

INCH-POUND
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MIL-PRF-55427B  
 1 February 1996  
 SUPERSEDING  
 MIL-C-55427A  
 14 April 1978

PERFORMANCE SPECIFICATION

CABLE ASSEMBLIES, RADIO FREQUENCY, GENERAL SPECIFICATION FOR

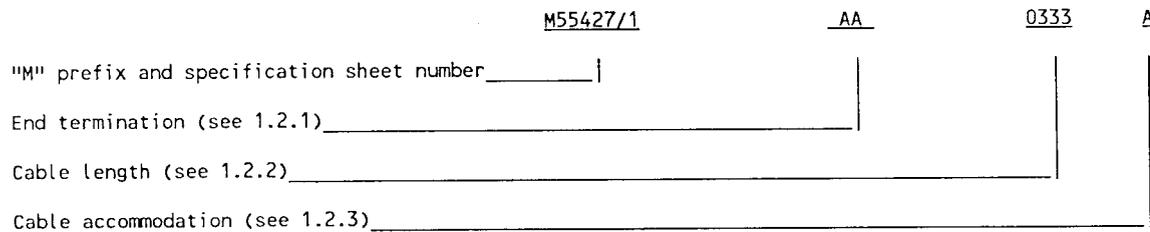
This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the general performance requirements and tests for flexible and semirigid radio frequency cable assemblies. This specification is intended to cover assemblies manufactured with connectors qualified to MIL-PRF-39012 and cable qualified to MIL-C-17. These assemblies are primarily intended for use in general purpose electronic equipment (see 6.1).

1.2 Part or Identifying Number (PIN). The pin consists of the letter "M" prefix and specification sheet number followed by a two-letter code for the end termination, a four-digit code for cable length, and a letter code to denote cable accommodation as shown in the following example:

EXAMPLE:



1.2.1 End terminations. The end terminations are identified by a two-digit code (see 3.1): the first letter identifies the termination of the far left end of the cable assembly when viewing the cable marking normally, and the second letter identifies the termination of the other end.

1.2.2 Cable length. The cable length is expressed in centimeters by a four-digit number. Unless otherwise specified (see 3.1), the tolerance is +4, -0 percent.

1.2.3 Cable accommodation. The cable accommodation will be as shown in the performance slash sheet and be designated by a letter code in the part number.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Electronics Supply Center, ATTN: DESC-ELD, Dayton, OH 45444-5765 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

## 2. APPLICABLE DOCUMENTS

2.1 Government documents.

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

## SPECIFICATIONS

## MILITARY

MIL-C-17	-	Cables, Radio Frequency, Flexible and Semirigid, General Specification for.
MIL-I-23053	-	Insulation Sleeving, Electrical, Heat Shrinkable, General Specification for.
MIL-PRF-39012	-	Connectors, Coaxial, Radio Frequency, General Specification for.
MIL-PRF-55427/1	-	Cable Assemblies, Radio Frequency (Made From MIL-C-17/183 Cable).

## STANDARDS

## MILITARY

MIL-STD-202	-	Test Methods for Electronic and Electrical Component Parts.
MIL-STD-348	-	Radio Frequency Connector Interfaces for MIL-C-3643, MIL-C-3650, MIL-C-3655, MIL-C-25116, MIL-C-26637, MIL-C-39012, MIL-C-49142, MIL-A-55339, and MIL-C-83517.
MIL-STD-1344	-	Test Methods for Electrical Connectors.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Defense Printing Service Detachment Office, Building 4D (Customer Service), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications and specifications sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. PERFORMANCE REQUIREMENTS

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

3.2 Qualification. Cable assemblies furnished under this specification shall be products which are authorized by the qualifying activity for listing on the applicable qualified products list at the time of award of contract (see 4.5 and 6.3).

3.3 Critical interface materials. Materials shall be as specified in MIL-PRF-39012 and MIL-C-17.

3.3.1 Dissimilar metals. Dissimilar metals between which an electromotive couple may exist shall not be placed in contact with each other. Refer to MIL-STD-889 for the definition of dissimilar metals.

3.4 Configuration and features. Cable assemblies shall be of the configuration and physical dimensions specified (see 3.1).

3.4.1 Cable. Unless otherwise specified (see 3.1), cable shall be qualified to and shall meet the performance requirements of MIL-C-17.

3.4.2 Connectors. Unless otherwise specified (see 3.1), connectors shall be qualified to and shall meet the performance requirements of MIL-PRF-39012.

3.4.3 Protective cap or cover. Each connector interface shall be protected with a disposable cap or cover during shipping and storage.

3.4.4 Marker bands, heat shrink sleeves, and strain reliefs. Marker bands, heat shrink sleeves, and strain reliefs shall be of a material and applied in a manner that will enable them to meet the requirements of this specification.

### 3.5 Performance.

3.5.1 Moisture resistance. When cable assemblies are tested as specified in 4.7.2, there shall be no evidence of visual, mechanical, or electrical damage.

3.5.2 Dielectric withstanding voltage. When tested as specified in 4.7.3, the cable assemblies shall withstand the specified voltage (see 3.1) with no evidence of breakdown.

3.5.3 Thermal shock. When cable assemblies are tested as specified in 4.7.4, there shall be no evidence of damage.

3.5.4 Flexure. When cable assemblies are tested as specified in 4.7.5, there shall be no evidence of separation at the cable-to-connector junction.

3.5.5 Cable retention. When tested as specified in 4.7.6, the cable assemblies shall withstand the specified force (see 3.1)

3.5.6 Voltage standing wave ratio (VSWR). When cable assemblies are tested as specified in 4.7.7, the VSWR over the specified frequency range (see 3.1) shall not exceed the values specified (see 3.1).

3.5.7 Insertion loss. When cable assemblies are tested as specified in 4.7.8, the insertion loss over the specified frequency range (see 3.1) shall not exceed the values specified (see 3.1).

3.5.8 Continuity. When cable assemblies are tested in 4.7.9 each of the two conductors (inner and outer) shall be continuous.

3.6 Marking. Unless otherwise specified (see 3.1), each cable assembly shall be marked to include the PIN, manufacturer's name or trademark, and year of manufacture, as specified in 3.6.1 or 3.6.2.

3.6.1 Marking the insulation. Marking shall be on the outermost insulation surface or visible through it. Marking shall be at intervals of every 2 meters as a minimum and at both ends. Marking shall remain legible after subjection to the tests herein. Impressed marking shall not be used.

3.6.2 Marking bands. Unless otherwise specified (see 3.1), heat shrinkable insulation tubing in accordance with MIL-I-23053 which is marked with the identification of product may be used in lieu of marking the insulation of the cable assembly. Impressed marking may be used to mark the bands. The marking bands shall be snug fitting and not loose and, unless otherwise specified (see 3.1), shall be placed at intervals of every 2 meters as a minimum and at both ends.

3.7 Workmanship. Cable assemblies shall be processed in such a manner as to be uniform in quality and shall be free from defects that will affect life, serviceability, or appearance. Interfaces shall be free from sharp edges, burrs, damages, and contaminants. The outer surface of any assembly shall be free of cuts, dents, nicks, and frayed or burred spots that might affect the performance of the assembly.

## 4. VERIFICATION

4.1 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 contractor. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment (i.e. Industry Standard, Military Standard, etc...) shall be required.

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

- a. Qualification inspection (see 4.4).
- b. Quality conformance inspection (see 4.5).
- c. Periodic inspection (see 4.6).

4.3 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in the "GENERAL REQUIREMENTS" of MIL-STD-202 or MIL-STD-1344. For each test of threaded coupling connectors, where the test is performed on mated pairs, the pair shall be torqued to the specified value (see 3.1).

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. Manufacturers who are listed on QPL-39012 and continue to maintain a listing on QPL-39012 may be listed as a qualified source on supply for QPL-55427 by certifying to the qualifying activity that they meet the performance requirements of MIL-PRF-55427. Manufacturers will only be listed on QPL-55427 for cable assemblies that include the QPL-39012 connector series for which they are qualified.

4.4.1 Sample size. Three cable assemblies per qualification group (see 3.1), one meter maximum in length shall be subjected to qualification inspection.

4.4.2 Group qualification. For group qualification of all cable assemblies covered by this specification, see 3.1. The Government reserves the right to authorize performance of any or all qualification inspection of additional types in the group that are considered necessary for qualification within each group. Qualification of any one termination within a qualification group (see 3.1) will qualify all the terminations within that group. When terminations from different qualification groups are qualified, they may be used in any combination. The cable assembly shall be made of qualified terminations.

4.4.3 Inspection routine. The sample shall be subjected to the inspections specified in table 1.

4.4.4 Failures. One or more failures shall be cause for refusal to grant qualification approval.

4.4.5 Retention of qualification. To retain qualification, the contractor shall verify in coordination with the qualifying activity the capability of manufacturing products which meet the performance requirements of this specification. Refer to the qualifying activity for the guidelines necessary to retain qualification to this specification. The contractor shall immediately notify the qualifying activity at any time that the inspection data indicated failure of the qualified product to meet the performance requirements of this specification.

TABLE 1. Qualification inspection.

Inspection	Requirement paragraph	Test method paragraph
Visual inspection	3.1, 3.3, 3.4, 3.6, and 3.7	4.7.1
Moisture resistance	3.5.1	4.7.2
Dielectric withstanding voltage	3.5.2	4.7.3
Thermal shock	3.5.3	4.7.4
Flexure	3.5.4	4.7.5
Cable retention	3.5.5	4.7.6
Voltage standing wave ratio (VSWR)	3.5.6	4.7.7
Insertion loss		
Continuity	3.5.7	4.7.8
	3.5.8	4.7.9

4.5 Quality conformance inspection.

4.5.1 Inspection of product for delivery. Inspection of product for delivery shall consist of groups A and B inspection.

4.5.1.1 Inspection lot. An inspection lot shall consist of all cable assemblies of the same PIN produced under essentially the same conditions and offered for inspection at one time.

4.5.1.2 Group A inspection. Group A inspection shall consist of the inspections specified in table 11 in the order shown.

4.5.1.2.1 Sampling plan (group A). Table II tests shall be performed on a production lot basis. Samples shall be selected in accordance with table III. If one or more defects are found, the lot shall be screened for that particular defect and defects removed. A new sample of parts shall be selected in accordance with table III and all group A tests again performed. If one or more defects are found in the second sample, the lot shall be rejected and shall not be supplied to this specification.

TABLE II. Group A inspection.

Inspection	Requirement paragraph	Test method paragraph	Sampling procedure
Visual inspection	3.1, 3.3, 3.4, 3.6, and 3.7	4.7.1	See table III
Dielectric withstanding voltage	3.5.2	4.7.3	
Insertion loss	3.5.7	4.7.8	
VSWR	3.5.6	4.7.7	
Continuity	3.5.8	4.7.9	

4.5.1.2.2 Visual inspection (group A inspection). Each cable assembly shall be visually examined for completeness, workmanship, and identification requirements.

TABLE III. Inspection level for group A.

Lot size	Visual and mechanical inspection	
	Major	Minor <sup>1/</sup>
1 to 8	All	5
9 to 15	All	5
16 to 25	20	5
26 to 50	20	5
51 to 90	20	7
91 to 150	20	11
151 to 280	20	13
281 to 500	47	16
501 to 1,200	47	19
1,201 to 3,200	53	23
3,201 to 10,000	68	29
10,001 to 35,000	77	35
35,001 to 150,000	96	40
150,001 to 500,000	119	40
500,001 and over	143	40

<sup>1/</sup> Samples may be pulled from either the production lot itself or from samples pulled from the lot for major defect listing.

## NOTES:

1. Major defect: A major defect is a defect, other than critical, that is likely to result in failure, or to reduce materially the usability of the unit of product for its intended purpose.
2. Minor defect: A minor defect is a defect that is not likely to reduce materially the usability of the unit of product for its intended purpose, or is a departure from established standards having little bearing on the effective use or operation of the unit.

3. **Critical defect:** A critical defect is a defect that judgment and experience indicate is likely to result in hazardous or unsafe conditions for individuals using, maintaining, or depending upon the product; or a defect that judgment and experience indicate is likely to prevent performance of the tactical function of a major end item such as a ship, aircraft, tank, missile, or space vehicle.

4.5.1.3 **Group B inspection.** Group B inspection shall consist of the inspections specified in table IV in the order shown, and shall be made on sample units which have been subjected to and passed the group A inspection.

4.5.1.3.1 **Group B sampling plan.** A sample of parts shall be randomly selected in accordance with table V. If one or more defects are found, the lot shall be screened for that particular defect and defects removed. After screening and removal of defects, a new sample of parts shall be randomly selected and subjected to all tests in accordance with table IV. If one or more defects are found in the second sample, the lot shall be rejected and shall not be supplied to this specification.

TABLE IV. Group B inspection.

Inspection	Requirement paragraph	Test method paragraph
Moisture resistance	3.5.1	4.7.2
Dielectric withstanding voltage	3.5.2	4.7.3

TABLE V. Inspection level for group B.

Lot size	Sample size	VSWR sample size
1 to 8	5	1
9 to 15	5	1
16 to 25	5	2
26 to 50	5	2
51 to 90	5	3
91 to 150	11	3
151 to 280	13	3
281 to 500	16	3
501 to 1,200	19	5
1,201 to 3,200	23	5
3,201 to 10,000	29	5
10,001 to 35,000	35	5
35,001 to 150,000	40	8
150,001 to 500,000	40	8
500,001 and over	40	8

4.5.1.3.2 **Disposition of sample units.** Sample units which have passed all the group B inspection may be delivered on the contract or purchase order, if the lot is accepted. Any assembly deformed or otherwise damaged during testing shall not be delivered on the contract or order.

4.6 **Periodic inspection.** Periodic inspection shall consist of group C. Except where the results of these inspections shown noncompliance with the applicable requirements (see 4.5.2.1.4), delivery of products which have passed groups A and B shall not be delayed pending the results of these periodic inspections.

4.6.1 **Group C inspection.** Group C inspection shall consist of the inspections specified in table VI, in the order shown. Group C inspection shall be made on sample units selected from inspection lots which have passed the groups A and B inspection.

TABLE VI, Group C inspection.

Inspection	Requirement paragraph	Test method paragraph
Thermal shock	3.5.3	4.7.4
Flexure	3.5.4	4.7.5
Cable retention	3.5.5	4.7.6
VSWR	3.5.6	4.7.7
Insertion loss	3.5.7	4.7.8

4.6.1.1 Sampling plan. Six sample units of the same PIN shall be selected from the first lot produced after the date of notification of qualification. Thereafter, six sample units of the same PIN shall be selected from current production after 200,000 assemblies have been produced, or not less than once every year, whichever occurs first.

4.6.1.2 Failures. If one or more sample units fails to pass group C inspection, the sample lot shall be considered to have failed.

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

4.6.1.4 Noncompliance. If a sample fails to pass group C inspection, the manufacturer shall notify the qualifying activity and the cognizant inspection 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 are manufactured under essentially the same materials and processes, and which are considered subjected to the same failure. Acceptance and shipment of the product shall be discontinued until corrective action, acceptable to the qualifying activity has been taken. After the corrective action has been taken, group C inspection shall be repeated on additional sample units (all tests and examinations, or the test which the original sample failed, at the option of the qualifying activity). Groups A and B inspections may be reinstated; however, final acceptance and shipment shall be withheld until the group C 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 inspection activity and the qualifying activity.

4.7 Methods of inspection. The following identified test methods assure cable assembly integrity within typical operating conditions and applications. Alternate commercial industry standard test methods are allowed; however when an alternate method is used, the qualifying activity must be notified prior to the performance of the test. The test method described herein are proven methods and shall be the referee method in case of dispute.

4.7.1 Visual inspection. The cable assembly shall be examined to verify that the design, construction, length, dimensions, marking, and workmanship are in accordance with the applicable requirements (see 3.1, 3.3, 3.4, 3.6, and 3.7).

4.7.1.1 Length. The length shall be measured with a longitudinal pull applied to the connectors sufficient to straighten without stretching the cable. The length of the assembly shall be measured against a rigid surface marked off in length increments suitable to the length to be measured with an accuracy of  $\pm 1$  millimeter. The length of the assembly shall be measured to the following reference points:

- a. Internal connector electrical/mechanical reference plane to internal connector electrical/mechanical reference plane.
- b. The centerline on right angle connectors.

4.7.1.2 Interface dimensions. The interface dimensions shall be in accordance with MIL-STD-348.

4.7.2 Moisture resistance (see 3.5.1). The cable assembly shall be tested in accordance with method 106 of MIL-STD-202. The following details and exceptions shall apply:

- a. Mating connector: Cabled connector in accordance with MIL-PRF-39012.
- b. Initial measurements: Not applicable.
- c. Loading voltage: Not applicable.

- d. Number of cycles: 10 continuous cycles except step 7b (vibration) shall be omitted.
- e. Final measurements: After the final cycle and within 5 minutes after removal from high humidity, the cable assemblies shall be visually inspected for evidence of damage and electrically inspected for VSWR and insertion loss.

4.7.3 Dielectric withstanding voltage (see 3.5.2). The cable assembly shall be tested in accordance with method 301 of MIL-STD-202. The following details shall apply:

- a. Magnitude of test voltage: As specified (see 3.1). The voltage shall be instantaneously applied and shall be metered on the high side of the transformer.
- b. Nature of potential: AC.
- c. Points of application of test voltage: Between the center contact and body.

4.7.4 Thermal shock (see 3.5.3). The cable assembly shall be tested in accordance with method 107 of MIL-STD-202. The test condition shall be as specified (see 3.1). The cable assembly shall be placed in the chamber with the connectors not mated or otherwise protected. After completing the specified test cycles (see 3.1), the cable assembly shall be allowed to return to ambient room temperature and tested for VSWR and insertion loss.

4.7.5 Flexure (see 3.5.4). The cable assembly shall be suspended vertically, supported by the connector at one end with the specified force (see 3.1) applied to the cable in the downward vertical direction. The connector shall be rotated 90° from the vertical in one direction and then 90° from the vertical in the opposite direction. This shall be done four times. The procedure is then repeated with the cable assembly turned end for end.

4.7.6 Cable retention (see 3.5.5). The cable assembly shall be tested as specified in 4.7.6.1 and 4.7.6.2.

4.7.6.1 Longitudinal pull. A longitudinal force (see 3.1) shall be applied to the connector at each end of the cable assembly for 30 seconds. In the case of long assemblies, the force may be applied to each end in turn with the cable wrapped four times or more around a stationary mandrel whose outside diameter is at least 20 times the cable outer diameter. There must be at least 300 centimeters of cable between the mandrel and the connector to which the force is applied.

4.7.6.2 Torque. After the longitudinal pull, a 10-pound force shall be applied to the longitudinal axis of the cable, and the specified torque (see 3.1) shall be applied to the connector in both directions.

4.7.7 Voltage standing wave ratio (VSWR)(see 3.5.6). The VSWR of the cable assembly shall be measured in accordance with the following procedure (or a method acceptable to the Government). The VSWR shall be measured over a frequency range as specified (see 3.1). A swept frequency technique capable of measuring a VSWR of 1.04 or less shall be used. The measuring system (see figure 1) shall have a directivity of at least 30 dB. One of the calibration lines shall contain frequency marker pips and a calibrated narrow band spike which is 1 percent wide at 10 megahertz (MHz) to 2 gigahertz (GHz) and 20 MHz wide above 2 GHz.

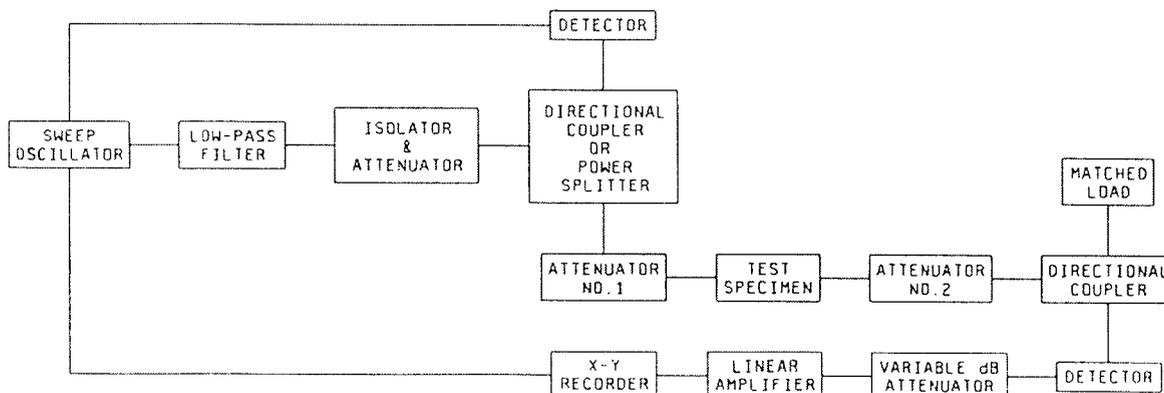


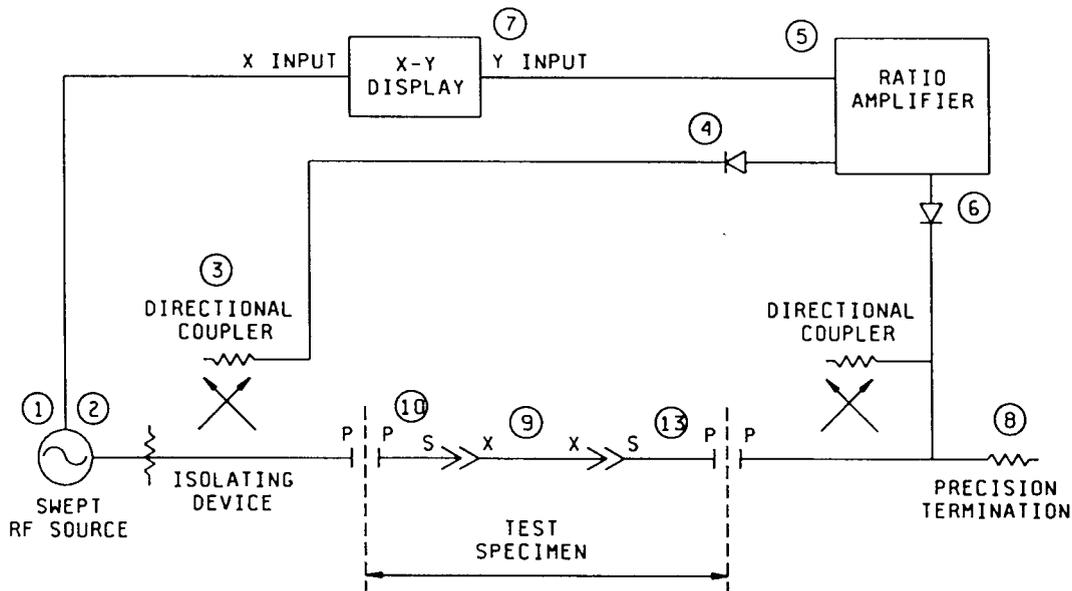
FIGURE 1. Block diagram of VSWR equipment.

4.7.8 Insertion loss (see 3.5.7). The swept frequency insertion loss shall be measured in accordance with the following procedure (or a method acceptable to the Government). In the event of dispute, the method outlined herein shall be used. Diagrams for the swept frequency insertion loss system checkout and measurement procedures are shown on figure 2. Included in the insertion of the cable assembly are the reflective and dissipative losses of two standard precision adapters - one for each connector interface of the cable assembly under test.

Before performing the measurement of the cable assembly under test, the following three-step checkout and calibration procedure should be performed:

- Step 1: The insertion loss of items 10 and 11 of figure 2 shall be measured.
- Step 2: The insertion loss of items 12 and 13 shall be measured.
- Step 3: The insertion loss of item 14 shall be measured for several attenuation settings to establish calibration lines for item 7. The settings should include 0 dB and extend over the anticipated insertion loss range for the cable assembly to be tested. One of the calibration lines shall contain frequency marker pips and a calibrated narrow band spike which is 1 percent wide at 10 megahertz (MHz) to 2 gigahertz (GHz) and 20 MHz wide above 2 GHz.

4.7.9 Continuity (see 3.5.8). To establish continuity, 25 volts dc maximum shall be applied to both ends of each cable assembly inner and outer conductor through an appropriate indicator, such as an ohmmeter light, or buzzer. The test voltage may be applied to the conductors individually or in series.



MEASUREMENT SETUP

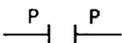
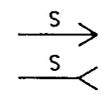
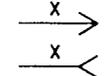
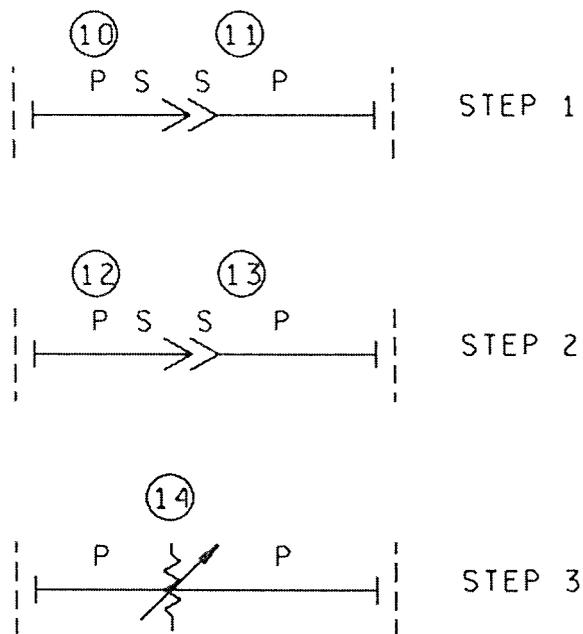
-  PRECISION HERMAPHRODITIC CONNECTOR
-  STANDARD TEST CONNECTOR INTERFACES  
(SEE MIL-STD-348)
-  CONNECTOR INTERFACES OF CABLE ASSEMBLY UNDER TEST  
(SEE 3.1)

FIGURE 2. Swept frequency insertion loss.



1. Swept RF source.
2. Isolating device.
3. Directional coupler.
4. Director No. 1 (incident signal).
5. Ratio amplifier.
6. Detector No.2 (transmitted signal).
7. X-Y display.
8. Precision hermaphroditic termination, VSWR less than  $1.009 + .002F$  (F in GHz).
9. Cable assembly under test.
10. Standard precision adapter having standard test connector interface (see MIL-STD-348), compatible with input connector interface of cable assembly under test.
11. Standard precision adapter having standard test connector interface compatible with 10.
12. Standard precision adapter having standard test connector interface compatible with output connector interface of cable assembly under test.
13. Standard precision adapter having standard test connector interface compatible with 12.
14. Variable precision attenuator with accuracy of  $\pm .03$  dB.

FIGURE 2. Swept frequency insertion loss - Continued.

5. PACKAGING.

5.1 Packaging requirements. The requirements for packaging shall be in accordance with the procurement contract or purchase order.

6. NOTES

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

6.1 Intended use. Cable assemblies covered by this specification are intended for noncritical, general purpose use in electronic communications. They are not recommended for installations where they will encounter extreme abuse. Where high reliability or high performance is required, the use of specifications specifically addressing the particular installation is recommended.

6.2 Ordering data. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual document referenced (see 2.1).
- c. PIN (see 1.2) of the cable assembly ordered.

6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Products List QPL No. 55427 whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, 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 purchase orders for the products covered by this specification. The activity responsible for the Qualified Products List is the Defense Electronics Supply Center (DESC-ELD), 1507 Wilmington Pike, Dayton, Ohio 45444-5765.

6.4 Subject term (key word) listing.

Connector  
Flexible  
Interface

6.5 Expected operational life. Cable assemblies manufactured to this specification have a finite life expectancy. Present information indicates that a maximum use life of 5 years can be expected. If properly packaged, up to 3 years of storage will not affect the expected operational life.

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

CONCLUDING MATERIAL

Custodians:  
Army - CR  
Navy - EC  
Air Force - 85

Preparing activity:  
DLA - ES  
(Project 5995-0122)

Review activities:  
Army - AR, AT, AV, ME, MI  
Navy - AS, MC, OS, SH  
Air Force - 14, 17, 19, 99