

# DEFSYS

INTEGRATED SYSTEMS



## *PRODUCT PORTFOLIO*

ELECTRO OPTICS & RF SYSTEMS

Aerospace and Defence Applications



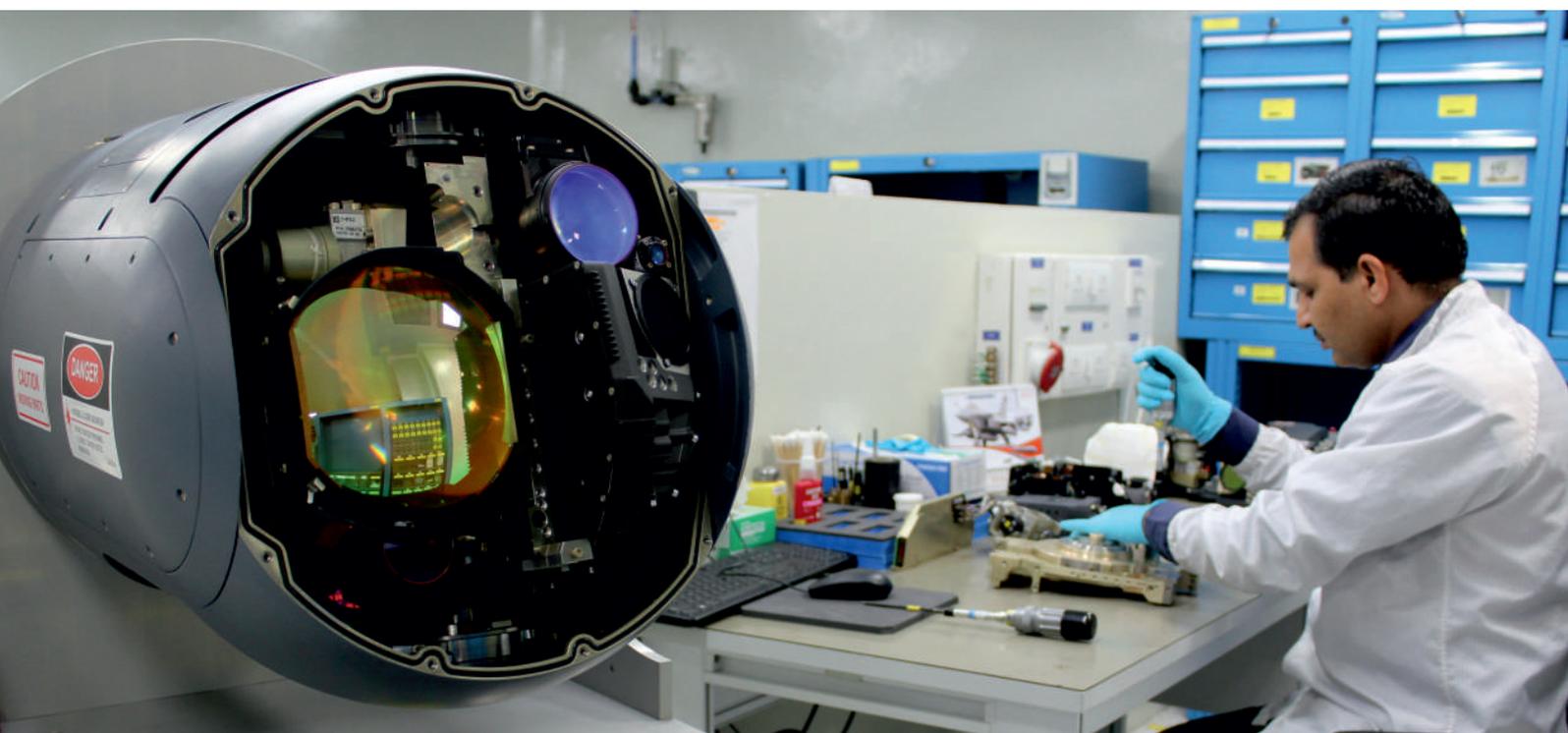


## ABOUT DEFSYS

Defsys is a leading Indian systems integration company leveraging its capabilities to provide advanced solutions for a variety of Defense and Aerospace applications. We are a privately held entity having valuable experience in design, manufacture and integration of advanced electronic systems. Established in 2007, Defsys has grown from a Bangalore based design team to a multinational globally recognized company with state of the art manufacturing facilities and incorporating contemporary technologies.

**In Defsys we Design and Manufacture:** Integrated Electronic Systems, Electro-Optical Payloads, Sighting Systems for Weapons and platforms based on Thermal Imaging, Aircraft Role Equipment, Airborne EW Systems, Flight and Firing Simulators, Electro-Mechanical systems, On-board Electronic sub-systems, Automated Test Equipment (ATEs), RF & Microwave Sub-assemblies, Radar & Seeker test ranges, EW Multi-Emitter Simulators, RCS Measurement systems as well as other RF Test and Measurement systems. The Company also provides a range of support services such as maintenance and on-site upgradation of existing military systems.

Defsys Solutions is extensively certified notably for AS9100D, ISO14001, ISO27001 & ISO 45001. It has facilities in four different locations across India; two of them being the manufacturing units.

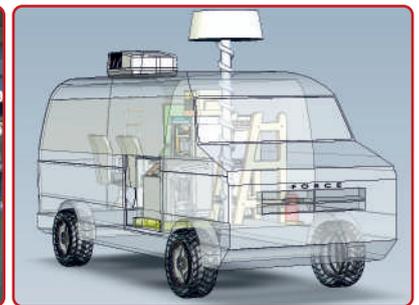




## STRATEGIC ELECTRONIC SYSTEMS

### ■ INTEGRATED SYSTEMS

With a vast experience of more than 15 years in this domain, Defsys Solutions offers a holistic system level expertise and provides seamless integration between all disciplines of systems engineering improving reliability, efficiency, maintainability and ease of use. Our products are ruggedized and qualified as per military standards and have been installed on all types of defense platforms including military shelters, ships, submarines, aircrafts and vehicles.



## STRATEGIC ELECTRONIC SYSTEMS



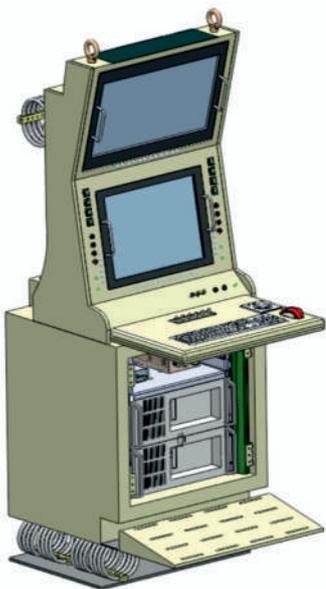
### ■ COMMAND & CONTROL SYSTEMS

Defsys provides turn-key solutions for all types of Command and Control systems. Our integrated systems are fully equipped to handle large complex sensors data flow and provides a real-time strategic picture of situational awareness to the field Commander enabling him with an effective OODA loop.

Our wide product range consists of:

- Ground Command Operation Stations
- Weapon, Radar, Warfare System Consoles
- On-board control stations
- Multi-Function Operator Consoles

All our Command and Control Systems are ruggedized and tested for environmental conditions, according to MIL-STD, and are used extensively onboard ground, naval and airborne platforms.



### ■ ON-BOARD ELECTRONICS

Defsys provides wide range of solutions for Built-to-Spec Military computerized units as:

- Mission computers
- On-board controllers
- Interface and Command units

We develop operational software based on Linux, Vx works or Windows according to the customer specifications.

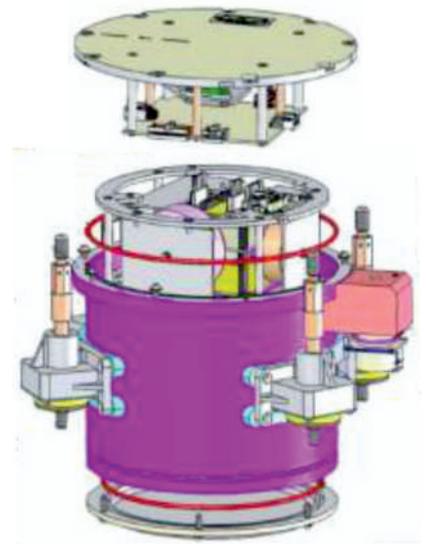
Defsys delivers full turn-key solutions project including design, MIL-STD environmental tests, qualification, manufacturing and the on-platform system integration.





■ **ELECTRO-MECHANICAL SYSTEMS**

Defsys specialises in the field of electro-mechanical systems and offers turnkey solutions viz. design, development and manufacturing wide range of military systems as per customer requirements. Our electronic and mechanical teams work in collaboration to integrate different technologies and deliver the best solution to our global clients. Special care is taken during the initial design stages and products validation to ensure compatibility between various components (electronics, mechanics, pneumatic, hydraulics & computer control) used in the system.



## DRONE DETECTION & ELIMINATION



The proliferation of Drone technology and its potential capability to cause immense damage/destruction to own assets require innovative counter measures ranging from soft skill options to hard kill. Defsys has assigned and indigenized this technology. It had been proven under combat conditions and selected through a process of techno-commercial competition. These soft kill Drone Detection and Jamming System have been successfully delivered to the customer recently.

### SOFTKILL SYSTEM CONFIGURATION

#### DETECTION - SENSORS

Scanning,  
Detection & Tracking



EO/IR



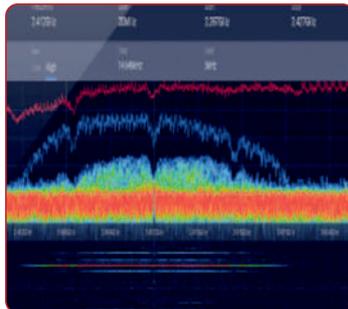
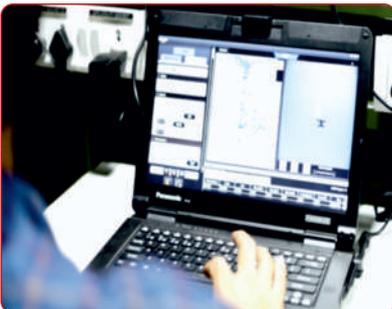
ADS-B Receiver



Datalink



#### CONTROL, COMMAND & ANALYZE



#### JAMMING

High Power Communication & GNSS Jamming with respective antennas



**DRONE DETECTION & ELIMINATION**



**HARDKILL SYSTEM CONFIGURATION**

The hard kill systems configuration can be offered as a long range laser solutions or a short range rifle mounted solution.

Defsys has a technology collaboration with Smartshooter Ltd., Israel, for their very innovative SMASH series of fire control systems for small arm weapons.

**SMARTSHOOTER**

The ever-increasing requirement for security and protection of installations against Drone attacks and related operations cannot be over emphasized. SMASH is a combat proven family of Fire Control Systems which are designed, developed and manufactured by SMARTSHOOTER indigenized by DEFSYS, to ensure each round finds its target, in both day and night conditions, as well as keeping friendly forces safe drone, particularly against small attacks.

The proprietary target acquisition and tracking algorithms are integrated with sophisticated image processing software into a rugged hardware solution, providing an easy to use and cost-effective solution that creates the required overmatch.

These fire control systems are designed to give soldiers and law enforcement officers a decisive tactical edge in almost every operational scenario, maximizing force lethality and operational effectiveness throughout every engagement. There are three different types of the SMASH FCS (Fire Control System – Electro Optical Sights) which have varying capabilities and thereby differing primary roles and operational usage.



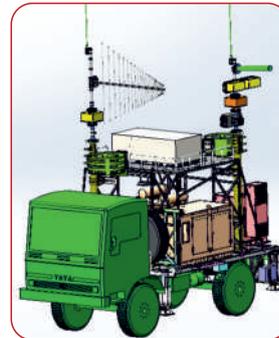
## MISSION EQUIPMENT

Defsys has a fully integrated production facility with state-of-the-art infrastructure, set as a Centre of Excellence for design and manufacturing of Mission Systems for all types of defence platforms including Integrated Electronic Systems, RF System ATE's, Military Shelters, ships, submarine, aircraft and vehicles.



### ■ DESIGN & DEVELOPMENT

The Engineering team in Defsys has a vast experience and capabilities to design and deliver the most complicated electronic systems for airborne, ground and naval applications.



### ■ SUPPLY CHAIN & SOURCING

Build to Print, Build to spec projects often contain highly specialized components and parts. To optimize our projects we have a strong supply chain department sourcing worldwide but with focus on Indian content.



## MISSION EQUIPMENT

### ■ MANUFACTURING & INTEGRATION

Defsys has a state-of-the-art modern production facility for manufacturing, integration and testing of electro optical and other complex electronics equipment.



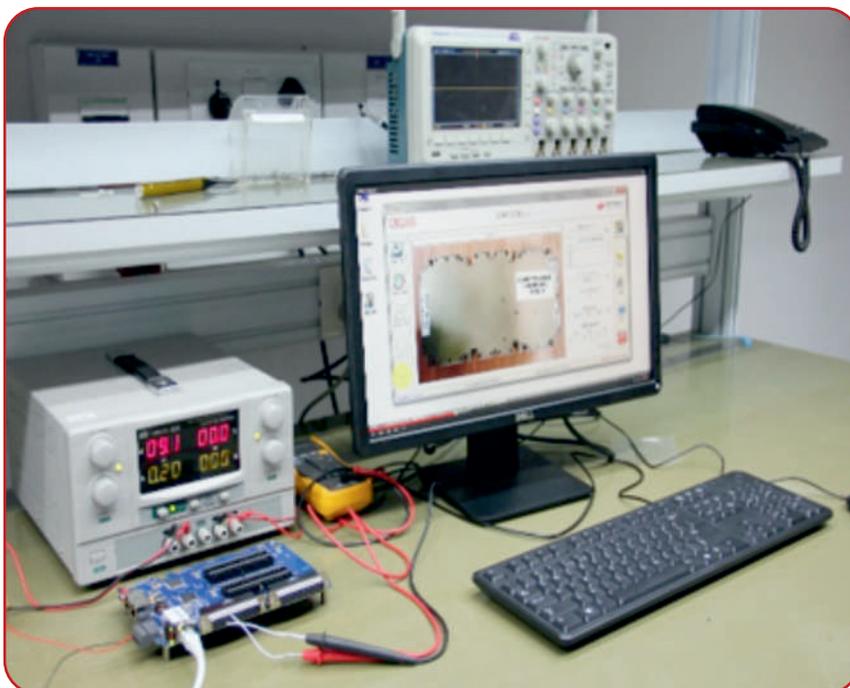
### ■ COMPRESSIVE IN HOUSE TESTING

As an integrator of complex and sensitive equipment, quality and technical reliability is given the highest priority in Defsys. It is equipped with all the important testing equipment and chambers for environmental and durability testing.



### ■ MAINTENANCE, OBSOLETE & UPGRADES

Defsys has a well-defined methodology for Repair and Maintenance support for all the products manufactured and supplied to various Aerospace and Defence customers. We also provide life cycle / upgradation maintenance support and obsolescence management to our customers.



## AIRCRAFT ROLE EQUIPMENT



Defsys is the indigenous manufacturer of aircraft Role Equipment, a Build to Print production transfer program with an International OEM. The Role Equipment include Pylons, Fuel Tanks and Bomb Racks. The scope of the project encompasses complete manufacturing, assembly, integration and testing of the Role equipment which are currently being manufactured. Defsys has delivered hundreds of items of Role Equipment with a 100 percent defect free record.

Defsys has established an operational 56,000 sqft production line for the manufacturing of role equipment for the fighter aircrafts. The OEM certified facility is fully equipped for aero structure assembly, linear & circular Welding, Radiography, Wire harness manufacturing, Fuel Testing, Painting etc. The products leaving the facility are fully airworthy and ready for installation on an aircraft.



## SIMULATORS and TRAINERS



### ■ SIMULATORS

Defsys designs, develops and manufactures state of the art training simulators. We have expertise in developing complicated systems consisting of hardware and software components for simulation of real environment to Missiles, Weapon Control Systems, Datalinks and other defence applications.



### ■ FIRING TRAINERS

Defsys has expertise in design and manufacture of Small Arms Training Simulator configured as an upgradable multiple lane flat screen system to impart basic as well as advanced training to number of users at a time. Our modular design assures an extended life cycle of many years, mainly because the system is based on COTS products in combination with a dedicated maintenance service anywhere in India.



## ATE'S AND TEST EQUIPMENTS

### ■ AUTOMATED TEST EQUIPMENTS (ATE'S)

Defsys Solutions is a AS 9100D, certified Organisation, is an industry leader in India in design and manufacture of Automated Test Equipment (ATE). With an in-house panel of system experts, design engineers and requisite manufacturing competence, Defsys Solutions, has delivered a wide variety of ATEs for a broad range of Aerospace and Defense test and measurement requirements for systems such as Radars, Seekers, Missiles, Missile sub-systems, Electronic Warfare (EW), Direction Finder (DF), Communication, Datalinks, Multi-LRU Systems, Power and Electro-Mechanical Systems.

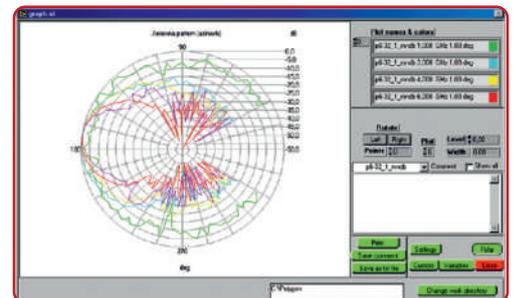


### ■ RF TEST & MEASUREMENT

Defsys provides highly skilled in-house engineering capabilities to assist scientists to meet their test and measurement requirements.

Our company specializes in turn-key measurement systems and solutions for Antennas, Radoms, Radars, DF Arrays and full EW Systems used both indoors and outdoors.

Defsys provides solutions implementing the newest technologies and algorithms in Time-Domain & Frequency Domain measurements for Near-Field, Far-Field, and Compact Ranges. As a turn-key solution provider, we deliver the testing project including mechanical and electro-mechanical sub-systems, special RF Instrumentation, customized measurement software, Anechoic Chambers design and overall system design, integration, installation and on-site support.



### ■ RF & MICROWAVE SYSTEMS

Defsys has extensive experience and knowledge in the domain of RF & Microwave. Our team is extremely proficient to design, manufacture and integrate a wide range of solutions by quickly assimilating the customer requirements and also understanding the evolving standards of RF & microwave systems. We have highly skilled in-house engineering capabilities to meet customers test and measurement requirements. Our broad spectrum comprises of:

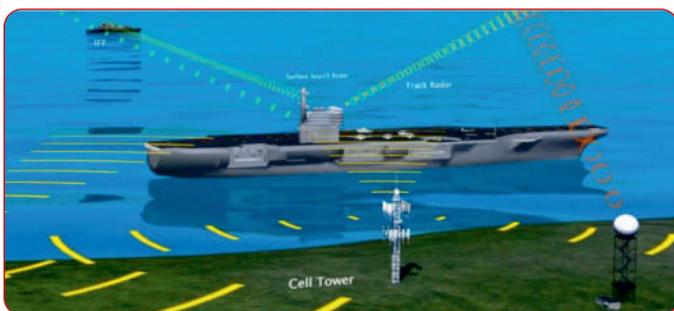


- Data-links and RF Communications
- DRFM Based Target simulators
- Target and Range simulators
- RCS Measurement Systems
- RF Drawers and RF Switch matrices Antenna Measurements
- Antenna Measurements

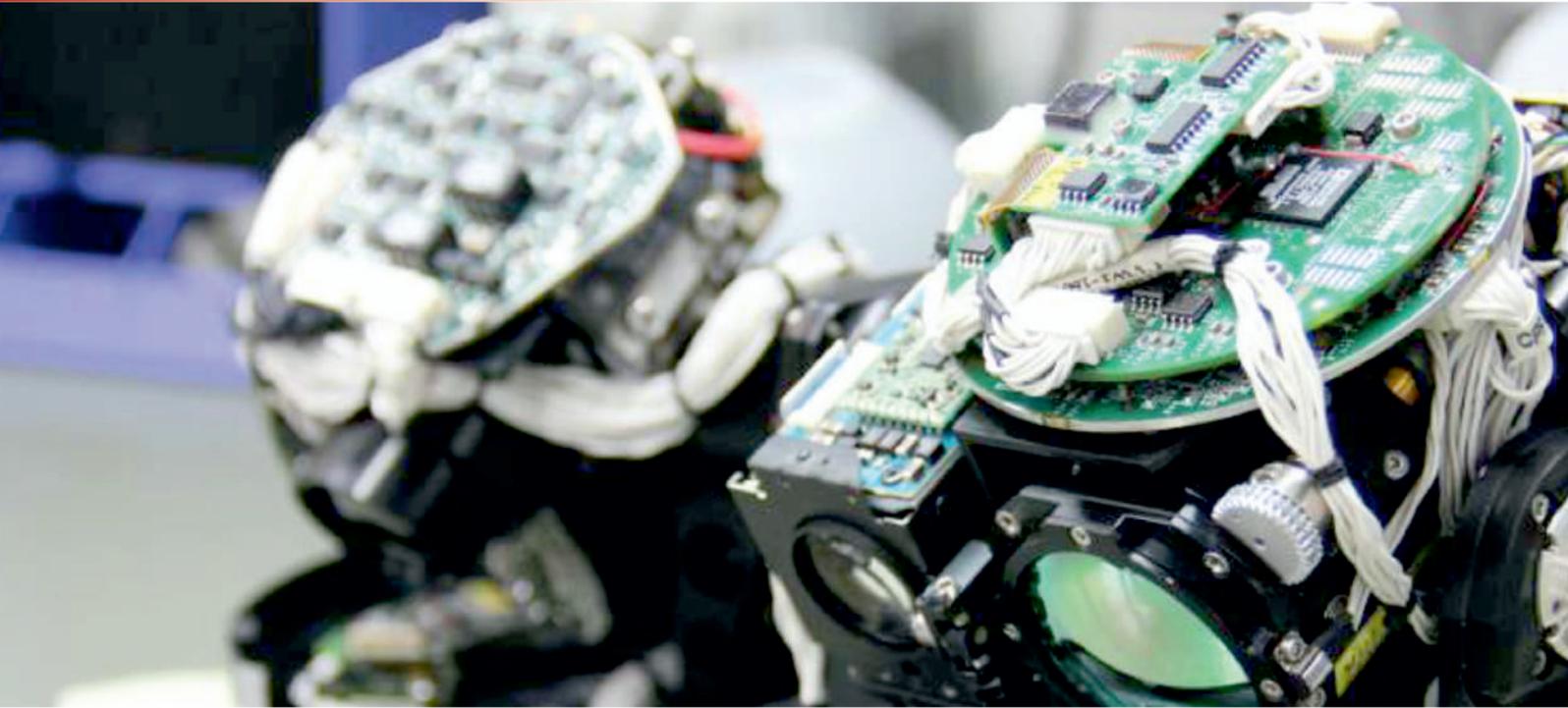




- Generates actual Electronic Warfare environment and facilitate testing of Communication EW Systems and LRUs in both lab injection mode and open-air radiation modes
- Static & mobile multi emitter threat signals with various modulations, frequencies, bandwidths, phases
- In-built interference and fading effects to produce real life complex environments
- Integrated with dynamic simulation of trajectory, platform motion, terrain and propagation media
- Fully phase coherent multi-channel simulation to test DF systems in real life dynamic scenarios
- Tests and evaluates:
  - EW hardware such as Communication Reconnaissance, DF systems and Electronic Attack Systems in the frequency band 1 MHz – 6 GHz
  - Interception, Sensitivity, Demodulation Capabilities, Direction Finding Accuracy, Attack Efficacy etc., against conventional signals as well as LPI signals viz., Frequency Hopping etc.
  - Capabilities of Communication ES equipment
  - Jamming effectiveness of Communication EA System under the provision of Electronic Protection (EP) features



## MANUFACTURING CAPABILITIES



### ■ MANUFACTURING CAPABILITIES

Defsys has modern state-of-the-art facilities to carry out manufacturing of complicated Electronic Systems.

- 110,000 sq.ft. state-of-the-art production facility
- Clean Rooms for EO assemblies and microwave sub-systems
- Electronic Integration and Testing Lab
- Large System Integration Facilities
- Vibration Machines, Thermal and HASS Chambers
- Collimators and Special Optical Test equipment
- RF Test and measurement equipment's up to 40 Ghz
- Compressed air and nitrogen systems



## ENGINEERING CAPABILITIES



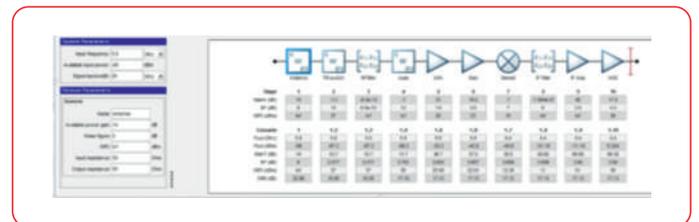
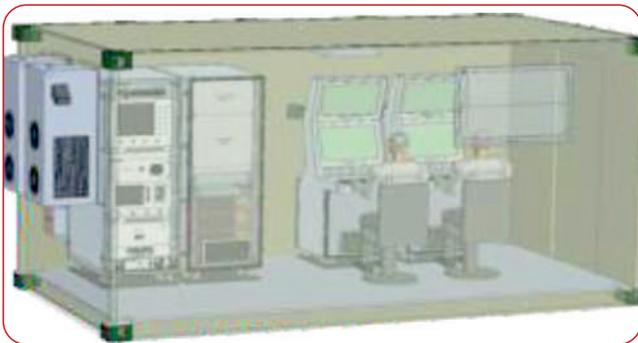
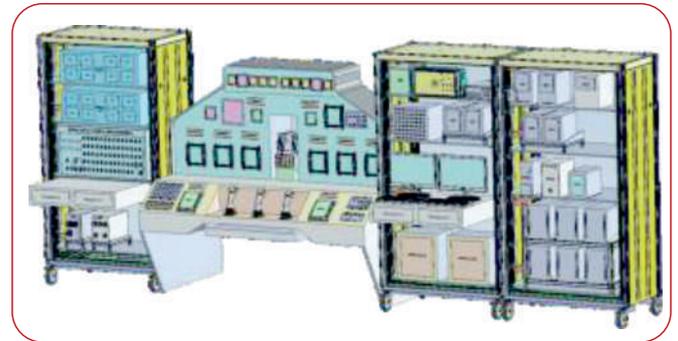
### ■ ENGINEERING CAPABILITIES

Defsys engineering team has strong experience and capabilities to design and deliver the most complicated military electronic systems for airborne, ground and naval applications.

We do:

- System Level and Platforms Design
- Complicated Electro-Mechanical products
- Hardware & Software Development
- Electro-Optical Systems and Payloads
- Hardware and RF designs
- Very experienced mechanical designing team

Defsys is using highly sophisticated design tools for design, simulation and verification of our systems performance and reliability. Our products meet the harshest environmental conditions and military standards.





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