NOT MEASUREMENT SENSITIVE

MIL-D-18300H(AS)
23 February 1993
SUPERSEDING
MIL-D-18300G(AS)
1 March 1970

MILITARY SPECIFICATION

DESIGN EXAMINATIONS, ENGINEERING AVIONIC SYSTEMS/EQUIPMENT GENERAL REQUIREMENTS FOR

This specification is approved for use by the Naval Air Systems Command, Department of the Navy and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Data. This specification covers the preparation of data for the General Requirements for Design Examinations, Engineering Avionic Systems/Equipment in support of Naval Air Systems Command (NAVAIR) avionics design, development, test, production and installation, for aircraft weapon systems. This specification does not cover financial or administrative data nor development, manufacturing or test facilities data nor evaluation, operational or material support data. (See 6.1 for intended use.)

1.2 Types of data. This specification covers the preparation of all types of engineering data generated during the validation or advanced development, the full scale development and the production phases of equipment contracting. Some types of data covered may also be generated on contracts let during the conceptual and operational phases of the program. Figure 1 shows the applicability of types of technical data to various phases of a program.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Air Systems Command, Attn: Avionic and Computer Resources Division (AIR-546), Washington, DC 20361-5460, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N6895 FSC 58GP

SPECIFICATIONS

MILITARY

MIL-E-5400	Electronic Equipment, Airborne, General Specification for
MIL-E-6051	Electromagnetic Compatibility Requirements, Systems
MIL-C-6781	Control Panel: Aircraft Equipment, Rack or Console Mounted
MIL-Q-9858	Quality Program Requirements
MIL-T-18303	Format for Preproduction, Acceptance and Life for Aircraft Electronic Equipment Test Procedures
MIL-N-18307	Nomenclature and Identification for Aeronautical Systems including Joint Electronics Type Designated Systems and Associated Support Systems
MIL-T-23103	General Requirement for Thermal Performance Evaluation, Airborne Electronic Equipment and Systems
MIL-T-31000	General Specification for Technical Data Packages
MIL-M-38761	General Requirements for Preparation of Microfilming and Photographing of Engineering/ Technical Data and Related Documents: PCAM Card Preparation, Engineering Data Micro-reproduction System
MIL-I-45208	Inspection System Requirements
MIL-H-46855	Human Engineering Requirements for Military Systems, Equipment and Facilities
MIL-M-81927	General Style and Format of Technical Manuals (Work Package Concept)
MIL-D-81992	Preparation of Technical Directives
MIL-M-85337	Requirements Technical for Manual: Quality Assurance Program

STANDARDS

MILITARY

MIL-STD-100	Engineering Drawing Practices
MIL-STD-449	Radio Frequency Spectrum Characteristics Measurement of
MIL-STD-461	Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference
MIL-STD-462	Electromagnetic Interference Characteristics, Measurement of
MIL-STD-469	Radar Engineering Design Requirements, Electromagnetic Compatibility
MIL-STD-470	Maintainability Program for Systems and Equipment
MIL-STD-471	Maintainability Verification/Demonstration/ Evaluation
MIL-STD-490	Specification Practices
MIL-STD-499	Engineering Management
MIL-STD-680	Standardization Program Requirements for Defense Acquisitions
MIL-STD-756	Reliability Modeling and Prediction
MIL-STD-781	Reliability Testing for Engineering Development, Qualification, and Production
MIL-STD-785	Reliability Program for Systems and Equipment Development and Production
MIL-STD-810	Environmental Test Methods and Engineering Guidelines

STANDARDS

MILITARY

MIL-STD-831	Test Reports, Preparation of
MIL-STD-881	Work Breakdown Structures for Defense Materiel Items
MIL-STD-882	System Safety Program Requirements
MIL-STD-961	Military Specification and Associated Documents, Preparation of
MIL-STD-962	Military Standards, Handbooks, and Bulletins, Preparation of
MIL-STD-965	Parts Control Program
MIL-STD-970	Standards and Specifications, Order of Preference for the Selection of
MIL-STD-973	Configuration Management
MIL-STD-1521	Technical Reviews and Audits for Systems, Equipments, and Computer Software
MIL-STD-1528	Manufacturing Management Program
MIL-STD-1556	Government/Industry Data Exchange Program (GIDEP) Contractor Participation Requirements
MIL-STD-1629	Procedures for Performing a Failure Mode, Effects and Criticality Analysis
MIL-STD-2069	Requirements for Aircraft Nonnuclear Survivability Program
MIL-STD-2072	Survivability, Aircraft; Establishment and Conduct of Programs for
MIL-STD-2084	General Requirements for Maintainability of Avionic and Electronic Systems and Equipment
MIL-STD-2096	Microcircuit Data Requirements
MIL-STD-2097	Acquisition of Support Equipment and Associated Integrated Logistics Support
DOD-STD-2167	Defense System Software Development
MIL-STD-45662	Calibration Systems Requirements

HANDBOOKS

MILITARY

MIL-HDBK-237	Electromagnetic Compatibility Management Guide for Platforms, Systems and Equipment

BULLETIN

MIL-BUL-544	Federal/Military/Industry Specifications and Standards, and NAVAIR Series Documents Approved by the Naval Air Systems Command

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the DODSSP Standardization Documents Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

NAVAL AIR SYSTEMS COMMAND (NAVAIR)

EI-1000	Avionics Installation Instruction, Format for
ET-1000	Avionics Bench, Pre-Flight and Flight Test Instruction, Format for
AD-1350	Engineering Drawings and Associated Data
AR-29	Frequency Allocation and Equipment Spectrum Signature Requirements for
AR-30	Integrated Logistic Support Requirements for Aeronautical Systems and Equipment
AR-41	Technical Directive Development and Acquisition of Integrated Logistic Support for Aeronautical Weapon System Changes
AV-2000	Format for Preparation of Military Specifications General Requirements for Avionic Equipment
AV-4000	Outline for Preparation of Military Specifications for Ground Support Equipment

NAVAL AIR SYSTEMS COMMAND (NAVAIR) (continued)

AV-5000	Outline for Preparation of Military Specifications for Aircraft Instruments Explanation
AV-10000	Format for Naval Air Systems Command Avionic System Performance Specifications for Weapon Systems
AV-10001	Format for Naval Air Systems Command Avionics Installation/Interface/Test Specifications for Weapon Systems
SD 8706	Design Examinations, Engineering, Aircraft Weapon Systems, General Specification for

(Copies of NAVAIR specifications, publications, and drawings may be obtained upon application to the Contracting Officer, Naval Air Systems Command, Navy Department, Washington, DC 20361-5460.)

2.2 Non-Government publications. The following document forms a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z 39.18	Information Sciences - Scientific and Technical Reports, Organization, Preparation and Production of

(Application for copies should be addressed to the American National Standards Institute, 1430 Broadway, New York, NY 10018-3308.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.3.1 Utilization of specifications, standards, drawings and publications.

2.3.1.1 Supplementary documents. In addition to the referenced documents, other specifications, standards, handbooks, drawings, and publications may be required for design, development, production and utilization of the data being specified, in which case appropriate documents should be selected from MIL-BUL-544 and may be used without further approval if they do not require tailoring to the program. When appropriate documents cannot be selected from MIL-BUL-544, they shall be selected from DODISS in accordance with MIL-STD-970 and referred to the contracting activity for approval.

Justifications for use and tailoring of the documents with supporting evidence of their suitability shall be included with the request for approval of the documents.

2.3.2 Utilization of approved documents. Specified information content, accuracy and clarity of data prepared under this specification is the responsibility of the contractor and the use of specifications, standards, handbooks, drawings and publications listed or approved by the contracting activity is in no way to be considered as a guarantee of the acceptance of the end product.

2.3.3 Formal approval of documents. To prevent the proliferation of documents and enhance standardization, formal approval of non-approved documents is required by the contracting activity. Submission of non-approved documents to the contracting activity in accordance with contractual requirements does not constitute approval until the contractor has been notified of the acceptability of the documents for use on the contract. On subsequent orders for the same type of data, the contractor shall consider all documents approved for use on the preceding contract or the latest revision of these documents to be approved for use on the current contract unless notified to the contrary by the contracting activity.

3. REQUIREMENTS

3.1 General. The tasks and work required to generate the data covered by this specification shall be in accordance with the applicable equipment or weapon system specifications, the statement of work (SOW) and the contract. The data shall be edited and formatted in accordance with this specification and applicable Data Item Descriptions (DID) (DD Form 1664) and submitted and delivered in accordance with the Contract Data Requirements List (CDRL) (DD Form 1423) and the contract.

3.1.1 Data formats. All data shall be prepared in the formats specified in this specification or the referenced specifications. Scientific and technical reports shall be in accordance with ANSI Z 39.18. Test procedures shall be in accordance with MIL-T-18303. Test reports shall be in accordance with MIL-STD-831. Specifications shall be in accordance with MIL-STD-961 and standards and handbooks shall be in accordance with MIL-STD-962. Drawings shall be in accordance with AD-1350 and MIL-STD-100. Technical directives shall be in accordance with MIL-D-81992. Technical manuals shall be in accordance with MIL-M-81927. Contractor and computerized formats will be acceptable alternatives when authorized by the contracting activity.

3.1.2 Tasks, work and data. Engineering data is generated by tasks and work in all areas of management except Data Management as shown in table I, Summary Work Breakdown Structure (SWBS) for an Avionic System/Configuration Item (see 6.4c). For contracting activity management and equipment deployment and utilization, it is not necessary that all data generated by tasks and work on the contract be formalized or delivered. The contracting activity will review the specifications, the SOW, which includes the SWBS, and the contract requirements and select only those data items necessary to manage the contract and utilize the equipment. This specification covers all general engineering

data for typical avionic equipment and will be tailored for a specific contract by changing the requirements for specified data and adding and deleting data items.

3.2 Management data. The contractor shall prepare the following data for engineering management of the project.

3.2.1 Contract work breakdown structure (CWBS). The SWBS shall be extended to levels which provide specification requirements and configuration control visibility. MIL-STD-881 shall be used as a guide in extending the SWBS into a CWBS.

3.2.2 Data schedule and receipts. The contractor shall index the data and prepare contract data status and schedule report for all data items ordered by the contracting activity.

3.2.3 Government furnished equipment (GFE) management and control. The contractor shall provide a description of his GFE management and control system and prepare reports on scheduling, maintaining, accounting for and disposing of GFE.

3.2.4 Technical review and audit data. For each review and audit required by the contract, the contractor shall issue an agenda, prepare a data package and prepare and issue the minutes of the meetings using MIL-STD-1521 as a guide to cover the scope of the particular review/audit.

3.2.5 Performance attainment schedule. The contractor shall develop event networks or charts based on the Work Breakdown Schedule (WBS) and include the attainment of critical equipment performance requirements as engineering events. The network/chart shall be prepared for the contracting activity with appropriate dates to monitor the scheduled attainment of specification performance and program milestones.

3.2.6 Configuration Management Plan (CMP). The contractor shall develop a Configuration Management Plan to define his organization, procedures, audits, and schedules, for providing configuration control of all items under the contract.

3.2.6.1 Software Configuration Management Plan (SCMP). As part of the CMP, the contractor shall develop and submit a SCMP in accordance with DOD-STD-2167 to provide for configuration control of all computer program (see 6.4a) items under the contract and their interfacing support equipment programs.

3.2.6.2 Configuration Audit Plan (CAP). If the system or equipment is so extensive or complicated that it is not practical to include the CAP in the CMP, the contractor shall prepare a separate CAP to establish the Functional and Product Configuration Identification (FCI and PCI).

3.2.6.3 Nomenclature, identification plates, prefix letters and type codes. The contractor shall prepare the data for assignment or approval of the following items in accordance with MIL-N-18307.

a. Assignment of nomenclature to identify the system and major units.

b. Approval of identification plate drawings for major units.

c. Assignment of serial number prefix letters.

d. Assignment of type equipment codes for ground support equipment.

3.2.6.4 System and equipment specifications. The contractor shall develop or revise the specifications for the equipment under contract.

a. Military and aeronautical specifications for avionic systems and subsystems shall be prepared using AV-10000 as a guide.

b. Military and aeronautical specifications for avionic equipment shall be prepared using AV-2000 as a guide.

c. Military and aeronautical specifications for ground support equipment shall be prepared using AV-4000 as a guide.

d. Military and aeronautical specifications for aircraft instruments shall be prepared using AV-5000 as a guide.

e. Military specifications for standardized equipment shall be in accordance with MIL-STD-961.

f. Revisions and changes to specifications shall be in accordance with MIL-STD-961.

3.2.6.4.1 Developmental specifications. For developmental systems/equipment, the contractor shall prepare an aeronautical specification written in sufficient detail to permit its use in the competitive contract of production equipment. The specification shall specify all design and performance requirements including, where applicable, details and materials of construction. The specification shall reflect the model being provided under the research and development (R&D) contract and shall include any additional requirements and characteristics which should be included in the production equipment.

3.2.6.4.2 Production specifications. For production systems/equipment, the contractor shall prepare a military specification reflecting the equipment produced on the contract. This will generally be a revision of the contract specification, corrected and expanded to include all changes, details and materials of construction, design and performance requirements and shall, in all respects, reflect the latest production equipment. The production specification shall be in sufficient detail to permit its use in competitive contract of additional equipment which will be electrically and mechanically interchangeable with the latest models of equipment produced. The contractor shall keep the specifications up-to-date by preparing amendments or revisions to reflect all changes to the equipment during the contract.

3.2.6.4.3 Contractor Furnished Equipment (CFE) specifications. For CFE, the contractor shall prepare a military type specification for each system/equipment and related special support equipment.

3.2.6.5 Drawings and associated data. The contractor shall prepare and revise MIL-STD-100/Aeronautical Data (AD)-1350 drawings and associated data to the MIL-T-31000 level specified in the contract and the detail necessary to represent the final configuration items delivered.

3.2.6.5.1 Drawings for rack or console mounted controls. The contractor shall prepare drawings for each control unit (either GFE or CFE) in accordance with the applicable requirements of MIL-C-6781 for rack or console mounting in an aircraft. The drawings shall be prepared in sufficient time to permit review and approval prior to the fabrication of the control units. The drawings shall show the following information:

a. All major outline dimensions in accordance with MIL-C-6781, including length, width, depth, location of mounting fasteners and dust cover. The location and type of connector (or pigtail when used), the depth dimension to the end of the attaching plug and cable clamp whether they are furnished with the equipment or not.

b. Layout of front panel showing location of parts and sub-assemblies and giving the location, size and type of all lettering and markings proposed to be used, and details of the control knobs to be employed.

c. Space utilization of all components of the control panel or unit. This information may be shown by means of a scale drawing (preferably full scale) showing the outline of the parts attached to the mounting plate. On contracts for reordered equipment, drawings are only required when a new or modified control is provided.

3.2.6.6 Microfilm and tabulating cards. The contractor shall prepare MIL-M-38761 microfilm and tabulating cards to cover the final configuration of the system and equipment under contract.

3.2.6.7 Integrated Configuration List (ICL). The contractor shall prepare the ICL to cover all items which need to be identified for configuration control purposes.

3.2.6.8 Serial Number Configuration List (SNCL). The contractor shall prepare the SNCL to track the system configuration variations by serial numbers in accordance with 3.5.11 of MIL-N-18307.

3.2.6.9 Engineering change data. When an engineering change is desirable or required, the contractor shall prepare an engineering change proposal (ECP) giving the necessary information concerning the change. This applies to either a contracting activity recommended change or a contractor's proposed change. ECPs shall be prepared in accordance with 5.4.2.2.3, 5.4.8.2.1 and Appendix D of MIL-STD-973. The Short Form for ECPs shall be used only when the contractor is unable to assess the effects of the proposed change on other systems and equipment not covered by the contract.

3.2.6.10 Avionics changes (technical directives). When an engineering change proposal is approved and is to be incorporated in equipment already delivered, the contractor shall prepare a draft and final copy of the avionics change. This avionics change shall be prepared in accordance with MIL-D-81992 and AR-41 and shall provide adequate information for incorporation of the change in previously delivered equipment.

3.2.6.11 Configuration status accounting reports. The contractor shall record and prepare reports on the configuration status of items in accordance with 4.6 and 5.5 of MIL-STD-973 to track the implementation of ECPs, waivers, modifications, etc., to support configuration management.

3.2.6.12 Specification change notice (SCN). The contractor shall prepare SCNs (DD Form 1696) in accordance with MIL-STD-480 and MIL-STD-490 after changes have been authorized and implemented to maintain configuration control of documents.

3.2.6.13 Microcircuit data. The contractor shall prepare and revise microcircuit technical application data in accordance with MIL-STD-2096.

3.3 Engineering data. The contractor shall develop a Systems Engineering Management Plan (SEMP) in accordance with the detailed requirements of MIL-STD-499 and prepare Systems Engineering Reports. The SEMP shall include plans for mission/requirements analysis and plans for the following disciplines as required by the system/equipment specifications and the SOW.

a. Safety Program Plan.

b. Survivability Program Plan.

c. Reliability Program Plan.

d. Maintainability Program Plan.

e. System Engineering Plan.

f. Human Engineering Program Plan.

3.3.1 Safety program plan and reports. The contractor shall prepare a System Safety Program Plan and reports in accordance with MIL-STD-882 covering the requirements of the system/equipment specifications and the SOW Tasks.

MIL-STD-882 Task	Data Requirement
a. 101	System Safety Program Plan (SSPP)
b. 202	System Safety Hazard Analysis Report
c. 203	System Safety Hazard Analysis Report
d. 204	System Safety Hazard Analysis Report
e. 205	System Safety Hazard Analysis Report

MIL-STD-882 Task	Data Requirement
f. 206	System Safety Hazard Analysis Report
g. 210	Safety Assessment Report
h. 211	System Safety Engineering Report
i. 212	System Safety Hazard Analysis Report
j. 213	System Safety Hazard Analysis Report

3.3.2 Survivability program plan and reports. The contractor shall develop a Survivability Program Plan in accordance with MIL-STD-2072, or MIL-STD-2069 if a non-nuclear environment is specified, covering the avionics contribution to vulnerability and survivability of the weapons system in accordance with the requirements of the system/equipment specifications and document this work in reports.

3.3.3 Reliability program plan and reports. The contractor shall develop a Reliability Program Plan in accordance with MIL-STD-785 covering the tasks cited in the system/equipment specifications and the SOW and prepare reports covering these tasks. When a Reliability Program Plan is prepared, it shall include the Failure Mode and Effects Analysis (FMEA) Plan, provided it also is a specified requirement.

MIL-STD-785 Task		Data Requirement
a. 101		Reliability Program Plan
b. 103		Reliability Status Report
c. 104		Failure Summary and Analysis Report
d. 201	(MIL-STD-756)	Reliability Mathematical Model(s)
e. 203	(MIL-STD-756)	Reliability Predictions Report
f. 204	(MIL-STD-1629)	Failure Mode, Effects and Criticality Analysis (FMECA) Plan
g.	(MIL-STD-1629)	Failure Mode, Effects, and Analysis (FMEA) Report
h. 205		Sneak Circuit Analysis Report
i. 206		Electronic Parts/Circuits Tolerance Analysis Report
j. 208		Critical Item Control Plan
k.		Critical Items List

3.3.4 Maintainability program plan and reports. The contractor shall develop a Maintainability Program Plan in accordance with MIL-STD-470 and MIL-STD-2084 covering the work required by the system/equipment specifications and support equipment analysis requirements in accordance with MIL-STD-2097 or AR-30 and document this work in reports.

3.3.4.1 Maintainability and support equipment report proposal. Upon approval of the Maintainability and Support Equipment Report by the contracting activity, the contractor shall prepare a proposal including a detailed cost breakdown and a preliminary specification prepared in accordance with MIL-STD-2097 and AV-4000. This proposal shall include each item of special support equipment included in the approved report.

3.3.5 System/subsystem design plan. The contractor shall develop a System/Subsystem Design Plan for studies, analyses and experimentation required for design, development and production in accordance with the system/equipment specification and the SOW and shall cover requirements for documentation of this work in appropriate reports, specifications, drawings and other publications.

3.3.5.1 System/design trade study reports. The contractor shall prepare Trade Study Reports to cover work required by system/equipment specifications and the SOW.

3.3.5.2 Technical performance measurement reports. The contractor shall prepare Technical Performance Reports to track the program toward the attainment of the significant system/equipment parameters including the critical performance events covered in the performance attainment schedule (see 3.2.5).

3.3.5.3 Physical environmental analysis plans and reports. The contractor shall prepare a Life Cycle Environmental Profile (LCEP) in accordance with MIL-STD-810, Section 4, General Requirements, and shall prepare Environmental Analysis Reports to cover the design requirements of the system/equipment specifications for specified operation of the equipment throughout its mission/life cycle profile (temperature/cooling/heating, sand, dust, humidity, vibration, shock, noise, etc.).

3.3.5.3.1 Cooling design data. The contractor shall prepare cooling design data in accordance with MIL-E-5400 and MIL-T-23103.

3.3.5.4 Electromagnetic interference and control (EMI/EMC) plans. The contractor shall prepare an Electromagnetic Compatibility Program Plan (EMCPP) in accordance with MIL-HDBK-237, and System Control Plans in accordance with MIL-E-6051, MIL-STD-461 and MIL-STD-469 to cover the work to meet the requirements of the system/equipment specifications and the SOW.

3.3.5.5 Emission control plan. The contractor shall prepare a Design and Development Emission Control Plan to cover the work required by the system/equipment specification for emission control.

3.3.5.6 Frequency allocation and spectrum signature data. The contractor shall prepare the frequency allocation data, complete DD Form 1494, and the spectrum signature data in accordance with MIL-STD-449 to cover the requirements of Aeronautical Requirement (AR)-29.

3.3.5.7 Tactical computer program data (see 6.4a and 6.4b). The contractor shall develop the tactical program for the system/equipment computer to meet the requirements of the system/equipment specifications and the SOW and document this work in the following plans, specifications, reports, tapes, cards, etc., in accordance with DOD-STD-2167.

a. Software development plan.

b. Interface design specification (IDS).

c. Program performance specification (PPS).

d. Program design specification (PDS).

e. Program description document (PDD).

f. Data base design document (DBD).

g. Program package document (PPD).

h. Programmer's reference manual.

i. System operator's manual (SOM).

j. Support software documentation.

3.3.5.8 Design-to-cost (DTC)/life cycle cost (LCC) analysis. The contractor shall develop a DTC/LCC plan and produce analysis and progress reports in accordance with the SOW. The contractor shall also prepare an LCC estimate.

3.3.5.9 Risk reduction analysis reports. The contractor shall perform risk reduction analysis in accordance with the SOW and prepare Risk Reduction Analysis Reports.

3.3.6 Human factor plan and reports. The contractor shall develop a Human Engineering Program Plan in accordance with MIL-H-46855, covering the requirements of the system/equipment specifications. The test and analysis work carried out under the system/equipment specifications shall be documented in human engineering systems analysis reports.

3.4 Production data. The contractor shall develop a production plan in accordance with MIL-STD-1528 and include it with the following plans in the SEMP when a SEMP is specified in the contract.

a. Quality assurance program plan.

b. Standardization program plan.

c. Value engineering program plan.

3.4.1 Producibility analysis and reports. The contractor shall study and analyze the system/equipment design and construction for producibility in accordance with the equipment or the detail specifications and include the information in production engineering reports.

3.4.2 Quality assurance data. The contractor shall develop an Inspection and Test Plan in accordance with MIL-I-45208 or a Quality Assurance Program Plan in accordance with MIL-Q-9858 (equipment) and DOD-STD-2167 (software) to cover the work required by the system/equipment specifications and the SOW and document this work in reports.

3.4.2.1 Metrology/calibration data. The contractor shall prepare a description of his metrology and calibration system and shall prepare equipment calibration procedures in accordance with MIL-STD-45662.

3.4.2.2 Government/industry data exchange program (GIDEP) data. The contractor shall document his failure experience and test information on materials, parts and processes in accordance with MIL-STD-1556.

3.4.3 Standardization plan and reports. The contractor shall develop a contractor Standardization Program Plan in accordance with MIL-STD-680 covering the requirements of the system/equipment specifications and the SOW.

3.4.3.1 Parts selection and control data. As part of task 207 of MIL-STD-785, the contractor shall develop a Parts Control Program Plan in accordance with MIL-STD-965 for selecting and controlling parts to comply with the requirements of the system/equipment specifications and SOW.

3.4.3.1.1 Parts selection list. The contractor shall prepare parts selection lists in accordance with MIL-STD-965.

3.4.3.1.2 Non-standard materials and parts approval request. The contractor shall prepare requests for the approval of non-standard materials and parts in accordance with MIL-E-5400 and MIL-STD-965.

a. The information to be prepared for each request shall be as specified in MIL-E-5400. In the event a drawing is not available at the time the request for approval is prepared, the contractor's purchase specification may be substituted pro- viding it completely describes the part or material. It is important that the approval request itemize (preferably in an enclosure) the parts or materials by the contractor's part, drawing or specification number and that the source(s) be specified thereon. Non-repairable sub-assemblies' construction details, such as parts used, trim locations, potting material, connectors, test points, thermal design, shielding, packaging, reliability life, electrical characteristics, etc., shall be included in the approval request.

b. Unless otherwise stated in the contract, approval of non-electric hardware items used for mechanical applications (excluding vibration isolators and mounts) is not required.

c. On contracts for reordered equipment, the contractor shall obtain approval only for use of any additional non-standard part or for parts supplied from sources other than those supplying previously approved non-standard parts.

3.4.3.1.3 Parts specifications. The contractor shall prepare detail contract specifications for non-standard parts in accordance with MIL-STD-961.

3.4.3.1.4 Parts test data. The contractor shall prepare test data for non-standard part approval requests in accordance with MIL-E-5400.

3.4.4 Value engineering program plan and reports. The contractor shall develop a Value Engineering Program Plan to carry on the value engineering effort to effectively reduce life cycle costs of the system and equipment and document this work in reports.

3.5 Test and evaluation data. The contractor shall prepare the following data for test and evaluation of the equipment under contract.

3.5.1 Engineering data for agency testing. When the contractor is required to ship equipment to a government activity for testing, the contractor shall prepare the following data to accompany the equipment.

a. Two copies of external wiring diagrams.

b. Two copies of practical wiring diagrams.

c. Two copies of complete schematic diagrams.

d. Two copies of overall functional block diagram.

e. Two copies of outline dimensional sketches of all major units.

f. Two copies of brief operating instructions.

g. Two copies of the Computer Program Package Documents.

h. Two copies of a report of all tests conducted on the equipment and the program by the contractor.

3.5.2 Test procedures. Test procedures shall outline step by step the methods to be used in testing the equipment to determine that all contractual requirements have been met. The procedures shall include all tests called out in the detail equipment specification, and the applicable general design and the general environmental test specifications, the SOW and such other tests necessary to determine that each applicable requirement has been met. The procedures shall cover tests to be performed on the complete equipment but shall exclude tests called out in specifications covering parts, such as capacitors, resistors, etc. Design approval test procedures shall be prepared for developmental equipment; First article test procedures shall be prepared for initial production equipment; acceptance test procedures for production equipment. These procedures shall include individual, sampling, reliability

and special tests as applicable. MIL-T-18303, DOD-STD-2167, MIL-STD-781 and MIL-STD-785, MIL-STD-470 and MIL-STD-471, MIL-E-6051, MIL-STD-461, MIL-STD-462, MIL-STD-469 and AR-29 shall be used as guides in the preparation of the test procedures. On contracts for reordered equipment where the contractor is supplied test procedures from a previous contract, which have been approved for use on the present contract, only proposed changes require approval. Test procedures shall be prepared in sufficient time to permit adequate review and approval prior to the start of testing.

3.5.3 Computer program test data. The contractor shall prepare the following computer program test data in accordance with DOD-STD-2167, the system/equipment specification and the SOW.

a. Test plan.

b. Test specification.

c. Test procedure.

d. Test reports.

3.5.4 System/equipment test data. The contractor shall prepare the following system/equipment test data in accordance with the system/equipment specification and the SOW.

a. Test plan.

b. Design approval test report.

c. Antenna radiation measurement/pattern report.

d. First article test report.

e. Acceptance test reports.

f. Special test reports.

g. Configuration item failure reports.

h. System demonstration test program plan.

i. System demonstration test reports.

3.5.5 Reliability test data. The contractor shall prepare the following reliability test data in accordance with MIL-T-23103, MIL-STD-781, MIL-STD-785, the system/equipment specification and the SOW.

MIL-STD-785 Task	Data Requirements
a. 301	Burn-in Test Reports
b. 302 (MIL-STD-781)	Test Analyze and Fix (Reliability) (TAAF) Test Plan & Reports

MIL-STD-785 Task		Data Requirements
c. 303	(MIL-STD-781)	Reliability Qual. Plan
d. 303		Reliability Qual. Reports
e. 304	(MIL-STD-781)	Reliability Accept. Plan
f. 304		Reliability Accept. Reports
g.	(MIL-T-23103)	Thermal Performance Evaluation

3.5.6 Maintainability test data. The contractor shall prepare the following maintainability test data in accordance with MIL-STD-470, MIL-STD-471, the system/equipment specification and the SOW.

a. Test plan.

b. Test reports.

3.5.7 Electromagnetic compatibility test data. The contractor shall prepare the following electromagnetic compatibility test data in accordance with MIL-E-6051, MIL-STD-461, MIL-STD-462, MIL-STD-469, AR-29, the system/equipment specification and the SOW.

a. System EMC Test Plan.

b. System EMC Test Report.

c. EMI Test Plan.

d. EMI Test Report.

e. EMC Control Test Plan.

f. EMC Control Test Report.

g. Emission Control Test Plan.

h. Emission Control Test Report.

3.6 Activation/utilization data. The contractor shall develop the following on-site activation data in accordance with the system/equipment specification and the SOW to make the equipment completely usable in the aircraft, ship or shore installation as appropriate.

3.6.1 Avionics installation instructions. The contractor shall prepare a document in accordance with the E1-1000 format covering the general requirements for the installation and specified operation of the equipment in all types of aircraft weapon systems. Drafts shall be prepared for development and prototype installations and the final instructions prepared after approval of the installations by the contracting activity. On contracts for reordered

equipment, the contractor shall prepare only such revisions necessary to cover any changes resulting from changes incorporated in the equipment and not covered by the previously issued instructions.

3.6.2 Avionics bench, preflight and flight test instructions. The contractor shall prepare a document in accordance with the ET-1000 format covering the general requirements and procedures for bench, preflight and flight test of the equipment under contract. Drafts shall be prepared for development and prototype installations in aircraft weapon systems and the final instruction prepared after approval of the installation by the contracting activity. On contracts for reordered equipment, the contractor shall prepare only such revisions necessary to cover any changes resulting from changes incorporated in the equipment and not covered by the previously issued instructions.

3.6.3 Avionics systems installation, interface, and test specifications. The contractor shall prepare documents in accordance with the AV-10001 format covering the specific requirements and procedures for installing, interfacing and testing the specified aircraft weapon systems. Drafts shall be prepared for development and prototype installations in the specified aircraft weapon systems and the final specifications prepared after approval of the installation by the contracting activity. On contracts for reordered equipment, the contractor shall prepare only such revisions necessary to cover any changes resulting from changes incorporated in the equipment and not covered by the previously issued interface specifications.

3.6.4 Engineering support activity reports. When the contractor provides the contracting activity with engineering support for government test and evaluation of the equipment, the contractor shall describe his work and recommendations in activity reports.

3.7 Logistic support data. The contractor shall develop an integrated logistics support plan (ILSP) and logistic support analysis records in accordance with AR-30.

3.8 Engineering manual for developmental equipment. The contractor shall develop an engineering manual for utilization and support servicing of the developmental equipment.

4. QUALITY ASSURANCE PROVISIONS

4.1 General. The contractor shall develop and carry out a quality assurance program for recording, editing, preparing and reproducing the data covered by the specifications to ensure it is correct, accurate and in accordance with applicable referenced specifications.

4.1.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the

Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.2 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements; however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Computer program documentation quality assurance (QA). QA for computer program documentation shall be in accordance with DOD-STD-2167.

4.3 Technical manual QA. QA for technical manuals shall be in accordance with MIL-M-85337.

4.4 Drawing QA. QA for drawings shall be in accordance with MIL-STD-100.

4.5 Technical directives QA. QA for technical directives shall be in accordance with MIL-D-81992.

5. PACKAGING

5.1 General. The contractor shall prepare, package, mark and deliver all documents and data in accordance with specified requirements, the contract and the CDRL. Packing, marking and shipping shall conform to the security requirements applicable to the material being delivered.

5.2 Computer program documentation delivery. Computer program material shall be prepared in accordance with DOD-STD-2167.

5.3 Technical manual delivery. Technical manual material shall be prepared in accordance with MIL-M-81927.

5.4 Drawing delivery. Drawing material shall be prepared in accordance with MIL-T-31000.

5.5 Technical directive delivery. Technical directive material shall be prepared in accordance with MIL-D-81992.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The data items covered by this specification are developed on work covered by the SOW and the avionic equipment and system specifications and may be required for record, for future development and contract and for installation, test, maintenance and operational purposes. This specification may be used for the selection of data associated with the contract of avionic systems and equipment. It is intended that this specification be tailored to require only the preparation of documents necessary to support a specific phase of the contract (validation, advanced development, full scale development, production). When this specification is used for the selection of avionics data for a weapon system it should be coordinated with the weapon system data requirements documentation and used to complement the work required by SD 8706.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of the specification.

b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1).

c. The contracting activity should state its requirements in addition to the title, number and date of this specification, and should also cite its choice of data options offered in 6.3 to cover the Management/Technical areas for the appropriate phase shown in figure 1.

6.3 Data requirements. The following Data Item Descriptions (DID's) should be listed, as applicable, on the Contract Data Requirements List (DD Form 1423) when this specification is applied on a contract, in order to obtain the data, except where DOD Federal Acquisition Regulations (FAR) supplement 27.475-1 exempts the requirement for a DD Form 1423.

Paragraph	Data Items	DID Number
3.2.1	Contract Work Breakdown Structure	DI-A-3023
3.2.2	Contract Data Status and Schedule Report	DI-MISC-80167A
3.2.3	GFE Management and Control Systems Reports	
	Government Furnished Equipment/Government Furnished Material (GFE/GFM) Status Report	DI-QCIC-80735
	Government Furnished Equipment Detail Transaction Status Data	DI-MGMT-80377
	Government Furnished Equipment Repair Status Report	DI-ILSS-80620
	Status of Government Furnished Equipment (GFE) Report	DI-MGMT-80269
3.2.4	Conference Agenda	DI-ADMN-81249
	Conference Minutes	DI-ADMN-81250
3.2.6	Contractor's Configuration Management Plan	DI-CMAN-80858A
3.2.6.1	Software Configuration Management Plan	DI-MCCR-80300
3.2.6.2	Configuration Audit Plan	DI-CMAN-80556A
3.2.6.3	Request for Nomenclature (DD Form 61)	DI-CMAN-81254
3.2.6.4	Military Specification	DI-SDMP-80001A
3.2.6.5	Product Drawings and Associated Lists	DI-DRPR-81000
3.2.6.5.1	Rack or Console Mounted Control Drawing Requirements (*use DI-DRPR-81000)	*
3.2.6.7	As-Built Configuration List	DI-E-21478A
3.2.6.8	Request for Assignment of Serial Number and Serial Number Prefix Letters	DI-CMAN-80195
3.2.6.9	Engineering Change Proposal	DI-CMAN-80639A
3.2.6.10	Technical Directive (TD)	DI-CMAN-81269
3.2.6.11	Configuration Status Accounting Information	DI-CMAN-81253
3.2.6.12	Specification Change Notice	DI-CMAN-80643A
3.2.6.13	Microcircuit Material Item and Linkage Record	DI-EGDS-80236
3.3	Systems Engineering Management Plan (SEMP)	DI-MGMT-81024
	System Engineering Analysis Report	DI-S-21433B
3.3.1	System Safety Program Plan	DI-SAFT-80100
	System Safety Hazard Analysis Report	DI-SAFT-80101
	Safety Assessment Report	DI-SAFT-80102
	Waiver or Deviation System Safety Report	DI-SAFT-80104
	System Safety Program Progress Report	DI-SAFT-80105
3.3.2	Survivability Program Plan	DI-MISC-80565
	Vulnerability Analysis Report	DI-MISC-80564
3.3.3	Reliability Program Plan	DI-R-7079
	Reliability Status Report	DI-R-7080
	Failure Summary and Analysis Report	DI-RELI-80255
	Reliability Block Diagrams and Mathematical Models Report	DI-R-7094
	Reliability Prediction and Documentation of Supporting Data	DI-R-7095
	Failure Mode, Effects and Criticality Analysis Plan	DI-R-7086

Paragraph		Data Items	DID Number
		Failure Mode, Effects, and Criticality Analysis Report	DI-R-7085A
		Sneak Circuit Analysis Report	DI-R-7083
		Electronic Parts/Circuits Tolerance Analysis Report	DI-R-7084
		Critical Items List	DI-RELI-80685
3.3.4		Maintainability Program Plan	DI-MNTY-80822
		Maintainability Analysis Report	DI-MNTY-80828
		Maintainability Status Report	DI-MNTY-80823
		Support Equipment Recommendation Data (SERD)	DI-ILSS-80118B
3.3.5		System/Subsystem Design Plan	DI-E-5509
		Scientific and Technical Report	DI-MISC-80711
3.3.5.3		Life Cycle Environmental Profile	DI-ENVR-80860
3.3.5.4		Electromagnetic Compatibility Program Plan	DI-R-7096
		System Electromagnetic Compatibility Control Plan	UDI-T-21330
		Electromagnetic Interference Control Plan	DI-EMCS-80199
		Radar Spectrum Management (RSM) Control Plan	DI-MISC-81114
3.3.5.5		Design and Development Emission Control (EMCON) Plan	DI-R-2060
3.3.5.6		Frequency Allocation Data	DI-MISC-81174
		Spectrum Signature Test Plan	DI-R-2068
		Spectrum Signature Report	DI-R-2069A
3.3.5.7		Software Development Plan	DI-MCCR-80030A
		Interface Requirements Specification	DI-MCCR-80026A
		Software Requirements Specification	DI-MCCR-80025A
		Software Design Document	DI-MCCR-80012A
		Software Product Specification	DI-MCCR-80029A
		Software Programmer's Manual	DI-MCCR-80021A
		Computer System Operator's Manual	DI-MCCR-80018A
3.3.5.8		Design-to-Cost (DTC) Plan	DI-MISC-80856
		Design-to-Cost (DTC) Status Report	DI-MISC-80857
		Life Cycle Cost Estimate Document	DI-F-1215
3.3.5.9		Long Lead Time Items List	DI-V-7004A
3.3.6		Human Engineering Program Plan	DI-HFAC-80740
		Human Engineering System Analysis Report	DI-HFAC-80745
3.4		Manufacturing Plan	DI-MISC-80074
3.4.1		Design Producibility Analysis Report	DI-MISC-80162A
3.4.2		Inspection and Test Plan	DI-QCIC-81110
	or	Quality Assurance Program Plan	UDI-R-21374A
		Quality Assurance Program Status Reports	DI-QCIC-80112
		Software Quality Program Plan	DI-QCIC-80572
3.4.2.1		Special Inspection Equipment Calibration Procedures	DI-CMAN-80787
		Calibration System Description	DI-QCIC-80906

Paragraph	Data Items	DID Number
3.4.2.2	Alert/Safe-Alert	DI-QCIC-80125
	Response to an Alert/Safe-Alert	DI-QCIC-80126
3.4.3	Standardization Program Plan	DI-GDRQ-80917
	Standardization Accomplishment Report	DI-GDRQ-80941
3.4.3.1	Parts Control Program Plan	DI-MISC-80526
3.4.3.1.1	Program Parts Selection List (PPSL)	DI-MISC-80072A
3.4.3.1.2	Parts Approval Requests	DI-MISC-80071A
3.4.3.1.3	Military Specification	DI-SDMP-80001A
3.4.3.1.4	Test Data for Nonstandard Parts	DI-E-7030
3.4.4	Value Engineering Plan	DI-P-1602
	Value Engineering Data Report	DI-P-1600
3.5.1	Engineering Data on Equipment Submitted for Testing	DI-NDTI-81323
3.5.2	Test Procedure	DI-NDTI-80603
	Reliability Test Procedures	DI-RELI-80251
	Electromagnetic Compatibility Test Plan	DI-T-3704B
	Maintainability Demonstration Plan	DI-MNTY-80145
	Test Plans/Procedures	DI-NDTI-80808
3.5.3	Computer System Operator's Manual	DI-MCCR-80018A
	Software Test Description	DI-MCCR-80015A
	Software Test Report	DI-MCCR-80017A
	Software Test Plan	DI-MCCR-80014A
	Qualifty Assurance Program Plan	UDI-R-21374A
or	Inspection and Test Plan	DI-QCIC-81110
3.5.4	Test/Inspection Reports	DI-NDTI-80809A
	Radiation Testing Tracking System Transaction	DI-MISC-80923
	Failure Report	DI-R-21598
	Test Procedure	DI-NDTI-80603
3.5.5	Environmental Stress Screening (SS) Report	DI-RELI-80249
	Reliability Test Plan (TAAF Test Plan and Reports) (Reliability Qualification Test (RQT) Program) (Production Reliability Acceptance Test (PRAT) Program))	DI-RELI-80250
	Reliability Test Reports	DI-RELI-80252
	Cooling Design Data	DI-GDRQ-81320
3.5.6	Maintainability Demonstration Plan	DI-MNTY-80145
	Maintainability/Testability Demonstration Test Report	DI-MNTY-80832

Paragraph	Data Items	DID Number
3.5.7	Electromagnetic Compatibility Test Plan	DI-T-3704B
	Electromagnetic Interference Test Plan	DI-EMCS-80201
	Electromagnetic Interference Test Report	DI-EMCS-80200
	Radar Spectrum Management (RSM) Test Plan	DI-MISC-81113
	Emission Control (EMCON) Test Report	DI-R-2059
3.6.1	Equipment Installation Instructions	DI-MISC-81321
3.6.2	Equipment Bench, Preflight and Flight Test Procedures	DI-NDTI-81322
3.6.3	Avionics Systems Installation, Interface and Test Specifications	DI-MISC-81319
3.6.4	Contractor's Progress, Status and Management Report	DI-MGMT-80227
3.7	Integrated Logistics Support Plan	DI-ILSS-80095
	Logistic Support Analysis Data	DI-S-30605C

(The above DID's were those cleared as of the date of this specification. The current issue of DOD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL), should be researched to ensure that only current, cleared DID's are cited on the DD Form 1423.)

6.4 Definitions.

a. Computer Program - A series of instructions or statements in a form acceptable to computer equipment, designed to cause the execution of an operation or series of operations.

b. Computer Software - A combination of associated computer programs and computer data required to enable the computer equipment to perform computational or control functions.

c. Configuration Item (CI) - As defined in MIL-STD-973.

6.5 Abbreviations and acronyms. When first used in the text, abbreviations or acronyms are spelled out with the abbreviations or acronyms following, enclosed in parentheses. As abbreviations and acronyms may thereafter be used throughout the text, a ready reference list is included in this paragraph. Abbreviations conform as closely as possible to the U.S. Government Printing Office Style Manual.

AD	Aeronautical Data
AMSDL	Acquisition Management Systems and Data Requirements Control List
ANSI	American National Standards Institute
AR	Aeronautical Requirement

(AS)	Naval Air Systems Command
AV	Avionics
CAP	Configuration Audit Plan
CDRL	Contract Data Requirements List
CFE	Contractor Furnished Equipment
CI	Configuration Item
CMP	Configuration Management Plan
CWBS	Contract Work Breakdown Structure
DBD	Data Base Design Document
DID	Data Item Description
DOD	Department of Defense
DODISS	Department of Defense Index of Specifications and Standards
DODSSP	Department of Defense Single Stock Point
DTC	Design-to-Cost
ECP	Engineering Change Proposal
EMC	Electromagnetic Compatibility
EMCON	Emission Control
EMCPP	Electromagnetic Compatibility Program Plan
EMI	Electromagnetic Interference
ESS	Environmental Stress Screening
FAR	Federal Acquisition Regulations
FCI	Functional Configuration Identification
FMEA	Failure Mode and Effects Analysis
FMECA	Failure Mode, Effects and Criticality Analysis
GFE	Government Furnished Equipment
GFM	Government Furnished Material

GIDEP	Government/Industry Data Exchange Program
ICL	Integrated Configuration List
IDS	Interface Design Specification
ILS	Integrated Logistic Support
ILSP	Integrated Logistic Support Plan
IOC	Initial Operational Capability
LCC	Life Cycle Cost
LCEP	Life Cycle Environmental Profile
MTBF	Mean Time Before Failure
MTTR	Mean Time to Repair
NAVAIR	Naval Air Systems Command
NOR	Notice of Revisions
NPE	Navy Preliminary Evaluation
PCI	Product Configuration Identification
PCO	Principal Contracting Officer
PDD	Program Description Document
PDS	Program Design Specification
PPD	Program Package Documents
PPS	Program Performance Specification
PPSL	Program Parts Selection List
PRAT	Production Reliability Acceptance Test
QA	Quality Assurance
R&D	Research and Development
RQT	Reliability Qualification Test
RSM	Radar Spectrum Management
SCMP	Software Configuration Management Plan
SCN	Specification Change Notice

SE	Support Equipment
SEMP	System Engineering Management Plan
SERD	Support Equipment Recommendation Data
SNCL	Serial Number Configuration List
SOM	System Operator's Manual (Computer)
SOW	Statement of Work
SSPP	System Safety Program Plan
STR	Software Trouble Report
SWBS	Summary Work Breakdown Structure
TAAF	Test Analyze and Fix (Reliability)
TD	Technical Directive
T&E	Test & Evaluation
WBS	Work Breakdown Structure

6.6 Subject term (keyword) listing.

Configuration
Contract
Data
DID
Maintainability
Reliability
Safety
Survivability

6.7 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

MANAGEMENT/TECHNICAL DATA	PROGRAM PHASE							
	CONCEPTUAL					DEMONSTRATION AND VALIDATION		
	Basic & Applied Research	Study Contract	System Planning Study	Exploratory Development	Advanced Development	System Prototype	Hardware Proofing	Development Program Definition
Management Data								
WBS	-	-	-	P	P	R	R	R
Cost/Del/Perform	P	P	P	P	P	M	M	M
Reviews/Audits	-	-	-	P	P	R	R	R
Config Mgmt	-	-	-	P	P	R	R	R
Engineering Data								
Mission Analysis	P	P	P	R	R	R	P	P
Safety	P	R	R	R	M	M	M	M
Survivability	R	R	R	R	R	R	R	R
Reliability	P	P	P	R	M	M	M	M
Maintainability	P	P	P	R	M	M	M	M
Sys. Engineering	-	P	P	P	P	R	R	R
Electromagnetic Comp.	P	P	P	P	R	M	M	M
Computer Program	-	P	-	P	M	M	M	M
OTC/LCC	-	P	M	R	M	M	M	M
Human Factors	-	P	R	M	M	M	M	M
Prod. Plan/Analysis	-	-	-	P	R	R	R	R
Quality	-	-	-	-	R	R	R	R
Standardization	-	-	-	P	R	M	M	M
Test/Eval Data								
Gov. Lab Support	-	-	-	-	-	P	P	P
Plans/Reports	-	-	-	P	P	M	M	M
Activation Data								
Integ/Inst.	-	-	P	P	R	M	M	M
Plans/Reports	-	-	P	P	R	M	M	M
Logistics Data								
Plans/Reports	-	-	R	R	M	M	M	M
Tech Manuals	-	-	-	-	-	M	M	M

LEGEND:
M Mandatory Application
R Recommended Application
P Possible Application (Program Dependent)
- Not Applicable

FIGURE 1. Management/technical data/program phase matrix.

MANAGEMENT/TECHNICAL DATA	PROGRAM PHASE								
	FULL SCALE ENGINEERING DEVELOPMENT			PRODUCTION AND DEVELOPMENT				OPERATIONAL	
	Engineering/ Operational Development	Development Testing and Test Support	Software Development	Production	Design Change	Follow-On Procurement	Site Activation	Technical Support Services	Modification
Management Data									
WBS	M	M	R	M	M	M	M	M	M
Cost/Del/Perform	M	M	M	M	M	M	M	M	M
Reviews/Audits	M	M	M	M	P	R	-	-	-
Config Mgmt	M	M	M	M	M	M	M	P	M
Engineering Data									
Mission Analysis	R	-	P	-	-	-	-	-	P
Safety	M	M	P	M	M	M	M	M	M
Survivability	R	R	R	R	R	R	R	P	R
Reliability	M	M	M	M	M	M	R	-	M
Maintainability	M	M	M	M	M	R	R	-	M
Sys. Engineering	R	P	R	P	P	-	-	-	-
Electromagnetic Comp.	M	M	-	M	R	M	M	-	M
Computer Program	M	M	M	M	M	M	M	M	M
DTC/LCC	M	M	M	M	M	M	-	-	M
Human Factors	M	M	P	R	M	R	P	P	M
Prod. Plan/Analysis	M	M	-	M	M	M	-	-	M
Quality	M	M	M	M	M	M	M	-	M
Standardization	M	-	-	M	M	M	P	-	P
Test/Eval Data									
Gov. Lab Support	R	R	R	R	P	P	P	-	-
Plans/Reports	M	M	M	M	M	M	M	-	-
Activation Data									
Integ/Inst.	M	M	M	P	M	P	M	P	M
Plans/Reports	M	M	M	P	M	P	M	P	M
Logistics Data									
Plans/Reports	M	P	-	-	M	-	P	-	M
Tech Manuals	M	M	M	-	-	-	-	-	-

LEGEND:
M Mandatory Application
R Recommended Application
P Possible Application (Program Dependent)
- Not Applicable

FIGURE 1. Management/technical data/program phase matrix - Continued .

TABLE I. Example of Summary Work Breakdown Structure (SWBS) for Avionic System/Configuration Item.

WBS Element Level 0 1 2 3 4	WBS Element Designation	Data Paragraph
	Avionics System or Configuration Item	
	Program Management	3.2
	Contract Management	
	Work Breakdown Structure	3.2.1
	GFE Management	3.2.3
	Sub Contract Management	
	Associate Contract Administration	
	Financial Management	
	Cost/Delivery Schedule	
	Facility Establishment/	
	Operation/Maintenance	
	Acquisition of Special Tools, Test Equipment, etc.	
	Project Administration	
	Personnel Management	
	Program Reviews and Audits	3.2.4
	System Performance Attainment Schedule	3.2.5
	Configuration Management	3.2.6
	Engineering Management	3.3
	Mission/Requirements Analysis	
	Safety Program	3.3.1
	Survivability	3.3.2
	Reliability	3.3.3
	Maintainability	3.3.4
	System/Equipment Design	3.3.5
	Requirements Effectiveness Analysis (Trade-off Studies)	3.3.5.1
	Physical Environmental Analysis	3.3.5.3
	Electromagnetic Environmental Analysis	3.3.5.4
	Computer Program	3.3.5.7
	Design to Cost/Life Cycle Cost Analysis	3.3.5.8
	Risk Reduction Analysis	3.3.5.9
	Human Factors	3.3.6
	Production Management	3.4
	Equipment Development and Production	
	Producibility Analysis	3.4.1
	Quality Assurance	3.4.2
	Metrology/Calibration	3.4.2.1
	Design Approval Testing	
	Reliability Development	
	Acceptance Testing	
	Standardization	3.4.3
	Value Engineering	3.4.4

TABLE I. Example of Summary Work Breakdown Structure (SWBS) for Avionic System/Configuration Item - Continued.

WBS Element Level 0 1 2 3 4	WBS Element Designation	Data Paragraph
	Test and Evaluation (T&E)	3.5
	(Evaluation Management)	
	Test Engineering	
	Gov. Lab. Test Support	3.5.1
	Test Procedures	3.5.2
	Mock-ups	
	Simulations	
	Demonstrations	
	Navy Preliminary Evaluation (NPE) Support	
	Tech. Evaluation Support	
	Op. Evaluation Support	
	Material Support for T&E	
	Test Facilities	
	Test Equipment	
	Spare Parts	
	Operational/Site Activation	3.6
	(Activation Management)	
	Installation/Interface Eng.	3.6.1
	Platform/Facility Integ. (Physical)	
	Weapon System/Ship/Base Interface	3.6.3
	Operational	
	Electrical	
	Program	
	Contract Support	
	Material Support for Activation	
	Aircraft Ship/Base Facilities	
	Modification of	
	Establishment of	
	Common Support Equipment	
	Warranty Support	
	Repair of Equipment During Warranty Period	
	Integrated Logistic Support (ILS)	3.7
	(Logistics Management)	
	Logistics Engineering	
	Transport. Study	
	Packaging/Packing	
	Support Equip. Anal.	
	Training Equip. Anal.	
	Support Equipment (SE)	
	(for O, I & D Levels)	
	Common SE	
	Peculiar SE	
	Software Programs	

TABLE I. Example of Summary Work Breakdown Structure (SWBS) for Avionic System/Configuration Item - Continued.

WBS Element Level 0 1 2 3 4	WBS Element Designation	Data Paragraph
	Integrated Logistic Support (ILS) (continued)	3.7
	Training	
	Equipment	
	Facilities	
	Services	
	Operational Support	
	Initial Operational Capability (IOC) Deployment Provisioning	
	Repair of Repairables	
	Inventory Control	
	Spare Parts	
	Data	
	(Data Management)	
	Management Data	3.2
	Engineering Data	3.3
	System/Equipment Design	
	Computer Program	
	Production Data	3.4
	Development/Construction	
	Test and Acceptance	
	Evaluation Data	3.5
	Test Engineering Data	
	Activation Data	3.6
	Installation/interface	
	Logistics Data	3.7
	Support Equipment Data	
	Computer Program Maintenance Data	
	Training Data	
	Technical Publications	3.8
	Data Depository	

INDEX

Subject	PARAGRAPH	PAGE
Acquisition requirements	6.2	21
Activation/utilization data	3.6	18
APPLICABLE DOCUMENTS	2	1
Avionics bench, preflight and flight test instructions	3.6.2	19
Avionics changes (technical directives)	3.2.6.10	11
Avionics installation instructions	3.6.1	18
Avionics systems installation, interface and test specifications	3.6.3	19
Computer program documentation quality assurance (QA)	4.2	20
Computer program documentation delivery	5.2	20
Computer program test data	3.5.3	17
Configuration audit plan (CAP)	3.2.6.2	8
Configuration management plan	3.2.6	8
Configuration status accounting reports	3.2.6.11	11
Contract work breakdown structure (CWBS)	3.2.1	8
Contractor furnished equipment (CFE) specifications	3.2.6.4.3	9
Cooling design data	3.3.5.3.1	13
Data	1.1	1
Data formats	3.1.1	7
Data requirements	6.3	21
Data schedule and receipts	3.2.2	8
Design-to-cost (DTC)/life cycle cost (LCC) analysis	3.3.5.8	14
Developmental specifications	3.2.6.4.1	9
Drawing delivery	5.4	20
Drawing QA	4.4	20
Drawings and associated data	3.2.6.5	10
Drawings for rack or console mounted controls	3.2.6.5.1	10
Electromagnetic compatibility test data	3.5.7	18
Electromagnetic interference and control (EMI/EMC) plans	3.3.5.4	13
Emission control plan	3.3.5.5	13
Engineering change data	3.2.6.9	10
Engineering data	3.3	11
Engineering data for agency testing	3.5.1	16
Engineering manual for developmental equipment	3.8,	19
Engineering support activity reports	3.6.4	19
Formal approval of documents	2.3.3	7
Frequency allocation and spectrum signature data	3.3.5.6	13
General	5.1	20
General	4.1	19
General	3.1	7
Government documents	2.1	1
Government furnished equipment (GFE) management and control	3.2.3	8
Government/industry data exchange program (GIDEP) data	3.4.2.2	15
Human factor plan and reports	3.3.6	14
Integrated configuration list (ICL)	3.2.6.7	10
Intended use	6.1	21
Logistic support data	3.7	19
Maintainability and support equipment report proposal	3.3.4.1	13
Maintainability program plan and reports	3.3.4	13
Maintainability test data	3.5.6	18

INDEX

Subject	PARAGRAPH	PAGE
Management data	3.2	8
Management/technical data/program phase matrix	Figure 1	29
Metrology/calibration data	3.4.2.1	15
Microcircuit data	3.2.6.13	11
Microfilm and tabulating cards	3.2.6.6	10
Nomenclature, identification plates, prefix letters and type codes	3.2.6.3	8
Non-government publications	2.2	6
Non-standard materials and parts approval request	3.4.3.1.2	15
NOTES	6	20
Notice of revision (NOR)/specification change notice (SCN)	3.2.6.13	11
Order of precedence	2.3	6
Other government documents, drawings and publications	2.1.2	5
PACKAGING	5	20
Parts selection and control data	3.4.3.1	15
Parts selection list	3.4.3.1.1	15
Parts specifications	3.4.3.1.3	16
Parts test data	3.4.3.1.4	16
Performance attainment schedule	3.2.5	8
Physical environmental analysis plans and reports	3.3.5.3	13
Producibility analysis and reports	3.4.1	15
Production data	3.4	14
Production specifications	3.2.6.4.2	9
Quality assurance data	3.4.2	15
QUALITY ASSURANCE PROVISIONS	4	19
Reliability program plan and reports	3.3.3	12
Reliability test data	3.5.5	17
REQUIREMENTS	3	7
Responsibility for compliance	4.1.2	20
Responsibility for inspection	4.1.1	19
Risk reduction analysis reports	3.3.5.9	14
Safety program plan and reports	3.3.1	11
SCOPE	1	1
Serial number configuration list (SNCL)	3.2.6.8	10
Software configuration management plan (SCMP)	3.2.6.1	8
Specification change notice (SCN)	3.2.6.12	11
Specifications, standards and handbooks	2.1.1	1
Standardization plan and reports	3.4.3	15
Supplementary documents	2.3.1.1	6
Survivability program plan and reports	3.3.2	12
System and equipment specifications	3.2.6.4	9
System/design trade study reports	3.3.5.1	13
System/equipment test data	3.5.4	17
System/subsystem design plan	3.3.5	13
Tactical computer program data	3.3.5.7	14
Tasks, work and data	3.1.2	7
Technical directive delivery	5.5	20
Technical directives QA	4.5	20
Technical manual delivery	5.3	20

INDEX

Subject	PARAGRAPH	PAGE
Technical manual QA	4.3	20
Technical performance measurement reports	3.3.5.2	13
Technical review and audit data	3.2.4	8
Test and evaluation data	3.5	16
Test procedures	3.5.2	16
Types of data	1.2	1
Utilization of approved documents	2.3.2	7
Utilization of specifications, standards, drawings and publications	2.3.1	6
Value engineering program plan and reports	3.4.4	16

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