Pod-Mounted Anti-Ship Missile Defence Evaluation Facility

Andrea Volpi
President & Business Development

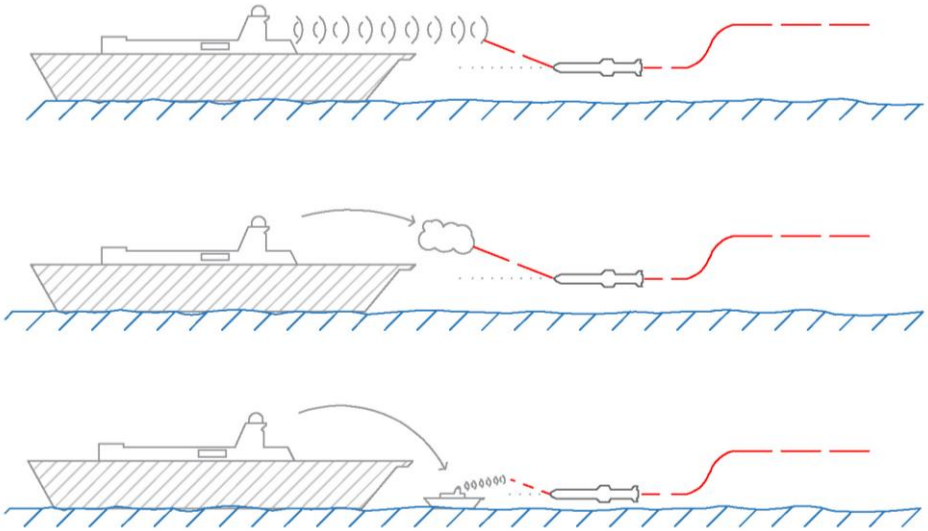
Presentation Outline

- The Military Problem
- The operational requirement
- The operational scenario
- The implementation
- Summary and conclusions

The Military Problem – “The ASM Threat”

Clips from “Missiles Launch - The Exocet Missile - The Sea Dart - Episode 6”

Soft-Kill: the ship produces electronic countermeasures to deceive the threat.

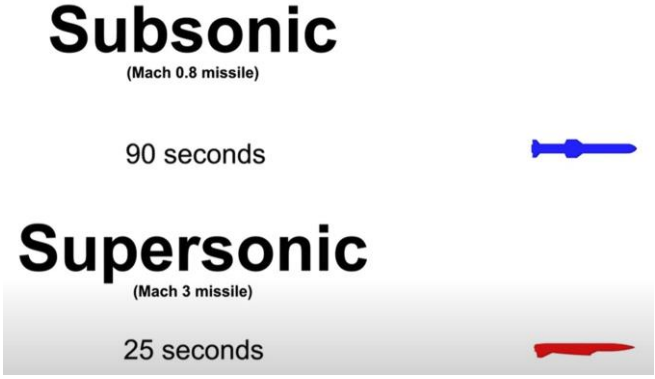


Hard-Kill: e.g. Surface Air Missiles (SAM) and Close-in-weapon-system (CIWS) to intercept and kill the threat.

The operational requirement – “Assess ship’s ASMD reaction time”

- In both SK or HK the ASMD reaction time is fundamental.
- ASM may be detected when it pops up from radar horizon at a typical distance of 24Km or in final-guidance (homing) at closer range.

- Depending on the speed of the ASM the time from detection to impact ranges from 90 sec. to 25 sec.
- Therefore the reaction time of SK and/or HK must be guaranteed within approx.:



The operational requirement – “Assess SK effectiveness on the threat”

3 - Field Testing with **Threat Emulators**

1 - Theoretical/SW simulation

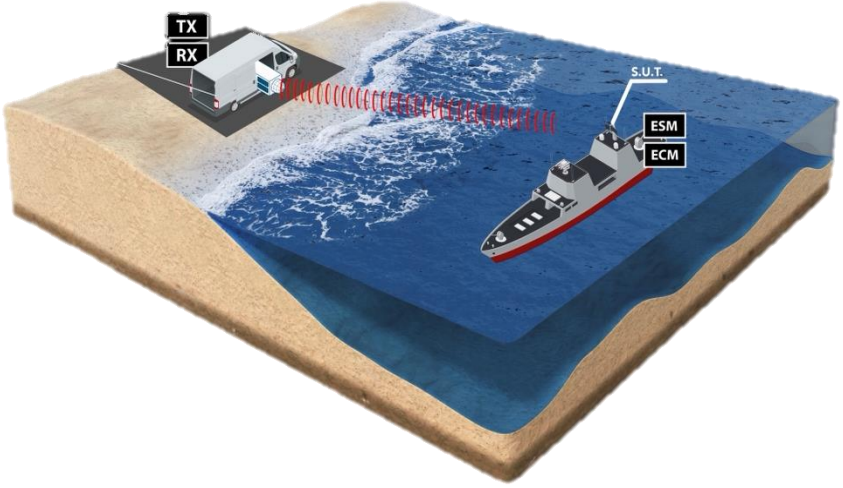
- S… …ng

The operational scenario – “Field-Test scenario” (i)

The “Field Test scenario” to assess SK against ASM can be of two types:

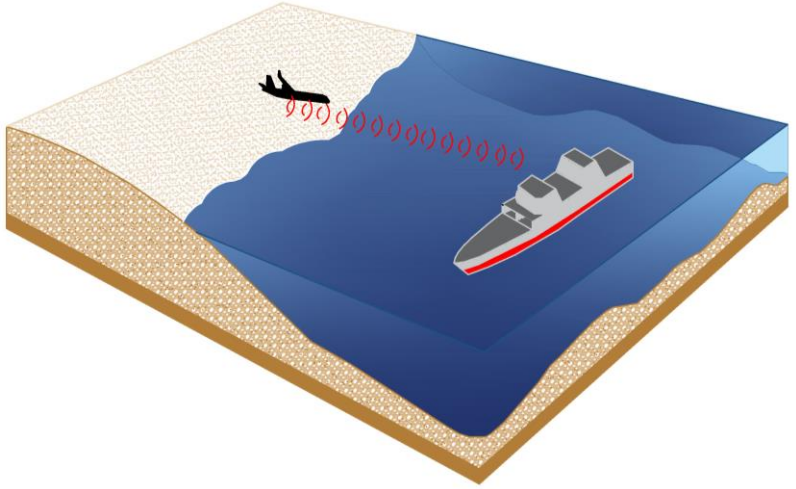
➢ Static

Threat is located **on the shore** at real engagement distance but does not mimic the ASM flight profile.



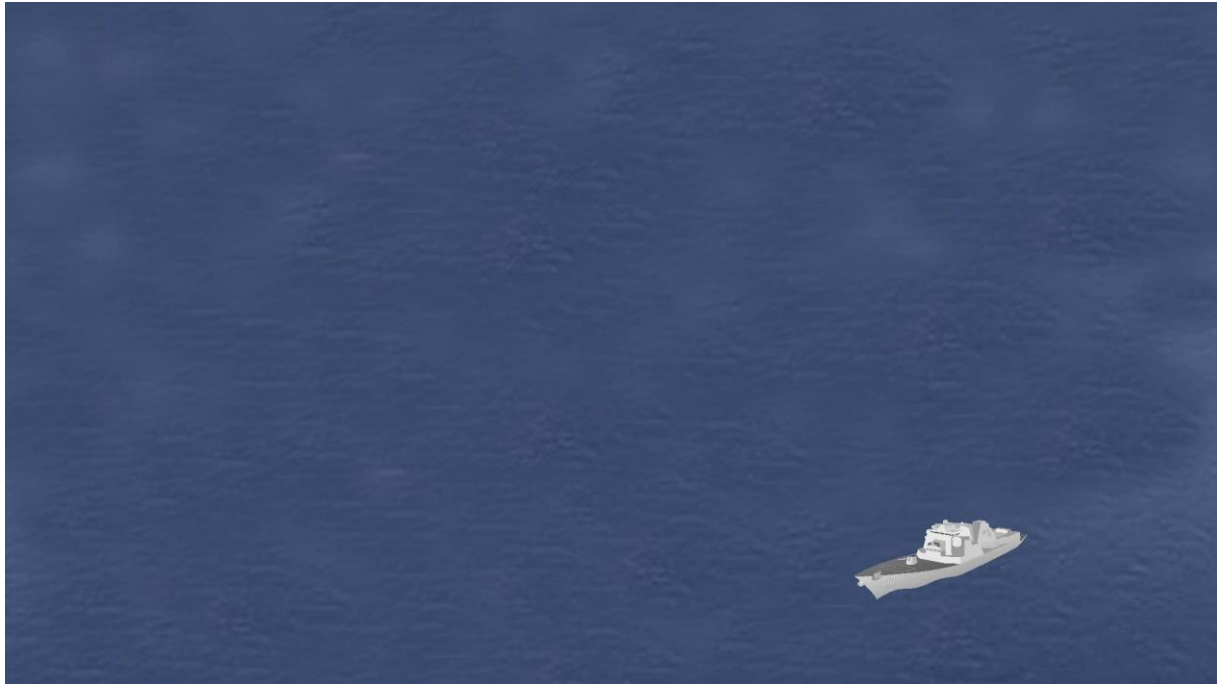
➢ Dynamic and most realistic

Threat is at real engagement distance, and it is installed on an **airborne platform**, that mimic the ASM flight profile.



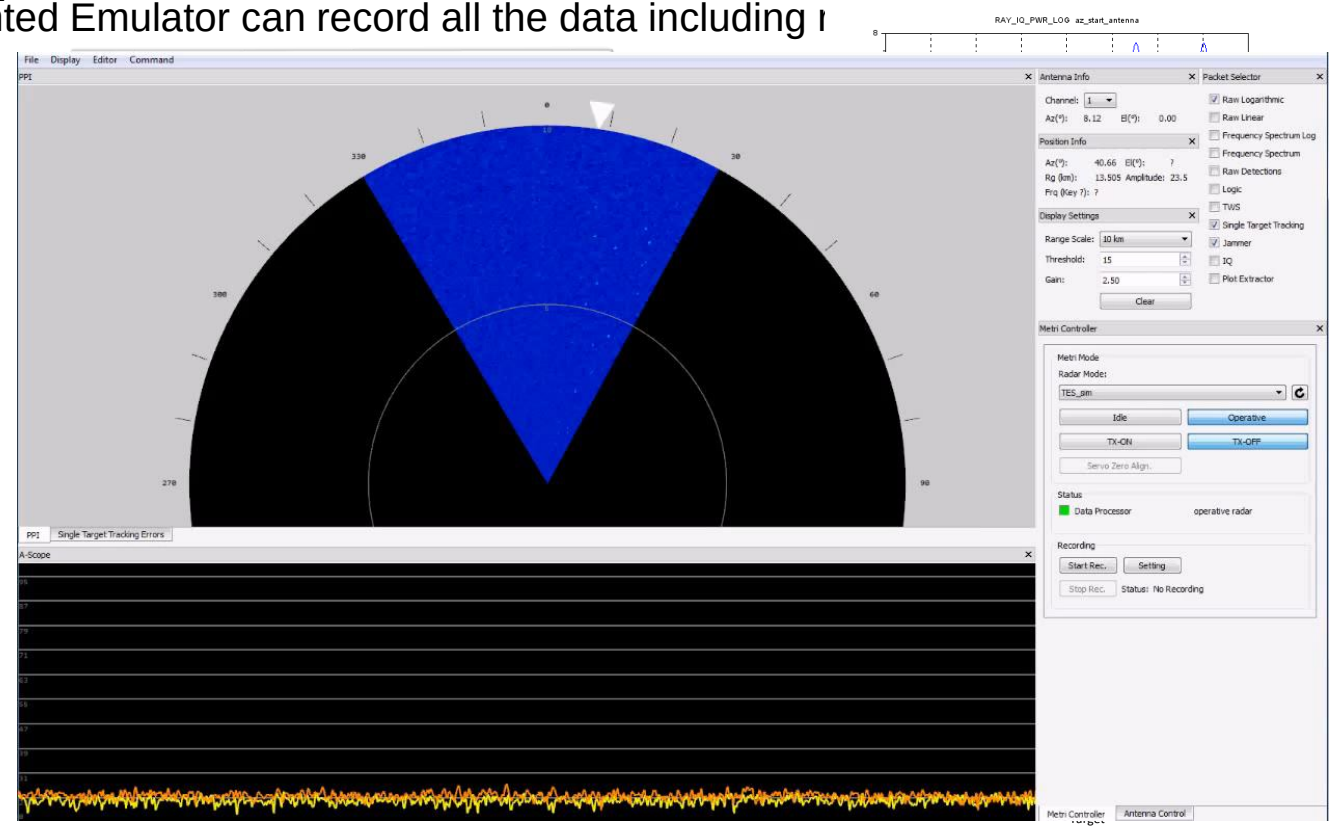
The operational scenario – “Dynamic Field-Test scenario” (i)

- Airborne platform simulates anti-ship missile radar system;
- Airborne platform simulates as close as possible the missile flight profile;
- Ship deploys SK against the simulated ASM attack.



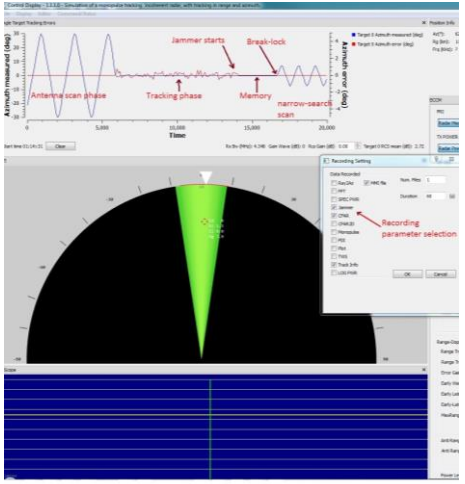
The operational scenario – “Dinamic Field-Test scenario” (ii)

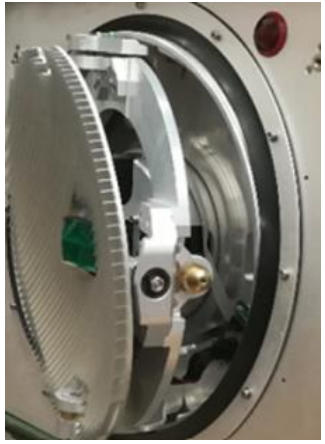
- Recorded data can be analysed by the ship after mission for assessment of Soft Kill capabilities against **reaction time**.
- Pod-mounted Emulator can record all the data including r



The implementation – “Use existing technology for solution”

- Important that technology exists to minimise risk.
- Re-use technology of “static” field-test scenario as much as possible.





- Gimbal Detail

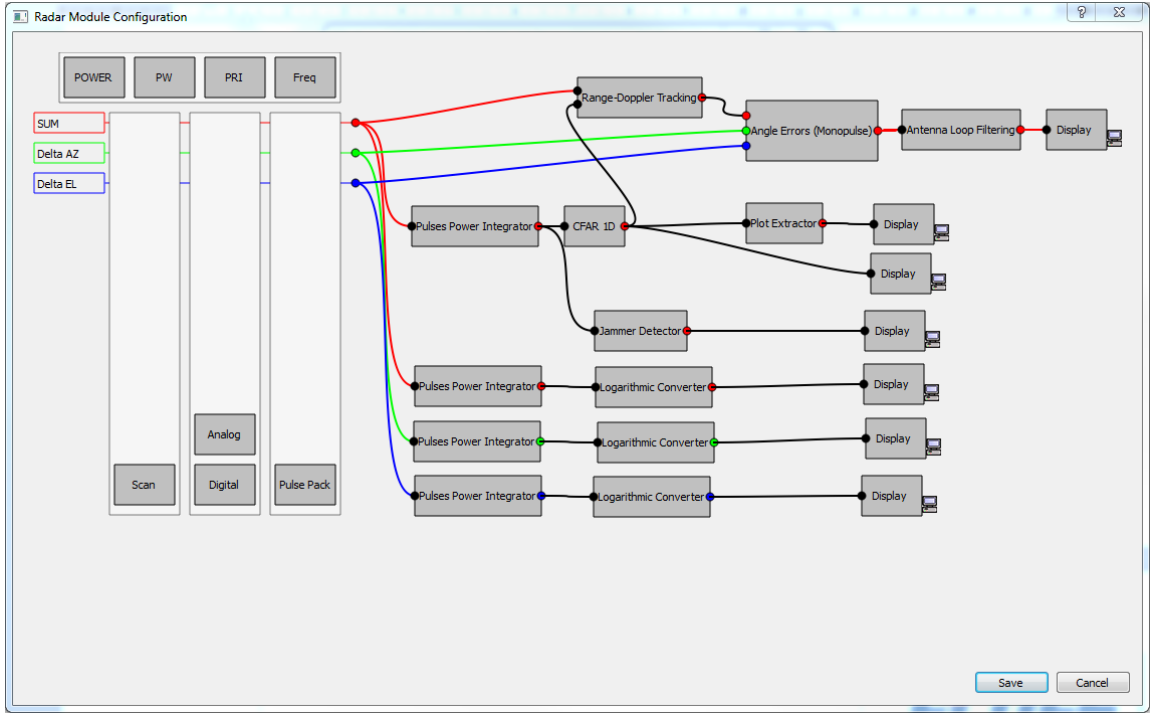
The implementation – “Use existing technology for solution”

- Use the SEEKER EMULATOR in a POD.

- Use existing airborne platform.

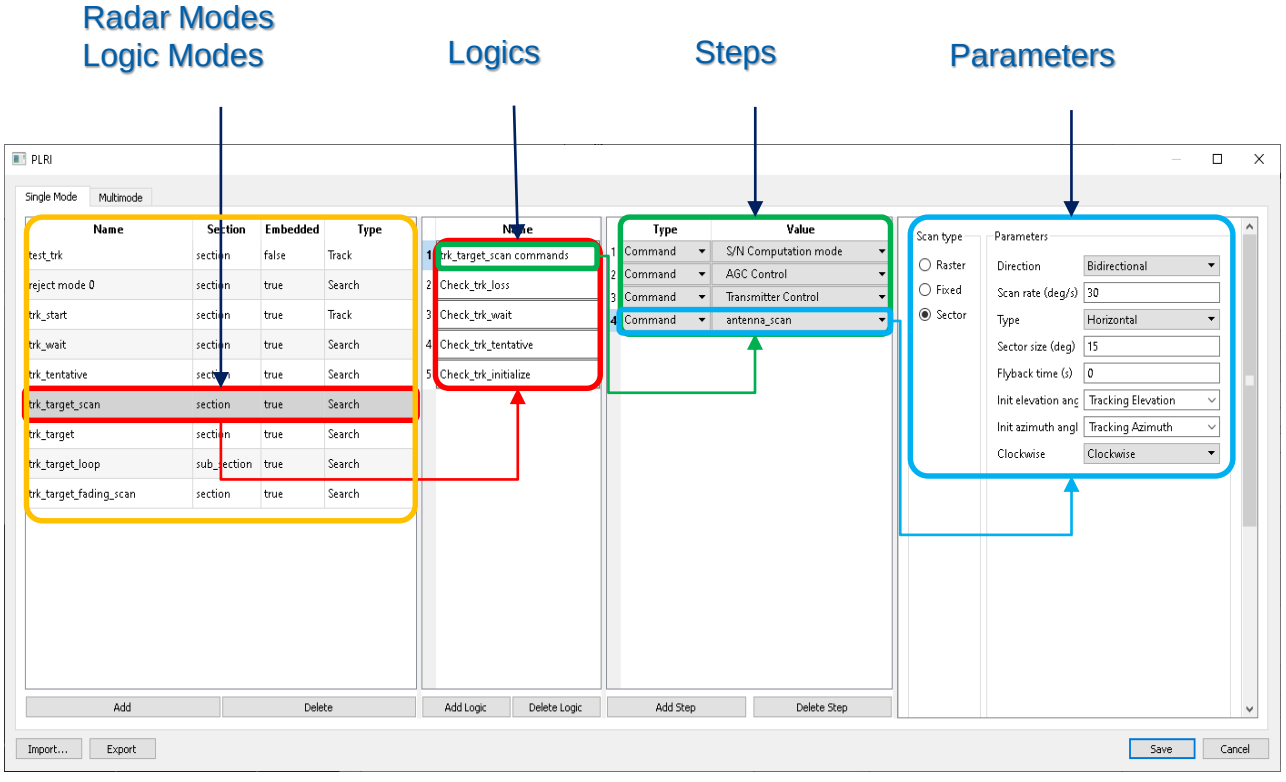
The implementation – “Overview of existing solution – Features”

- User-defined ASM threat models through SDR capabilities.
- Seeker Emulator generates the waveforms and digitizes the received signals (I/Q).
- SW tools to model the signal processor for the emulated ASM threat.



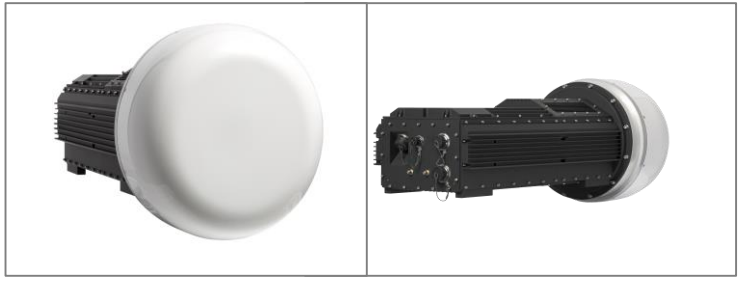
The implementation – “Overview of existing solution – Features”

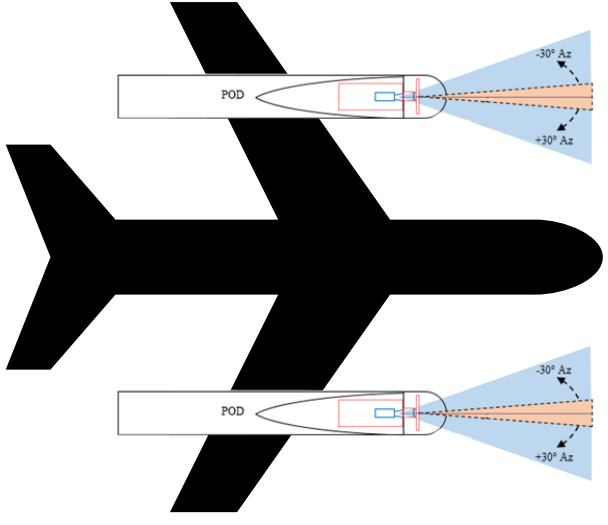
- ASM threat logics and ECCM are user-defined through a dedicated GUI.



The implementation – “Provide solution in a pod-mounted format”

- The solution is “simply” the use of the existing SEEKER EMULATOR, re-engineered for the airborne environment and installed inside the POD.
- Pod-mounted adds real-time dynamic capabilities**.**
- All the performances of existing solution have to be preserved in “podded version”.
- With multiple version it is possible to cover: I-band, J-band and K-band.
- One aircraft can carry multiple PODs.





Summary and Conclusions

- Addressed topics:
  - Reviewed the requirements of Ship's ASMD testing.
  - Reviewed existing technology for programmable Seeker Emulator.
  - Proposed a solution for dynamic field-testing using Pod-Mounted Seeker Emulator aircraft carried.
  - The proposed solution is low risk because it is based on existing technology and systems.
- Expected benefits of podded solution:
  - Very accurate assessment of SHIP's SK in operational scenario.
  - Effective training of SHIP's EW crews in operational scenario.
  - In general: improve the quality of ASM Defence.
- Next steps:
  - Review the design and optimize the technology for installing also on low-cost platforms: e.g., small civil aircrafts and/or drones.

Thank You for Your Attention

Questions?

For further information and demonstrations please visit us at Stand D7