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MILITARY STANDARD
TECHNICAL INFORMATION REQUIREMENTS
FOR AIR LAUNCHED GUIDED MISSILE
PROPOSALS

MIL-STD-1606A(AS)

NAVAL AIR SYSTEMS COMMAND

WASHINGTON, D. C. 20361

Technical Information Requirements for Air-Launched Guided Missile
Proposals

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1. This Military Standard is approved for use by the Naval Air Systems Command.
2. Recommended corrections, additions or deletions should be addressed to the Commander, Naval Air Systems Command (AIR-506), Department of the Navy, Washington, DC 20361.

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1. SCOPE

1.1 Purpose. This document, together with the REFERENCED DOCUMENTS listed in paragraph 2, delineates the general technical information requirements of NAVAIR (Naval Air Systems Command) for the preparation and submittal of proposals for design and construction, development (including related analyses, tests and documentation), and delivery of Navy guided missiles.

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2. REFERENCED DOCUMENTS

2.1 Issue of documents. The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this standard to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-W-3947	Weight And Balance Control System For Guided Missiles And Space Launch Vehicles
MIL-T-5208	Tanks, Removable, Liquid Propellant Rocket Engine, General Specification For
MIL-P-5518	Pneumatic Systems, Aircraft, Design, Installation, And Data Requirements For
MIL-T-6396	Tank, Fuel, Oil, Water-alcohol, Coolant Fluid, Aircraft, Non-self-sealing, Removable, Internal
MIL-E-7016	Electric Load and Power Source Capacity, Aircraft, Analysis Of
MIL-M-8555	Missile, Guided, Design And Construction, General Specification
MIL-A-8591	Airborne Stores, Associated Suspension Lugs, And Aircraft Store Interface (Carriage Phase), General Design Criteria For
MIL-F-8615	Fuel System Components, General Specification For
MIL-D-8684	Data And Tests, Engineering, Contact Requirements For Air Launched Guided Missile Systems
MIL-M-8850	Missile, Guided, Strength And Rigidity, General Specification For
MIL-A-8867	Airplane Strength And Rigidity Ground Tests
MIL-D-18243	Demonstration Of Airborne Target And Missile Systems, General Specification For
MIL-R-22713	Military Specification, Rocket Motors, Forty Foot Drop Tests
MIL-S-23069	Safety Requirements, Minimum, For Air Launched Guided Missiles
MIL-I-23659	Initiator, Electric, General Design Specification

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SPECIFICATIONS

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MIL-D-23660	Data, Technical For Rocket Motors
MIL-H-25475	Hydraulic Systems, Missile, Design, Installation Tests And Data Requirements
MIL-H-46855	Human Engineering Requirements For Military Systems, Equipment And Facilities
MIL-S-52779	Software Quality Assurance Program Requirements
MIL-D-81303	Design And Evaluation Of Cartridges For Stores Suspension Equipment
MIL-S-83490	Specifications, Types And Forms

STANDARDS

MILITARY

MIL-STD-176	Guided Missiles And Space Launch Vehicles, Weight And Balance Data Reporting Forms For
MIL-STD-470	Maintainability Program Requirements (For Systems And Equipments)
MIL-STD-490	Specification Practices
MIL-STD-785	Reliability Program For Systems And Equipment Development And Production
MIL-STD-882	System Safety Program Requirements
MIL-STD-1316	Fuze, Design Safety, Criteria For
MIL-STD-1679	Weapon System Software Development
MIL-STD-2130(AS)	Guided Weapon System Electromagnetic Compatibility Requirements

(Copies of specifications, standards, drawings and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

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2.2 Other publications. The following documents form a part of this standard to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

AR-30	Integrated Maintenance Management for Aeronautical Weapons, Weapon Systems, Related Equipment
AR-59	General Management Requirements for Project Management
WR-50	Naval Weapons Requirements; Warhead Safety Tests for Air, Surface, and Underwater Launched Weapons
WS-4235	Rocket Thrust Units, Air Launched Development Requirements For
DD-663	Cost and Price Analysis
DOD-4145.26M	DOD Contractors Safety Manual for Ammunition, Explosives and Related Dangerous Material
BUWEPS Inst. 8020.3	Explosive Hazard Classification Procedure
NOS, Indianhead Maryland Document	Propellant Sample Requirements & Test Plan

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3. DEFINITIONS (Not applicable)

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4. GENERAL REQUIREMENTS (Not applicable)

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5. DETAILED REQUIREMENTS

5.1 Reports. The following reports, as applicable, are required. All proposed deviations from applicable specifications or other specified requirements shall be indicated in the paragraphs in which they occur and a separate summary listing of such deviations, with reasons therefor, shall be included in each report having such deviations. A statement shall be made that the listing contains all of the offeror's proposed deviations from the provisions of the RFP and other applicable documents.

5.1.1 Summary report. This report shall present an overall description of the proposed design. A list of major characteristics and a brief weight and performance summary shall be included. Special design features and design philosophy, maintenance, accessibility and productibility shall be discussed. The producibility information shall include, as a minimum, a basic manufacturing breakdown, a listing of major interchangeable components and information on unusual materials, processes, etc. This report shall also list all of the documents and information comprising the proposal and shall contain a reduced size copy of each drawing.

5.1.2 Detail specification. The offeror's proposed Detail Specification shall be as brief as possible without omission of essential information. It shall follow the format of MIL-M-8555 which conforms to the requirements of MIL-STD-490 and MIL-S-83490 Form 1B. The paragraph numbers of the detail specification shall be the same as the corresponding paragraph numbers of MIL-M-8555. Section 3.3 of this detail specification shall include amplifications and modifications of MIL-M-8856 to define the missile system structural requirements and the proposed structural design criteria including launch weight, load factors and mach numbers. Engineering explanations and substantiations for deviations from requirements shall be included as an appendix. The detail specification shall reflect the requirements of the RFP, including the Type Specification and follow the appropriate format as follows:

a. Paragraphs that are to be met without change shall not be repeated but instead must be designated "applicable" or "required."

b. "Not applicable" or "not required" paragraphs shall be so designated.

c. Paragraphs of MIL-M-8555 and of the Type Specification which are expressed in general terms and thereby permit the offeror's limited or complete latitude in the selection of design characteristics, systems, subsystems, equipment, etc., shall be delineated completely. Additional subparagraphs may be added if necessary.

d. Government Furnished Equipment (GFE) upon which the proposal is based shall be defined by including a proposed GFE list (Appendixes 1-A and 1-B of the Detail Specification) with at least the following column headings: Quantity per Missile, Designation of Item, Identification of Item (drawing or specification number, etc.) and Unit Weight.

e. Weight and performance paragraphs shall be consistent with the values the offeror will guarantee, as derived in the reports of 5.1.3 and 5.1.4.

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5.1.3 Weight and balance report. This report shall be in general accordance with the following:

a. It shall be based on the requirements for the Estimated Weight and Balance Report of MIL-W-3947 (DID UDI-5-21206 dated 29 February 1972). The Summary Weight Statement, Part I of MIL-STD-176, shall be complete including the information called for as Descriptive Data.

b. The Detail Weight Statement, Part II of MIL-STD-176, shall be in sufficient detail to show that all propulsion and equipment items have been considered and included. In addition, justification of estimated weights of the structural, propulsion and equipment groups shall be submitted. The justification shall include calculations, formulas, basic curves with model designations for plotted points, allowances for special features and items not included in values obtained from the basic curves, assumptions and other means of estimation.

c. The report required by a, above, shall be supplemented by additional data for the weights of all remaining airborne elements of the weapon system. If the airborne elements of the system are proposed for installation in specific aircraft, the effect of the weights of the fixed and expendable elements on the normal and extreme balance conditions of the aircraft shall be derived.

5.1.4 Performance data report. This report shall include but not be limited to the following information:

a. Adequate justification for all coefficients and other data presented. Calculations shall be in sufficient detail to permit checking the conclusions reached. Any available test data or specific reference material prepared by the contractor, but not previously furnished to NAVAIR may be included as an appendix to the report.

b. Tabulated dimensional data and weight and propulsion data essential to performance computations. Dimensional data includes: cross-sectional area distribution broken down by components; description of the airfoil contours of all lifting/control surfaces; a wetted area breakdown; description of protuberances.

c. Analysis leading to the establishment of lift and drag values used in the calculations, including efficiency and compressibility factors. In the event these data are based on wind tunnel or flight tests, a description shall be given detailing the procedures followed in adjusting test data for differences in configuration, Reynolds number, surface condition, etc. The type of surface finishes and fastenings planned for use on the various components shall be described.

d. Thrust required and available curves or the equivalent throughout the Mach number and altitude range. The methods used in computing these data shall be clearly outlined. The propulsion system ratings used shall be confirmed by NAVAIR, except in the case of contractor-furnished engines. Propulsion system installation factors and supporting justification, as applicable, shall be submitted.

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e. For externally mounted air-launched missiles or missile weapon system elements, an analysis of the drag of the missile or element as installed on the parent aircraft shall be presented. This shall include a derivation of the drag coefficient, including interference effects throughout the operating Mach number/altitude range of the parent aircraft.

f. Performance data shall include envelope of range versus altitude of interception at design Mach number and altitude. Brief analyses of the kinematics of the flight paths for major missile-target tactical situations and of the launching operation and its attendant problems of acceleration and booster separation, if applicable, shall be also included. The effect of target maneuverability upon the air-to-air missile intercept envelope shall be presented. A time history of the missile trajectory from launch to impact shall be presented for the design mission(s). This time history will specify missile weight, center of gravity, thrust, position in space, attitude, aerodynamic forces and moments and control surface positions.

5.1.5 Stability and control report. The purpose of this report is to show that the proposed missile will meet the stability and control requirements specified in MIL-M-8555 as modified by the Type Specification. A secondary but important purpose is to provide background data concerning the evolution of the proposed missile design from a stability and control standpoint. The report shall include but not be limited to the following:

a. Variation of stability and control parameters/derivatives over the complete Mach number, altitude and angle-of-attack range for which the missile is designed, for both captive and free flight.

b. Effects of aeroelasticity.

c. Effects of power.

d. Physical characteristics.

e. Mass/inertia/center of gravity characteristics.

f. Complete description of flight control system or appropriate reference thereto.

g. A discussion of major stability and control design problem areas and their influence on the determination of the final configuration; include information showing why certain design approaches were abandoned or pursued.

The information in the report shall be based upon the latest and most applicable theoretical and experimental data available at the time of submittal, and shall be fully documented and referenced. The report shall also include analyses of the missile response to the maximum step errors about all three axes. The use of pertinent wind tunnel data to define the stability and control characteristics is encouraged. However, where data are used from a model configuration different from the proposed configuration, methods applied to adjust the data shall be fully documented.

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5.1.6 Structural description and design data report. This report shall include but not be limited to the following:

a. A structural program for the development of the missile airframe. Information shall include the time period required for conducting design, fabrication, analyses and laboratory tests; submittal dates of all design, analysis and test data; and correlation of development effort with the contract milestones and flight test program.

b. A structural description of the missile airframe to permit a review of related structural design and analysis data. Material selection, manufacturing processes, fabrication techniques, dimensional data, attachment methods, and mass properties shall be included for all major body sections and aerodynamic surfaces. A summary shall be included of all trade-off studies conducted for materials or structural concepts. To the extent any of the foregoing information is adequately included in the Materials Report submitted in response to paragraph 5.1.23, specific reference may be made to that report in lieu of repeating such information in the Structural Description and Design Data Report.

c. The design criteria that were considered in accordance with the requirements of MIL-M-8856 in developing the critical design conditions for each major airframe component. Information used in determining critical load conditions shall include but not be limited to the shipboard, ground, transportation, captive flight, free flight and launch data used in determining the critical load conditions. The effects of the repeated loads, temperature, shock, vibration, electromagnetic environmental effects and acoustic environments shall be included in the applicable design conditions. Basic missile design weights data used with the structural design criteria in the development of structural loads shall include all data within the envelopes of weight distribution, the related center of gravity location variations and the corresponding moments of inertia about the three major axes. Captive flight, launch and free flight operating envelopes shall be defined. Free-flight acceleration response limits shall be defined for the airframe.

d. A preliminary load analysis for those conditions defined in the criteria that determine the design structural requirements of each major component. Bending moment, shear and axial load diagrams shall be included with the associated concentrated loads at major reaction points.

e. Preliminary stress analyses data which include all environmental effects and the estimated structural margins of safety for each major structural component.

f. An evaluation of the missile airframe relative to flutter for launch, captive flight and free flight conditions. Information shall include the flutter modes to be investigated and the methods of flutter and divergence analyses to be followed, including the effects of structural restraints, compressibility and temperature.

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5.1.7 Flight control actuation system report. This report shall describe the function, operation and mechanization of the flight control actuation system including secondary or augmentation actuation, if any, for the missile control surfaces/devices. Schematics of mechanical linkages, electrical circuits and hydraulic, pneumatic or other actuating media and identification.

The report shall include servoanalyses for the actuator loops. Block diagrams with appropriate transfer functions showing the magnitudes for the control parameters (gains, damping, frequencies, dysteresis, etc.) shall be provided. The system performance, including performance trade-offs and compensation, shall be presented.

5.1.8 Contract design data and test report. This report shall define the scope of the data and tests to be provided during the contractual phases, based upon the requirements of MIL-D-8684 and the addendum thereto, forwarded as part of the RFP. The report shall include, in detail, the simulator, aerodynamic test and structural test programs to be conducted as necessary to satisfy the data requirements of paragraphs 3.4.12, 3.4.18.1 and 3.4.19 of MIL-D-8684. The schedule correlating the dates for accomplishing the testing with the proposed missile development and delivery schedule shall be included. The report shall be divided into "data" and "test" sections. The test section shall enumerate the development tests to be performed in conformance with requirements of paragraph 3.5.1 or MIL-D-8684. For each test, the objective, test condition, test article, and schedule shall be given. The report shall include hardware allocations for the ground and flight test programs and shall also include a proposed addendum to MIL-D-8684. This addendum, if different from the one furnished as part of the RFP, shall be prepared as follows:

- a. Paragraphs whose provisions are to be met without change shall not be repeated but instead shall be designated "applicable" or "required."
- b. Provisions which are not to be met by virtue of being "not applicable" or "not required" shall be so designated with stated reasons for such designation except where the reasons are obvious.
- c. Provisions which are proposed to be changed or amplified shall include the specific changes or amplifications with appropriate justifications.
- d. Proposed additional data or tests shall be delineated completely.

5.1.9 Demonstration program report. This report shall delineate the offeror's proposed demonstration program and its relationship to the overall missile development and production program. The report shall include the timing of performance of all tests and submittal of all resultant data and analyses, shall identify and indicate the proposed use of required aircraft, instrumentation, facilities and equipment and shall furnish a time schedule of initial and subsequent captive and free flights. The identification of required, instrumentation, facilities and equipment shall include the number, location range of measurement and accuracy of instrumentation, equipment and facilities required. Any instrumentation, equipment or facility which the

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offeror assumes will be furnished by the government must be clearly identified. The bidder is expected to include verification in the report that such government furnished support can reasonably be expected to be available, based upon identified contacts with the appropriate government instrumentation/equipment/facility custodians. The report shall also include a proposed addendum to MIL-D-18243. This addendum, if different from the one furnished as part of the RFP, shall be prepared as follows:

a. Paragraphs whose provisions are to be met without change shall not be repeated but instead shall be designated "applicable" or "required."

b. Provisions which are not to be met by virtue of being "not applicable" or "not required" shall be so designated with stated reasons for such designation except where the reasons are obvious.

c. Provisions which are proposed to be changed or amplified shall include the specific changes or amplifications with appropriate justifications.

d. Proposed additional data or tests shall be delineated clearly. In addition, the report shall include an electromagnetic environmental effects test plan, the execution of which will demonstrate the ability of the missile to survive and operate in the electromagnetic environment.

5.1.10 Propulsion system report. The report format will depend upon the type of propulsion unit proposed for the missile system. If the proposed missile propulsion is to be a solid, liquid or hybrid rocket motor, the report will be in accordance with paragraph 5.1.10.1. If the propulsion is planned to be an airbreather, the report will contain the information requested in paragraphs 5.1.10.2 and 5.1.11. If the propulsion is a combination solid, liquid or hybrid rocket motor and airbreathing engine, the report will contain the information described in both paragraphs 5.1.10.1, 5.1.10.2 and 5.1.11. When a propulsion system utilizes a rocket motor and airbreathing engine in combination, the report, in addition to the information required by these paragraphs, will describe the interface relationships between the two modes. This information should define the methods of sensing the completion of operation of one mode and the sequence of events necessary to transition from one mode to another.

The information required by paragraphs 5.1.10 and 5.1.11 is required from the prime contractor whether or not the propulsion system is Government Furnished Equipment (GFE) or Contractor Furnished Equipment (CFE).

5.1.10.1 Rocket propulsion system report. This report must delineate the bidder's program including (1) interfacing of the Rocket Motor System with all other non-rocket motor missile subsystems, and (2) relationship to the overall missile development and production program. It shall include documentation to ensure that the propulsion unit is designed (in accordance with WS 4235, MIL-S-23069, DOD 4145.26M) to meet maximum safety, reliability, efficiency, cost of operation, handling, quality control, useful or shelf life and economical production. (Documentation shall include a Specification governing Rocket Motor Engineering Development.) The Specification shall entail the following three Phase Approvals:

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1. Phase I (Design Verification)

Covers development effort to establish a motor capable of meeting the specified performance requirements. It includes testing to demonstrate the technical soundness of the basic design.

2. Phase II (Preflight Rating Test, PFRT)

Covers testing for preflight rating the system developed in Phase I.

3. Phase III (Qualification)

Covers tests to prove that the developed system meets all design, performance, environmental and service requirements.

The specification should include the following requirements:

1. Design and Construction
2. Reliability
3. Maintainability
4. Electromagnetic Environmental Effects
5. Performance and General Design
 - (a) Ballistic performance over a realistic temperature envelope (example: Absence of unstable burning).
 - (b) Induced Environments to ensure compatibility with the missile system.
 - (c) Rocket exhaust characteristics. Specification standards should be developed for those rocket motor effluent properties and phenomena which are detrimental to successful missions. Examples: solid ejecta; plume temperature/pressure profiles (effects, including corrosion/abrasion, upon A/C surface); RF and Microwave interference; detectability criteria and specifications covering smoke, radar cross-section and infra-red emissivity.

6. Environmental Conditions

Unit shall perform (after exposure to transportation, storage, stowage, handling and captive flight environmental conditions and during exposure to free flight conditions) to the conditions listed below:

- a. Transportation/Storage/Stowage/Handling
 - (1) Hot and Cold Thermal Extreme
 - (2) Low Pressure

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- (3) Rainfall
- (4) Fungus
- (5) Salt Spray
- (6) Sand and Dust
- (7) Acceleration
- (8) Shipboard Vibration
- (9) Transportation Vibration and Handling
- (10) Electromagnetic Environmental Effects

b. Captive and Free Flight

- (1) Temperature
- (2) Low Pressure
- (3) Vibration
- (4) Acceleration
- (5) Electromagnetic Environmental Effects

c. System Hazard and Safety

- (1) Storage
- (2) Drop
- (3) Bullet Impact
- (4) Detonation
- (5) External Heat
- (6) Transportation
- (7) Fast and Slow (Fire) Cook-off
- (8) Induced Current in Electroexplosive devices from Electromagnetic Radiation
- (9) Sympathetic Ignition
- (10) Inadvertently Energized Electrical Currents
- (11) Static Electrical Discharge (i.e., Lightning Transients)
- (12) Spurious Signal Pickups

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7. General

Specific characteristics and areas which should be investigated are: Ignition Stimulus (maximum), no fire current and power, all fire current, time duration; corrosion-shorts; safety and arming device; in-flight arming device; ejecta/foreign objects; damage; propellant stress analysis; shelf life; propulsion instability; shock-vibration environment; non-propulsivity or integral thrust neutralization devices; ICC or Military Explosive Classifications; interface considerations with other missile subsystems (example: standard launch lugs and electrical connections to launcher) and with aircraft (example: minimum flameout of jet engines); and smokelessness or low plume exhaust signatures; instant readiness or prepackage ability; quality control (inspectability); proven methods to protect, inhibit or reduce possibility of inadvertent activation.

The solid propellant used in rockets and guided missile propulsion units shall meet the requirements and guidelines set forth in the Naval Ordnance Station (NOS), Indian Head, Maryland, propellant sample document.

Compatibility Tests - These tests shall be conducted by NAVAIR. Each of the units shall be shipped on Government Bill of Lading to a designated activity for these tests. The purpose of these tests shall be to determine compliance with shock and vibratory acceleration requirements and compatibility with the missile. Tests shall include flight, restrained flight and ground launched firings. (In these tests the propulsion system is mated to its respective missile.).

5.1.10.2 Airbreather power plant analysis report. This report shall indicate the power available for calculating missile performance. All power losses and the effects on speed, altitude and temperature thereon shall be shown. The power losses include losses due to the induction system (including induction system drag), airframe oil temperature system, the exhaust system, airbleed and power extractions, transmissions, gearboxes and the effects of fuel temperature extremes. A thorough analysis of the derivation of these losses shall also be included. This report shall include the following:

a. A section which indicates the installed thrust available and installed fuel flow for calculating missile performance. The installed missile engine performance shall be presented for: (1) Standard day throughout the missile operating envelope and (2) Tropical day at sea level. The installed engine performance shall include the effects of:

- (a) Inlet pressure recovery
- (b) Horsepower and bleed extraction
- (c) Installed exhaust nozzle internal performance
- (d) Induction system drag
- (e) Secondary airflow drag (inlet leakage and bleed drag, engine compartment cooling airflow drag, etc.)
- (f) Installed exhaust nozzle drag.

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Items (d), (e), and (f) may be included in missile drag, unless they are presented as a function of engine power, in which case the items shall be included in installed engine performance. A thorough analysis of all the above items shall also be presented including wind tunnel test data, if available.

b. A description of the engine inlet, including drawing, shall be presented. An analysis of the engine inlet air distortion characteristics including wind tunnel test data, if available, shall be presented.

c. An outline of the proposed propulsion system ground tests, wind tunnel tests and flight tests shall be presented.

d. An engine cooling system analysis shall be presented.

e. A fuel system analysis report shall be provided to describe the fueling/defueling, transfer, venting and feed systems. An outline of proposed ground tests to certify required performance shall be presented. Class I documentation (including a specification) shall be available. (Note: Details are cited under paragraph 5.1.10.1).

5.1.11 Power plant installation and fuel system and tankage report. This report shall describe the power plant installation; the power transmission system including shafting, gearboxes, couplings and free wheeling units; and the cooling, inlet, exhaust, engine control, engine starting, engine lubrication and fuel systems with drawing or sketches, as required, including the following items:

a. Engine installation features, mountings, accessibility, etc., including engine accessories and airframe furnished accessories which supplement the engine and transmission system installations.

b. Details and schematics of engine installation features such as anti-icing, use of engine bleed air, engine control systems, intake and exhaust systems, engine and accessory cooling systems, special engine configurations, infrared radiation suppression and all other applicable systems.

c. A listing of all connections (fuel, oil, hydraulic, drains, electrical, pneumatic, mechanical, etc.) which must be broken for engine removal.

d. Complete fuel system schematic diagram and lubrication system schematic diagram with detailed descriptions of both systems.

e. If the proposed missile propulsion system design includes fuel or propellant tanks, this report shall also contain a description of all tanks planned for incorporation in the proposed design. This description shall include, as applicable, information concerning the proposed tank construction features, materials, sealing methods, fitting designs, tank design features such as positive expulsion devices. The report shall also include an outline of the test programs planned to assure design compliance with specifications MIL-T-5208, MIL-T-25783, MIL-T-8615 and MIL-A-8867, as may be applicable.

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5.1.12 Armament system report. This report shall show the proposed warhead and fuze installation indicating expected parameters such as size, type, performance, use of existing service warheads or fuzes or anticipated developments. This report, in conjunction with the Armament Installations Drawings, shall provide a unified and coherent presentation of the proposed armament system. The anticipated armament maintenance procedure from the standpoint of accessibility and durability shall be described. Reduction of vulnerability as achieved by proper disposition of missile components shall also be discussed. Information shall be provided on the size and type of launcher, the planned use of existing service ejection cartridges and launchers or anticipated developments. Safeing and arming installation shall be described. Data shall be submitted to support and justify any new launcher development. The non-use of existing launchers and ancillary equipment such as adapters shall be fully substantiated.

5.1.13 Aircraft/Missile compatibility report. This report shall describe plans including schedules for substantiating aircraft/missile compatibility and for providing the basic information needed for Launching Characteristics Report, MIL-D-8684, paragraph 3.4.18.4. See also NAVAIRINST 3710.7. When information required for this report is contained in detail in other reports submitted with the proposal, that information shall be briefly summarized in this report with reference to the report where the details may be found. This report shall contain at least the following:

a. Definition of available data pertaining to the carriage aircraft needed for the design of the missile.

b. Description of the proposed launching system and data to support and justify the projected separation trajectories between the missile and the launcher or launching aircraft for the entire proposed launch envelope. Additional data shall be submitted to support and justify the projected separation trajectories for jettisonable missile weapon system elements mounted on the launching aircraft for the entire proposed jettison envelope.

c. Definition of additional analyses or laboratory testing (wind tunnel, electromagnetic environmental effects, static, ground vibration, etc.) of aircraft and aircraft-missile combinations needed for missile design and to substantiate compatibility.

d. Definition of flight testing required to substantiate compatibility.

e. Plans for acquiring the foregoing data and performing tests, including identification of activities to do additional analyses and testing.

5.1.14 Hydraulic and pneumatic systems report. This report shall specify, as applicable, the type and class of the hydraulic and pneumatic systems included in the proposed missile design, as defined by MIL-H-25475 and MIL-P-5518, and shall describe the function and operation of all major components. Deviations from or non-conformance with these specification requirements must be identified, described and justified. The report shall also include a system and component reliability analysis, and provide or

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reference the data used as the basis for the analysis. When information required for this report is contained in detail in other reports submitted with the proposal, that information shall be extracted from such reports and included in this report. The rationale for system selection and design is also required. Schematic diagrams of the proposed hydraulic and pneumatic systems shall be incorporated in or furnished with this report. Where practicable, line diagrams of the mechanical or electrical interfaces and sequencing shall be shown.

5.1.15 Electronics and guidance system report. This report shall describe the components that provide missile guidance and the interface with the Flight Control System. A block diagram depicting the relationships, interface and feedback loops between the stabilization and control elements shall be included. The block diagram shall also include transfer function characteristics if data are available. Other characteristics to be described are: the parameters of the proposed missile electronic and guidance system; associated ground and airborne auxiliary control system equipment; and applicable details of launching, mid-course and terminal guidance, together with the method of transition from one phase to another. The report shall also describe target acquisition, target hand-off and lock-on (if required before launch). A listing of the data interface requirements between the weapon control system and the missile and description of the cockpit display and controls shall also be included. The report shall be prepared and submitted in the form of SEA (Systems Engineering Analysis) Report in accordance with the requirements of Section 3.4.3 of MIL-D-8684(AS). The following specific items, as applicable, and any other considered pertinent shall be included:

- a. Principles of operation including kinematic details, search system requirements and the proposed manner of meeting these requirements.
- b. Proposed operational frequencies.
- c. Location, size, type and purpose of all antennas and external housings required for the electronic system.
- d. Type of modulation.
- e. Compatibility of the system with the electromagnetic environment.
- f. Susceptibility of the system to enemy countermeasures or friendly interference, including an analysis and discussion of the susceptibility to high-peak-power radiation. This susceptibility must occur at higher radiation levels than that of the appropriate environment mentioned in paragraph 5.1.9d.
- g. Analysis of CEP accuracy depicting total error magnitude and the error contributed by each major component.
- h. Maximum and minimum range vs. operating altitude and Mach number using assumed target characteristics if these characteristics are not specified by the Naval Air Systems Command.

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i. The radar reflectivity and infrared radiation characteristics shall be estimated. Figures showing radar reflective area and infrared radiation versus angle of approach to the target shall be included. If radar reflectivity or infrared attenuation devices are contemplated, the details shall also be included.

j. System capacities, the number of missiles that the system can control simultaneously.

k. Estimated weight, volume and cooling requirement of components (may be included under 5.1.2).

l. Dependence upon undeveloped techniques and basic components, with a statement of the probability of success (confidence level), methods and milestone schedule under which the necessary development is to be carried out. The above report shall be prepared and submitted in the form of SEA (Systems Engineering Analysis) Report in accordance with the requirements of Section 3.4.3 of MIL-D-8684(AS).

m. Data link requirements after launch.

n. Information/data required from the launch aircraft prior to launch.

5.1.15.1 Embedded computer resources report. This report shall describe the program that the offeror proposes to implement to manage embedded computer resources which are developed or provided as Government Furnished Equipment/Information (GFE/GFI). Embedded computer resources are the totality of operational and support software/firmware; embedded computers; data storage and display devices; interface standards; programming languages; support facilities ashore; training facilities; training support personnel; and personnel whose primary specialized educational experience and training is directed toward operation or maintenance of embedded computers. Embedded computers are digital computers or processors that are an integral component, from the design, procurement, and operation point of view, of any tactical digital system. Embedded computers include microcomputers and microprocessors. This report shall contain the following sections:

5.1.15.1.1 Executive summary. This section shall provide an executive summary which summarizes the offeror's detail proposal for embedded computer resources.

5.1.15.2 Embedded computer resources management. This section shall detail the offeror's plan for the management of embedded computer resources. Software development, configuration management and quality assurance plans shall be in accordance with MIL-STD-1679 and MIL-S-52779. The plan shall address the utilization of standard Navy computers and embedded standard Shop Replaceable Assemblies (SRAs). The plan shall set forth the GFE/GFI, type of data and required delivery dates for the standard Navy embedded computer resources required in the performance of the contract.

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5.1.15.3 Embedded computer resources system integration. This section shall detail the methodology for the integration and test of all embedded computer resources into the aircraft weapon system. Liaison strategy with affected government agencies, contractor or subcontractors and other related groups shall be addressed. Technical information, personnel, test and schedule requirement shall be set forth.

5.1.15.4 Hardware embedded computer resources. This section shall detail the embedded computer(s) to be utilized. Processor, memory, Input/Output (I/O), throughput parameters, processor function to be implemented, memory and I/O growth available, processor software constraints and environmental requirements shall be set forth for each embedded computer. A block diagram shall be provided which depicts the utilization of the hardware embedded computer(s) in the tactical digital system. If it is not feasible to utilize a standard Navy embedded computer, the offeror shall request a waiver and provide the following information for justification:

- a. Name, function(s) and operating description of system/subsystem requiring a non-standard digital computer and processor.
- b. Platform(s) on which system is to be installed.
- c. All embedded computer resources (computers, peripherals, displays, I/O interfaces, etc.) and functions of each as well as system block diagram(s) depicting the interconnection of these resources.
- d. Processor, memory and throughput parameters.
- e. Environmental requirements and constraints on the processor.
- f. Processor software constraints.
- g. Explicit reasons why Navy standard airborne computers or SRAs cannot be used.
- h. Proposed substitute(s) for Navy standard airborne computers and SRAs.
- i. Proposed substitute cost data on (1) hardware procurement, (2) software procurement, (3) hardware and logistic support cost for life of system, (4) software life cycle maintenance, (5) training start-up and (6) training for life of system.
- j. Cost data as in item i. above for any buffer device(s) required to interface the proposed processor with any other processor(s) installed in the same aircraft.
- k. Reliability and maintainability requirements and demonstrated tests and operational data.
- l. Safety in compliance with MIL-STD-882.

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m. Other testing requirements including those tests which have been completed and those still scheduled.

n. Data in item j. above for any device(s) required to interface the proposed non-standard digital processing hardware with any other hardware installed in the same platform.

o. Data in item j. above for the alternative design(s) using the Navy standard airborne computer or SRAs.

5.1.15.5 Software embedded computer resources. The section shall detail design, development, test and document generation for any software (programs, firmware and data bases) that will be developed. All software shall be developed, utilizing a Navy standard High Order Language (HOL), in accordance with MIL-STD-1679. The transition of the support of the developed software to a Navy activity shall be addressed. Development schedules shall be provided which include major development milestones to include design reviews, tests and audits. If it is not feasible to utilize a Navy standard (HOL), the offeror shall request a waiver and provide the following information for justification:

a. Name, function(s), and operating description of system for which waiver is requested.

b. Platform(s) on which system is to be installed.

c. All computer resources (computers, peripherals, displays, I/O interfaces etc.) and functions of each as well as system block diagram(s) depicting the interconnection of these resources.

d. Storage and I/O requirements, and throughput parameters.

e. Software constraints (e.g., timing and spare).

f. Reasons why standards cannot be used, including supporting rationale, documentation, etc.

g. Proposed substitute(s), together with supporting rationale, documentation, etc., showing that the proposed substitute(s) meet the special requirements.

h. Data (costs, performance, schedule, etc.) on using the proposed substitute(s) compared with using required standards. The following area compared with using required standards. The following area shall be addressed:

1. Acquisition (Hardware, software and firmware).

2. Integrated Logistic Support (ILS) data for life of the system (training, documentation, life cycle maintenance, etc.)

3. Testing.

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5.1.16 Electrical system report. This report shall present a preliminary electrical load analysis substantially in accordance with MIL-E-7016(ASG). The report shall contain a block diagram of the electric power and distribution system showing the main components and listing component ratings, weights, and locations. The report shall include an analysis stating the reasons for selecting the proposed power, conversion, distribution and components. The report shall also present information on proposed high density harness construction. A three view or shadow isometric drawing showing the location of the essential features of the electric system shall also be included.

5.1.17 Telemetry system report. This report shall describe the complete proposed telemetry system including pick-ups, multiplexing device, transmitter, antenna and power source (when separate from the prime source for the missile) if required in the proposal. Standardized Navy equipment and multiplexing formats shall be used and data signals should be conditioned at their source where possible.

5.1.18 Electro-mechanical actuation and environmental control system report. This report must delineate the purpose, principles of operation and the control relationships of each electro-mechanical actuation system. Environmental parameters and schematic diagrams of mechanical linkages and electrical circuits must be included. If heating, cooling, pressurization or insulation is planned for the missile, Environmental Control System data shall be submitted. This shall provide a summary of trade-off studies, including the effects of the systems considered on the weight and performance of the missile due to the consequences of power extraction, added drag, etc. For the selected design, provide a schematic diagram in sufficient detail to allow system operation analysis. Portions of the system which are included as part of other systems, such as radar or I/R cooling, may be omitted. Describe conformance to or deviation from Military Specifications overall system function, installation of major components and operation of controls. Give details of performance as demands. Give cooling and heating thermal loads vs. available heating and cooling capacity for typical and extreme conditions. Discuss compatibility with other systems, with a block diagram showing interrelations and interfaces with other systems.

5.1.19 Human factors report. This report shall describe the principles and criteria of efforts to be undertaken in the Human Factors area. The information shall be presented in the form of plans and anticipated methodology and shall be prepared in accordance with MIL-H-46855 for submission as a Preliminary Human Factors Report.

5.1.20 Integrated Logistics Support (ILS) plan report. This report shall provide a detailed ILS program plan which describes the effort proposed to achieve and insure maintenance provisions in design and logistic subsystem integration to the degree required to meet stated or planned operational use and support of the entire weapon system. The ILS plan shall include both technical and management consideration relating to weapon system design, development, operation and support, and shall be verified as to

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feasibility, suitability and technical and economic acceptability. The table below indicates the basic segments of the ILS plan and the principal program phases to which each segment of the plan relates or is applied. NAVAIR document AR-30 provides additional guidance and detailed information concerning the overall Integrated Logistic Support plan requirements.

APPLICABLE PHASES OF TOTAL PROGRAM					
ILS Plan Segment	Design/ Develop- ment	Test and Demon- stration	Operational Use	Design Change	Reference Data Bank*
1. Definition of Problem and Proposed Approach	X			X	X
2. Design for Main-tenance	X	X		X	X
3. Plant to Maintain	X	X	X	X	X
4. Personnel/Training	X	X	X	X**	X
5. Support Equipment	X	X	X	X	X
6. Technical Data & Demonstration	X	X	X	X	X
7. Material Support a. Contractor b. Government	X X	X X	X*** X	X X	X X
8. Maintenance facilities a. Ashore b. Afloat	X X	X X	X X	X X	X X
9. ILS Verification Plan	X	X	X	X	X

* Offeror's master weapon system reference data file.

** To the degree that number and skills of maintenance personnel are involved.

*** Prior to Navy support of the weapon system or equipment.

In order to facilitate efficient and effective review and evaluation of proposals, each segment of the ILS plan shall be prepared and dealt with as a separate section of the complete plan.

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5.1.21 Management plan report. This report shall present the project management data requirements including delivery schedules, proposed for the project. It shall be based on the requirements contained in the PROMPT Guide "AR-59 General Management Requirements for Project Management" which will be forwarded with the RFP. The requirements of this guide will be tailored by the RFP to satisfy the management needs of the Project.

5.1.22 Reliability and maintainability plans and reports. The required Reliability and Maintainability plans and report shall consist of:

a. A description of the reliability and maintainability programs that the offeror proposes to undertake to meet the requirements of MIL-STD-785 and MIL-STD-470 respectively, if awarded the contract. The program descriptions shall be provided in Reliability and Maintainability Program Plans prepared in accordance with the appropriate Data Item Descriptions (DID's) of MIL-STD-785 and MIL-STD-470. The proposed methods of demonstrating reliability at the module, section, missile and system level shall be described and shall reference the portions of the Contract Data and Tests Reports and the Demonstration Program Reports that will provide objective evidence of reliability growth and compliance with reliability requirements.

b. Reliability and Maintainability Mathematical Models (Including Block Diagrams) prepared in accordance with the appropriate DID's of MIL-STD-785 and MIL-STD-470 which show the functions and operations necessary to determine the reliability and maintainability of the guided missile system and subsidiary elements thereof.

c. An Allocation Report, prepared in accordance with the appropriate DID's of MIL-STD-785 and MIL-STD-470, which shows the reliability and maintainability of each unit of the hardware breakdown structure needed to meet the requirements for the missile system.

d. A Prediction Report, prepared in accordance with the appropriate DID's of MIL-STD-785 and MIL-STD-470, which shows the predicted reliability and maintainability of each unit of the hardware breakdown structure and the total missile system.

5.1.23 Materials report. A report on materials and associated processes proposed or contemplated for use in the design and construction of the missile shall be submitted. The report shall include a discussion of the guiding philosophy to be employed in the selection of materials for the primary structure and other major subsystems and components. Major emphasis in the report shall be placed on any novel or unconventional applications of materials proposed which reflect significant departures from proven practice in current service missiles, including any markedly wider utilization of newer type materials or as-yet little tried materials and processes in such applications. The adequacy and limitations of such materials and processes, as well as the associated manufacturing technology, shall be discussed in relation to the proposed design, both on the basis of the current state of the art and the bidder's specific capabilities. Where available data are marginal, this shall be so indicated. In addition, a section on environmental protection shall be included, setting forth the surface pre-treatment and anti-corrosion finishing materials and processes to be employed, as well as the erosion characteristics of materials proposed for radomes, IR domes or other electromagnetic windows.

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5.1.24 Target identification and aquisition plan report. This report shall describe the proposed capability for locating and identifying all types of targets in a high-density environment. Specifically, the following capabilities shall be described:

- a. Multiple target capability.
- b. Flexible target identification logic.
- c. Sensitivity.
- d. Automatic threat prioritization.
- e. In range indication for weapon delivery.

5.1.25 Testability report. This report shall address the capability for testing the missile as an all-up-round in a Naval Weapons Station. The report shall furthermore address whether or not testing as an all-up-round in a Naval Weapons Station would isolate to a defective missile section. Some other subjects to be addressed in this report are:

- a. Types of connector(s) to be used for all-up-round testing.
- b. Estimated percentage of missile components that would be tested and estimated percentage of failure rate that would be tested.
- c. Capability of detecting defective SRAs within the sections without disassembly of sections.
- d. Capability for safely testing fuses at Naval Weapons Stations.
- e. Capability for testing Target Detection Services at Naval Weapons Stations with description of extent of missile assembly, if any, required to conduct testing.
- f. Environmental constraints and limitations (such as cooling and cool-down periods) affecting testability of the missile.
- g. Capability of 0-level flight line testing.

5.1.26 System Safety Program Plan (SSPP) report. This report shall:

(1) Describe the System Safety Program that the offerer proposes to conduct if awarded the contract. The report shall be in accordance with MIL-STD-882A. The proposed methods of demonstrating System Safety at all levels and stages of the life cycle shall be described, with special emphasis on the methodology for eliminating and controlling Category I (Catastrophic) and Category II (Critical) hazards.

(2) Be prepared to that degree of specificity that, upon approval by NAVAIR, it shall be considered to satisfy the requirements of MIL-STD-882A and become an integral part of the contract.

(3) Shall include a manloading chart and support for System Safety Working Group (SSWG) conferences.

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5.1.27 Electromagnetic environmental effects report. This report shall provide a detailed description of achievements, analysis, and test data which shows compliance with the electromagnetic environmental effects requirements specified in MIL-STD-2130(AS), or as otherwise defined in the RFP. A detailed plan shall be provided for those areas which no analysis and test data are provided. The plan shall delineate the design, analysis, testing, data, and asset requirements in a building block fashion necessary for compliance with the electromagnetic environmental effects requirements specified in MIL-STD-2130(AS), or as otherwise refined in the RFP. The plan shall also include a detailed schedule of these activities keyed to the contractor's overall program activities and the Department of Defense acquisition cycle.

5.2 Drawings. The following drawings, when applicable, are required and shall show all major items and features. Means of access to items requiring removal or adjustment shall be shown. Individual drawings for each item listed are not required but may be combined if appropriate and if desired. Third angle projection shall be used when practicable and the scales shall be indicated.

5.2.1 General arrangement drawing. The general arrangement drawing shall be generally in accordance with the applicable requirements as listed in Appendix I of MIL-D-8684.

5.2.2 General arrangement sketch. This shall be a small three-view general arrangement drawing on a single sheet showing the distinguishing characteristics of the design and the major dimensions. The sheet size shall be 8 x 10 1/2 inches (not 8 1/2 x 11 or larger). It shall not be bound or punched for binding.

5.2.3 Inboard profile drawing. This drawing shall show major structure, propulsion unit, equipment, and useful load items. The drawing shall include both an elevation and a plan view, and shall show numerous sectional views to show the location of the items of equipment. Each item shall be plainly labeled. The information shown on this drawing shall agree with the weight and balance data submitted and the reference datums for longitudinal and vertical c.g. information used in the weight and balance report shall be shown.

5.2.4 Structural arrangement drawing. This drawing shall show the essential characteristics of the structure of airframe components including lifting and flying control surfaces, and the method of attachment at junctures of principal components. Centerlines of main members and sections as necessary to clarify the arrangement shall be included. Details of difficult structural problems, such as transfer of loads around major discontinuities, shall be included. Any structural part of the missile that is foldable or retractable shall be shown in detail with a description of the operating and locking provisions. Details of the locks and lock controls shall also be shown. Missile body stations shall be identified for all major structural joints, attachment points, launcher ejection points, and center of gravity locations.

5.2.5 Propulsion unit installation drawing. The complete propulsion unit installation, including fuel, oil, induction, exhaust, starting, ignition, control, and cooling systems shall be shown. Engine information shall be furnished as follows:

a. Government furnished engines shall be identified as MIL or other applicable engine specifications.

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b. Contractor furnished commercially available engines shall be identified by the appropriate specifications which shall form a part of the proposal.

c. Contractor designed and developed engines shall be further described as required by paragraph 5.1.6.

If a rocket motor is used, the complete rocket motor propulsion system integration, including propellant, grain, igniter, case, insulator, liner, or case-bonding material, nozzle components (and all other subsystems pertinent to propulsion systems such as hybrid rocket, propellant liquid engine, air breather, and rocket ram-jet) shall be shown. Rocket motor information shall be furnished as follows:

a. Government furnished engines (GFE) shall be identified by MIL or other applicable engine specifications.

b. Contractor furnished engines (CFE) shall be identified by appropriate specifications which shall form a part of the proposal.

5.2.6 Fuel tank drawing. The essential characteristics of the structure, sealing, and installation of components shall be shown.

5.2.7 Flight control drawing. The proposed flight controls and their interconnections to the actuating systems shall be shown.

5.2.8 Launching provisions drawing. The geometry of the launching provisions shall be shown. When Jato or booster units are required, the drawing shall indicate the thrust carry-through structure, alignment adjustment means (if any), mechanism of disengagement, and maximum allowable dimensions for the units.

5.2.9 Recovery system drawing. The important details of the recovery system shall be shown if the proposed guided missile is recoverable. The drawing shall also indicate the attitude and depth of submergence with the proposed flotation provisions. If parachutes are used, the required size shall be indicated and the folded dimensions or volume shall be stated.

5.2.10 Ground handling equipment drawing. The proposed ground handling equipment shall be shown if required in the proposal.

5.3 Display model. A display model is not required but if submitted it should be to the scale designated by the Naval Air Systems Command.

5.4 Price analysis. The price analysis for contract negotiation of evaluation quantities shall be submitted on Form DD-633. Additional cost breakdowns, and estimates for follow-on quantities, may also be required.

5.5 Schedules. The proposed development, test, and delivery schedules shall be submitted. A production breakdown diagram is required for proposals which are for other than strictly tested vehicles.

5.6 Letter of transmittal. The engineering data outlined herein shall be submitted by a letter of transmittal which shall define the scope of the proposal and list the performance guarantees. The price analysis and schedules shall also be included unless the Naval Air Systems Command has indicated that they may be submitted at a later date.

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5.7 Preparation for delivery.

5.7.1 Reports. The required reports shall be furnished in separate folders of standard report size (9 x 11 1/2 inches). Elaborate brochures are not desired.

5.7.2 Drawings. The drawings shall be folded in so-called accordion form in such a way that the title appears on the outside. The size folded shall not exceed 9 1/2 x 12 inches.

5.7.3 Number of copies. Unless otherwise specified in the RFP, the following number of copies of required data shall be submitted. If assembly of the data in complete or partial sets is desired, instructions will accompany the RFP.

<u>Report Number</u>	<u>Item</u>	<u>Number of Copies</u>
5.1.1	Summary report	25
5.1.2	Detail specification	25
5.1.3	Weight and balance report	5
5.1.4	Performance data report	5
5.1.5	Stability and control report	5
5.1.6	Structural description and design data report	5
5.1.7	Flight control actuation system report	8
5.1.8	Contract design data and test report	20
5.1.9	Demonstration program report	20
5.1.10	Propulsion system report	7
5.1.11	Power plant installation and fuel system and tankage report	7
5.1.12	Armament system report	7
5.1.13	Aircraft/Missile compatibility report	10
5.1.14	Hydraulic and pneumatic systems report	5
5.1.15	Electronics and guidance system report	8
5.1.16	Electrical system report	8
5.1.17	Telemetry system report	8
5.1.18	Electro-mechanical actuation and environmental control system report	8
5.1.19	Human factors report	8
5.1.20	Integrated Logistics Support (ILS) plan report	10
5.1.21	Management plan report	8
5.1.22	Reliability and maintainability plans and report	5
5.1.23	Materials report	5
5.1.24	Target identification and acquisition plan report	10
5.2	Drawings	2
5.3	Display model (See 5.3)	
5.4	Price analysis	6
5.5	Schedules	10
5.6	Letter of transmittal	10

6. NOTES

6.1 Model designation. The proposed design shall be referred to only by the contractor's model number.

6.2 Security classification. The proposal data shall be assigned appropriate security classification but they shall not be of a lower classification than indicated by the letter of invitation for bids.

6.3 Handling of proposal data. All proposal data, whether classified or not, are considered to be confidential in nature and the data of one contractor are not subject to review by any other contractor.

6.4 Disposition of proposal data. After the winning design has been determined, one copy of the other proposals will be filed and the remaining copies will be disposed of in accordance with security regulations. The corresponding display models, if submitted, will be available for return to the contractors.

Preparing Activity
Navy-AS
Project No. 1410-N105

INSTRUCTIONS: In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge (*DO NOT STAPLE*), and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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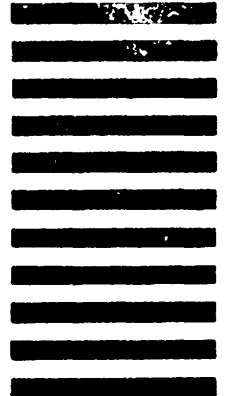
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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL*(See Instructions – Reverse Side)*

1. DOCUMENT NUMBER		2. DOCUMENT TITLE	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one)	
b. ADDRESS (Street, City, State, ZIP Code)		<input type="checkbox"/> VENDOR	
		<input type="checkbox"/> USER	
		<input type="checkbox"/> MANUFACTURER	
		<input type="checkbox"/> OTHER (Specify): _____	
5. PROBLEM AREAS			
a. Paragraph Number and Wording:			
b. Recommended Wording:			
c. Reason/Rationale for Recommendation:			
6. REMARKS			
7a. NAME OF SUBMITTER (Last, First, MI) – Optional		b. WORK TELEPHONE NUMBER (Include Area Code) – Optional	
c. MAILING ADDRESS (Street, City, State, ZIP Code) – Optional		8. DATE OF SUBMISSION (YYMMDD)	