

# DATA ITEM DESCRIPTION

**Title:** LOADS ENVIRONMENTAL SPECTRA SURVEY (L/ESS) DATA REPORT

**Number:** DI-SESS-81450B

**Approval Date:** 20130524

**AMSC Number:** F9377

**Limitation:** N/A

**DTIC Applicable:** N/A

**GIDEP Applicable:** No

**Office of Primary Responsibility:** 11 (AFLCMC)

**Applicable Forms:** N/A

**Use/Relationship:** The Loads Environmental Spectra Survey (L/ESS) Data Report is used to present data collected from on-board flight data recorders which describes the actual operational loads environment of an aircraft. After statistical stability of the data has been achieved and if usage differences are apparent, an update of the baseline spectrum with current operational spectra derived from the L/ESS program may be necessary.

a. The L/ESS Data Report Data Item Description (DID) is applicable to all programs as described in MIL-STD-1530. MIL-STD-1530 is applicable to all aircraft the USAF acquires, uses, or leases and L/ESS requirements can be tailored when appropriate.

b. This DID contains the format, content, and intended use information for the data product resulting from the work task described in the contract per MIL-STD-1530. This DID supersedes DI-MGMT-81450A.

(Copies of the DID and MIL-STD-1530 are available online at <https://assist.dla.mil/quicksearch/> or from the Standardization Document Order Desk, 700 Robbins Ave., Bldg 4D, Philadelphia PA 19111-5094.)

## Requirements:

1. Reference documents. The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices and revisions, shall be as specified in the solicitation or contract.

2. Format. Contractor format is acceptable.

3. Content. The L/ESS data report shall include all flight time during the reporting period for L/ESS equipped aircraft only and a total of all flight time since aircraft delivery. L/ESS reports are required to be published annually unless the Aircraft Structural Integrity Program (ASIP) Manager along with the Procuring Agency approves a different delivery schedule. This periodic report shall also contain the following information:

a. The number of flight hours logged by each L/ESS instrumented aircraft, the number of hours of recorded data received for each aircraft, and a listing and explanation of the causes of lost, unusable, or invalid data. The report should show the valid data capture rate of the fleet usage data and explain any deviations from the requirements.

b. The criteria and analysis used to determine statistical stability.

c. Comparisons of the recorded data with the baseline spectra by mission type and mission segment broken out by base and all bases combined. The data shall be compiled as cumulative occurrences or exceedances based upon 1000 flight hours.

d. Presentation of significant parameters (i.e., pressure cycles, ground-air-ground cycles,

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strains, vertical load factor at the center of gravity ( $N_z$ ) and lateral load factor at the center of gravity ( $N_y$ ) with maneuver separated from gust for both  $N_z$  and  $N_y$ , rates, accelerations, surface deflections, and wing sweep for various gross weight, airspeed, and altitude combinations) as follows. The data shall be compiled as cumulative occurrences or exceedances based upon 1000 flight hours.

(1) Exceedances of significant parameters (in tabular and graphical form) versus mission type and mission segment with flight time, number of flights, and composites for individual aircraft (by tail number) including base, fleet, and other significant groupings.

(2) Tabulations of time in airspeed and altitude blocks by weight blocks, mission type, and mission segment.

(3) Graphical comparisons of design, certification, and current baseline usage for a range of parameters (i.e.,  $N_z$ ,  $N_y$ , etc.) and significant loads (i.e., wing/horizontal tail/vertical tail root bending/torsion, etc.).

(4) Flight parameters (i.e.,  $N_z$ ,  $N_y$ , etc.) & loads plotted against limits.

(5) Exceedance data plotted within the design V-n diagrams at various altitudes.

e. Multiparameter (i.e.,  $N_z$  versus corresponding roll rate, roll acceleration, and other significant parameters) data (in tabular and graphical form), shall be presented as distributions of parameter peaks by mission type and mission segment with time and number of flights for each.

4. End of DI-SESS-81450B.