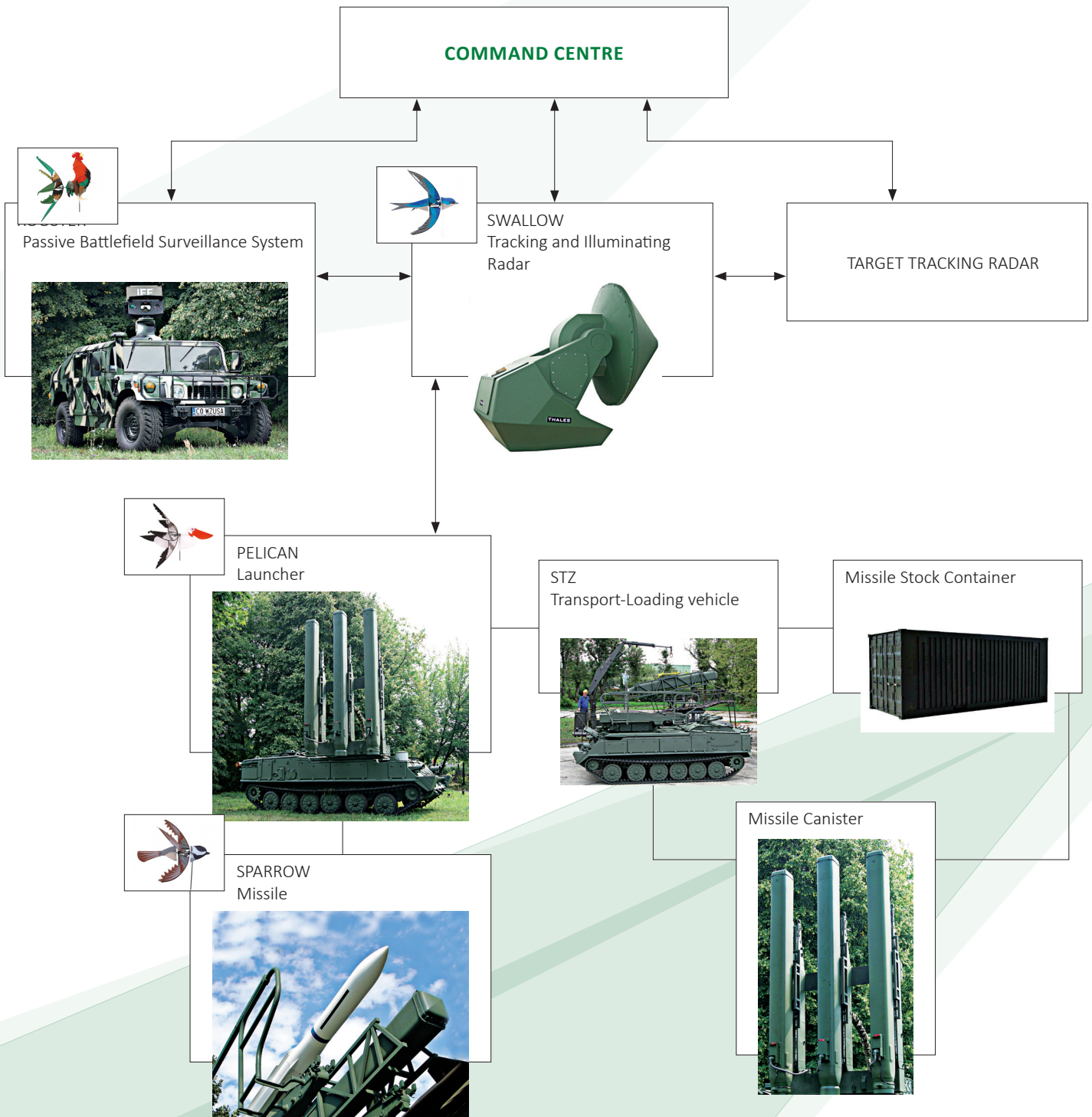


**MOBILE AIR DEFENSE MISSILE SET
 BIRDS**

OPEN SOURCE COMPONENTS IN A NETWORK CENTRIC ENVIRONMENT



The mobile short-range air-defense missile set is intended for direct defense in a battlefield, fight against a wide range of air threats, as well as fast-maneuvring air targets in land and maritime environments.

MOBILE AIR DEFENSE MISSILE SET BIRDS



SWALLOW TRACKING AND ILLUMINATING RADAR

The radar has been designed for precise target tracking, and for guiding SPARROW RIM-162 ESSM missiles. It enables tracking low-RCS targets in the I band. It features a solid-state transmitter enabling fast switching to one of many operating frequencies, in order to avoid interference.

The receiving unit employs an impulse compression and passive interference elimination unit, based on Fourier analysis. The radar is equipped with a navigation and levelling system. It can operate in two regimes: tracking and guiding.

The radar's carrying vehicle can be any wheeled transporter (e.g. KTO / Armoured Modular Vehicle), or a tracked transporter, ensuring mechanical mounting of the radar antenna along with drive units, as well as the crew compartment with control and data transmission equipment.

STIR 1.2 GB RADAR PARAMETERS

- » transmitter band: I,
- » range: 72 km,
- » range resolution: 100 m,
- » antenna rotation range azimuth: 360°,
- » antenna rotation range elevation: -30° to + 120°,
- » rotation speed; azimuth and elevation: 90° in ≤ 1,2 sec,
- » static accuracy; azimuth and elevation: ≤ 0,3 mrad,
- » position stabilization when tilted: +/- 20° - enables active operation in motion,
- » position stabilization when inclined: +/- 5° - enables active operation in motion.

COMPONENTS OF THE STIR 1.2 GB TRACKING AND ILLUMINATING RADAR SYSTEM

- » I-band target-tracking impulse transmitter,
- » tracking receiver,
- » continuous I-band illuminating transmitter,
- » SAC antenna power and control unit,
- » missile guidance unit (MGU),
- » control station,
- » operating station.

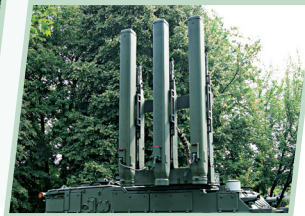
The radar is compatible with any functioning air defense missile set or a digital network centric command centre. It is topographically related to the set or system, receiving detected target parameters.

After acquiring the indicated target, it signals tracking at the command centre, at the same time transmitting data on the target to the launcher and ESSM SPARROW RIM-162 missile.

After the launcher instruments and missiles indicate ready-to-fire status, the missile is launched at the tracked target by the command centre.

Meanwhile, target illuminating transmitter is activated on the radar. The process of semi-active missile guidance takes place. In the case of multiple targets being indicated for destruction by the command centre, multi-channel tracking procedure is initiated along with guidance of successively launched missiles.

MOBILE AIR DEFENSE MISSILE SET BIRDS



PELICAN MISSILE LAUNCHER - THE CARRYING VEHICLE IS SELECTED DEPENDING ON CLIENT REQUIREMENTS

The launcher is a missile-related component of the mobile short-range air defense missile set. The implementation of the SPARROW RIM-162 ESSM missile on the launcher has extended the scope of applications from maritime to land environments.

In effect, a possibility has occurred to configure a set intended for destroying a wide range of threats, such as fast aircrafts, slow and manoeuvring air targets, at both high and low altitudes.

The carrying vehicle of the launcher is a transitory technological element, depending on the programme of the Armed Forces and Client needs. Main start-up and automation-related elements of the launcher, together with the driving systems, can be implemented on another carrying vehicle (e.g. KTO, ANDERS or another transport vehicle).

COMPONENTS

- » rotary and oscillating unit controlled by the on-board computer in azimuth and elevation, or automatically positioned for vertical missile launch, with brackets for mounting missile launch canisters,
- » orientation and levelling system,
- » data transmission system,
- » launch automatics instruments,
- » power supply unit,
- » control automatics,
- » carrying vehicle,

BASIC TECHNICAL CHARACTERISTICS OF KUB MISSILE SYSTEM

loading angles

- » azimuth: 180°,
- » lift angle: 0°.

rotary and oscillating unit guidance in combat conditions

- » automatic employing electric follow-up drive guidance range.

guidance range

- » lift angle: 1-40-7-50 / 15-00 for ESSM,
- » azimuth: no limitations.

guidance speed

- » azimuth: up to 10°/s,
- » lift angle: up to 5°/s.

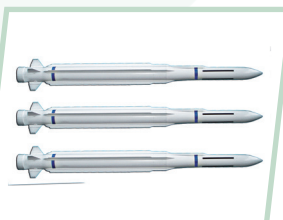
guidance acceleration

- » azimuth: up to 3°/s²,
- » lift angle: up to 1°/s².

scaler parameters

- » rotation angle of the rotary and oscillating unit: 360°,
- » lift angle of the rotary and oscillating unit: 8-45 / 90-for ESSM.

MOBILE AIR DEFENSE MISSILE SET BIRDS



Integracja
na SA-6



SPARROW

SPARROW RIM-162 ESSM MISSILE

Although based on the SPARROW RIM-7P missile, SPARROW RIM-162 ESSM is a completely new missile.

It is equipped with guides instead of wings and tail fins, also featuring a variable thrust vector control system, which enables vertical launch and manoeuvring with full overload over the entire distance of flight.

The missile has a completely new solid-fuel start engine, a new auto-pilot, and a new warhead. Its effective range is significantly larger than that of the SPARROW RIM-7P missile, which makes SPARROW RIM-162 ESSM a short-medium range missile.

EVELOPMENT OF RIM-162 ESSM COMPARED WITH RIM-7

ARMAMENT UPGRADE

- » electronic safe and arm device.

„QUICK START” LAUNCH SEQUENCE

- » no warm-up required.

ADDITIONAL WEAPON SYSTEM APPLICATIONS

- » S and X band data link,
- » interrupted ICW illumination.

SPARROW RIM-162 ESSM MISSILE:

- » NATO's largest and most successful cooperative weapons project (12 participating governments from Australia, Belgium, Canada, Denmark, Germany, Greece, Netherlands, Norway, Portugal, Spain, Turkey, USA),
- » direction provided by NATO SEASPARROW Project Steering Committee,
- » joint military/industrial consortium operating under DoD/MoD level MOUs,
- » developed to provide ship self-defense capability.

BENEFITS:

- » vertical launch capability,
- » tail control and high average speed resulting in longer range and increased manoeuvrability,
- » high firepower,
- » upgraded guidance section increases lethality against smaller targets,
- » high lethality warhead performance and improved features to destroy hardened ASM threats,
- » new post launch interfaces including X-band and S-band mid-course uplinks and Interrupted Continuous Wave Terminal Illumination (ICWI).