ERA MILITARY SOLUTIONS

Surveillance • Reconnaissance
Electronic Warfare • Simulation&Training
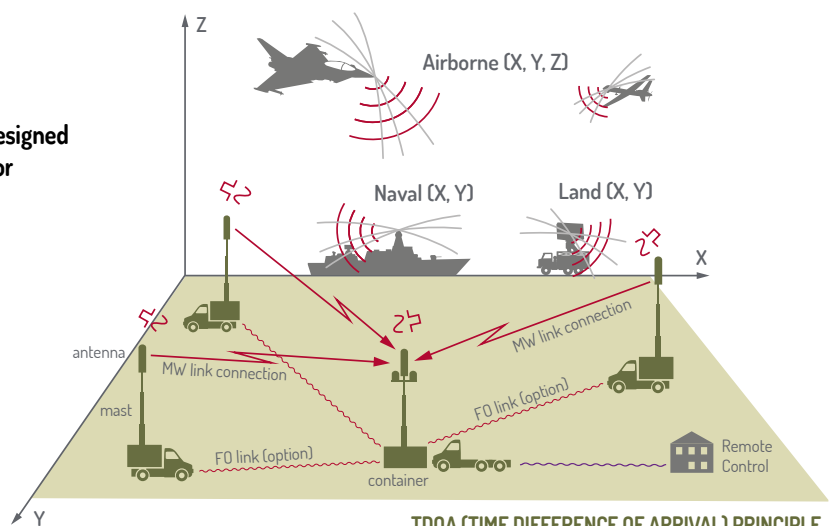
TARGET

FIGHTER JET 08
Surveillance mode

IDENTIFIED

TACTICAL UAV 03
Signal: Datalink, Telemetry
Altitude: 3520 m
Speed: 210 km/h
Position: 33UWR5746341783

ISS372

IDENTIFIED

Fighter Jet 06
Surveillance mode

x [6960 m]
y[9440 m]
z[33 170 ft]

FIGHTER J
Surveillan

JET 05
ce mode

FIGHTER JET 04
Surveillance mode

IDENTIFIED

Ship 01
IMO:9423225
MMSI:538001428
41.140328N 13.234725E
DB:AIR SEARCH mode 1

FIGHTER JET 13
Surveillance mode

FIGHTER JET 09
Surveillance mode

SENSORS – SURVEILLANCE & RECONNAISSANCE

VERA-NG: Passive ESM Tracker

VERA-NG is the state-of-the-art Passive Surveillance System designed for detection, localization, identification and tracking, tailored for airborne, naval and land target surveillance and reconnaissance including UAS detection and tracking.

PLESS: Passive Long-range ESM Surveillance System

Passive Long-range ESM Surveillance System manufactured by ERA is an early warning Over The Horizon (OTH) passive surveillance system utilizing the direction-finding principle.

Airborne (X, Y, Z)

Naval (X, Y)   Land (X, Y)

MW link connection

antenna

mast

MW link connection

FO link (option)

FO link (option)

Remote Control

container

TDOA (TIME DIFFERENCE OF ARRIVAL) PRINCIPLE

VERA-NG

Passive ESM Tracker (PET)

PET VERA-NG is the most advanced Passive Surveillance System utilizing the multilateration Time Difference of Arrival (TDOA) principle. The unique system is designed for detection, localization, tracking and identification of the air, ground and naval targets as well as exceptional pulse and continuous wave signal analysis.

VERA-NG supports cross-border, long-term and long-range surveillance without alerting neighbouring nations. The system emits zero electromagnetic energy making it 'invisible', i. e. it sees without being seen. On top of that it also provides strategic ELINT (Electronic Intelligence) information to collect, process and evaluate the ESM data for the reference database.
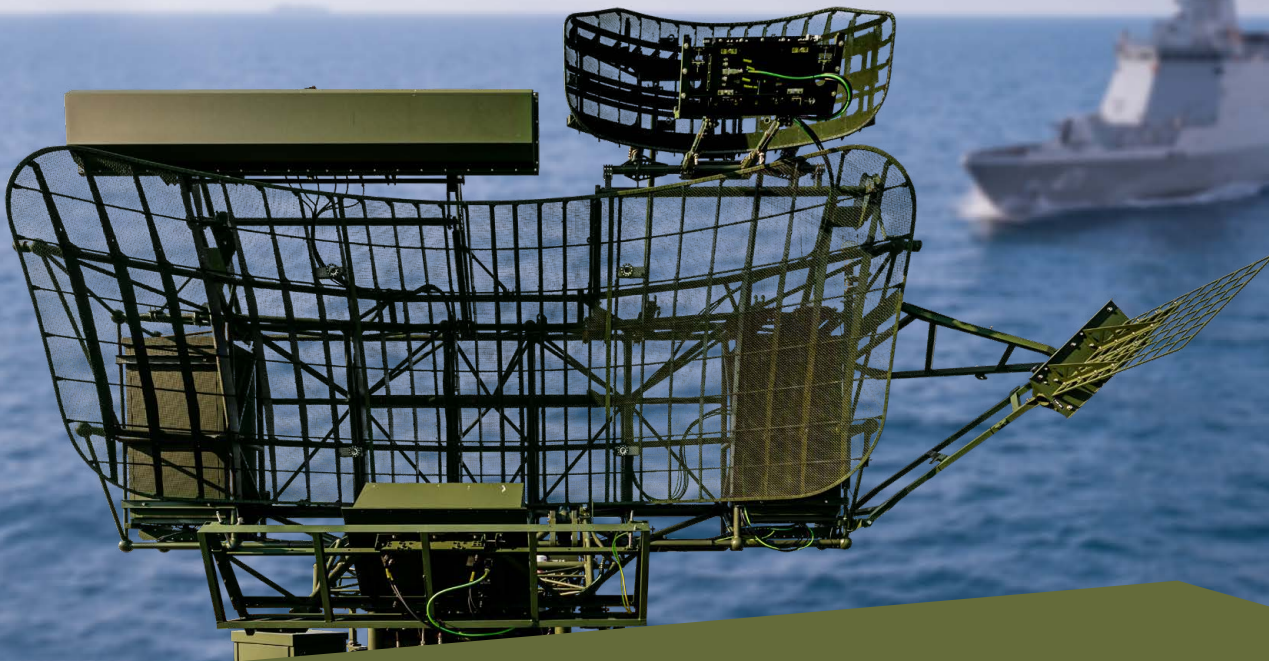
VERA-NG = 6 decades of pioneering in the field of passive radiolocation adapted to face modern threats.

FEATURES:

- High-accuracy target localization (2D, 3D) based on TDOA principle
- Real-time target tracking including Unmanned Aerial Systems (UAS)
- Precise signal parameters measurement
- Pulse and Continuous Wave (CW) signal processing
- Automatic identification of non-cooperative targets (NCTI)
- Interoperable with AirC2 and EWC2
- Deployable or stationary, remote control
- Azimuth accuracy: 0.01°

BENEFITS:

- ✔ Full scale training provided by former military operators
- ✔ Combat proven, deployed in several allies´ armed forces
- ✔ Data mining and contribution to Emitter Database (EDB)
- ✔ Independent time sync. method – GNSS jamming resistency

PLESS

Passive Long-range ESM Surveillance System

PLESS is a passive Over The Horizon (OTH) Direction Finding (DF) system developed by ERA a.s. This direction finding system can detect, locate, identify and track air, land and naval targets with a focus on slow-moving or stationary platforms. The system processes signals from radars, jammers, datalinks emitting in a frequency band from 0.1 to 18 GHz.

Using the unique passive detection technology by ERA, the PLESS direction finding system provides a covert mode of operation, ideal for long-term cross-border and maritime surveillance.

Thanks to the utilization of tropospheric reflectivity properties, the PLESS direction finding system can see targets located even beyond the radio horizon.

FEATURES:

- Passive – using the signals emitted by the target itself
- Long-range – use of the tropospheric reflectivity properties
- Direction Finding (AoA) supported by multilateration (TDOA)
- 2D localization and tracking in case of multistatic deployment
- Pulsed and Continuous Wave (CW) signal processing and analysis
- ELINT features (classification, recognition and identification)

BENEFITS:

- ✔ Shared ecosystems with VERA-NG Passive ESM Tracker (PET)
- ✔ Contribution to Emitter Database (EDB)
- ✔ Long-term Area of Interest (AoI) survey and early warnings

MORE THAN SENSORS

EW-EDMT: Data Mining Tool

EW-EDMT (Electronic Warfare ERA Data Mining Tool) - comprehensive management and post-mission analysis of data collected during the ESM/ELINT platforms operations.

LAPDIS: Local Area Picture Display

LAPDIS (Local Area Picture Display) - presentation of target data provided by surveillance sensors on a map background, used by the operator for situational awareness.
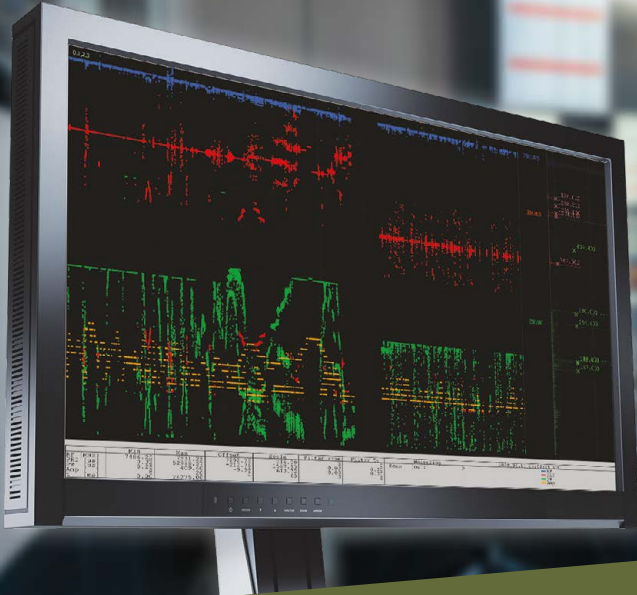
EW-SIM: Electronic Warfare Simulator
ERIS-COMMS: Communication Management System
MIPS: Mission Planning Tool

MasterCare: System Assurance Services
Consultancy/Training
Research & Development

EW-EDMT

Data mining tool for management of ESM databases

The EW-EDMT (Electronic Warfare ERA Data Mining Tool) is an application used for comprehensive management and post-mission analysis of data collected during the ESM/ELINT platforms operations. It works with all kinds of incoming data from VERA-NG and other ESM systems and allows users to import, convert, process, filter, identify and store them.

The purpose is to extract as much information from collected data as possible and determine target identification such as platform, emitter and emitter mode.

The aim of post-mission analysis is to build and expand reference database (DB) to improve target identification and therefore increase automation of the platforms.

FEATURES:

- Input data comparison with the reference DB (Signal, Mode S, AIS).
- Tactical data presentation in the map
- Interconnection of corresponding data - e.g. UFE - Primary data, Signal Pattern - Primary data
- Utilization of recorded and valuable data

BENEFITS:

- ✔ Capable of integrating and evaluating data from various ESM/ELINT platforms within a unified working environment
- ✔ Supports building and maintenance of National Reference Database
- ✔ Enables the customers to adhere to intelligence cycle principles

LAPDIS

Local Area Picture Display for presentation of targets on a map background

LAPDIS (Local Area Picture Display) application is designed for the presentation of target data provided by surveillance sensors on a map background. LAPDIS is typically used by VERA-NG operator for situational awareness for activity of targets in the Area of Responsibility or by the maintenance engineer of the Multilateration Surveillance System for the checking of its performance.

The application automatically highlights priority targets based on pre-defined filters to increase operator awareness. On this basis, the operator creates spot reports and exports their history to cooperating or superordinate units. The application is also beneficial to post-mission analysis of obtained data.
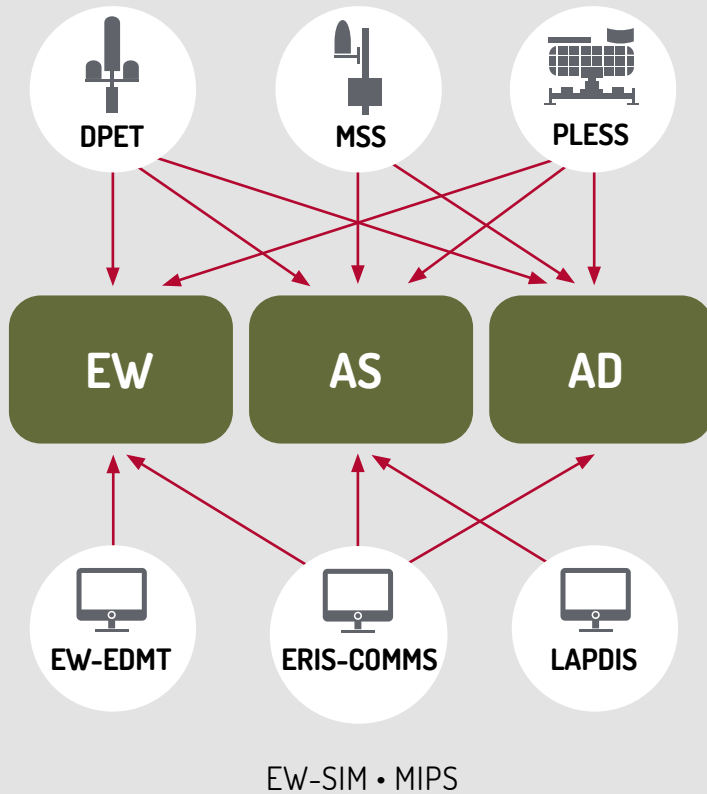
FEATURES:

- Targets presented in the map and track tables
- Track Inspector presenting detailed information about selected targets
- User configurable track filters
- Highlights of target priorities
- Support of ESM DB, Mode S DB, AIS DB
- Manual/semi-automatic/automatic data export

BENEFITS:

- ✔ Implemented Warning DB – to highlight hostile targets
- ✔ Possibility to select from various predefined map backgrounds
- ✔ Processing of various input formats
- ✔ Spot report creation for selected targets

ERA CAPABILITY FOR A MODERN MILITARY CONCEPT

Legend scheme:

- **DPET** – Deployable Passive ESM Tracker, e.g. VERA-NG
- **MSS** – Multilateration Surveillance System
- **PLESS** – Passive Long-range ESM Surveillance System
- **EW-EDMT** – Electronic Warfare ERA Data Mining Tool
- **ERIS-COMMS** – ERA Information System - Communication Management System
- **LAPDIS** – Local Area Picture Display
- **EW-SIM** – Electronic Warfare Simulator
- **MIPS** – Mission Planning System

- **EW** - Electronic Warfare – ESM means supporting ISTAR and SIGINT operations
- **AS** - Air Surveillance – means supporting AirC2 – (D)ARS
- **AD** – Air Defence – means supporting GBAD – SAMOC/FDC

- **ESM** - Electronic Support Measures
- **ISTAR** - Intelligence, Surveillance, Target Acquisition, and Reconnaissance
- **ARS** – Air Control Centre (**A**CC), Recognized Air Picture (RAP) Production Centre (**R**PC) and Sensor Fusion Post (**S**FP)
- **GBAD** – Ground Base Air Defence
- **SAMOC** – Surface to Air Missile Operation Centre
- **FDC** – Fire Distribution Centre

Basic info on ERA:

ERA (a member of OMNIPOL group) is a leading company in multilateration, multistatic surveillance, and reconnaissance technology. Unrivalled experience in passive surveillance sensor development provides ERA with unique know-how to deliver comprehensive solutions for global markets. We develop, manufacture and implement mission-critical systems for military and civil purposes.

ERA made air traffic control history when deploying the first multilateration system and introducing gate-to-gate surveillance. ERA has brought to the world a novel passive medium range surveillance sensor category called Passive ESM Tracker (PET) for defense and electronic warfare purposes - which is today in its 5th generation known as VERA-NG - tailored for air, maritime and land target surveillance and reconnaissance. The company heritage and global experience in passive EMS/ELINT helped ERA introduce another category

of the Over the Horizont Direction Finding (OTH DF) long-range sensor, in its 2nd generation known as PLESS.

The above-mentioned sensors make possible a broad ecosystem consisting of sensor performance prediction and evaluation tools and data mining tools together with a full virtual EW scene simulator to help military intelligence.

Over the last 3 decades, ERA has reached a number of more than 160 installations, deployed in over 67 countries on 5 continents with 24/7 operations fulfilling demanding customer requirements. More important, however, than the given number of references is the experience we have achieved and lessons learnt during implementation of our solutions. We intend to continue introducing new technologies to adapt to tomorrow´s challenges.

SALES DEPARTMENT
+420 467 004 387
sales@era.aero

ERA a.s.
Průmyslová 462
530 03 Pardubice
Czech Republic

www.era.aero