

MIL-A-25707D(USAF)  
 1 March 1977  
 SUPERSEDING  
 MIL-A-25707C(USAF)  
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## MILITARY SPECIFICATION

### ANTENNA, FLUSH MOUNT, L-BAND, GENERAL SPECIFICATION FOR

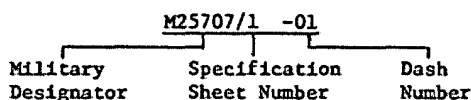
This specification is approved for use by the Engineering and Technical Support Division, Department of the Air Force (AFLC/LOIE), and is available for use by all Departments and Agencies of the Department of Defense.

#### 1. SCOPE

1.1 This specification covers the general requirements for flush mounted L-Band antennas within the frequency range of 960 to 1,220 MHz.

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 Issues of documents. 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

- PPP-B-636 - Boxes, Shipping, Fiberboard.
- PPP-T-60 - Tape: Packaging, Waterproof.
- PPP-T-76 - Tape, Packaging, Paper (for Carton Sealing).

###### MILITARY

- MIL-P-116 - Preservation-Packaging, Methods of.
- MIL-C-3643 - Connectors, Coaxial, Radio Frequency, Series HN and Associated Fittings, General Specification for.
- MIL-E-5400 - Electronic Equipment, Airborne, General Specification for.
- MIL-H-5606 - Hydraulic Fluid, Petroleum Base; Aircraft, Missile, and Ordnance.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Engineering and Technical Support Division, (AFLC/LOIE), Wright Patterson AFB, Ohio 45433 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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- MIL-T-5624 - Turbine Fuel, Aviation, Grades JP-4 and JP-5.
- MIL-C-39012 - Connectors, Coaxial, Radio Frequency: General Specification for.
- MIL-I-45208 - Inspection System Requirements.

## STANDARDS

- \* MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-454 - Standard General Requirements for Electronic Equipment.
- MIL-STD-810 - Environmental Test Methods.
- MIL-STD-831 - Test Reports, Preparation of.
- MIL-STD-1285 - Marking of Electrical and Electronic Parts.

## DETAIL SPECIFICATIONS

- \* MIL-A-25707/1(USAF) - Antenna, Type AT-740/A.
- \* MIL-A-25707/2(USAF) - Antenna, Flush Mount (Radius of Curvature 14.90 Inches).
- MIL-A-25707/3(USAF) - Antenna, Flush Mount (Radius of Curvature 66.50 Inches).

(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.)

## 3. REQUIREMENTS

3.1 Specification sheets. The individual item requirements shall be as specified herein and in accordance with the applicable specification sheets. In the event of any conflict between requirements of this specification and the specification sheet, the latter shall govern.

3.2 First article. This specification makes provisions for first article testing. Antennas furnished under this specification shall be a product which has been tested in accordance with the first article tests prescribed herein and approved by the responsible design activity listed in 6.5. (Approval as an approved source shall be valid for a period of 36 months from date of approval after which time first articles shall be required unless specifically waived by the responsible design activity listed in paragraph 6.5).

3.3 General specification. The requirements of MIL-E-5400 for Class 2 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 and finish. Materials shall be as specified herein (see 3.1). Where a definite material is not specified, materials and finish used on construction of the antenna shall resist erosion of surfaces due to action of rain, ice crystals and other impinging particles at velocities as specified in accordance with applicable specification sheet (see 3.1). Acceptance or approval of any constituent material shall not be construed as a guaranty of acceptance or the finished product.

3.4.1 Non-flammable material. Materials shall be non-flammable when tested in accordance with MIL-STD-454.

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

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3.5 Design and construction. Antenna shall be of design and physical dimensions specified (see 3.1).

3.5.1 Connectors. The antenna connectors shall be designed to accommodate plug UG-59 ( )/U and meet the interface requirements in accordance with MIL-C-3643. The test probe connector shall be designed to accommodate plug P/N M39012/16-0001 in accordance with MIL-C-39012.

3.5.2 High temperature exposure. (see 4.6.9) The antenna shall operate without electrical or mechanical deterioration over the specified temperature range in accordance with the 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 70,000 feet.

3.5.4 Resistance to solvents. (see 4.8) All materials used in construction shall withstand direct contact with aromatic fuels and hydraulic liquid without causing electrical or mechanical deterioration.

3.5.5 Environmental. (see 4.6.10) 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 Voltage standing wave ratio (VSWR). When antennas are tested as specified in 4.6.2, the VSWR (as referenced to a 50 ohm system) at the input of radio frequency cable RG-213/U (the output is connected to the antenna input) shall be no greater than specified (see 3.1).

3.6.3 Sampling probe VSWR. When antennas are tested as specified in 4.6.3, the VSWR of the sampling probe shall be no greater than specified (see 3.1).

3.6.4 Sampling probe attenuation. When antennas are tested as specified in 4.6.4, the sampling probe attenuation shall be no greater than specified (see 3.1).

3.6.5 Antenna impedance. When antennas are tested as specified in 4.6.5, the impedance at the input of antenna shall be no greater than specified (see 3.1).

3.6.6 Sampling probe impedance. When antennas are tested as specified in 4.6.6, the impedance of the probe shall be no greater than specified.

3.6.7 Radiation pattern. When tested as specified in 4.6.7, 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 maximum. The gain at all zenith angles from 70 degrees to 110 degrees shall not be more than 2.0 dB below the gain of a matched quarter-wave in the same location.

3.6.8 Polarization. When tested as specified in 4.6.8, the antenna shall transmit or receive vertically polarized signals. The ratio of vertical or horizontal polarization of signals shall be equal to or better than that obtained from a vertically polarized quarter-wave stub antenna at any frequency specified herein.

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

3.8 Marking. Antenna shall be marked in accordance with MIL-STD-1285 as shown on the applicable specification sheet (see 3.1) and will include the following minimum marking: part number, national stock number (NSN), type number (if applicable), contract number, serial number, date code (year, month) and Mfr code (FSCM).

Example: P/N M25707/1-01  
 NSN: 5985-XXX-XXXX (as applicable)  
 Type AT-740/A (if applicable)  
 Contract DSA XXXXXXXXXXXXX  
 Serial No. 1234  
 7701 12345

3.9 Maintainability. The antennas covered by this specification shall be considered as nonreparable items, which, in the event of failure, shall be replaced.

3.10 Workmanship. Workmanship shall be in accordance with MIL-STD-454, requirement 9.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification when such inspections are deemed necessary (up to 90 days upon receipt of samples for source approval of test samples.) The results obtained by the Government may be used as basis for rejection of the test report and disapproval of a contractor as an approved source.

4.1.1 Inspection system. The supplier shall establish and maintain an inspection system in accordance with MIL-I-45208.

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

- a. First article inspection (see 4.4).
- b. Quality conformance inspections (see 4.5).

4.3 Inspection conditions. Unless otherwise specified, herein all inspections shall be performed at temperature of 25°C  $\pm$  10°C, barometric 650 to 800 millimeters of mercury, and relative humidity of 45 percent to 90 percent.

4.4 First article inspection. First article inspection shall be performed by the contractor, after award of contract and prior to production, at a location acceptable to the Government. First article inspection shall be performed on sample units which have been produced with equipment and procedures normally used in production. First article approval is valid only on the contract under which it is granted, unless extended by the Government to other contracts. Due to similarity of items covered by the specification sheets, a manufacturer may apply for first article approval on items that are not on the current contract. Approval may be granted by successfully performing first article tests on a combination of antennas. The combination shall be as specified (see 6.2).

4.4.1 Sample size. Six antennas shall be subjected to first article inspection.

4.4.2 Inspection routine. The sample shall be subjected to the inspections specified in table I in the order shown.

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TABLE I. First article inspection.

Inspection	Requirement paragraph	Test method paragraph	Number of sample units to be inspected	Number of failures <u>1/</u>
Visual and mechanical - - - inspection (materials, design and construction, physical dimensions, weight, marking <u>2/</u> , and workmanship)	3.1, 3.3, 3.4, 3.5, 3.7, 3.8, and 3.10	4.6.1	6	0
VSWR - - - - -	3.6.2	4.6.2		
Sampling probe VSWR - - -	3.6.3	4.6.3		
Sampling probe attenuation-	3.6.4	4.6.4		
Antenna impedance - - -	3.6.5	4.6.5		
Sampling probe impedance -	3.6.6	4.6.6		
Radiation pattern - - -	3.6.7	4.6.7		
Polarization - - - - -	3.6.8	4.6.8		
High temperature exposure -	3.5.2	4.6.9		
Temperature-altitude - -	3.5.5	4.6.10.1		
Shock - - - - -	3.5.5	4.6.10.2		
Vibration - - - - -	3.5.5	4.6.10.3		
Humidity - - - - -	3.5.5	4.6.10.4		
Fungus - - - - -	3.5.5	4.6.10.5		
Salt spray - - - - -	3.5.5	4.6.10.6		
Seal test - - - - -	3.5.3	4.7		
Resistance to solvents -	3.5.4	4.8		

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

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

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

4.4.4 First article test program. The manufacturer shall prepare a test program which shall be approved by the design activity prior to any formal first article testing. The test program shall include the procedures and equipment used in performing the first article and acceptance tests.

4.4.5 First article test report and test samples. The following shall be submitted to the procuring activity:

- a. Test Report: Three copies of a test report in accordance with MIL-STD-883i; one of which shall be reproducible. The report shall include sufficient information (relative to power levels, dimensions, etc.) to evaluate the performance of the antenna and the following graphical presentations:
  - (1) Polar diagrams depicting the radiation pattern for each test in 4.6.7 and 4.6.8.
  - (2) A graph depicting VSWR and impedance characteristics of each antenna, sampling probe, and quarter-wave stub antenna. Each graph shall show a plot of the VSWR, reactance, and resistance components versus frequency for its respective antenna or probe. Performance after exposure to environmental extremes need not be depicted graphically if there is no deterioration in performance.
  - (3) Attenuation versus frequency graphs depicting the performance obtained under 4.6.4.

#### 4.5 Quality conformance inspection.

4.5.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A inspection.

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.

4.5.1.2 Group A inspection. Group A inspection shall consist of the inspections 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.

4.5.1.2.2 Rejected lots. If an inspection lot is rejected, the contractor 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 separated from new lots and shall be clearly identified as reinspected lots.

4.5.2 Periodic inspection. Periodic inspection shall consist of group B. Except where the results of these inspections show noncompliance with the applicable requirements (see 6.3), delivery of products which have passed group A shall not be delayed pending the results of these periodic inspections.

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TABLE II. Group A inspection.

Inspection	Requirement paragraph	Test method paragraph	AQL (percent defective)	
			Major	Minor
Visual and mechanical inspection				
Materials - - - - -	3.1, 3.3, 3.4	4.6.1	0.65	1.5
Physical dimensions - -	3.5			
Marking - - - - -	3.8			
Workmanship - - - - -	3.10			
VSWR - - - - -	3.6.2	4.6.2	0.65	—
Sampling probe VSWR - - - - -	3.6.3	4.6.3		
Sampling probe attenuation - - - -	3.6.4	4.6.4		
Antenna impedance - - -	3.6.5	4.6.5		
Sampling probe impedance - - - - -	3.6.6	4.6.6		

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 been subjected to and have passed the group A inspection.

4.5.2.1.1 Sampling plan. Statistical sampling and inspection shall be in accordance with MIL-STD-105 for special inspection level S-2. The lot size will be as specified in 4.5.1.1.

4.5.2.1.2 Failures. No failures shall be allowed.

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 and shall be retained by the manufacturer for 24 months. The applicable test data shall be retained for a period of 60 months following completion of the contract. The applicable test data shall be recorded in same format as that utilized for preproduction test data.

4.5.3 Inspection of packaging. 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.

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TABLE LII. Group B inspection.

Inspection	Requirement paragraph	Test paragraph
Radiation pattern <u>1/</u> - - - -	3.6.7	4.6.7
Polarization <u>1/</u> - - - - -	3.6.8	4.6.8
High temperature exposure - -	3.5.2	4.6.9
Temperature-altitude - - - -	3.5.5	4.6.10.1
Shock - - - - -	3.5.5	4.6.10.2
Vibration - - - - -	3.5.5	4.6.10.3
Humidity <u>1/</u> - - - - -	3.5.5	4.6.10.4
Salt spray <u>1/</u> - - - - -	3.5.5	4.6.10.6
Seal test - - - - -	3.5.3	4.7

1/ Tests shall be performed on each contract, however, tests need not be run on more than one antenna per lot.

#### 4.6 Methods of inspection.

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).

4.6.2 VSWR (see 3.6.2). The VSWR of the antenna shall be measured as specified in 4.6.2.1 or 4.6.2.2 or 4.6.2.3. The antenna shall be mounted flush in the center of a four foot diameter circular ground plane. Precautions shall be taken to insure that the reflected energy does not effect the VSWR measurements greater than 4 percent of the maximum specified VSWR (see 3.1). The over-all accuracy of VSWR measurements shall be such that the (absolute VSWR) = (measured VSWR)  $\pm 0.08$  (maximum specified VSWR-1). Only one (1) VSWR trace shall be plotted per data sheet. VSWR measurements shall be made before and after each environmental test as well as high temperature exposure.

4.6.2.1 Slotted line method. VSWR measurements shall be made over the specified frequency range (see 3.1) at increments not greater than 25 MHz. The measured data shall be recorded on a tabulation sheet or plotted on 8 by 10 inch graph paper.

4.6.2.2 Swept slotted line method. VSWR measurements shall be recorded by an X-Y recorder using 20 by 20 cm graph paper (10 x 10 to the cm). The trace shall be an X-Y plot of VSWR versus frequency and shall be plotted with a limit of 1 octave per plot at a minimum sweep rate of 30 second per frequency band. If the antenna under test exhibits an abrupt change in VSWR, the sweep rate shall be further slowed to assure that the pin of the X-Y recorder can follow these changes. The trace shall be marked at frequency increments of not greater than 25 MHz and labeled at not greater than four times the increment. The plot shall display a nomograph that converts dB/cm to VSWR, and shall identify the antenna, the test data, the general and detail procedure and the maximum allowable VSWR.



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Using the VSWR trace, the VSWR shall be tabulated at the frequency increment. Prior to accomplishing the VSWR measurement, adjustments should be made to insure that the frequency and sweep width of sweep signal generator are set to the desired bandwidth within the limitation of the equipment. Precaution shall be taken to insure that the X-sensitivity of the recorder is adjusted to accommodate the entire sweep and that the plot will be approximately in the center of the graph paper for the entire frequency range.

4.6.2.3 Reflectometer method. When using the reflectometer method for measuring VSWR, a complete curve shall be recorded by an X-Y recorder using 8 by 10 inch graph paper (10 by 10 to the inch). Calibration curves that represent the maximum VSWR to be measured and the limits of the bands of doubt (see 6.3.2) shall be plotted on the graph paper. Curves shall be plotted with a limit of 1 octave per plot. VSWR calibration curves shall be plotted on the graph paper. Curves shall be plotted with a limit of 1 octave per plot. VSWR calibration curves shall be plotted in increment of 0.1 between VSWR limits of 1.1:1 and 1.9:1, and 0.2 above a VSWR of 1.2:1 and grid markers along the horizontal axis to represent 100 MHz frequency increments. Prior to accomplishing VSWR measurements, the maximum VSWR calibration curve shall be rechecked to insure repeatability of the curve. If values of VSWR are within the band of doubt, the VSWR shall be measured using the slotted line method (see 4.6.2.1) in sufficiently close increments to define a smooth curve structure, but at increments not greater than specified in 4.6.2.1, or the VSWR shall be measured by the reflectometer method using the expanded reflectometer scale to define a curve, but the expanded curve shall cover the entire paper (8 by 10 inch).

\* 4.6.3 Sampling probe VSWR (see 3.6.3). The VSWR of the sampling probe shall be measured in accordance with 4.6.2 over the specified frequency range (see 3.1).

4.6.4 Sampling probe attenuation measurements. (see 3.6.4) Attenuation measurements shall be made with the signal source connected through a 50 ohm calibrated r-f 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. 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. Each antenna shall be subjected to the attenuation tests both before and after completion of the environmental tests.

4.6.5 Antenna impedance (see 3.6.5). The antenna impedance shall be determined with a slotted line and related instrumentations. The antenna shall be mounted on the same size ground plane utilized in 4.6.2. Precaution shall be taken to insure that the reflected energy does not effect measurements greater than 4 percent of maximum specified VSWR. A circle that represents the specified maximum VSWR shall be plotted on a Smith Chart. The impedance shall be measured at the same frequency increments as specified in 4.6.2. All impedance points shall be plotted and clearly labeled on the Smith Chart. The antenna shall be considered to have passed this test, if all impedance points are within the plotted maximum VSWR circle. Impedance measurements shall be made before and after each environmental test as well as high temperature exposure.

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4.6.6 Sampling probe impedance (see 3.6.6). The impedance of the sampling probe shall be measured in accordance with 4.6.5 over the specified frequency range (see 3.1).

\* 4.6.7 Radiation pattern. (see 3.6.7) Measurements of the radiation pattern shall be made with the antenna mounted flush in the center of a four-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 70, 80, 90, 95, 100, 105, and 110 degrees, the angle of maximum radiation, and any other angle deemed advisable. Vertical patterns shall be made in the plane through the center of the antenna and the probe and the plane at right angles thereto. 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, 1050, and 1220 MHz but need not be repeated after environmental exposure.

4.6.8 Polarization test. (see 3.6.8) 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 (1050 MHz) 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 vertically polarized.
- (b) At the same power level and receiver sensitivity as (a) above with the transmitting antenna horizontally 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 vertical plane as listed under (1) above.

b. For the quarter-wave stub, repeat all measurements listed under "a" at identical power levels and sensitivities.

4.6.9 High temperature exposure. (see 3.5.2) The sample antennas shall be placed within a chamber and the internal temperature shall be raised to the temperature specified in accordance with the applicable detail specification (see 3.1). The antenna will be placed in the chamber with the radome cover upwards. No retaining screws or devices will be placed on the antenna. The antenna shall remain in this environment for two hours; at the end of which time, the antenna shall be removed from the chamber, visually inspected and immediately measured for VSWR, attenuation, and impedance.

4.6.10 Environmental tests. (see 3.5.5) Environmental tests shall be in accordance with MIL-STD-810 in the sequence shown herein. Following each test, the antennas must meet the requirements of 3.6.2 thru 3.6.6.

\* 4.6.10.1 Temperature-altitude. Method 504

a. Category 7, curve C.

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4.6.10.2 Shock. Method 516.

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

4.6.10.3 Vibration. Method 514.

- a. Procedure I.
- b. Curve F, figure 514.1-2.

4.6.10.4 Humidity. Method 507.

- a. Procedure I.

4.6.10.5 Fungus. Method 508, 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 approval (see 6.5).

4.6.10.6 Salt spray. Method 509, procedure I.

\* 4.7 Seal test. (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 antenna connectors 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 five 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 a minimum of ten minutes. The chamber pressure shall then be raised to standard atmospheric pressure for a minimum of one hour. The antennas, upon completion of the seal test, 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 VSWR, attenuation, and impedance tests shall be made.

4.8 Resistance to solvents. (see 3.5.4) Place the sample antenna, completely immersed, in the test liquid for a minimum of 24 hours. Upon removal, shake or wipe excess surface liquid from the antenna and test VSWR in accordance with 4.6.2. The above procedure shall be performed with each of the following test liquids: JP-4 fuel (MIL-T-5624) and hydraulic fluid (MIL-H-5606).

## 5. PACKAGING

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

## 5.1.1 Level "A".

5.1.1.1 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. Antennas shall be individually packaged in accordance with MIL-P-116, submethod 1C-3.

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5.1.2 Level "C". Clean and dry antennas shall be 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.

5.2 Packing. Packing shall be Level "A", "B", or "C" 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 requirements in the appendix of PPP-B-636, closure and waterproofing shall be accomplished by sealing all seams, corners and manufactures joint with tape, two inches minimum width, conforming to PPP-T-60, class 1 or PPP-T-76. Banding (reinforcement requirements) shall be applied with the appendix to PPP-B-636 using non-metallic 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 requirement. 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.

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.

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. First article samples and tests.
  - 1) Number of first article samples and combination of antennas, if applicable.
  - 2) Point of inspection.
  - 3) Requirement for concurrent delivery of each sample and its test data. The procuring activity should be given at least 10 days prior notice when the first article tests are to be conducted so that they may be supervised or witnessed, if desired, by a Government representative.

6.3 Noncompliance. If a sample fails to pass group B inspection, the manufacturer shall notify the design activity of such failure and 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 materials and processes, and which are considered subject to the same failure.

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Acceptance and shipment of the product shall be discontinued until corrective action, acceptable to the design activity has been taken. After the corrective action has been taken, group B inspection shall be repeated on additional sample units (all inspection, or the inspection which the original sample failed, at the option of the design activity). Group A inspection may be reinstituted; however, final acceptance and shipment shall be withheld until the group B inspection has shown that the corrective action was successful. In the event of failure after reinspection, information concerning the failure shall be furnished to the cognizant design activity.

\* 6.4 Definitions.

6.4.1 Antenna. An antenna for the purpose of this document shall be an assembly of components including input terminal mounting provisions and radomes required to radiate or receive electromagnetic energy.

6.4.2 Band of doubt. A VSWR value shall be considered to be in the band of doubt if the measured VSWR = (the maximum allowable) VSWR  $\pm 0.08$  (the maximum allowable VSWR-1). If VSWR values are within the band of doubt, a frequency band of  $\pm 10$  percent shall be investigated about the point.

6.5 Design activity. The activity responsible for all antennas manufactured under this specification is Air Force Code 85, HQ AFLC/LOIEP, Wright Patterson AFB, OH 45433. This activity is responsible for design and configuration approval, first article approval, and all waivers which could modify the antennas in any way from the articles approved through first article testing.

6.6 Revision asterisks. Asterisks are used in this revision to identify changes with respect to the previous issue.

Custodian:  
Air Force - 85

Review activities:  
Air Force - 11, 99

User activities:  
Air Force

Preparing activity:  
Air Force - 85

(Project 5985-P463)

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-25707D (USAF) Antenna, Flush Mount, L-Band, Gen Spec for		
NAME OF ORGANIZATION AND ADDRESS	CONTRACT NUMBER FSC 5985	
	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?		
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