module for ground platforms.

CLOUDLET is a portable lightweight deflection module for infantry troops against ATGMs. CLOUDLET is field tested and proven.





“Soft kill” basic requirements

- Capable to defeat ATGM
- No collateral damage
- Unlimited activations for multi hits
- Defeat/Deflect from long distance
- Low Maintenance
- Minimal risk to soldiers/ equipment/ posts
- Affordable cost



“CLOUD: Directional high power laser jammer against ATGM

The device protects various platforms (such as Armored and Light Vehicles, APCs, MBTs) and Infrastructures (Posts, Borders, Towers, and Camps) from various types of ATGMs.

Main Features:

- Highly effective from any effective launch distance
- Low weight
- Affordable cost
- Proven in Live field tested (Israel + USA)
- Tested successfully (100%)
- Low Maintenance
- Cost effective

Laser Jammer against ATGM Directional-CLOUD

- **Advantages**
 - **Low weight**
 - **Low cost**
 - **Live field tested**
 - **Low maintenance for many years**
- **Components for directional jammer**
 - **MWS – Radar/EO sensor**
 - **Tracker – Rotation stage**
 - **Jammer – Cloud**

OEM (internal)



External MIL Spec



CLOUD: Main Parameters

- Field of Regard: 0~360° (using rotation stage)
- Operation Voltage: 24 Volts
- Dimensions 88 x 124 x 67mm (width x length x height)
- Weight < 4Kg
- Laser class product : 4 (EN-60825)
- IP classification: MIL standard
- Life Time: 1000 hours Operational
- MTBF ~100,000 hours
- Cooling Interface: Passive Cooling
- Operational Temperature MIL Standard
- Power consumption <10 w stand by, <1kw jamming

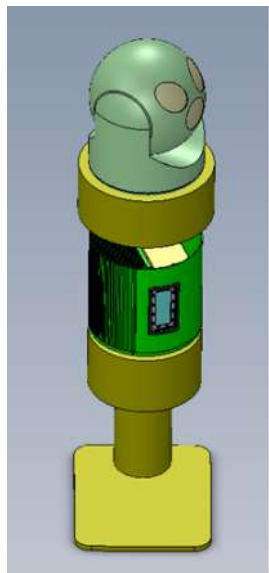


CLOUD as published @ Aviation week – OSD (Aberdeen) Tests

“....IMI has also integrated a laser jammer into Iron Fist.
The system intercepted two Russian-made AT-7 Metis short-range guided antitank missiles recently in a test conducted in the U.S....”

Laser Countermeasure against ATGMs CLOUD

1. Production lot of CLOUD (several tens units) delivered
2. **Qualification test** of CLOUD successfully done, including installed on launcher and fire of projectile
3. **Live test** CLOUD against real treats successfully passed
4. High power NIR laser technology, passive cooling
5. NIR laser beam shaping
6. High power fast pulsed laser electronics
7. Mil spec electronics, including safety, control, interfaces and protocols
8. Mil spec compact low cost design

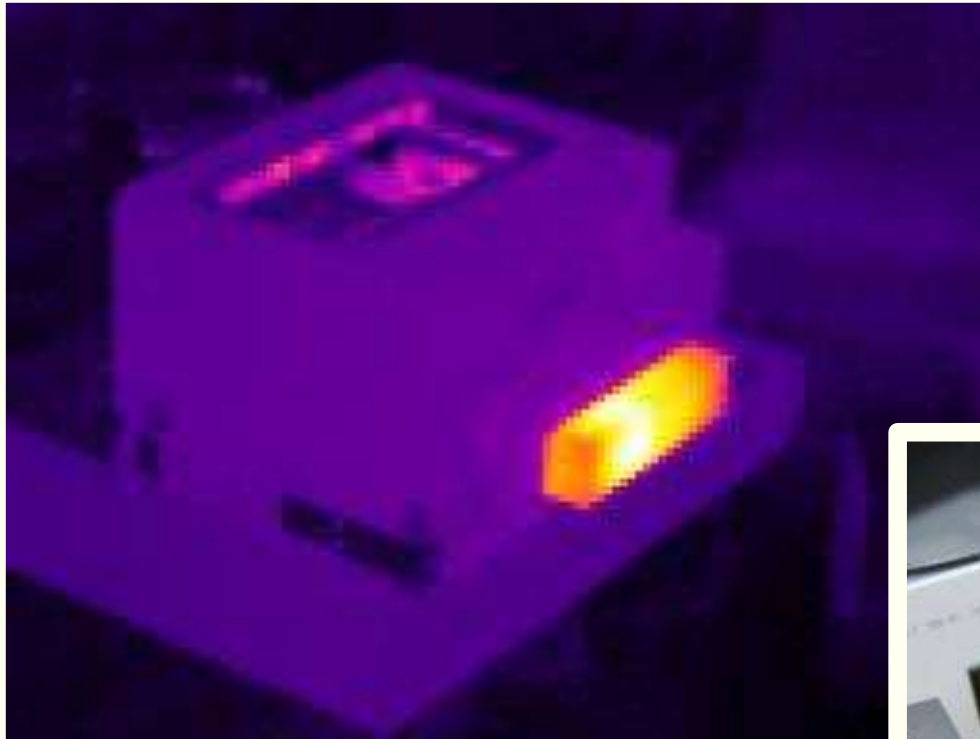


CLOUD



CLOUD

CLOUD Technology Readiness



**Thermal view of CLOUD
Window is heated by high
power of laser output beam**

**CLOUD taken from
environmental chamber
and operated at low
temperature
(MIL Spec)**



CLOUD Technology Readiness



**CLOUD
shock and
vibration
test**

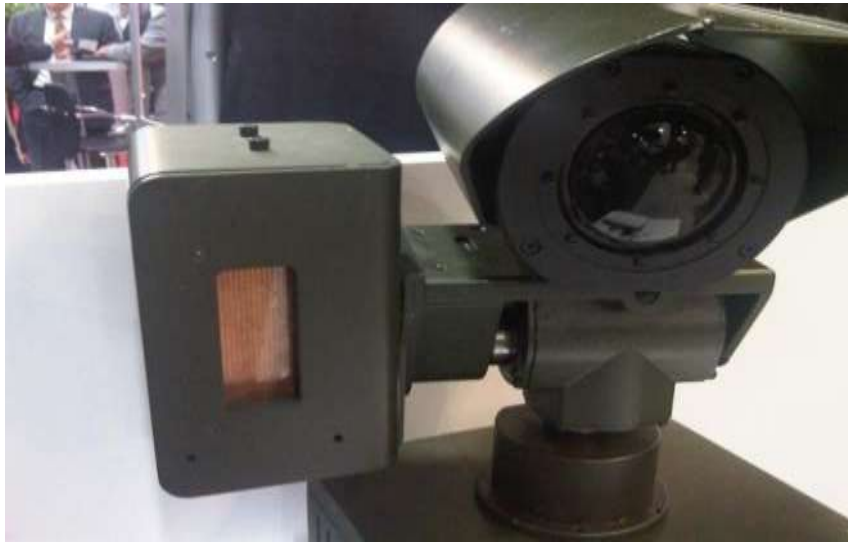
**CLOUD in environmental
chamber
high temperature
operation test**



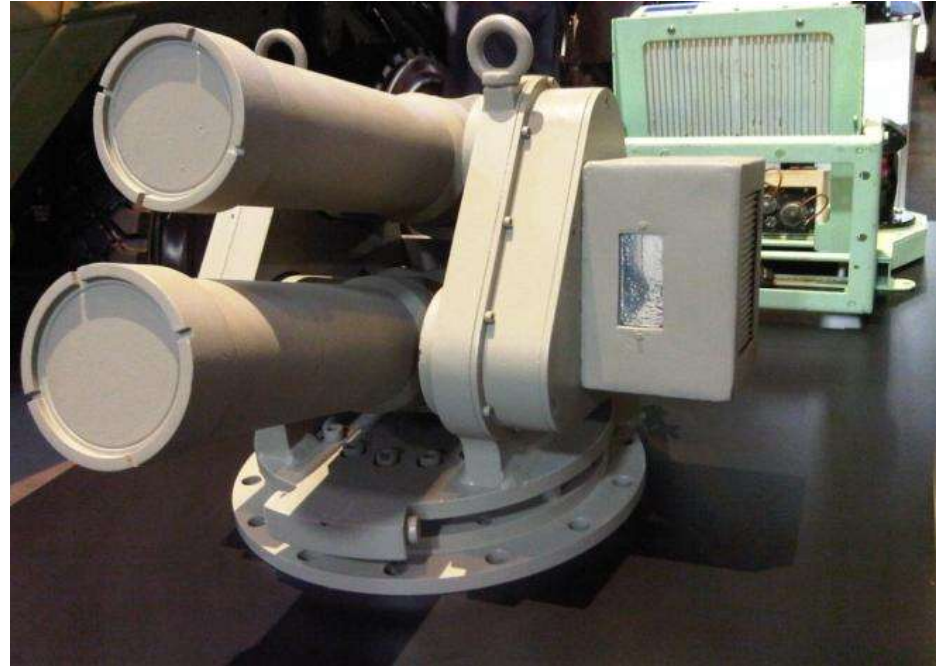
CLOUD dipping test



Several installations: CLOUDLET



CLOUD as part of APS – Iron Fist



CLOUD as part of “Soft Kill” system



CLOUD as part of IRON FIST system



CLOUD as part of IRON FIST system



Summary

- “Soft Kill” layer increases total effectiveness of APS and it can be used stand alone as a preferred protection layer
- “Soft Kill” defeats most of ATGMs, as a result:
 - Reduce deployment cost,
 - Minimize collateral damage
 - Increase readiness
- CLOUD demonstrated Jamming effectiveness of 100% against real threats in live test
- CLOUD was tested in close to combat environment in ISRAEL and USA test site
- Ariel Jammers finished successfully all relevant tests according to mil. standards and are ready for deployment
- Ariel jammer technology is flexible for integration on any Fighting Vehicle
- Ariel jammer can operate with / without external sensor and can be integrated with all types of MWS/RADARs