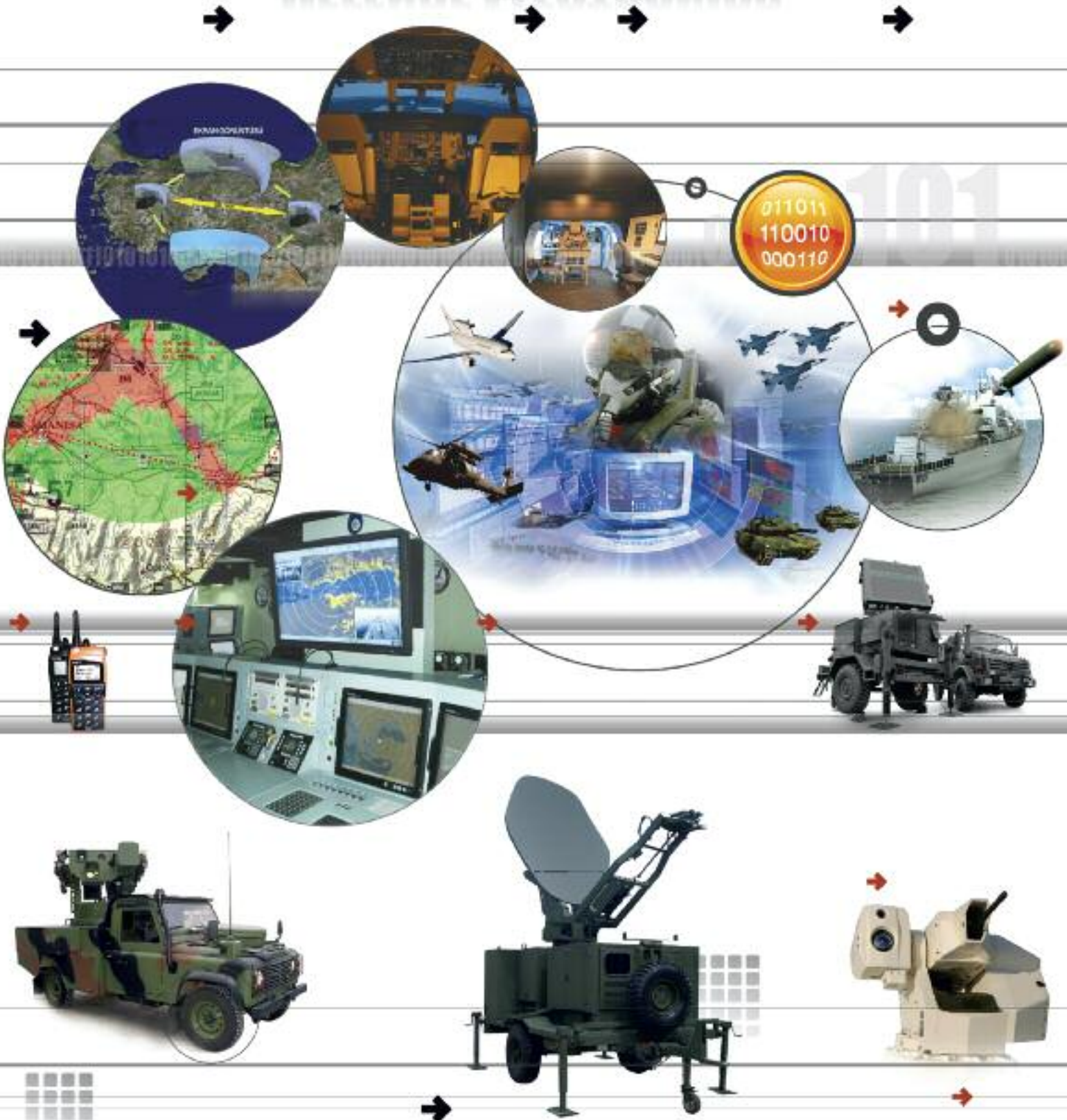




DEFENCE ELECTRONICS

DEFENCE ELECTRONICS



aselsan



Kalkan (Shield) Air Defence Early Warning Radar

The Aselsan, Air Defence Early Warning Radar is a 3-D short-to-medium range search and track radar for fast and accurate detection of low altitude air targets, ideal for the local defence of critical military and industrial assets, such as bases, harbours and factories. It can classify targets as fixed or rotary wing and as friend or foe with integrated IFF.



TRS 22XX

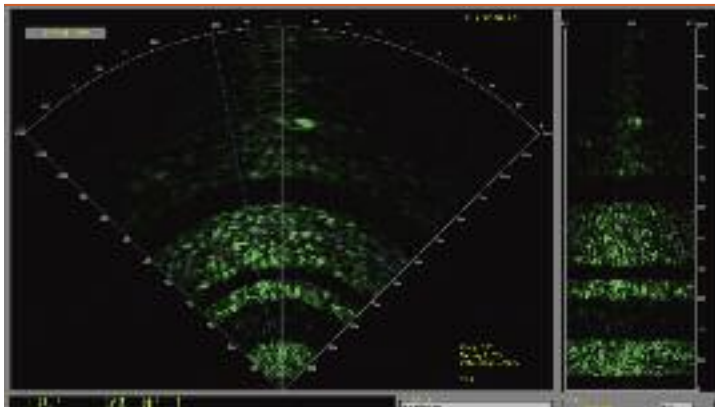
The TRS 22XX is a 3-D air defence radar complying with the NATO Class I specifications. It is designed for efficient operation even through the most hostile environment of various and simultaneous clutters, heavy jamming, blast and battle conditions.

Operational Features:

- **Detection Performance:** Range 470km, Elevation angle 20°, Ceiling 100,000ft
- **Accuracy:** Range 50m, Azimuth 0.25°, Altitude 2,000ft
- **Resolution:** Range 120m, Azimuth 2.5°.



Koç Bilgi ve Savunma Teknolojileri A.Ş.



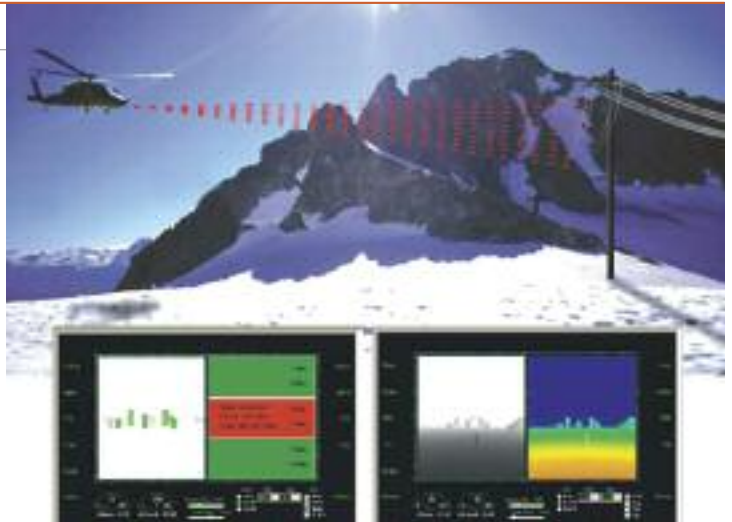
KS-D 1 (P) DDS

The Diver Detection Sonar (DDS) is the first to be completely designed and manufactured in Turkey. Initially designed for Microsoft environments, it comes with the benefit of portability and the ability to be installed and run on a Notebook or a PC. The system gives the operator complete control over the User Interface, and has the ability to work in four different ranges.



Helicopter Obstacle Detection System (HODS)

The Helicopter Obstacle Detection System is designed to improve flight safety through situation awareness against obstacles such as power and telephone lines or pylons. The system uses a narrow eye-safe laser beam to scan the field of view in the direction of flight, or at an offset selected by the operator. Detected obstacles are classified according to type (wire, pole or extended structure) and criticality (distance, route and the speed of approach), and are displayed over a synthetically-formed image of the terrain. Alerts and monitoring of risk against collision are provided through a video and audio interface available on board.



Millimetre Wave Radar (MMWR)

Meteksan is developing millimetre wave radar techniques and a radar prototype to be deployed on tactical and reconnaissance helicopters. The system will perform ground and air target detection & classification, target tracking and target engagement capabilities for attack helicopters using Pulse Doppler, SAR/ISAR and various terrain profiling techniques in the Ka band, determined through simulations and test analysis.

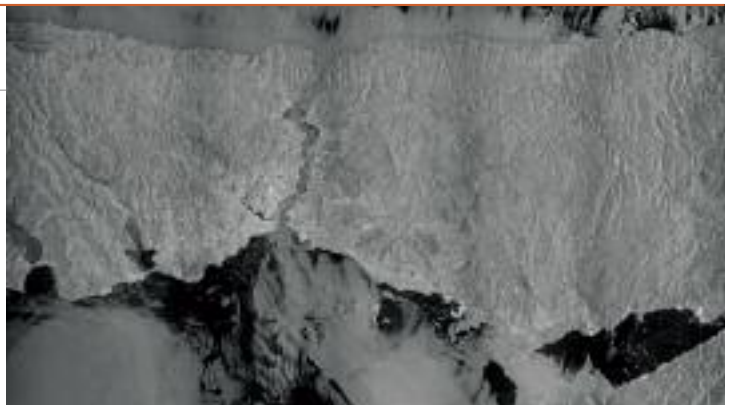


Synthetic Aperture Radar (SAR) Technologies and Applications

SDT, in cooperation with Aselsan, was awarded an R&D contract by the SSM/TuBiTAK for the design and development of two Synthetic Aperture Radar (SAR) prototypes for Turkish Air Force (TuAF). Project is scheduled to be completed in 54 months.

SDT Workshare:

- Signal Processing (SAR Strip-map mode SW and SAR Spotlight mode SW)
 - SAR System Modelling
 - Data Recording Device Design.



aselsan



ASELFLIR-300T Airborne FLIR

The ASELFLIR-300T system is a lightweight, multipurpose, thermal imaging sensor for pilotage/navigation, surveillance, search-and-rescue, automatic tracking, target classification and targeting. With a flexible hardware and software design architecture, they can be used on different platforms ranging from rotary wing, fixed wing and unmanned air vehicles to naval ships.



Python/Boa Thermal Weapon Sight

Aselsan's Python/Boa Thermal Weapon Sight is a lightweight, ruggedised, 384 x 288 VOx Focal Plane Array uncooled thermal sight, operating in the long wave spectral band. In addition to day and night, Python/Boa can discriminate targets in adverse weather conditions, and can operate in total darkness without shut down or bloom when hit by direct light. It can be used for fire control on individual/crew-served weapons, or in other observation or surveillance applications.

Genetlab



SenseNode® - Genetlab® Sensor Node

SenseNode® is a wireless sensor network node developed by Genetlab® that comprises three main components: Sensor-L or Sensor-N, for land and naval use, respectively. This is the sensing module of SenseNode®, and is a generic sensor unit that can be modified with the addition or removal of sensors, according to the requirements of the specific application, Node-RF is the processing and RF module of SenseNode®, Home is the SenseNode® case. There are three types of home, each of which can be dropped from aircraft, and can be partially buried in the ground. Others can be scattered by throwing.



BODAS® – Sensor Network System for Pipeline Security

Genet BODAS® uses Line-nodes to detect and localise threats to the safety and security of pipelines. Line-nodes are deployed on average every 100m along a pipeline, at a maximum of 1m distance. In a wireless Genet BODAS® network, the Line-nodes pre-processes signals from their geophones, which are buried in the soil at a depth of 0.3–1 metre. If any state of alarm is detected, they transmit immediately the alarm-data via a RF transmitter to the sink-node through multiple wireless hops.



TEDAS® – Sensor Network System for Intrusion Detection

TEDAS® is a next generation sensor network system designed for intrusion detection applications along the perimeter of important facilities in a robust, practical, reliable and cost effective solution. TEDAS® can be installed on any kind of fence.



SPOT 5

Satellite imagery with 2.5m through 20m spatial resolution can be provided to various location accuracy levels according to customer demand.

Spatial Resolution: 2.5–20m Panchromatic & Multispectral

Mono & Stereo Collection Capability

Location Accuracy: 10–30m RMSE

Radiometric Resolution: 8 bit

Spectral Resolution: Panchromatic (Black & White) 5-Band Multispectral (R, G, B, NIR and SWIR)



Optronic Equipment

Transvaro has delivered night vision systems, thermal imagers and laser target pointers to the Turkish Armed Forces.

Products: Thermal Observation Systems, Thermal Weapon Sights, Night Vision Monocular Goggles, Night Vision Binoculars, Armoured Drivers Night Vision Periscopes, Long-Range, Night Observation Devices, Laser Target Pointers.

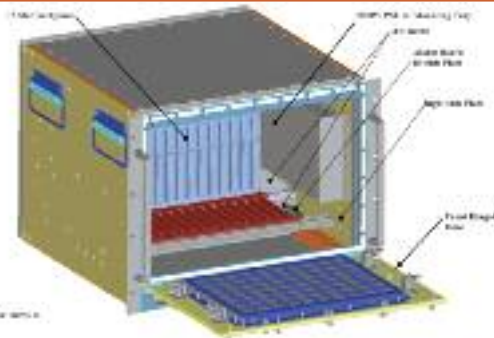


aselsan



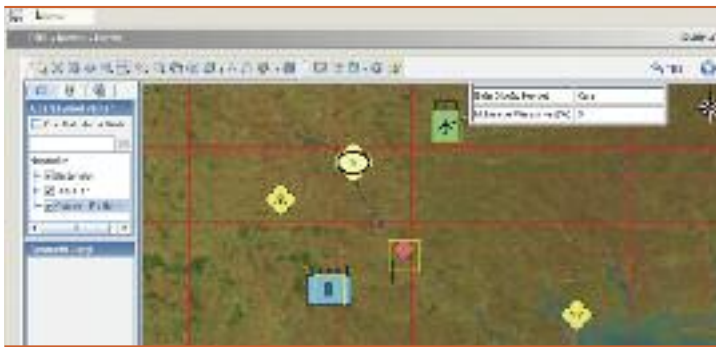
Software Defined Networking Radios (SDNRs)

SDNRs are a high performance digital radio family, designed in V/UHF configurations to support ground, naval and airborne applications. Its software-configurable architecture enables the support of various tactical and professional radio waveforms and EPM techniques. SDNRs provide strategic long-range communications (HF), Combat Net Radio (CNR), Broad Band Packet Radio (BBPR), Narrow Band Packet Radio (NBPR) and Single Channel Radio Access (SCRA) functionalities.



X-Band EPM Modem for Secure Satellite Communication

C2Tech designs and develops secure military satellite communication systems compliant with NATO STANAGs for the Turkish Army. The X-Band EPM (Electromagnetic Protection Mode) Modem is fully compliant with NATO STANAG 4606 for interoperability in network environment and contingent coalition operations. The flexible system platform lends itself to the deployment of custom waveforms; while the modular software architecture design fosters system integration.



Turkish Armed Forces Information System (TBS)

The company has been charged with the automation of the Turkish General Staff Headquarters, providing a system that is designed and developed in Turkey. To obtain the elements of data required for the planning or executing of military operations, an information exchange mechanism that encompasses all services (army, navy and air force) has been implemented.



Military Message Handling System-2 (MEDAS-2)

The aim is to provide: Fast, secure, reliable, and uninterrupted military message exchange between users; remote user access to the system;

- automatic tracking of system hardware and software inventory; automatic patch tracking and software updates; automatic tracking of the services and applications included in the system;
- and backup and restoring of the system servers.



MiISOFT Multi-Purpose Tactical Data Link System (Mil-DLP)

The MiISOFT Multi-Purpose Tactical Data Link System (Mil-DLP) provides a Data Link capability for the sharing of tactical information with other Link 16 and/or Link 11-capable naval, air, and land platforms.



NORTEL NETAŞ

Next Generation TASMUS-G System

The system enables the conversion of Tactical Area Communications System (TASMUS) networks into a structure with an IP backbone. In addition to System Access Point (SAP) and Mobile Subscriber Access Point (MSAP) switches, a Converged Access Switch (CAS) is being developed to allow IP/Ethernet/Gigabit Ethernet connections in the access network. Within this project, the MOLTU (Multiple Optical Line Terminating Unit) is being developed to allow the carrying of voice and data in TASMUS and similar networks through the Optical SDH network, which provides a safe carrying environment.



Next Generation APCO-2 System

Providing the system with ISSI (Inter Radio Frequency Subsystem Interface), Simulcast, and APCO VoIP Console structure. ISSI is the operation of multiple APCO systems as a single system by way of interconnection. Simulcast is the operation of radios and base stations over a single frequency instead of multiple frequencies, thus optimising the air frequency utilisation of the APCO system.



Savronik A.Ş.



Satellite Ground Terminal System

Satellite Ground Terminal System integrated on a trailer is a portable system which transmits processed data to remote headquarters via satellite and is capable of transferring voice & data safely in X-Band.

Technical Specifications

Operation Principle: X-Band Satellite Communication

Operating Frequency: X-Band

Data Rate: Up to 16 Mbps

Modulation Type: BPSK (SS), BPSK, QPSK.

SELEX
Communications



Systems for Land & Naval Platforms

TURMA	HF / VHF FM Tactical Combat Net Radio
H4855 PRR	Personal Role Radio - PRR
SP 2295/R	HF-SSB Digital Receiver
SP 2296	125 W HF-SSB Transceiver
SRT-601	400 W HF-SSB Transceiver
SRT-2007	1 kW HF-SSB Transmitter
ST-5000	5 kW HF-SSB Transmitter
ST 10085	10 kW HF-SSB Transmitter
RT 619/NV	V/UHF AM-FM Transceiver
RALM 02	Laser Warning Receivers for Land & Naval Platforms.



Systems for Air Platforms

SRT (170, 270, 470)/DR HF Airborne Transceiver Family for Air Platforms
 Display, Control Panel, Human Machine Interfaces
 Lighting Systems for Air Platforms
 Lighting System: NVIS compatible lighting system for rotary and fixed-wing airborne platforms
 Cockpit and Control Panels: NVIS compatible Type VII cockpit and control panels for Airborne platforms.



Systems for Civil Applications

ELETTRA: SELEX TETRA Products
Simulcast: Wide Area Coverage Radio Systems
GSM-R: GSM Solutions for the Railways
ATC Systems: Ground to Air Communication Systems
 Automatic License Plate Reading System.

SRC155A

The SRC155A series of point-to-point digital radios deliver highly flexible and reliable solutions for n x E1 (up to 64 x E1) in PDH and STM-1 in SDH hierarchies. The operating frequency bands are 7, 8 and 10.5 GHz (ITU). The

SRC155A provides:

- Software-select data capacity, modulation type, RF channel frequency, protection mode, output RF power and test facilities for operator requirements.
- By means of the plug-and-play modules make it highly agile and scalable radio. Service providers can change the system architecture that meets current requirements, and then adapt their networks to accommodate new applications.



SIR

SIR is an encrypted USB flash memory storage device which protects data, fulfilling the security requirements on a full hardware-based architecture that is operated by a single user. The device has the storage capacity options of 2GB/4GB/8GB flash memory, with writing and reading speeds of 10MB/s.

The device protects data stored on itself, not while reading from or writing to the host. Data security and device/user authentication requirements are provided by means of a user token and a user password.



Crypto Mobile Phone

The UEKAE crypto mobile phone provides end-to-end secure communications.

Since the GSM network has serious security flaws, TüBİTAK UEKAE designed the 'UEKAE - Crypto Mobile Phone' with the following features:

- Voice/data hardware based encryption for end-to-end secure communications through the GSM network, and
 - Interoperability with NATO SCIP (Secure Communications Interoperability Protocol)-compatible devices.

NATO Stock No: 5805-27-042-9041





Digital Data Recorder (DDR)

SDT-DDR is a system for military platforms for the recording of data from digital/analogue video/audio interfaces, military and commercial data buses and all type of digital data over serial/parallel data ports, with very low power consumption and in harsh environments.

With a flexible and customisable modular structure, the DDR presents different alternatives for adopting to different platforms and environments.



Tactical Environment Software (TES)

Developed for tactical level military training needs, the TES is a simulation software that allows tactical scenario planning, running, after training evaluation and debriefing.

SDT TES presents a realistic and interactive tactical environment for training simulators through the physical simulation of ground, airborne and maritime elements of the battlefield, as well as their systems, behaviour and effects of the environment.



Mission Support System (MSS)

Mission Support Systems (MSS) are avionics that can be installed on airborne platforms to run all the digital moving map and similar software that a pilot might need. Images are transferred to the pilot in the form of analogue video data generated by the mission software, which is transferred to the MFD through the MSS. The MSS also has the capability to store data that might be transferred from digital interfaces during the entire flight up until the end of the mission.

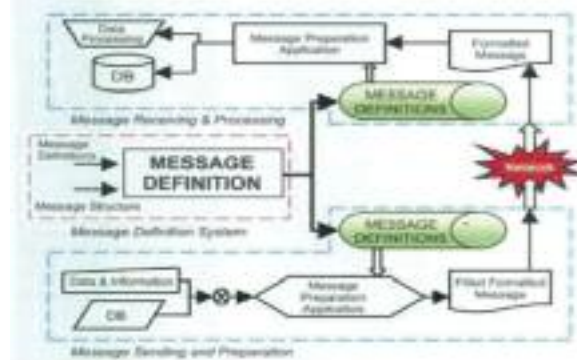
Mission Management and Support System (MMSS)

MMSS provides real time computer support to pilots making operational decisions related with mission planning, mission rehearsal, mission execution and mission debriefing. MMSS has a modular hardware and software architecture, and can be adapted for any kind of aircraft, and comprises a Data Preparation Station (DPS), Mission Planning Station (MPS), Transportable Mission Planning Station (TMPS), Air Unit Computer (AUC) and Data Transferring Device (DTD).



Message Formatting System

Using the Message Formatting System, all strategic level Headquarters messages can be formatted in accordance with NATO ADatP-3 procedures and linked with databases. The exchange of messages in an electronic media can also be achieved successfully.



Strategic-Level Command Control and Information System (CCIS)

CCIS is a strategic level Command & Control Information System based on open software architecture to allow future extensions. CCIS includes:

- Legacy systems and database applications
 - Information flow and interoperability
- GIS applications (Force wide GIS repository containing tactical level raster/vector maps and air/satellite images)
- Electronic Warfare planning functions.

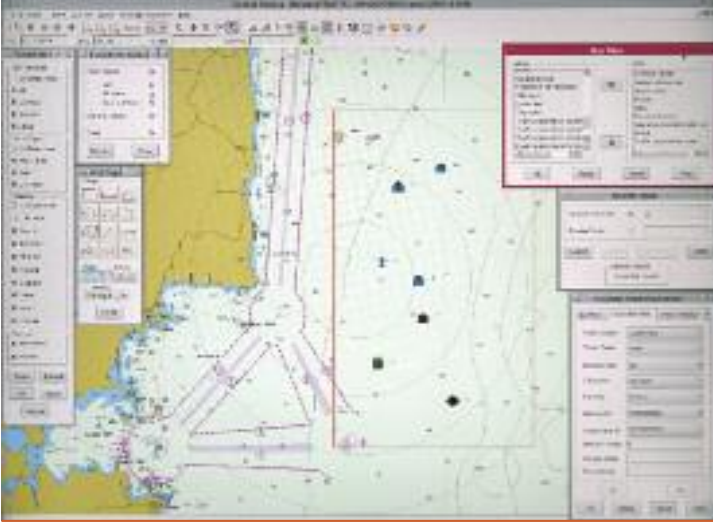


Tank Command Control and Information System (TCCIS)

TCCIS provides continuous, secure and safe data communications from single tank to battalion task force level, to serve for effective command and control requirements of the Turkish Army.

Capabilities: Planning, execution, monitoring and control of mission functions, from a single tank to a battalion task force level; Situational Awareness through a near real-time common tactical picture on digital maps; Inter-vehicular and intra-vehicular data communication and Mission rehearsal and post-mission review (Briefing/Debriefing).





Moving Map

AYESAŞ developed DO-178B certifiable Atlas Avionics Moving Map and DO-200A compliant Map Preparation Software for fixed and rotary-wing aircrafts. The moving map architecture is designed to be fully extensible for Raster Image Support (VFR, IFR, Approach Charts, Topographic Maps, Aerial Imagery etc.), ARINC 424 Navigation Layer, Geographic Layers (Vectoral and Terrain), Flight Plan Support, 2-D/3-D Rendering, Slope Shading, Line of Sight (LoS) capability, Vertical Profile Display, 3-D TAWS Rendering.



Console

AYESAŞ carries out electromechanical design, production, application software, system integration and lifetime maintenance support services for the military type rugged consoles. The references and projects realised in this scope are:

TMRC: Tactical Command and Control Consoles electromechanical design and production.

Thales: Submarine EW Console production.

G-GSMP: Operator, Tactical Command and Emergency Control Consoles electromechanical design and production.



Cabinets

AYESAŞ carries out electromechanical design, production, application software, system integration and lifetime maintenance support services for military-type rugged cabinets. Rugged cabinets provide the physical environment for COTS equipment to withstand MIL-SPEC conditions, such as vibration, EMI.

Projects realised in this field include:

G-GSMP: System Interface Unit Cabinets (SIUC) – electromechanical design and production.



BORA 2100 Fire Control System (T-122 Sakarya MLRS)

The Bora 2100 Fire Control System has an automatic targeting ability, offering complete control over every aspect of firing. The unit was designed and produced using only local means.

- The system comprises the following units:
- Fire Control Computer
 - Launcher Control System
 - Vehicle Level Determination System
 - Fire Control System.



Power Distribution and Control Units

Our Power Distribution and Control Units are designed and produced for various platforms, including M113 Type Tracked Vehicles, Shelters, L-Rs etc. The System consists of a Power Distribution Unit and a Remote Control Unit. All units are Micro Processor-Controlled and Communicate through a CAN Bus.



Lighting Control Panel

The Lighting Control Panel allows the operator to control the white/red passenger compartment lighting (white/red selection, dimming) and the console instrument and panel lighting for the CN-235-100M MPA/MSA (Maritime Patrol Aircraft/Maritime Surveillance Aircraft).

The functionality of the CN-235-100M MPA/MSA (Maritime Patrol Aircraft / Maritime Surveillance Aircraft) interior illumination is to provide the crew with a suitable lighting environment in order to carry out their mission.



Intervalometers

Intervalometers are fire control units that have been developed to launch rockets from various air platforms at ground targets. The fully electronic design allows high reliability and high longevity when compared to electro-mechanical designs.

SEI2000-1/2, SEI2019-1 Intervalometers developed to launch 2.75 inch rockets from air platforms to ground targets.

The SUU-25 Intervalometer is a fire control system to launch flares from F-4 and F-5 aircraft.





Portable Chemical Warfare Agent Detector

The MAM CDET-06/02 has been designed by TüBİTAK MRC Materials Institute as a point detector for the detection of chemical warfare agents in the gaseous phase. The unit contains no radioactive source and does not need calibrating before use. The sensor system can detect the four different warfare gas groups without mode change.

Technical details

Detection: Can detect nerve (G), shock (CG), blood (AC), and blister (H) agents.

Weight: 2,100g

Dimensions: 12 x 24 x 6cm

Power: AC 220 V, 50 Hz, DC 12/24V

Communication: RS-232

Accessories;

- Headphones
- Rechargeable Li-ion spare battery (total 16h)
- Cables for charging batteries from different sources
- Long sample tube for hard to reach sampling points
- Extra air filters.

NATO Stock No: 6665270327404



ETMTS-1 is an advanced dual-sensor mine detection system developed by the TüBİTAK MRC Information Technologies Institute for the detection and identification of metallic and plastic mines. The system can be operated in military environmental conditions.

1. Units:
 - a. Back unit
 - b. Interaction unit
 - c. Search head
 - d. Scanning arm
2. Sensor structure
 - a. Multiple sensor
3. Capabilities
 - a. Detection of metallic mines
 - b. Detection of plastic mines
 - c. Identification of buried objects
4. User Interface
 - a. Ergonomic structure
 - b. Three-button usage
 - c. Audio visual warning
 - d. Determination of buried object precisely using visual information
 - e. Convenient audio visual user interface to interpret sensor data
5. Other properties
 - a. Compatible with MIL STD 810F environmental standard
 - b. Compatible with MIL STD 461E EMC-EMI standard.

NATO Stock No: 6665 27 0429426

VESTEL

Operator Consoles

Operator Console (OpCon) for user interface functions in combat management system. OpCons provide basic user interface functions such as display, input and control devices. Additionally they are configurable depending on the selected operator role. OpCons are specifically designed for naval platforms that requires navy bonding directives and higher reliability. COTS-based design approach makes OpCon easy to maintain and open to growth. Its MIL-STD-1472F compliant ergonomic structure provides excellent comfort for operators even for extended hours.



YALTES

Operator Consoles

Operator Consoles are ergonomic multi-function Human Interaction Equipment designed for the distribution architecture of Ship Combat Management Systems (CMS). They also provide environmental protection for integrated COTS equipment according to relevant military standards. OpCon provides multiple data entry, display and control devices and powerful computing facilities for CMS applications.

User Interface: Keyboard, Trackball, Quick Entry Pad, dual 20" LCD, protected keys, Joystick (option), TV-Radar Video Display & Record
Power: 115 Volts, 60 Hz. UPS 1,500 VA 220 Volts, 50 Hz (option)
Dimensions (WxDxH): ~ 80 x 130 x 160cm
Weight: ~235kg.

NATO Stock Code: NSN : 5895270368576



Interface Cabinets

SIUC is a 19" rugged cabinet that is engineered to support subsystem integration onboard ships. SIUC ensures that the housed equipment are protected from severe conditions associated with a maritime environment.

SIUC, with its modular design technique, enables:

- A stable and rugged mechanical structure for protection against mass shock and vibration.
- Anti-heating and anti-condensing capability

Cabinet Control: Cabinet Control Software
KVM Drawer (Optional)

Outputs: Connections via Modular connector panels (designed to customer requirements)

Power: Capacity 115 Volts, 60 Hz, 2,200 VA UPS

Dimensions (WxDxH): ~ 80 x 130 x 160cm

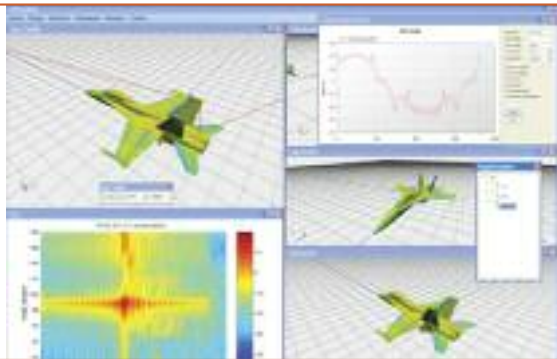
Weight: ~150kg (without payload).





Land-Based Active Air Defence Simulation System

System analyses the effectiveness of complex surface-to-air missile (SAM) air defence scenarios under various conditions, including the probability of kill and damage impacts of high-fidelity missile models.



Radar Cross-Section Prediction Tool

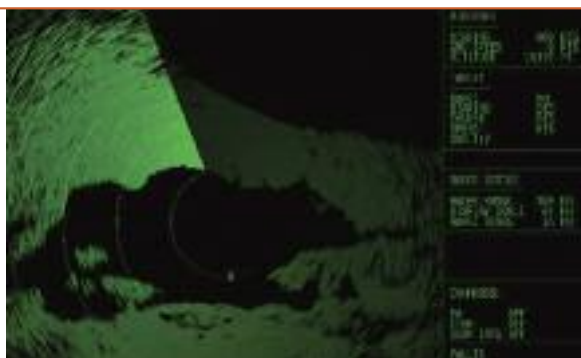
The aim of this tool is to model and predict the radar cross-section performance of platforms, which will give an idea of the visibility and detectability of the platform by radar, under required frequency ranges and look-angles.



SONOPES - Sonar Operator Training Simulator

The Sonar Operator Training Simulator simulates an acoustic environment to provide sonar operators and supervisors with a unique advanced training platform.

- The training phases are;
- Underwater Acoustic and Basic Sonar Systems Training,
 - Test and Evaluation,
 - Introduction to Sonar Systems and Functions,
 - Operation in a static environment,
 - Tactical operation with real life scenarios.



APS143 Sea Surveillance Radar Simulator

APS143 Sea Surveillance Radar Simulator system simulates the APS143(V)3 Radar System used in Sea Hawk and Black Hawk helicopters. The system can be integrated into full-flight simulators, or has capability to work standalone.

- Realistic mathematical modelling.
- Calculations and visualisations of clutter echo from land, sea and weather.
- Cultural objects (urban area, desert, etc) and surface material code (forest, rock, etc) support.
- High Fidelity Echo Display.

NATO Stock No: 7030270406930



ATFS-400

ATFS-400 (Authentic Tactical Flight Simulator) provides a realistic training environment in real time, allowing aircrews to learn how to recognise and combat the effects of GLOC, a serious problem for high-performance aircraft pilots. The ATFS 400 combines high G-onset rates – up to 15G/sec, and the capability to generate sustained high G levels up to 25Ghz – with powered pitch and roll motion to take on the challenges of high G training and research.



Gyrolab® GL-1500

Gyrolab® GL-1500 provides four independent axes of simultaneous, continuous and reversible 360° motion, high fidelity cockpits, state-of-the-art visual displays and the ability to generate sustained Gs to provide the most effective Spatial Disorientation Training for aircrews. Realistic flight controls, flight instruments and collimated out-the-window display provide the pilot with a high fidelity learning environment.



ADMS™

ADMS™ Advanced Disaster Management Simulator is an interactive virtual reality-based team training system that provides emergency responders with the opportunity to develop skills in the four C's: Command, Control, Coordination and Communication.





Helicopter Simulators (HELSiM)

Havelsan is developing two Sikorsky S-70A-28D/DSAR Black Hawk and one S-70B Sea Hawk JAR STD 1H 030 Level D Full Flight Simulators and Full Mission Simulators, two Partial Mission Simulators, two Training Management Information System and training facilities for the Turkish Army and Navy under the HELSiM Programme. Project also covers the delivery of two separate fully integrated Helicopter Training Simulator Centres on a turnkey basis to both Army Aviation School Command in Etimesgut/Ankara and Cengiz Topel Naval Aviation Base Command in Kocaeli.



F-4E 2020 Weapon Systems and Flight Training Simulators:

System provides IFR Training, VFR Training, Air Traffic Training, Air-to-air and Air-to-Ground Weapon System Training, Radar System Training, Tactical Training and emergency training to pilots of F-4E 2020 aircraft and the weapon system operators in a high-fidelity synthetic environment. For the first time in Turkey, two simulators installed in different locations will be able to carry out joint operations under the HLA&DIS interface connection.



Republic of Korea CN-235 Full Flight Simulator

A CN-235 FAA Level D Full Flight Aircraft Simulator has been designed and developed for the air force of the Republic of Korea by Havelsan in order to provide its pilots with realistic flight training in a realistic environment. The Full Flight Simulator is composed of a five-channel 220 X 40 visual system, a five-channel IG imaging system, a six-axis motion system, a load control system, an instructor/operator console (IOS) and software, and a recording and replay system.

Export Countries: Korea.



Pakistan Artillery Forward Observer Training Simulator (PK-AFOTS) Project

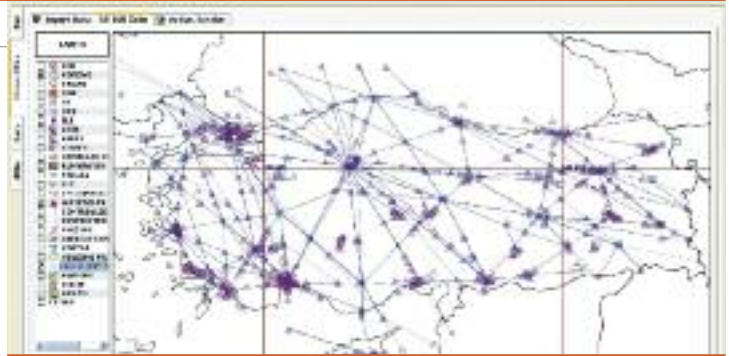
Havelsan originally developed its Artillery Forward Observer Training Simulator for the Turkish Land Forces, but exported a similar system to Pakistan for its Land Forces in following some client-specific alterations.

Export Countries: Pakistan.



COTS Simulator

DBtron™ Simulation Debrief and After Action Review Software, DAQtron™ Simulation Data Acquisition and Recording Database Software, NAVItron™ Navigation Simulation Server Software and TERRAtron™ Terrain Simulation Server Software are HLA-based, next generation COTS Simulator Software, used on Military and Civil Level-D Certified Full Flight and Mission Simulators.



ATacWarS™

ATacWarS™ is the next generation Advanced Tactical Wargaming System, with a Weapon Interaction Database, atmospheric and human fatigue effects over mission execution, HLA-based man-in-the-loop simulators, Joint Warfare, Distributed Simulation and Dismounted Infantry expansions, developed for military commanders and staff personnel and providing a complete modular solution for leader training.



SHIPtron™

KaTron's SHIPtron™ product suite, ranging from desktop to full bridge simulators, consisting of the next generation marine and naval simulation and training systems, are the exact solutions addressing the requirements of the IMO STCW '95 Convention, taking fully into account the DNV requirements for 'Class (A, B, C & X) NAV' simulators.



Naval Warfare Simulation System (NAWAS)

NAWAS (DEHOS) is a strategic-level war game simulation system under development to meet the computer aided war game requirements of naval forces. The system aims to provide an effective training environment that will enable personnel to train in the coordination of naval fighting units.





Fire and Damage Control Training Simulator (FDCTS)

Training with realistic scenarios can be executed, recorded and evaluated by:

- Fire Training Simulator; with fire fighting scenarios under limited visibility and high temperature conditions,
- Damage Control Training Simulator; with damage control scenarios under limited visibility and free-floating surface conditions which can simulate flooded motion platform compartments under various sea-states.



Combat Training Centre

The Combat Training Centre allows army personnel to practice combat scenarios in real environmental conditions with real weaponry, also allowing new combat strategies to be developed. The system comprises three main features: laser transmitters and sensors placed on personal harnesses; vehicles; and weapons that enable direct firing simulation. All data is transferred to the CTC via RF stations in the field. With the help of CTC Software, 2-D and 3-D observations of all events is possible.



Joint Electronic Warfare Training System (JETS)

The Joint Electronic Warfare Training System is a computer-based education system in which the basics of Electronic Warfare information is given to armed forces staff in an interactive environment. The general specifications are as follows: Interactive training on EW concepts and application, EW training from beginner to expert, Lessons supported with multimedia objects, Question bank and evaluation module for trainee evaluation, Supplementary tools (glossary, help, unit conversion and search).



Joint Electronic Warfare Training Simulation (JETSIM)

Joint Electronic Warfare Training Simulation provides EW Training to armed forces personnel for planning, application, control, coordination and support during joint operations in a computer environment.



Vertical Wind Tunnel (VWT)

VWT is a free fall training simulator, providing an upward flowing column of air within which a person can experience all the effects of free fall in a controlled, safe environment. The usage of VWT are:

- Training of Special Forces
- Training of Airborne Troops
- Paratroops Beginning Free Fall Training
- Training of Acrobatic Parachute Teams

Technical:

Parachutists weighing from 50kg to 160kg will be able to perform skydiving maneuvers in the Vertical Wind Tunnel:

Flight Chamber Diameter: 4m

Flight Area Height: 8m

Tunnel Dimensions: 24m height (above ground), 39m width

Air Speed: ~45m/s min., ~72m/s max.

Power: ~2,000bhp



COMMAND AND CONTROL SYSTEMS



Peace Eagle: The Turkish Airborne Early Warning & Control System

Havelsan is participating in the Peace Eagle AEW&C programme as the sole in-country subcontractor of Boeing for the Mission Computing Segment (MCS) and Ground Support Segment (GSS).

Havelsan has developed the Turkish unique software modules for the mission processor, tactical display, communication, ESM systems and man-machine interfaces; and has realised the testing and integration of the software onto the 737 AEW&C aircraft.



Maritime Patrol Aircraft (MPA) / Maritime Surveillance Aircraft (MSA) (MELTEM)

The aim of the Meltem Project is to convert CN-235 aircraft into an MPA/MSA configuration, as well as the delivery of associated ground segments. The project includes the development, integration and testing of six MPA for the Turkish Navy and three MSA for the Turkish Coast Guard.

In addition, two ground control stations for the MPA and three ground control sites for the MSA are to be developed, integrated, installed and qualified in the programme.





MilSOFT Combat Management Systems (Mil-CMS)

Mil-CMS is a Combat Management System that is compliant with modern approaches and open standards, and is aimed to satisfy the Command & Control needs of all naval platforms. Scalable and modular CMS Software architecture depends on open standards (ie DDS & OACE) and products.

ELECTRONIC WARFARE

aselsan



Helicopter EW System (HEWS)

The Helicopter Electronic Warfare System (HEWS) Programme has been created to equip almost all of the rotary wing aircraft of the Turkish Armed Forces (TAF) with a comprehensive EW self-protection suite. The system will also be installed on the CN-235 transport aircraft of the Special Forces.

The HEWS approach will integrate Radar Warning Receiver (RWR), Laser Warning Receiver (LWR), Radar Jammer (RF Jammer) and Electronic Warfare Central Management Unit, as well as Missile Warning System (MWS) and Chaff/Flare Countermeasure Dispenser System (CMDS) capabilities into the same self-protection package for installation on 11 different types of airborne platforms in the service of TAF.



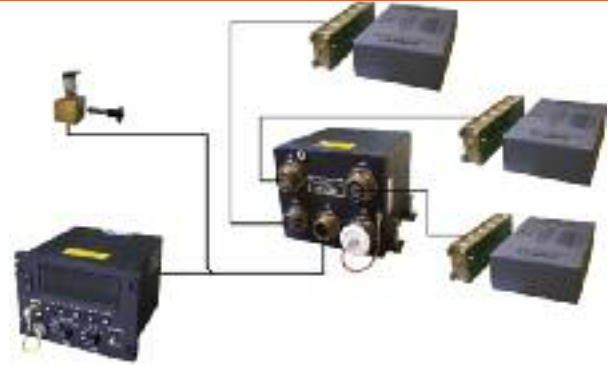
Electronic Warfare Test and Training Range (EWTR)

EWTR provides a fully-instrumented and integrated, near-real threat environment for all types of Electronic Warfare System Test and Pilot Training. Havelsan provides original turnkey solutions to all Electronic Warfare Range requirements. The EWTR has been designed and developed without drawing on foreign licensing or support, and was delivered to the Turkish Air Force in 1999, since when it has been successfully operated by Havelsan. The EWTR system has been modified to Pakistani Air Force requirements and has recently been selected by South Korea.

Export Countries: Pakistan and South Korea.

SPREAD (Self Protection Expendibles Airborne Dispenser)

SPREAD is an advanced Countermeasures Dispensing System (CMDS) designed to increase the survivability and mission effectiveness of airborne platforms (F-16, F-4) against radio-frequency (RF) and infrared (IR) threats. SPREAD has various operational modes (manual, semi-automatic, automatic). SPREAD is capable of operating with RWR/MWS/LWR and MIL-STD-1553B data bus. SPREAD is glass-cockpit and NVIS compatible.



AN/ALQ-178(V)5+

The AN/ALQ-178 is a proven integrated Radar Warning Receiver (RWR) and Electronic Countermeasures (ECM) Suite, providing the pilot with situational awareness and deceptive RF jamming. The AN/ALQ-178 provides intelligent control of chaff/flare dispenser systems for enhanced and coordinated ECM response. Provides complete self-protection for TuAF Block 50 F-16; Radar Warning Receiver (RWR), Power-managed electronic countermeasures, Coordinated expendable dispensing (chaff/flare), RWR, ECM and expendable management.



JAMMER



ManPack Radio Controlled IED Jammer

The Manpack RCIED Jammer is designed to provide protection to patrols and military vehicles under the risk. The jammer simultaneously covers the different frequency ranges to prevent detonation of RCIEDs. Fully weatherproof and backpack mounted, it is equipped with extended mission-life rechargeable batteries; and is designed to counter the following threats: Amateur Radio; PAMR, PMR, FRS Radios; GSM 900, DCS1800; ISM.





MRJ-03 Manpack Jammer

The MRJ-03 Manpack Jammer has been designed by one of the leading manpack jammer supplier of the Turkish Armed Forces to provide effective protection against remotely-activated threats via wireless systems, mobile devices or other known sources. The jammer has accessories to allow mobile, fixed and portable use.

Mil-Std-810F, Built-in Test, VSWR protection for the Power Amplifiers.



Jammer

It is sound, waterproof and resistant to shocks. To jam signals from cellular phones that are being used to detonate bombs in cars or buildings. It is portable, has a high capacity and contains rechargeable Li-I batteries. It can obstruct GSM/PCN signals completely over a predefined area using TDMA technologies in the system's power supply.

Technical Specifications:

The device's effective zone depends on various factors, such as the base station's power supply and the power level taken from the nearest base station. The size of the system depends upon the model and version, but all are effective in the protection of VIPs, police or military units.

Export Countries: United Arab Emirates.



Jammers

We aim to fight against attacks through the use of technology, to protect security forces, civilians and property from damage or loss. Microdis concentrates its efforts on defence and security issues and develops various kinds of jammers –to counter remote controlled explosives in differing applications, such as vehicles, manpacks, building protection, convoy protection.

Working with the security forces, all of our jammers have been used and tested in the field in Turkey, and in Afghanistan and Iraq for some types. The tests have yielded a very high success rate.

Cooperation with the security forces allows Microdis to find the best solution for the special requirements of its customers. For example, the Cansiper 1915, one of the smallest and the lightest jammers available at only 5.5kg, has been developed with small mobile units in mind through feedback collected from the security forces.

Export Countries: Iraq, Jordan, Malaysia, Pakistan and TRNC.

