

# DATA ITEM DESCRIPTION

**Title:** AIRCRAFT INTEGRATED SYSTEMS CLIMATIC TEST REPORT

**Number:** DI-ENVR-82270

**Approval Date:** 20190517

**AMSC Number:** F10035

**Limitation:** N/A

**DTIC Applicable:** No

**GIDEP Applicable:** No

**Preparing Activity:** 11 (AFLCMC/EZFS)

**Project Number:** ENVR-2019-007

**Applicable Forms:** N/A

**Use/Relationship:** The Aircraft Integrated Systems Climatic Test Report describes the climatic testing of a fully equipped, flight-worthy aircraft. The climatic tests assess the effects of climate on performance, operability, and maintainability of the aircraft and its impacts on aircraft systems and subsystems, to include: propulsion, auxiliary power, engine power, flight controls, fuels, environmental control and thermal management, hydraulics, cockpit instruments, displays and controls, ice protection, airframe, ventilation and drainage, avionics, armament, vehicle management, ground support equipment, low observable and final finish systems, and electrical power. Climatic testing also ascertains the effects of climate on human factors pertaining to maintenance tasks, pre-flight and post-flight procedures, fueling and defueling, deicing and anti-icing, loading and off-loading weapons, and rapid reaction procedures (e.g., quick aircraft start-up, hot-pit, etc.).

This Data Item Description (DID) contains the format, content, and intended use information for the data deliverable resulting from the work task described in the solicitation.

## Requirements:

1. Reference documents. None.
2. Format. The report shall be in the contractor's format.
3. Content. The report shall include the following information:
  - a. All system, subsystem, and interface design-to climatic environment requirements.
  - b. The specific test objectives.
  - c. Identification of the test aircraft and a complete description of the aircraft systems and subsystems tested, including all applicable engineering changes and differences from the full-rate production configuration.
  - d. Test requirements, including: required test and inspection parameters and intervals, performance requirements, and acceptance or compliance limits (i.e., clear and verifiable pass-fail criteria) for each aircraft system and subsystems tested and evaluated.
  - e. Test plans and procedures, including:
    - (1) A complete identification of test instrumentation, equipment, and facilities including:
      - (a) Nomenclature.
      - (b) Model or version number.
      - (c) Serial number.
      - (d) Manufacturer.
      - (e) Calibration status.

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- (f) Ranges and accuracies.
- (g) Comments, if applicable, especially for non-production equipment on the aircraft.
- (2) Descriptions, drawings, and sketches of the test facility set-up, including:
  - (a) Location and orientation of test item.
  - (b) Location, orientation, and settings of test equipment and instrumentation.
  - (c) Location, orientation, and settings of sensors and probes.
  - (d) Location and orientation of interconnections, cables, and hook-ups.
  - (e) Electrical power, pneumatic, fluidic, and hydraulic requirements.
  - (f) Test equipment limitations.
  - (g) Test facility limitations.
- (3) A description of the test data that is monitored and recorded, and a description of how the test data is captured (i.e., continuous vs. sampling, sampling rates, etc.)
- (4) Program test schedule, including:
  - (a) Test conditions.
  - (b) Test points.
  - (c) Test sequencing.
  - (d) Inspections.
- (5) Detailed step-by-step instructions for test execution, including:
  - (a) Test article constraints and limitations.
  - (b) Aircraft mounting and restraint details.
  - (c) Procedures for aircraft panel and bay access.
  - (d) Identification of environmental sensor types and sensor placement locations.
  - (e) Exposure environment (e.g., baseline, hot and cold temperatures, humidity, snow, ground fog icing, rain, vortex icing, etc.) and duration.
  - (f) Test parameter tolerances (for temperature, humidity, etc.).
  - (g) Exposure environment sequences.
  - (h) Description of aircraft systems and subsystems being operated and monitored during the test and inspection, including: scheduling and sequencing of functional checks (e.g., engine runs, hydraulic and electrical systems energization, flight control systems and actuators, etc.).
  - (i) Description of inspection processes and procedures for each aircraft system and subsystem being operated and monitored.
- f. Test results for each aircraft system and subsystem and test condition, including the following:
  - (1) A record of environmental conditions and durations.
  - (2) Observations of system and subsystem functional performance and photographs of significant test events.

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- (3) Test item responses to environmental conditions.
- (4) Results of each performance check and visual examination (and photographs, if applicable), including:
  - (a) Prior to test.
  - (b) During test.
  - (c) Post-test.
- (5) Analysis of test results, including:
  - (a) Comparison between results achieved versus test and inspection objectives or requirements.
  - (b) A detailed discussion of test and inspection anomalies, deviations, discrepancies, or failures that do not meet objectives or requirements.
  - (c) Proposed corrective actions for failures or problems encountered.
- (6) A summary of the complete test and inspection results, including:
  - (a) A brief discussion of the significant test and inspection results, observations, conclusions, and recommendations covered in greater detail elsewhere in the report.
  - (b) Root cause and proposed corrective actions with implementation schedules for deviations, departures, or limitations encountered during test and inspection.
  - (c) Tables, graphs, illustrations, or charts, as applicable, to simplify the summary data.
- g. Appendices shall be used to append detailed test and inspection data, drawings, photographs, or other documentation too voluminous to include in the main body of the report.

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