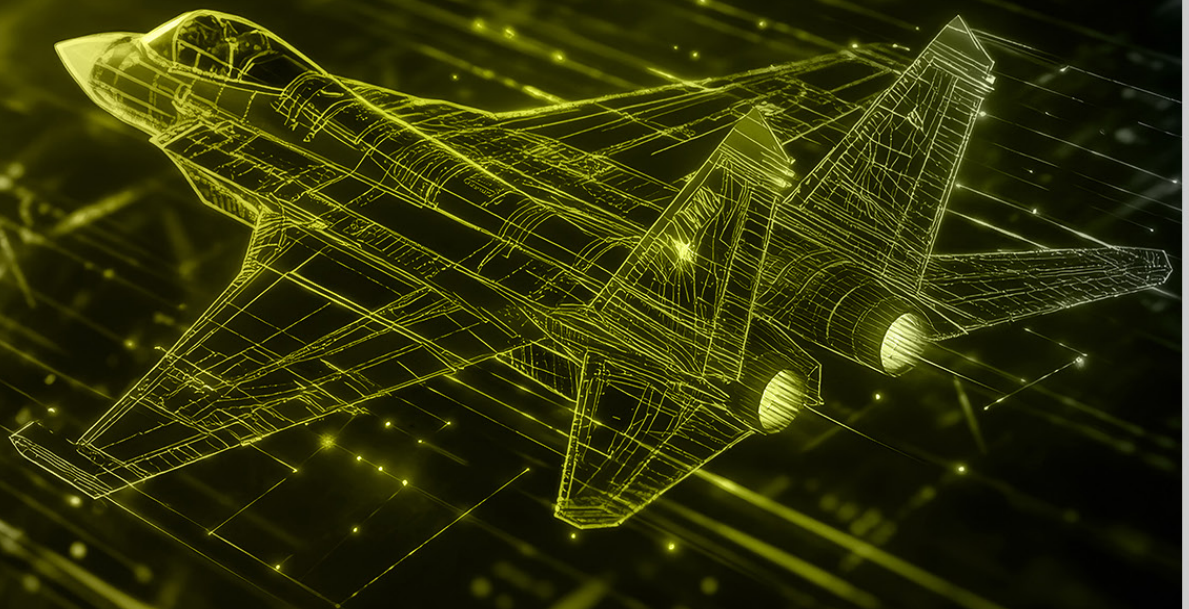


Mission-Ready Test Solutions for **Advanced Aerospace & Defense Programs**



From concept to sustained production, Averna delivers mission-ready test solutions. We combine RF, avionics, actuation, software, and environmental test expertise to validate performance under real operational conditions throughout the product lifecycle. Our complete and certifiable equipment reduces integration risk, accelerates qualification, and scales into production.

What We Validate

Aerospace & Defense Systems Across the Lifecycle



- **Line Replaceable Units (LRUs) and Shop Replaceable Units (SRUs)**, from early development through acceptance and sustainment.
- **Flight-critical avionics and embedded control systems**, validated through real-time and closed-loop testing.
- **RF, GNSS, SATCOM, radar, and wideband signal chains**, including performance degradation and contested RF environments.
- **Primary and secondary flight control systems**, as well as landing gear, cargo doors, and other safety-critical actuation.
- **Mission-critical electronics and CCAs**, supporting NPI, qualification, ESS, and production.
- **Environmental and lifecycle robustness**, including ESS, HALT/HASS, and endurance testing.

Core Capabilities & Technologies

RF & Wideband Signal Validation

- Wideband RF record & playback and synchronized stimulus for **GNSS, SATCOM, radar, and complex RF subsystems**.
- Characterization of **phase noise, spurious response, insertion loss, modulation accuracy, dynamic range, and timing integrity**.
- Simulation of **interference, multipath, spoofing, jamming, and signal degradation** to validate link margins and decision thresholds.
- Support for **open-loop, closed-loop, and HIL RF scenarios**, from lab validation through system integration.

Hardware-in-the-Loop (HIL) & Real-Time Control

- Deterministic, real-time HIL architectures using **FPGA- and RT-based platforms**.
- Physics-based plant models for **avionics controllers, flight computers, and embedded control logic**.
- Fault injection at **sensor, actuator, bus, and I/O levels** to validate detection, redundancy, and fail-safe behavior
- Support for **MIL-STD-1553, ARINC, Ethernet, serial, video, and mixed-signal interfaces** across evolving avionics architectures.

Core Capabilities & Technologies

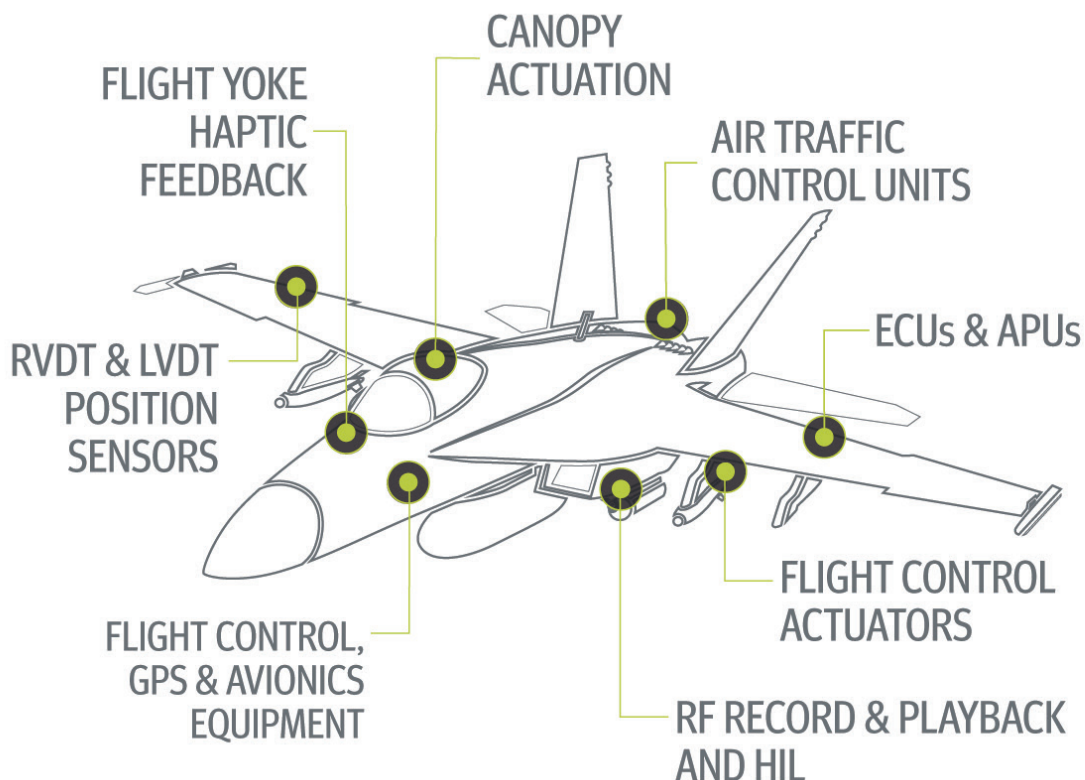
Actuation & Motion System Test

Averna has deep experience delivering test solutions for flight-critical actuation systems, including:

- **Primary and secondary flight control surfaces**, validated through acceptance, qualification, and endurance testing.
- Test systems for **landing gear, cargo doors, and other safety-critical mechanisms**.
- High-fidelity **load simulation, torque control, position feedback, and dynamic response testing**.
- Precision mechanical designs informed by **FEA, real-world kinematics, and tight-tolerance manufacturing**.
- Modular, reusable architectures that support **future variants and evolving requirements**.

Environmental, ESS & Lifecycle Stress

- Combined thermal, vibration, humidity, pressure, and electrical stress testing.
- **Environmental Stress Screening (ESS), HALT, HASS, and endurance protocols**.
- Automated orchestration of environmental profiles synchronized with functional testing.
- Parallel, multi-UUT test configurations to accelerate qualification and production throughput.
- Data-rich execution supporting **root-cause analysis and design iteration**.



Core Capabilities & Technologies

Turnkey Test Equipment & Production Systems

Averna designs and delivers **complete turnkey test solutions**, including:

- **PXI/PXIe, FPGA, RF, power, and mixed-signal instrumentation**
- Smart, swappable **fixtures, nests, RF enclosures, and test beds**
- Integrated safety systems, interlocks, and operator-focused ergonomics
- Footprint-optimized designs for production and depot environments
- Built-in self-test (BIST), calibration, and long-term maintainability

Our solutions support **qualification labs, production lines, repair depots, and global deployments.**

Software & Test Frameworks

- Industry-standard software environments including **NI TestStand, LabVIEW, LabVIEW FPGA, C/C#, .NET, Python, and Structured Text.**
- Test specification development, testability analysis, and coverage optimization.
- Configurable HMI with **tiered access for operators, engineers, and technicians.**
- Automated ATP reporting, traceable results, and secure data management.
- Scalable software architectures proven across **qualification, acceptance, and production test.**



Manufacturing, Replication & Business Continuity Services

Test System Replication & Global Deployment

Averna supports aerospace and defense programs well beyond initial validation:

- **Build-to-print and test system replication**, from single systems to large global fleets.
- Global sourcing, assembly, integration, calibration, and logistics.
- Upgrade, refurbishment, and obsolescence mitigation programs.
- Long-term maintenance, spares, asset tracking, and lifecycle support.

Business Continuity Services

Averna's Business Continuity Services ensure mission-critical test operations remain available and resilient:

- Redundant test system builds and deployment strategies.
- Secure configuration management and version control across sites.
- Asset tracking, spare strategy development, and transfer between locations.
- Support for rapid recovery from supply chain disruptions or site-level outages.

These services help aerospace and defense customers **protect production schedules, certification timelines, and long-term program commitments.**

Secure & ITAR-Aligned Infrastructure

- **ITAR-compliant integration labs** with controlled access.
- Dedicated power, ESD controls, and secure workflows.
- Experience supporting defense, export-controlled, and regulated programs.
- Audit-ready documentation embedded into test workflows.

Certification-Aligned by Design

Averna designs test solutions to align with aerospace and defense standards **from day one**, reducing risk and rework.

Standards & Quality Alignment

- DO-160 (Environmental Conditions & Test Procedures)
- DO-254 (Airborne Electronic Hardware)
- DO-178C (Software)
- MIL-STD-461 (EMI/EMC)
- MIL-STD-810 (Environmental Engineering)
- AS9100-aligned quality processes

Our teams generate **traceable verification artifacts** that streamline certification reviews and accelerate approval cycles.

Only at Avera

Secure & ITAR-Aligned Infrastructure

Proligent® Test Data Intelligence

Proligent™ QuickView extends Avera's test solutions with centralized, enterprise-grade test data intelligence.

- Secure aggregation of test data across **programs, sites, and suppliers.**
- Real-time visibility into **yield, defects, trends, and equipment health.**
- Role-based access supporting engineering, quality, and program stakeholders.
- Improved root-cause analysis, faster corrective action, and audit readiness.

For aerospace and defense programs, Proligent® enables **data continuity, traceability, and confidence** across the full test lifecycle.



Request a Technical Consult

De-risk your next program with a focused working session.

We'll map mission requirements to a **concrete test strategy, system architecture, and deployment plan** — grounded in systems we've already delivered.