

MIL-A-25708C  
 17 OCT 1975  
 SUPERSEDING  
 MIL-A-25708B (USAF)  
 9 February 1972

## MILITARY SPECIFICATION

### ANTENNAS, BLADE, L-BAND, GENERAL SPECIFICATION FOR

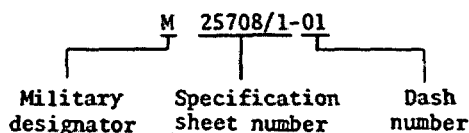
This specification is approved for use by all Departments and Agencies of the Department of Defense.

#### 1. SCOPE.

1.1 This specification covers the general requirements (for externally mounted) blade type L-Band antennas (see 6.1).

1.2 Classification: Antennas covered by this specification are classified by style, as specified (see 3.1):

1.2.1 Military part number. The military part number shall consist of the letter M, the basic number of the specification sheet, and an assigned dash number, (see 3.1); as shown in the following:



#### 2. APPLICABLE DOCUMENTS

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

##### SPECIFICATIONS

##### Federal

- |   |  |
|---|--|
| NN-P-71<br>QQ-A-591<br>QQ-S-781<br>PPP-T-60<br>PPP-T-76<br>PPP-B-566<br>PPP-B-585<br>PPP-B-601<br>PPP-B-621<br>PPP-B-636<br>PPP-B-676 | - Pallets, Material-handling, Wood (General Construction Requirements).<br>- Aluminum Alloy Die Castings.<br>- Strapping, Steel, Flat and Seals.<br>- Tape: Packaging, Waterproof.<br>- Tape, Pressure-sensitive Adhesive Paper, (For Carton Sealing).<br>- Boxes, Folding, Paperboard.<br>- Boxes, Wood, Wirebound.<br>- Boxes, Wood, Cleated-plywood.<br>- Boxes, Wood, Nailed and Lock-corner.<br>- Boxes, Shipping, Fiberboard.<br>- Boxes, Setup. |
|---|--|

##### Military

- |                                       |  |
|---------------------------------------|--|
| MIL-P-116<br>MIL-C-3643<br>MIL-E-5400 | - Preservation-packaging, Methods of.<br>- Connectors, Coaxial, Radio Frequency, Series HN and Associated Fittings, General Specification for.<br>- Electronic Equipment, Aircraft, General Specification for. |
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## MIL-A-25708C

- MIL-H-5606 - Hydraulic Fluid, Petroleum Base; Aircraft, Missile, and Ordnance.
- MIL-J-5624 - Turbine Fuel, Aviation, Grades JP-4 and JP-5.
- MIL-C-39012 - Connectors, Coaxial, Radio Frequency, General Specification for.
- MIL-C-45662 - Calibration System Requirements

## STANDARDS

## Federal

- Fed. Std. No. 356 - Commercial Packaging of Supplies and Equipment.

## Military

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-130 - Identification Marking for U.S. Military Property
- MIL-STD-147 - Palletized Unit Loads 40" x 48" Pallets.
- MIL-STD-454 - Standard General Requirements for Electronic Equipment.
- MIL-STD-810 - Environmental Test Methods.

## HANDBOOKS

- MIL-HDBK-52 - Evaluation of Contractors Calibration System.

## SPECIFICATION SHEETS

- MIL-A-25708/1- Antenna, Blade AT-741B/A (HN Connector)
- MIL-A-25708/2- Antenna, Blade AS-2685/A (HN Connector)
- MIL-A-25708/3- Antenna, Blade AS-2686/A (HN Connector)
- MIL-A-25708/4- Antenna, Blade, L-Band, (Four Hole Mounts, Subminiature connector)

(Copies of documents required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

3. REQUIREMENTS

3.1 Specification sheets. The individual item requirements shall be as specified herein and in accordance with the applicable specification sheets.

3.2 Qualification. Antennas furnished under this specification shall be products which are qualified for listing on the applicable qualified products list at the time set for the opening of the bids (see 4.4 and 6.3).

3.3 General specification. The requirements of MIL-E-5400 for class 4 equipment apply as requirements of this specification with the exceptions and additions called out herein. When the two specifications conflict, this specification shall govern.

3.4 Materials. Materials shall be as specified herein. However, when a definite material is not specified, a material shall be used to enable the antennas to meet the requirements of this specification. Acceptance or approval of any constituent material shall not be construed as a guaranty of acceptance of the finished product.

3.4.1 Metals. The metals shall be as follows unless otherwise specified (see 3.1):

- (a) The base shall be aluminum alloy per QQ-A-591, alloy 380.
- (b) The cover shall be suitable material that will resist erosion of impinging particles at velocities up to Mach. 2.

3.4.2 Nonflammable material. Materials shall be nonflammable when tested in accordance with MIL-STD-454.

3.4.3 Fungus inert material. The antenna materials shall be fungus inert.

3.5 Design and construction. The antenna shall be of design and physical dimension specified (see 3.1): The construction of the antenna shall be of either unit or two piece construction. The elements considered are the base and cover (radiating element).

3.5.1 Radio frequency (RF) connectors. Connectors for a specific antenna shall be as required (see 3.1): Materials, design, and construction of the types listed below shall conform to the specifications as follows:

<u>Type of RF connector</u>	<u>Specification</u>
HN	MIL-C-3643
BNC	MIL-C-39012
Subminiature	Omni-spectre 260-2 or equivalent

3.5.1.1 Connector caps. All connectors shall be supplied with push-on plastic caps to prevent connector damage and the entrance of moisture and foreign material during storage.

3.5.2 Temperature operating range. The antenna shall operate without electrical or mechanical deterioration over the specified temperature range in accordance with applicable specification sheet (see 3.1):

3.5.3 Seal (see 4.7). All openings of the antenna cavity shall be sealed to prevent air leakage during all changes in surface pressure encountered in air operations between pressure altitudes of 0 to 100,000 feet.

3.5.4 Static load test (see 4.8). The mechanical strength of the antenna shall withstand a uniformly distributed side load in accordance with applicable specification sheet (see 3.1).

3.5.5 Resistance to solvents (see 4.9). All materials used in construction shall withstand direct contact with aromatic fuels and hydraulic fluids without causing electrical or mechanical deterioration.

3.5.6 Environmental tests (see 4.6.7). The antenna shall withstand the environmental tests without mechanical or electrical deterioration.

### 3.6 Electrical requirements.

3.6.1 Frequency. The antenna shall provide performance over a specified radio frequency in accordance with the applicable specification sheet (see 3.1).

3.6.2 Polarization (see 4.6.6). The antenna shall transmit or receive vertically polarized signals. The ratio of vertical or horizontal polarization of signals shall be equal to that obtained from a vertically polarized quarter-wave stub antenna at any frequency specified herein.

3.6.3 Impedance (see 4.6.2). The impedance of the antenna when measured at the connection of the transmission line shall be such that the voltage standing wave ratio (VSWR) produced on the input radio frequency cable is in accordance with the applicable specification sheet (see 3.1).

MIL-A-25708C

3.6.4 Sampling probe impedance (see 4.6.3). The impedance shall be as specified in accordance with the applicable specification sheet (see 3.1).

3.6.5 Sampling probe attenuation (see 4.6.4). The attenuation of the signal measured at the connector of the probe when a signal is fed to the antenna at its RF connector shall measure between 16 and 19dB over the frequency range of .960 to 1.220 GHz, unless otherwise specified (see 3.1).

3.6.6 Radiation pattern (see 4.6.5). The gain of the antenna system in the region extending completely around the antenna, in azimuth, shall, at each zenith angle, be essentially omnidirectional with nulls no greater than 2.0 dB down from the maximum. The gain at all zenith angles from 45 degrees to 95 degrees shall not be more than 0.5 dB below the gain of a matched quarter-wave stub antenna in the same location (see figure 1).

3.7 Ungrounded stub antenna. The radiating element is not grounded to the base of the antenna, unless otherwise specified in the specification sheet (see 3.1).

3.8 Weight. The weight of the antenna shall be in accordance with the applicable specification sheet (see 3.1).

3.9 Marking. Antenna shall be marked in accordance with MIL-STD-130 and shall include the part number, contract, serial number, date code (year, month) and manufacturer's code.

Example: P/N M25708/1-01  
 Type AT-741B/A (if applicable)  
 Contract DSA XXXXXXXXXXXXX  
 Serial No. 1234  
 70 10 12345

3.10 Longevity. The design and construction shall provide a mean longevity of a minimum of 6,000 hours of operational service life.

3.11 Workmanship. Workmanship shall be in accordance with requirement 9 of MIL-STD-454.

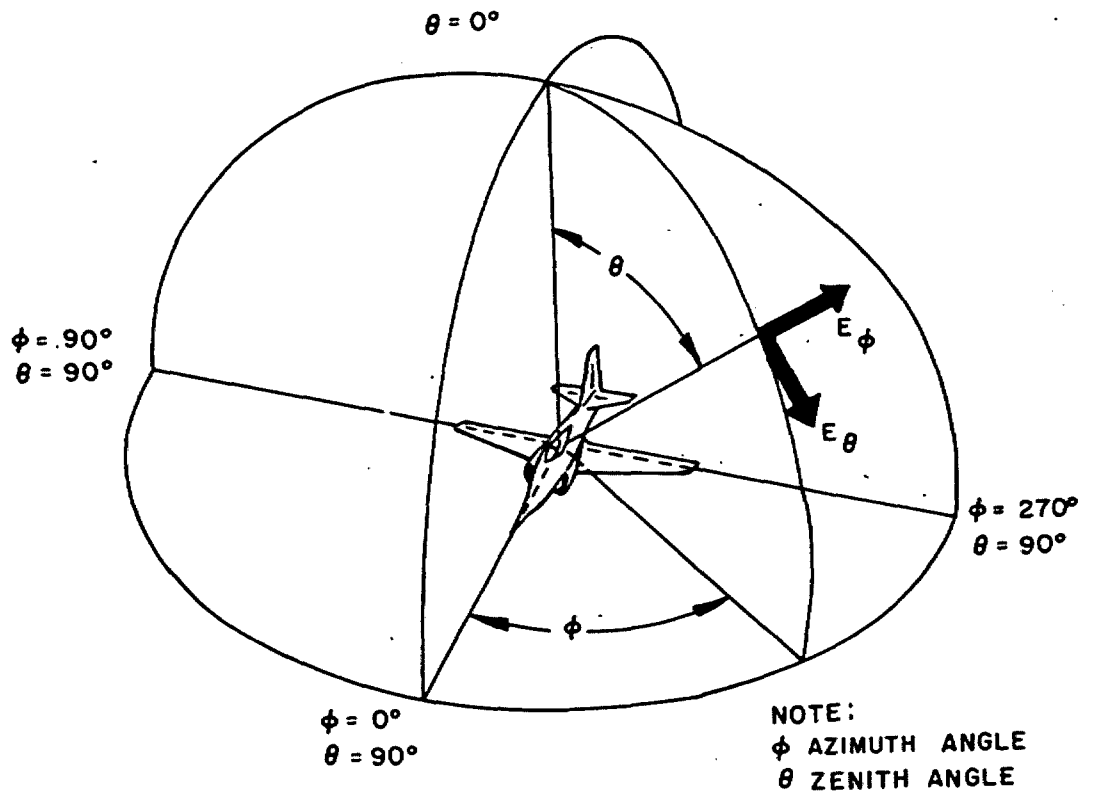
#### 4. QUALITY ASSURANCE PROVISIONS.

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier 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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Test equipment and inspection facilities. Test and measuring equipment and inspection facilities of sufficient accuracy, quality, and quantity to permit performance of the required inspection shall be established and maintained by the supplier. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with MIL-C-45662 and MIL-HDBK-52.

4.2 Classification of inspections. The inspections specified herein are classified as follows:

- (a) Qualification inspection (see 4.4).
- (b) Quality conformance inspection (see 4.5).



**FIGURE 1. Radiation pattern coordinates.**  
(Para. 3.6.6)

MIL-A-25708C

4.3 Inspection conditions. Unless otherwise specified, the antennas shall be tested at temperatures of  $25^{\circ}\text{C} \pm 10^{\circ}\text{C}$ , barometric 650 to 800 millimeters of mercury, and relative humidity of 45 percent to 90 percent.

4.4 Qualification inspection. Qualification inspection shall be performed at a laboratory acceptable to the Government (see 6.3) on sample units produced with equipment and procedures normally used in production.

4.4.1 Sample size. Twelve antennas shall be subjected to qualification inspection as specified in table I.

4.4.2 Inspection routine. The sample shall be subjected to the inspections specified in table I, in the order shown. All sample units shall be subjected to the inspection of group I. The sample shall then be divided as specified in table I for groups II and III.

4.4.3 Failures. Failures in excess of those allowed in table I shall be cause for refusal to grant qualification approval.

4.4.4 Retention of qualification. To retain qualification, the supplier shall forward a report at 12-month intervals to the qualifying activity. The qualifying activity shall establish the initial reporting date. The report shall consist of:

- (a) A summary of the results of the tests performed for inspection of the product for delivery group A, indicating as a minimum the number of lots that have passed and the number that have failed. The results of tests of all reworked lots shall be identified and accounted for.
- (b) The results of tests performed for qualification verification inspection, group B, including the number and mode of failures. The test report shall include results of all qualification verification inspection tests performed and completed during the 12-month period. If the test results indicate nonconformance with specification requirements, and corrective action acceptable to the qualifying activity has not been taken, action may be taken to remove the failing product from the qualified products list.

Failure to submit the report within 30 days after the end of each 12-month period may result in loss of qualification for the product. In addition to the periodic submission of inspection data, the supplier shall immediately notify the qualifying activity at any time during the 12-month period that the inspection data indicates failure of the qualified product to meet the requirements of this specification.

In the event that no production occurred during the reporting period, a report shall be submitted certifying that the company still has the capabilities and facilities necessary to produce the item. If during two consecutive reporting periods there has been no production, the manufacturer may be required, at the discretion of the qualifying activity, to submit a representative product of each style to testing in accordance with the qualification inspection requirements.

TABLE I. Qualification inspection.

Examination or test	Requirement paragraph	Method paragraph	Number of sample units to be inspected	Number of defectives allowed <u>1/</u>
<b>Group I</b>				
Visual and mechanical examination <u>2/</u> , <u>3/</u> - - - -	3.1, 3.3, 3.4, 3.5, 3.7, 3.8, 3.9, 3.10, and 3.11	4.6.1	12	0
Impedance <u>2/</u> - - - - -	3.6.3	4.6.2		
Sampling probe impedance <u>2/</u> - - - - -	3.6.4	4.6.3		
Sampling probe attenuation <u>2/</u> - - - - -	3.6.5	4.6.4		
<b>Group II</b>				
Radiation pattern - - - - -	3.6.6	4.6.5	6	1
Polarization - - - - -	3.6.2	4.6.6		
High temperature exposure - - - - -	3.5.6	4.6.7.1		
Temperature-altitude - - - - -	3.5.6	4.6.7.2		
Temperature-shock - - - - -	3.5.6	4.6.7.3		
Shock - - - - -	3.5.6	4.6.7.4		
Vibration - - - - -	3.5.6	4.6.7.5		
Humidity - - - - -	3.5.6	4.6.7.6		
Fungus - - - - -	3.5.6	4.6.7.7	1	
Salt fog - - - - -	3.5.6	4.6.7.8		
<b>Group III</b>				
Seal test - - - - -	3.5.3	4.7	6	1
Static load - - - - -	3.5.4	4.8		
Resistance to solvents - -	3.5.5	4.9		

1/ A sample unit having one or more defects shall be considered as a single failure.

2/ Nondestructive examination and tests.

3/ Marking defects are based on visual examination only and shall be charged only for illegible, incomplete, or incorrect marking.

#### 4.5 Quality conformance inspection.

4.5.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A inspection (see 4.5.1.2).

4.5.1.1 Inspection lot. An inspection lot shall consist of all antennas of a particular style (see 3.1) from a production line or lines, produced essentially under the same conditions and offered for inspection during a single work month.

MIL-A-25708C

4.5.1.2 Group A inspection. Group A inspection shall consist of the examination and test specified in table II, in the order shown.

4.5.1.2.1 Sampling plan. Statistical sampling and inspection shall be in accordance with MIL-STD-105 for general inspection level II. The acceptable quality level (AQL) shall be as specified in table II. Major and minor defects shall be as defined in MIL-STD-105 and as specified in table II.

TABLE II. Group A inspection.

Examination or test	Requirement paragraph	Method paragraph	AQL (percent defective)	
			Major	Minor
Visual and mechanical examination - - - - -	3.1,3.3,3.4,3.5,3.7,3.8,3.9,3.10,and 3.11	4.6.1	0.65	1.5
Impedance' - - - - -	3.6.3	4.6.2	0.65	---
Sampling probe impedance- -	3.6.4	4.6.3	0.65	---
Sampling probe attenuation - - - - -	3.6.5	4.6.4	0.65	---

4.5.1.2.2 Rejected lots. If an inspection lot is rejected, the supplier may rework it to correct the defects, or screen out the defective units and resubmit for reinspection. Resubmitted lots shall be inspected using tightened inspection. Such lots shall be separate from new lots and shall be clearly identified as reinspected lots.

4.5.2 Qualification verification inspection. Qualification verification inspection shall consist of group B. Except where the results of these inspections show noncompliance with the applicable requirements (see 4.5.2.1.4), delivery of products which have passed group A shall not be delayed pending the results of these qualification verification inspections.

4.5.2.1 Group B inspection. Group B inspection shall consist of the tests specified in table III, in the order shown. Group B inspection shall be made on sample units which have passed group A inspection.

4.5.2.1.1 Sampling plan. Sample units shall be selected every 6 months. Upon passing this inspection, the supplier may select sample units every 12 months. If the second level of sampling is passed two successive times, the supplier may select sample units every 24-months. In the event of a failure, sampling shall revert to the 6-month interval.

4.5.2.1.2 Failures. If the number of failures exceeds the number allowed in table III, the sample shall be considered to have failed.

4.5.2.1.3 Disposition of sample units. Sample units which have been subjected to group B inspection shall not be delivered on the contract or purchase order.

4.5.2.1.4 Noncompliance. If a sample fails to pass group B inspection, the supplier shall take corrective action on the materials or processes, or both, as warranted, and on all units of product which can be corrected and which were manufactured under essentially the same conditions, with essentially the same materials, processes, etc., and which are considered subject to the same failure. Acceptance of the product shall be discontinued until corrective action, acceptable to the Government, has been taken. After corrective action has been taken, group B inspection shall be repeated on additional sample units (all inspections, or the inspection which the original sample failed, at the option of the Government). Group A inspection may be reinstated; however, final acceptance shall be withheld until group B reinspection has shown that the corrective action was successful. In the event of failure after reinspection, information concerning the failure and the corrective action taken shall be furnished to the cognizant inspection activity and the qualifying activity.



TABLE III. Group B inspection.

Test	Requirement paragraph	Test paragraph	Number of sample units to be inspected	Number of failures allowed <u>1/</u>
<u>Subgroup I</u>				
Radiation pattern - - - - -	3.6.6	4.6.5	6	1
Polarization- - - - -	3.6.2	4.6.6		
High temperature exposure- - - - -	3.5.6	4.6.7.1		
Temperature-altitude- - - - -	3.5.6	4.6.7.2		
Temperature-shock - - - - -	3.5.6	4.6.7.3		
Shock- - - - -	3.5.6	4.6.7.4		
Vibration- - - - -	3.5.6	4.6.7.5		
Humidity- - - - -	3.5.6	4.6.7.6		
Salt fog- - - - -	3.5.6	4.6.7.8		
<u>Subgroup II</u>				
Seal test - - - - -	3.5.3	4.7	6	1
Static load - - - - -	3.5.4	4.8		
Resistance to solvents- - -	3.5.5	4.9		

1/ A sample unit having one or more defects shall be considered as a single failure.

4.5.3 Inspection of preparation for delivery. Except when commercial packaging is specified the sampling and inspection of the preservation-packaging and interior package marking shall be in accordance with the group A and B quality conformance inspection requirements of MIL-P-116. The sampling and inspection of the packing and marking for shipment and storage shall be in accordance with the quality assurance provisions of the applicable container specification and the marking requirements of MIL-STD-129. The inspection of commercial packaging shall be as specified in the contract or purchase order (see 6.2).

#### 4.6 Methods of examination and test.

4.6.1 Visual and mechanical. Antennas shall be examined to verify that the materials, design, construction, physical dimensions, marking, and workmanship are in accordance with applicable requirements (see 3.1; 3.3; 3.4, 3.5, 3.7, 3.8, 3.9; 3.10 and 3.11).

4.6.2 Impedance (see 3.6.3). Impedance measurements shall be made with the antenna installed flush in the center of a 3-foot square ground plane using an approved slotted-line method, such as Hewlett-Packard Model 805A or equal, with a bolometer pickup. The impedance of the antenna shall be measured over the frequency range (see 3.1) at intervals no greater than 25 MHz. (Sweep frequency techniques may be used). The cable length between the antenna and the measuring device shall be not greater than 6-feet. VSWR measurements of the antenna shall be made after environmental tests as well as temperature extremes.

4.6.3 Sampling probe impedance (see 3.6.4). The impedance of the sampling probe shall be measured in accordance with 4.6.2 over the frequency range specified (see 3.1).

MIL-A-25708C

4.6.4 Sampling probe attenuation measurements (see 3.6.5). Attenuation measurements shall be made with the signal source connected through a 50-ohm calibrated RF attenuator to the antenna connector and the output of the sampling probe connected to the calibrated receiving detector. The output of the probe shall be noted on the detector, after which, the antenna and probe shall be removed from the circuit and a suitable connector-adaptor substituted therefor. Without changing power or sensitivity, the attenuator shall be adjusted to produce the reading noted previously on the detector. The difference in reading, in dB, on the attenuator with and without the antenna and probe in place shall be the probe attenuation. All radio frequency interconnections shall be made by means of nominal 50-ohm coaxial cables ( and connectors) and mismatch of both the signal generator and the detector used for making the measurements shall be reduced as low as practicable. The attenuation of the antenna shall be measured over the frequency range (see 3.1) at intervals no greater than 25 MHz. (Sweep frequency techniques may be used). The cable length between the antenna and the measuring device shall be not greater than 6 feet. Each antenna shall be subjected to the attenuation tests both before and after completion of the environmental tests specified in 4.6.7.

4.6.5 Radiation pattern (see 3.6.6). Measurements of the radiation pattern shall be made with the antenna mounted flush in the center of a 4-foot-diameter circular ground plane. The patterns shall be made on a continuously recording radio range of the automatic type. Care shall be taken to avoid errors due to reflections from nearby objects, including earth. Azimuth patterns shall be made at zenith angles of 20, 40, 60, 70, 80, 90, 95 degrees; the angle of maximum radiation; and any other angle deemed advisable. Vertical patterns shall be made in the longitudinal and transverse planes relative to the horizontal dimensions of the antenna. Like patterns shall be made for comparison, using the same test power levels on a matched quarter-wave stub antenna except that a single vertical pattern will suffice. The design of the quarter-wave stub antenna and matching section shall be approved by the procuring activity prior to manufacture. The above tests shall be made at frequencies of .960, 1.050, and 1,200 GHz, unless otherwise specified (see 3.1), but need not be repeated after environmental exposure.

4.6.6 Polarization test (see 3.6.2). Polarization tests shall be conducted in the continuously recording radio range in the same manner as the tests for radiation pattern measurements. Polarization-radiation patterns need be made at only one frequency (1.050 GHz) before exposure to environmental conditions. Polar radiation diagrams shall be made for the following conditions:

- (a) For each test sample:
  - (1) Patterns in Azimuth (on a single graph sheet).
    - (a) With transmitting antenna aligned the same as the antenna under test.
    - (b) At the same power level as above with the transmitting antenna cross polarized with respect to the antenna under test.
    - (c) Same as (b) with increased transmitter power or increased receiver sensitivity by a fixed amount necessary for examination of pattern in detail.
  - (2) Patterns in the transverse vertical plane as listed under (1) above.
  - (3) Patterns in the longitudinal vertical plane as listed in (1) above.
- (b) For the quarter-wave stud, repeat all measurements listed under (a) at identical power levels and sensitivities.

4.6.7 Environmental tests (see 3.5.6). Environmental tests shall be in accordance with MIL-STD-810 in the sequence shown herein. Following each test, the antennas shall be tested for sampling probe impedance (see 4.6.3) and sampling probe attenuation (see 4.6.4).

4.6.7.1 High temperature exposure. The sample antennas shall be placed within a chamber and the internal temperature shall be raised to 250°C (482°F). The antenna shall remain in this environment for 2 hours; at the end of this time, the antenna shall be removed from the chamber and immediately measured for VSWR.

4.6.7.2 Temperature-altitude. Method 504.1.

- (a) Procedure I
- (b) Pressure: 0.32 inch Hg (altitude 100,000 ft).

4.6.7.3 Temperature-shock. Method 503.1.

- (a) Exceptions: Temperature in steps 1 and 4 shall be +150°C.

4.6.7.4 Shock. Method 516.2.

- (a) Procedure I
- (b) Terminal sawtooth wave, 20 g's peak, 11 ms duration.
- (c) Operation not required during test.

4.6.7.5 Vibration. Method 514.2.

- (a) Category B.1 Equipment.
- (b) Procedure IA
- (c) Curve L<sub>3</sub> figure 514.2-2.

4.6.7.6 Humidity. Method 507.

- (a) Procedure I.

4.6.7.7 Fungus. Method 508.1, procedure I. The manufacturer shall certify that all materials are fungus resistant or perform the test specified in procedure I. The certification shall be in the manufacturer's certified test report to the activity responsible for qualification (see 6.3).

4.6.7.8 Salt fog. Method 509.1, procedure I.

4.7 Seal (see 3.5.3). All samples shall be subjected to a seal test by the altitude chamber method. The antennas shall be fully submerged in a waterfilled transparent container. The test antennas may be covered with a mating cap simulating the mating connection. The chamber shall be evacuated to a pressure of 1.06 inches of mercury simulating an altitude of 75,000 feet and remain there for a minimum of 5 minutes. The chamber pressure shall then be raised to 2.5 inches of mercury simulating an altitude of 57,000 feet and maintained at that condition for 10 minutes. Then the chamber pressure shall be raised to standard atmospheric pressure for 1 hour. Upon completion of the seal test, the antennas shall be removed and all excess moisture wiped from the antenna. Any evidence of leakage either by a flow of bubbles during evacuation or subsequent entrance of water shall be considered a failure. Immediately after the examination, the impedance test (see 4.6.2) shall be made and VSWR shall be as specified in the applicable specification sheet (see 3.1).

MIL-A-25708C

4.8 Static load test (see 3.5.4). A static load as specified in accordance with the specification sheet (see 3.1) shall be imposed on the antenna. The antenna shall be normally mounted on a fixture and an air bladder draped on one side similar to figure 2. The bladder shall then be inflated until it is just making contact with the antenna surface. An air pressure reading shall then be taken and the internal air pressure shall then be increased to the specified pressure per the applicable specification sheet (see 3.1) and held for 5 minutes. The pressure shall then be released and the same procedure repeated on the opposite side. This shall be considered as one cycle. The test shall be two cycles in duration. Upon completion of the second cycle the antenna shall be removed and carefully examined for deformation and structural failure. Impedance test (see 4.6.2) shall be made and VSWR shall be as specified in the applicable specification sheet (see 3.1).

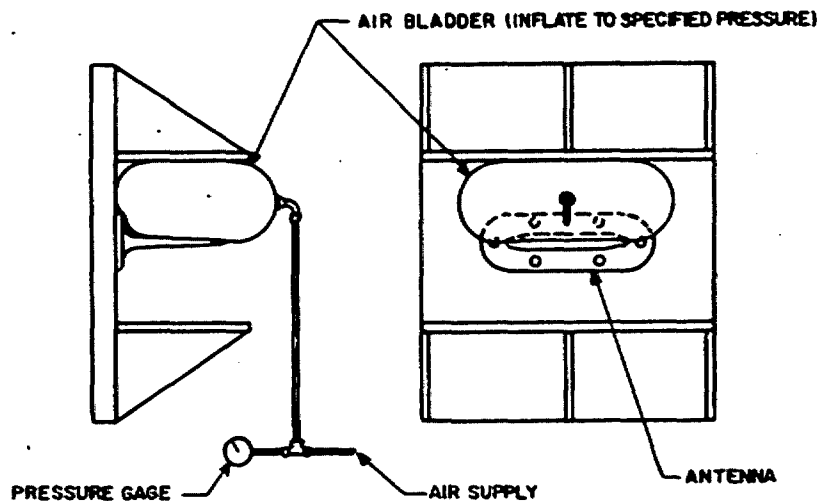


FIGURE 2. Static load test.

4.9 Resistance to solvents (see 3.5.5). Completely immerse the sample antenna in each test liquid (JP-4 fuel (MIL-J-5624) and hydraulic fluid (MIL-H-5606)) for 24 hours. Upon removal, shake or wipe excess surface liquid from the antenna. Impedance test (see 4.6.2) shall be made and VSWR shall be as specified in the applicable specification sheet (see 3.1).

## 5. PREPARATION FOR DELIVERY

5.1 Preservation-packaging. Preservation-packaging shall be level A or C, or as specified (see 6.2).

### 5.1.1 Level A.

5.1.1.1 Cleaning. Antennas shall be cleaned in accordance with MIL-P-116, process C-1.

5.1.1.2 Drying. Antennas shall be dried in accordance with MIL-P-116.

5.1.1.3 Preservative application. Preservatives shall not be used.

5.1.1.4 Unit packaging. Each antenna shall be individually unit packaged in accordance with MIL-P-116, submethod IC-2 insuring compliance with the applicable requirements of that specification. The container shall conform to PPP-B-566, PPP-B-676, or PPP-B-636.

5.1.1.5 Intermediate packaging. Not required.

5.1.2 Level C. Antennas shall be clean, dry, and packaged in a manner that will afford adequate protection against corrosion, deterioration, and physical damage during shipment from supply source to the first receiving activity. This level may conform to the supplier's commercial practice when such meets the requirements of this level.

5.2 Packing. Packing shall be level A, B, or C, or as specified (see 6.2).

5.2.1 Level A. The packaged antennas shall be packed in fiberboard containers conforming to PPP-B-636, class weather resistant, style optional, special requirements. In lieu of the closure and waterproofing requirement in the appendix of PPP-B-636, closure and waterproofing shall be accomplished by sealing all seams, corners, and manufacturer's joint with tape, 2 inches minimum width, conforming to PPP-T-60, class 1 or PPP-T-76. Banding (reinforcement requirements) shall be applied in accordance with the appendix to PPP-B-636 using nonmetallic or tape banding only.

5.2.2 Level B. The packaged antennas shall be packed in fiberboard containers conforming to PPP-B-636, class domestic, style optional, special requirements. Closures shall be in accordance with the appendix thereto.

5.2.3 Level C. The packaged antennas shall be packed in shipping containers in a manner that will afford adequate protection against damage during direct shipment from the supply source to the first receiving activity. These packs shall conform to the applicable carrier rules and regulations and may be the supplier's commercial practice when such meets the requirements of this level.

5.2.4 Unitized loads. Unitized loads, commensurate with the level of packing specified in the contract or order, shall be used whenever total quantities for shipment to one destination equal 40 cubic feet or more. Quantities less than 40 cubic feet need not be unitized. Unitized loads shall be uniform in size and quantities to the greatest extent practicable.

5.2.4.1 Level A. Antennas packed as specified in 5.2.1, shall be unitized on pallets in conformance with MIL-STD-147, load type 1, with a fiberboard cap (storage aid 4) positioned over the load.

5.2.4.2 Level B. Antennas, packed as specified in 5.2.2, shall be unitized as specified in 5.2.4.1 except that the fiberboard caps shall be class domestic.

MIL-A-25708C

5.2.4.3 Level C. Antennas, packed as specified in 5.2.3, shall be unitized with pallets and caps of the type, size, and kind commonly used for this purpose. These unitized loads shall conform to the applicable carrier rules and regulations and may be the supplier's commercial practice when such meets the requirements of this level.

5.3 Marking. In addition to any special marking required by the contract or purchase order (see 6.2), each unit package, exterior container, and unitized load shall be marked in accordance with MIL-STD-129.

#### 5.4 General.

5.4.1 Exterior containers. Exterior containers (see 5.2.1, 5.2.2, and 5.2.3) shall be of a minimum tare and cube consistent with the protection required and shall contain equal quantities of identical stock numbered items to the greatest extent practicable.

5.4.2 Packaging inspection. The inspection of these packaging requirements shall be in accordance with 4.5.3.

#### 5.4.3 Army procurements.

5.4.3.1 Level A (maximum military protection) and level B (minimum military protection) packing. For level A packing the fiberboard containers shall not be banded but shall be placed in a close fitting box conforming to PPP-B-601, overseas type; PPP-B-621, class 2 style 4 or PPP-B-585, class 3, style 2 or 3. Closure and strapping shall be in accordance with applicable container specification except that metal strapping shall conform to QQ-S-781, type I finish A. When the gross weight exceeds 200 pounds or the container length and width is 48 x 24 inches or more and the weight exceeds 100 pounds, 3 x 4 inch skids (laid flat) shall be applied in accordance with the requirements of the container specification. If not described in the container specification, the skids shall be applied in a manner which will adequately support the item and facilitate the use of material handling equipment. For level B packing, fiberboard boxes shall be weather resistant as specified in level A and the containers shall be banded (see 5.2.1 and 5.2.2).

5.4.3.2 Level A and B unitization. For level A and B unitization, softwood pallets conforming to NN-P-71, type IV, size 2 shall be used. Weather resistant fiberboard caps shall also be used for level B unitization. The loads for both levels shall be bonded to the pallets by strapping conforming to QQ-S-781, type I, finish A or shrink film (see 5.2.4.1 and 5.2.4.2).

5.4.3.3 Commercial packaging. Commercial packaging (including unit packaging, packing, and marking) shall be in accordance with Fed. Std. No. 356.

#### 6. NOTES

6.1 Intended use. The antenna is a radiation element having an essentially omnidirectional vertically polarized radiation pattern intended for use with airborne identification beacon and TACAN sets.

6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Title, number, and date of the applicable specification sheet and the complete part number (see 1.2.1 and 3.1).
- (c) Inspection of commercial packaging (see 4.5.3).
- (d) Levels of preservation-packaging and packing required (see 5.1 and 5.2).
- (e) Special marking, if required (see 5.3).

MIL-A-25708C

**6.3 Qualification.** With respect to products requiring qualification, awards will be made only for products which are at the time set for opening of bids, qualified for inclusion in the applicable qualified products list, whether or not such products have actually been so listed by that date. The attention of the suppliers is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the qualified products list is Engineering and Technical Support Division, Interservice/Interagency Support Office, AFLC/MMGE, Wright-Patterson Air Force Base, OH 45433. Application for qualification tests should be made in accordance with "Provisions Governing Qualification" (see 6.3.1).

**6.3.1** Copies of specifications and "Provisions Governing Qualification" may be obtained upon application to Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

**6.3.2 Design activity.** All changes and waivers which could modify the antennas in any way from the articles qualified, must be approved by the Engineering and Technical Support Division, Interservice/Interagency Support Office, AFLC/MMGE, Wright-Patterson Air Force Base, OH, 45433.

**Custodians:**

Army - EL  
Navy - AS  
Air Force - 85

**Preparing activity:**

Air Force - 85

(Project 5985-0804)

**Review activities:**

Army - AV  
Air Force - 11, 80  
DSA - ES

**User activities:**

Air Force - 70, 71, 84

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL		OMB Approval No. 22-R255
<p><b>INSTRUCTIONS:</b> The purpose of this form is to solicit beneficial comments which will help achieve procurement of suitable products at reasonable cost and minimum delay, or will otherwise enhance use of the document. DoD contractors, government activities, or manufacturers/vendors who are prospective suppliers of the product are invited to submit comments to the government. Fold on lines on reverse side, staple in corner, and send to preparing activity. 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. Attach any pertinent data which may be of use in improving this document. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity.</p>		
DOCUMENT IDENTIFIER AND TITLE		
,MIL-A-25708C Antenna, Blade, L-Band, Gen Spec For FSC 5985		
NAME OF ORGANIZATION AND ADDRESS		CONTRACT NUMBER
		MATERIAL PROCURED UNDER A
		<input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT
1. HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?		
A. GIVE PARAGRAPH NUMBER AND WORDING.		
B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES		
2. COMMENTS ON ANY DOCUMENT REQUIREMENT CONSIDERED TOO RIGID		
3. IS THE DOCUMENT RESTRICTIVE?		
<input type="checkbox"/> YES <input type="checkbox"/> NO (If "Yes", in what way?)		
4. REMARKS		
SUBMITTED BY (Printed or typed name and address - Optional)		TELEPHONE NO.
		DATE