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Superseding
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MILITARY SPECIFICATION

GENERAL QUALITY ASSURANCE PROVISIONS FOR PROXIMITY FUZES AND RELATED COMPONENTS

1. SCOPE

1.1 Scope. This specification covers General Quality Assurance provisions for procurement of proximity and other electronic fuzes, and related components.

1.2 Application. This specification is applicable when cited by the detailed specification or contract documents. When MIL-Q-9858 is required, the contract shall so state, otherwise MIL-I-45208 will apply.

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

Military

MIL-C-45662	-- Calibration System Requirements
MIL-I-45208A	-- Inspection System Requirements
MIL-Q-9858A	-- Quality Program Requirements

3. REQUIREMENTS

3.1 Relation to other specifications.

3.1.1 MIL-I-45208A. All requirements of MIL-I-45208A are applicable to this specification.

3.1.2 MIL-Q-9858. When the contractor qualifies under MIL-Q-9858, his quality system must include as a minimum all inspection requirements of MIL-I-45208A and this specification.

3.2 Incremental submission of inspection procedures. Prior to the processing of any material in a defined area (e.g. receiving, manufacturing, assembly), the written procedures relating to that area shall have been submitted to the Government representative for review.

3.3 Submission of product. At the time the completed lot of product is submitted to the Government for acceptance, the contractor shall supply the following information accompanied by a certificate signed by a responsible

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agent of the contractor, which attests that the information provided is correct and applicable to the product being submitted:

a. A statement that the lot complies with all quality assurance provisions of the currently approved written description of the system; or that deviations therefrom have been specifically approved by the Government.

b. Number of items in the lot.

c. Number and date of applicable list of drawings and list of specifications, plus current revisions thereto, plus a listing of all approved changes, deviations or waivers which apply to the lot.

d. Date submitted.

e. Number of items inspected.

f. Results of inspections.

g. Certificates of compliance for materials and components controlled by the procurement documents, complete with applicable information prescribed in a. through f. above. This data may be from the specific quantity of materials or products, the manufacturing lot, or the continuous processes from which the articles originated.

3.4 Inspection system audit. The contractor's Inspection Plan shall contain procedures for repeated audits of the system to insure that all elements of the system are maintained and continuously implemented in accordance with the plan. Records of audit including discrepancies found and corrective action generated by the audit shall be made available to the Government representative.

3.5 Production flow chart. A production flow chart showing the manufacturing and processing sequences to be used, and indicating the stations at which inspections and tests are to be performed shall be provided as part of the Inspection Plan. The number and nomenclature of the contractor's inspection procedures shall be indicated at the inspection stations to which they apply.

3.6 Special measuring and test equipment. Designs, operating and calibration procedures for all special inspection equipment (including special gages) required for acceptance inspection are subject to approval of the designated technical agency. In addition, the demonstrated capability of the actual equipment shall be certified by the technical agency prior to initiation of production.

3.6.1 Contractor-furnished designs. When the contractor is required by the applicable Equipment List to design his own inspection equipment (test equipment and gages) for acceptance tests and measurements prescribed by the specification, he shall provide to the Government a design package including:

a. Drawings, including circuit diagrams, in sufficient clarity and detail, to show the functional construction of the equipment.

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b. Drawings and/or photographs showing the general physical construction.

c. Procedures for operation to be supplied to inspection personnel for use of the equipment.

d. Calibration procedures to insure adequate maintenance of the equipment in standard condition. The procedures shall establish that the equipment is of sufficient accuracy for the required inspection; and that all equipment variation is absorbed within the allowed specification tolerance.

3.6.1.1 Format. Unless otherwise specified, the above documents shall be in contractor's format. However, the Government reserves the right to reject the data for inadequacy or lack of clarity.

3.6.2 Government-furnished designs. When the contractor constructs his inspection equipment in accordance with the functional construction of Government designs, only the operating procedures and calibration procedures of 3.6.1 are required in the design package.

3.6.3 Maintenance. Maintenance and care of inspection equipment is the contractor's responsibility. However, when rework includes change of design or of operating environments, or is a repair of disabling damage, the equipment will be subject to recertification by the Technical Agency.

3.7 Calibration standards.

3.7.1 Reference standards. Calibration of reference standards may be performed by the contractor or at a commercial laboratory certified to comply with MIL-C-45662.

3.7.2 Transfer standards. The contractor shall identify the standards which he will use to transfer measurements between the reference standards and the production equipment. These standards shall meet the following criteria:

a. Repeatability -- In a series of five independent measurements, it shall be demonstrated that the instrument results in the same reading to the nearest scale marking.

b. Accuracy -- The combined instrument and readability error shall not exceed $1/3$ (preferably $1/10$) of the allowable variation of the production measurements to which it applies. The determination shall be judged in the area of the range at which the production measurement will be made. Finish on all gages shall be 8, unless otherwise specified.

c. Temperature compensation -- Each instrument shall be temperature compensated or provided with a temperature correction chart.

d. Portability -- Handling and moving limitations of the instrument manufacturer shall be provided to demonstrate the suitability for the

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intended use. Where no such records are available, adequate tests will be performed to demonstrate capability to withstand intended usage procedures.

e. Protection -- Special controlled temperature storage rooms are not required for transfer standards. However, adequate protection will be provided against dirt and temperature conditions to insure continued accuracy of the equipment.

3.8 Calibration controls. The system for controlling the calibration program shall include the following procedures as a minimum:

a. A calibration period shall be established for each standard consistent with the established drift rate of the instrument. Until drift rate and stability are determined, the calibration period shall be quarterly.

b. A procedure shall be established to insure immediate recalibration of any instrument which has undergone accident, abnormal handling, or other cause of probable damage, or when usage is contemplated in a range not covered by previous calibrations.

c. Transfer standards shall generally be restricted for calibration use in the hands of specifically qualified personnel. Usage for manufacturing measurements must be based on acceptable justification.

3.9 Cleanliness standards and practices. The long period between manufacture and use of proximity and electronic ammunition requires particular care to eliminate extraneous material which may cause deterioration in storage. The following provisions are required to be a part of the contractor's written quality assurance plan.

3.9.1 Fuzes and major subassemblies for conventional ammunition. The Contractor's inspection system shall provide and enforce written standards and practices of cleanliness for areas in which the product is assembled, inspected, and packaged. The procedures shall include at least the facilities and controls generally applicable to the manufacture of commercial products of equal complexity and performance. Unless otherwise stated in the contract documents, this section will be applicable.

3.9.1.1 Implementation. Foreign matter (dirt, ashes, paper, hair, food, etc.) in the product will be evidence of deficiency in cleanliness control, and cause for corrective action. Failure to make effective correction shall be cause for rejection of the product, and may result in suspension of acceptance inspection until conditions causing the defects are improved.

3.9.1.2 Standards. As a minimum, written procedures shall be included for defining operator practices, practices applicable to the immediate workplace, and general practices applicable to the workroom. Items to be considered are listed below.

a. Operator standards -- Personal responsibility for cleanliness of workplace, practices concerning food and drinks, smoking regulations, storage of personal items, use of cosmetics and other toiletry at workplace, and

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regulations regarding hand cleanliness, including use of lotions, and protection against finger marks.

b. Work area standards and practices -- Proper tools and hardware permitted at workplace, local protection of tools and hardware in process when line is not in operation, and storage of tools, product, and personal belongings at the workplace.

c. Maintenance standards and practices -- Equipment to be used, frequency of cleaning, dust protection and dust reduction practices, and elimination of extraneous material.

3.9.2 Special weapons fuzes. The complexity and importance of these fuzes are such as to require a superior degree of cleanliness beyond that prevalent for general commercial products. When this category is cited in the contract documents, the contractor's inspection system shall provide and enforce standards and practices of cleanliness and maintenance generally applicable to the manufacture of high grade electronic instruments for those areas in which fuzes or major subassemblies are assembled, inspected and packaged. The procedures shall provide, as a minimum, for the following:

a. Operator standards -- Establishing the responsibility of each employee for a high degree of cleanliness and neatness of his or her workplace, the prohibition of smoking at the workplace, the prohibition of food or drinks at the workplace, the prohibition of personal items, such as; scarfs, handbags, tissues, keys, etc. on the workplace, the prohibition of toiletry of any type in the work area, and, the cleanliness of the hands and nails consistent with operation requirements, the prohibition of hand lotions for operators handling small parts; and the use of hand protectors in operations in which perspiration would cause corrosion in metal parts.

b. Work area standards and practices -- That only test fixtures, tools, jigs, assembly fixtures and hardware necessary to perform the work be permitted at the workplace; that when the assembly line is not in operation, all test fixtures, parts and subassemblies and assemblies at the workplace be covered; and that covers be provided for parts, subassemblies and assemblies when stored in the work area prior to assembly.

c. Maintenance standards and practices -- That the overhead be cleaned on a regular schedule (or false ceiling be installed), cleaning of floors, storage and work area be accomplished with vacuum equipment at prescribed intervals; waste, scrap and defective parts be placed in suitable containers and removed from the area at scheduled intervals; and filters be provided and cleaned at scheduled intervals on ventilating and air conditioning equipment.

4. QUALITY ASSURANCE PROVISIONS (This section is not applicable to this specification.)

5. PREPARATION FOR DELIVERY (This section is not applicable to this specification.)

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6. NOTES

6.1 Special weapons contracts. The contract shall state when special weapons applications are required. (See 3.9.2)

6.2 Data requirements. The following data items are required by this specification, and for any contract in which it appears:

1. Production Flow Chart (3.5)
2. Special Measuring and Test Equipment (3.6)

Preparing Activity

Army -- MU

User Activity:

Army - MU

Project No. 1390-A171

