



MISSION INTEGRATION DIVISION
PRODUCT CATALOG

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L-3 Mission Integration (MID) is a world class-systems integration organization with 60 years of experience in the aircraft maintenance and modification, and the development of complex ISR, command and control and communications systems. MID's operations include highly specialized fleet management and support for signals intelligence and ISR special mission aircraft and airborne surveillance systems.

MID has served as the prime contractor for the Rivet Joint fleet and on a wide range of other ISR platforms, including the award-winning Project Liberty, P-3 international system upgrades as well as providing communications systems and equipment for military and other U.S. government and foreign government ISR applications.

From our heritage of large jet SIGINT platforms to our latest line of small turboprop multi-INT aircraft, MID is a leading provider of manned airborne intelligence, surveillance, and reconnaissance products and services for the global military market.

- Network ISR System Architecture
- Signals, Sensors and Processing
- Communications System Development and Integration
- Specialized Aircraft, Maintenance and Modification
- Navigational Warfare
- Threat Awareness and Self Protect Systems
- MASINT, and System Solutions
- Flight Science Engineering
- Mission Systems Hardware/Software Integration, Deployment and Documentation
- Ground Station for Airborne Sensors
- Rapid Response Capability and Solution
- Program Life Cycle Support



SIGINT Systems Integration

PROVIDING THE SIGINT SYSTEM CAPABILITIES REQUIRED FOR TODAY'S AIRCRAFT INTEGRATION NEEDS

The Blackrock system is a signals intelligence (SIGINT) system for integration into intelligence collection platforms. Blackrock is able to automatically and manually receive, distribute, record, and process High Frequency (HF), Very High Frequency (VHF), and Ultra High Frequency (UHF) signals. Signals collection and processing activities provides for robust low-footprint emission direction finding (DF) capabilities.

Additionally, the Blackrock system can be integrated with new or existing hardware and software to provide additional SIGINT and IMINT capabilities. The system has the ability to integrate with other subsystems to provide higher fidelity geolocation capabilities, such as Frequency Difference in Arrival (FDOA), Time Difference of Arrival (TDOA), and a DF cueing mechanism for imagery capturing and recording based on DF results.

SYSTEM CAPABILITIES

- Signals Band Search
- Signals Manual Search
- Signal Seize
- Signal Recording
- Signal Recall
- Signal Panoramic Display
- Audio Distribution
- System Maintenance Integration

AUDIO TASKING & PRIORITY

Twenty-four (24) audio sourced real-time-processing (RTP) audios are available to operators for analysis and other signal interaction.

Audio selections automatically assigns (reassigns) audio channel to the headsets per operator tasking (last request has priority).

MAINTENANCE FUNCTIONS

Blackrock system maintenance is conducted via the System Status Panel that indicates specific problem components while supplying the means to correct issues by allowing assets to be removed from use, reset, or functional tested for output.

HARDWARE HIGHLIGHTS

- HF/VHF/UHF Tuners
- Custom Control Processors
- Audio Interfaces
- Video Interfaces
- Network Switches and Severs
- RAID Network Storage
- Navigation Server



SEARCH AND COLLECTION

Operators are able to interface with the Blackrock collection system via a robust Search and Collection panel.

- The Search and Collection panel is the primary interface for operators and maintainers to access the system search and collection display and controllers.
- All of the functions that encompass search and collection activity are available to operators and maintainers.

SEARCH AND COPY

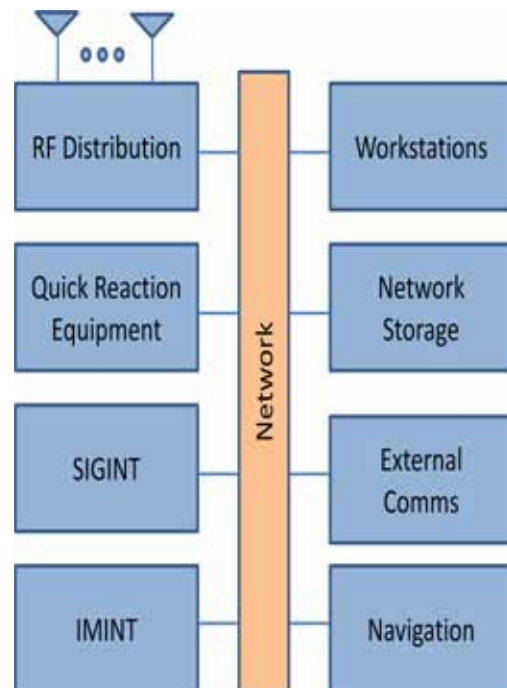
The system has one HF and one VHF/UHF tuner for band search operations. Up to 25 RF spectrum search bands are available for manual selection or selected from pre-defined parameters. Additionally, signals can be seized, recorded, or recalled by operators as needed.

- Operators have the ability to upgrade a selected search hit to a discrete channel (copy).
- For discrete search (copy) operations, operators have three HF and three VHF/UHF tuners available.

PAN/SDU INTERFACE

Blackrock contains an interactive panoramic (PAN) display that allows the user to perform signal inspection and analysis. Users are able to scan through signals, zoom in and out of signals based on pre-defined and operator definable pre-sets, and accomplish signal peak search through a combination of mouse and keyboard actions.

Also, the system contains an interactive signals display unit (SDU) display that allows the user to perform additional signal inspection and analysis. When a receiver is tuned to a signal, the system displays a pre-defined spectrum width, centered on the signal's center frequency. Subsequently, the user is then able to zoom in and out of signals via the mouse, similar to that of the PAN display.



GLOBAL SECURE INFORMATION MANAGEMENT SYSTEM (GSIMS)



GSIMS is an airborne certified and accredited IP-based executive secure communication system with a modular, scalable, and redundant design. The end-user experiences the same reliable connectivity, interoperability and security they would have in an executive office environment. The GSIMS integrates the Airborne Executive Phone (AEP) using multiple levels of security for digital voice through a single handset and internet data access. GSIMS integrates existing analog and digital radios with its IP-based architecture.

KEY FEATURES

- AEP Provides Secure/Non-Secure Digital Communications from a Single Handset
- Assured Communications for Emergency and Low Power Operations
- Centralized / Distributed System Control
- Multiple Independent Levels of Security (MILS)
- Secure/Non-Secure Voice, Video Teleconference, and Data Access
- Integrates Existing Analog and Digital Radios with the IP-based Architecture
- Multi-Language
- Wireless Connectivity (Cellular, CDMA, GSM, WiFi)
- Service Oriented and Open Architecture
- Industry Standardized Interfaces
- Bandwidth Monitoring, Prioritization, and Quality of Service Management
- User and Passenger Authentication
- Virtual Controls for Radios and Cryptographic Equipment
- Certified and Accredited to U.S. Government Security Requirements

APPLICATIONS

- Airborne, Shipboard, Vehicular, and Office Executive Communications System for Senior Leaders
- Commercially Available for Corporate and VVIP Platforms



RIO SIGNAL INTELLIGENCE SOFTWARE SUITE



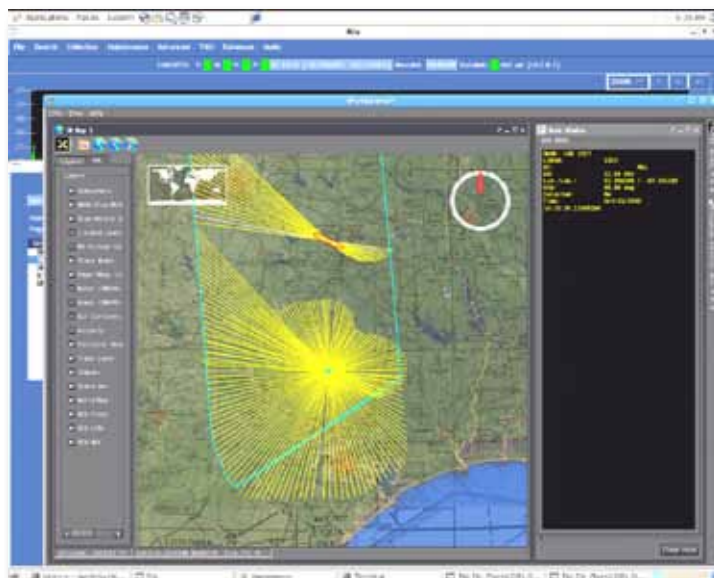
RIO is a signals intelligence software suite used for the intercepting, direction finding, geolocating, monitoring and recording of communications signals.

FEATURES

- Simultaneously utilizes four tuners to provide automated, continuous background signal search, signal monitoring and recording
- Geolocations of signal transmitters are determined either through intersecting Lines of Bearing (LOBs) measured over time or by Time Difference of Arrival (TDOA) and Frequency Difference of Arrival (FDOA) techniques
- LOBs and geolocations are shown on a fully integrated moving map display
- RIO utilizes commercially available mapping packages for three-dimensional display of the area of interest
- Modular and open standard Operating Systems
- X-MIDAS applications provide processing for special signal types
- Hardware enables growth to a SIGINT system that includes ELINT and Proforma
- Allows user to be remotely located from the sensor and maintain full control via a laptop-installed application
- Interactive spectral display allows the user to select signals based on RF energy levels and obtain detailed information such as modulation type, bandwidth, and center frequency

APPLICATIONS

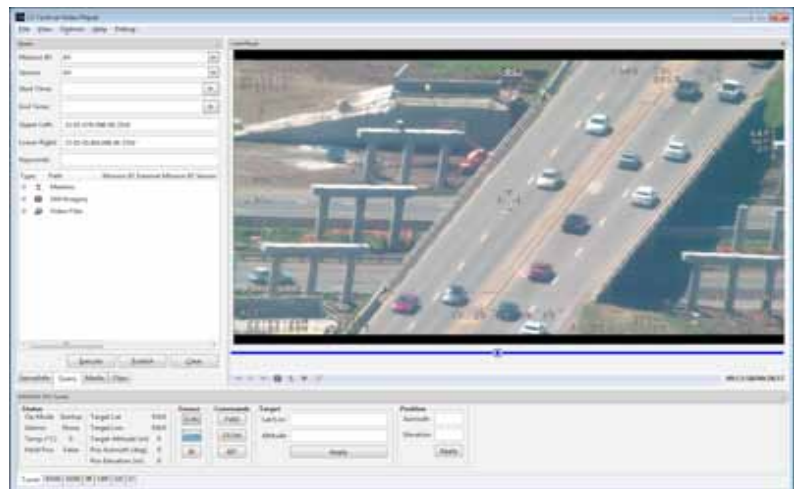
- Wartime and peacetime tasks
- Monitoring and geolocation of enemy communications
- Cueing of imagery sensors for visual identification



Tactical Video Exploitation Suite is an application suite that provides target management, sensor control, and full motion video recording, exploitation, and distribution in MISB compliant format. Easy to use, DVR - like interface provides full control of live and recorded video streams. The system is modular and easily integrated. A Cursor on Target interface utilizes cues from Multi-INT systems to cue EO/IR systems. MID's Tactical Video Exploitation Suite updates aircraft locations, sensor footprint and viewpoint utilizing KLV encoded meta data integrated with the Google Earth™ map and others. Tracks and target information are added to the map providing complete situational awareness from mission plan to live sensor data. Still images extracted from the video are rectified and geo-registered into the map. Extracted images can be forwarded to Electronic Light Table package for further exploitation, or embedded in reports and email. Sensor control for WESCAM MX series and FLIR Systems Star Safire series.

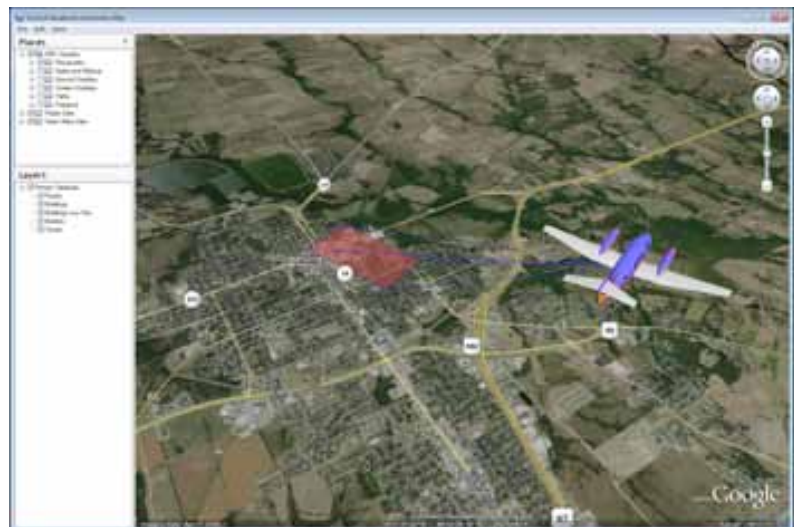
KEY FEATURES

- TRL 8
- KLV 601.4 Transport Stream Encoder
- Tactical Digital Video Recorder and Player
- Tactical Video Exploitation and Reporting
- Tactical Target Manager
- Map Integration
- MISP 5.4, STANAG 4609, STANAG 4545, NITF 2.1 Compliant
- Available for Windows and Linux
- Scalable Laptop to Data Center
- Sensor Control for WESCAM MX Series and FLIR Systems Star Safire Series



APPLICATIONS

- Designed for Air and Ground Use
- Military, Government and Police





L-3 Mission Integration's Multi-Sensor Flight Test Facility (MSTF) is located on over 100 acres of land adjacent to MID's main facility in Greenville, Texas. The test range specializes in electronic warfare, reconnaissance, and communications systems, flight testing and training (SIGINT/ELINT/RWR/ECM); and, red /grey/blue radar threat simulation from multiple emitters. We offer a low cost solution for commercial or government programs seeking HF To 40 GHz radiated signal sources for EW Flight Test.

L-3 MISSION INTEGRATION'S MULTI-SENSOR TEST RANGE PROVIDES

- Access to over 600 radio frequencies approved by FCC for testing purposes
- FAA-approved airspace for flight testing (24x7x365)
- Limited environmental concerns (noise pollution, endangered species, high population density)
- The ability to land almost any type of aircraft on its 8,000 foot runway (with 1,000 foot overruns on each end)
- FAA-certified Air Traffic Control
- FAA-certified Fire/Crash departments
- Department of Defense-certified security
- Technical experience
- Replicates real world electronic environment including Threat Reproduction/Simulation
- End-to-end electronic system test
- RF signal sources (Broadband, ELINT, High Power Impulse, Tracking or Mobile)
- Wide array of communication equipment (Narrowband, Wideband, Agile, Clear, Secure, LOS, BLOS, SATCOM)



For more information about the L-3 EW Flight Test Range, go to www.l3midwesterntestrange.com.



The Electromagnetic Effects group at L-3 MID is fully staffed by Electromagnetic Effects engineers. These engineers are experienced in E3 and TEMPEST design, and testing of aircraft units and systems. Personnel certifications include the NARTE EMC Engineer and NSA TEMPEST Engineer designations.

EMI/EMC/TEMPEST Design and Test

- Strict Adherence to Control of EMI
- Safety Issues:
 - Interference to Avionics
 - Radiation Hazards
- Communications Security
- Electromagnetic Pulse (EMP)

Design Support to Hardware Engineering

- Component Selection
- Filtering
- Shielding Effectiveness Analysis

Support to Aero & Systems

- EME Analysis
 - Identify Potential Incompatibilities Early (so Protection is Designed Into the System)
 - High Intensity Radiated Fields (HIRF)
 - Lightning Analysis
 - Precipitation Static Analysis
 - Antenna-to-Antenna Coupling
- Design Support
 - Define Shielding and Grounding Schemes
 - Define Red/Black Architecture for Secure Systems
 - Define Wire Categories for Interface Cable Routing
 - Define Electrical Bonding Requirements
 - Define Lightning Protection

System Level Testing

- EMC Ground Testing
- EMC Flight Testing
- TEMPEST Ground Testing
 - TEMPEST Professional Level II Certified Engineers
- Precipitation Static (P-Static)
- Radiation Hazards



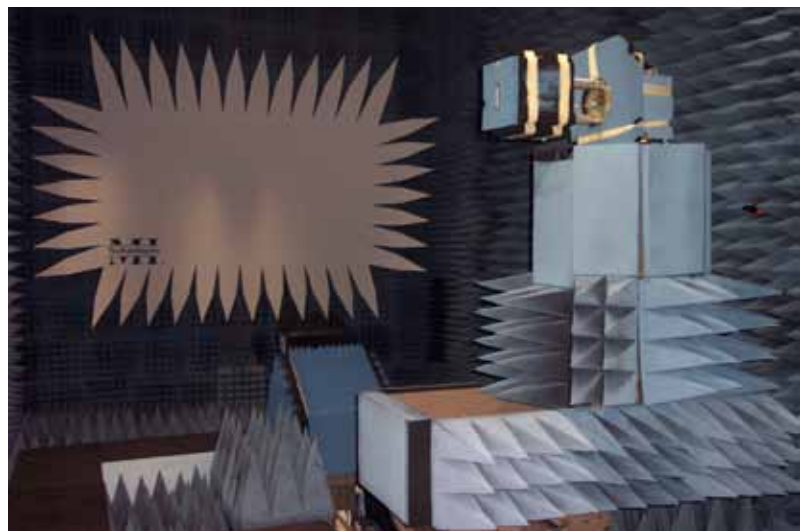
Radiation Hazards

- Hazards of Electromagnetic Radiation to Ordnance (HERO)
- Hazards of Electromagnetic Radiation to Fuels (HERF)
- Hazards of Electromagnetic Radiation to Personnel (HERP)

Antenna Radome Transmissivity Testing

TEMPEST Evaluations

- Equipment Level Evaluations
- MIL STD-461/ DO-160
 - Conducted Emissions
 - Radiated Emissions
 - Conducted Susceptibility
 - Radiated Susceptibility
- Capabilities for Group B EMI Testing
- RTCA DO-160F as defined below:
 - Section 16.0 Power Input, Category A equipment
 - Section 17.0 Voltage Spike, Category A equipment
 - Section 18.0 Audio Frequency Conducted Susceptibility - Power Inputs; Category R equipment
 - Section 19.0 Induced Signal Susceptibility (Radiated and Conducted); Category CC equipment
 - Section 20.0 Radio Frequency Susceptibility (Radiated and Conducted); Category R equipment (Note 1)
 - Section 21.0 Emission of Radio Frequency Energy; Category M equipment
- MIL-STD-461F as defined below:
 - CE101 Conducted Emissions, Power Leads, 30 Hz to 10 kHz
 - CE102 Conducted Emissions, Power Leads, 10 kHz to 10 MHz
 - CS101 Conducted Susceptibility, Power Leads, 30 Hz to 150 kHz
 - CS114 Conducted Susceptibility, Bulk Cable Injection, 10 kHz to 200 MHz, Curve 3
 - CS115 Conducted Susceptibility, Bulk



Notes:

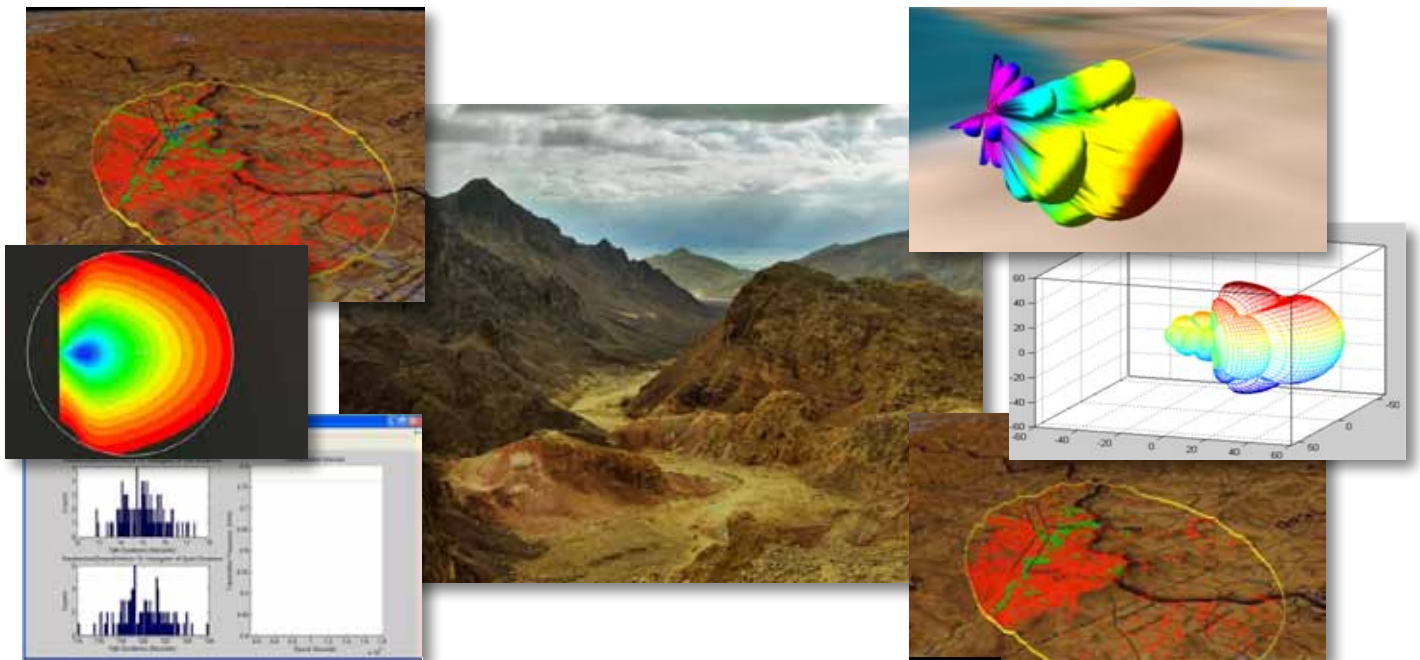
- (1) Maximum radiated susceptibility field level from 400 MHz to 8 GHz is 60 V/m
- (2) Air Force Aircraft Internal field levels up to a maximum frequency of 8 GHz

L-3 MID MSOA team has the experience to solve today's complex Modeling, Simulation, and Analysis challenges of conducting distributed joint distributed simulation exercises, performing effective mission rehearsal, operations analysis, creating and verifying models, recommending M&S tools and infrastructure products that satisfies dynamic specifications, regulations, and requirements.

The MSOA team provides products and services for modeling (physical, process, behavioral, or mathematical) complex information (data) into an abstraction or representation of air and ground platforms, weapons, synthetic environmental conditions for Live, Virtual, or Constructive simulations. The MSOA team has experience in man-in-loop and hardware-in-the-loop simulation software products that support multiple language text to speech processing, supporting multiprocessing of real mission data for ELINT, IMINT, and SIGINT driven simulation exercises.

Modeling, Simulation and Training (MS&T)

- Experience and IT infrastructure to support unclassified, collateral, or TS/SCI distributed simulation training exercises
- Use of COTS products plus internal M&S applications for effective operator training and data collection for student scorecards and exercise playback\after action reviews
- Experience integrating COTS, GOTS, and home grown simulation applications to conduct man-in-the-loop or hardware-in-the-loop M&S training activities





Modeling and Simulation – Operations Analysis (M&S-OA)

- Proven analytical methodology for conducting research studies and acquisition decision to support a Program's specification and requirements
- M&S scientific and technical analysis functions tailored to support the M&S community
- Research and development activities using L-3 MID proven process methodologies combined with industry best practices to enhance the ability to access, acquire, collect, analyze, synthesize, generate and report M&S related technical information
- Analysis of M&S model(s) performance measures oversight
- Research and development of Measures of Effectiveness (MOE) for determining the impact of simulations on the training, analysis and acquisition processes

Modeling and Simulation – Management Support (M&S-MS)

- Onsite and/or distributed training exercises, mission rehearsals, analytical studies, etc., or identification of viable options for simulation support
- Program reviews, strategic planning, and exercise management
- Operations coordination and monitoring of M&S training, exercises, and operations
- M&S program reviews, and strategic planning
- Configuration, product line, release, and document management of M&S software
- Requirements, simulation event incidents, defects, and corrective action reports management for M&S software, products, artifacts
- Communications and distribution mechanisms for M&S artifacts and related materials
- Research, develop, implement, and evaluate collaborative simulation modeling and analysis tools



Standards, Assessment, Verification, and Validation (M&S-SAVV)

- Onsite and/or distributed training exercises, mission rehearsals, analytical studies, etc., or identification of viable options for simulation support
- Performance measures verification, and validation of simulation model(s)
- Techniques, tactics, and procedures verification, and validation for mission specific simulation exercises and rehearsals
- Compliancy oversight, guidance, and support for DoD certification of High Level Architecture (HLA) and other M&S standards
- Assessments mapping of simulation models' vulnerability and survivability
- Research, develop, and execute applied standard verification and validation (V&V) processes to selected models and simulations
- Guidelines, oversight, and procedures to analyze and compare V&V results with objective model acceptance criteria in support of M&S accreditation
- Analysis of compared V&V results with objective model acceptance criteria in support of M&S accreditation
- Improve models, products, and artifacts by analyzing feedback from actual combat experience and applying appropriate updates into the model and comparing the results with actual combat results and investigating any ambiguities that result to check the model's validity

Simulation Integrated Lab (SIL)

- Conduct software and systems integration testing, acceptance testing, and V&V testing
- Conduct sensitive compartmented information testing, simulation training, and exercises
- Accessible and secure facility to conduct M&S events Program reviews, strategic planning, and exercise management





L-3 Mission Integration's modern aircraft paint facilities include two paint hangars. The primary facility is capable of painting the surface area of a Boeing 747-400. It is equipped with two platform lifts that can move the length and width of the hangar to reduce cycle time. An electrostatic paint system reduces overspray and increases painting efficiency. A foam-water deluge system, four foam-water nozzles, and ultraviolet and infrared sensors provide excellent fire protection during the painting process. The second facility is capable of de-painting a Boeing 757. This advanced, temperature-controlled facility offers five automated ventilation and exhaust methods to facilitate different washing, de-painting or painting procedures. A high-capacity filtration system allows MID to perform painting/de-painting services in a nearly particle-free environment. This facility also houses numerous water and solution tanks, and an aqueous film forming foam (AFFF) emergency fire system, with over a million gallons available for fire safety purposes. Furthermore, there are workstands and component-holding fixtures that improve cycle time in de-painting and painting operations.

Whether your needs are basic or fastidious, our personnel have the experience you demand. MID offers premier services in aircraft de-painting, exterior painting and interior. Our facilities are capable of handling virtually any aircraft finishing for aircraft ranging from VIP aircraft to aircraft for military service.





Each facility is equipped with environmental controls, modern equipment, and fire protection systems. Our processes are ISO 9001 certified and compliant with all federal and state safety regulations. In addition, our facilities can fabricate CAD driven stencil design.

MID has extensive experience in applying finishes for many different aircraft, including: Boeing 707, 737, 747, and 757, P-3, C-5, C-18, C-20, KC-10, C-22, C-47, C-130, C-135, A310, A340, Gulfstream III, IV, E-6B, E-8, MD-11, and VC-137.





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