INCH-POUND

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SUPERSEDING
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DETAIL SPECIFICATION

CABLE, RADIO FREQUENCY, COAXIAL, SEMIRIGID, FOAM DIELECTRIC GENERAL SPECIFICATION FOR

Inactive for new design after 10 July 2000

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

1. SCOPE

1.1 Scope. This specification covers foam dielectric, coaxial semirigid radio frequency cables with smooth outer conductors (see 6.1).

1.2 Classification. The cable covered under this specification is to be furnished in the following types, sizes, and impedances, as specified (see 3.1 and 6.2).

1.2.1 Types. Cable will be of the following type(s);

Type I – Unjacketed
Type II – Jacketed (polyethylene)

1.2.2 Sizes. Cable is to conform to the following outside diameters (exclusive of jacket);

.500 inch, nominal
.875 inch, nominal

1.2.3 Impedance. Impedances will be 50 or 75 ohms.

1.2.4 Type designation. The type designation is derived from the “RG-XXX/U” nomenclature as specified (see 3.1 and 6.2).

1.2.5 Part or Identifying Number (PIN). The PIN consists of the applicable “RG” designation (see 6.2).

RG	-	XXX	/U
Component (see 1.2.5.1)		Number (see 1.2.5.2)	Basic indicator (see 1.2.5.3)

Comments, suggestions, or questions on this document should be addressed to: Commander, Defense Supply Center Columbus, Attn: VAI, P.O. Box 3990 East Broad Street, Columbus, Ohio 43218-3990 or emailed to RFConnectors@dscc.dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST database at http://assist.daps.dla.mil

1.2.5.1 Component. Cables are identified by the two-letter symbol “RG”.

1.2.5.2 Number. The number indicates a particular type of cable which has been designed with certain electrical and physical characteristics specified herein. The number comprises one or more digits with or without a letter (A, B, C, etc.) and is preceded by a hyphen. The letter indicates a modification of the basic type.

1.2.5.3 Basic indicator. The basic specification for which a cable has been designed is indicated by the symbol “/U” denoting general utility. This classification includes two or more general installation classes: airborne, shipboard, and ground.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 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 cited in the solicitation or contract.

FEDERAL SPECIFICATION

A-A-59551	-	Wire, Electrical, Copper (Uninsulated)

FEDERAL STANDARD

FED-STD-228	-	Cable and Wire, Insulated; Methods of Testing

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-DTL-23806/1	-	Cable, Radio Frequency, Coaxial, Semirigid, Foam Dielectric, .500 inch, 50 and 75 Ohm, (RG-231A/U, RG-331/U, RG-334/U and RG-335/U
MIL-DTL-23806/2	-	Cable, Radio Frequency, Coaxial, Semirigid, Foam Dielectric, .875 inch, 50 and 75 Ohm, (RG-332/U, RG-333/U, RG-336/U and RG-305A/U

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-129	-	Marking for Shipment and Storage
MIL-STD-130	-	Identification Marking of U.S. Property
MIL-STD-202	-	Test Methods for Electronic and Electrical Component Parts

(Copies of these documents are available online at http://assist.daps.dla.mil/quicksearch/ or http://assist.daps.dla.mil or from the Standardization Documents Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 Non-Government publications. The following documents for a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

ASTM INTERNATIONAL

ASTM B566	-	Wire, Aluminum, Copper-Clad.
ASTM D1248	-	Polyethylene Plastics Extrusion Materials for Wire and Cable.

(Copies of these documents are available online at http://www.astm.org or from the ASTM International, P.O. Box C700, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

2.4 Order of precedence. In the event of conflict between the text of this document and the references cited herein (except for related specification 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. 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 Materials. The materials used in the construction of the cable shall be as specified herein and as in the detail specification sheet. When a specific material is not specified, suitable materials for the intended application shall be used and shall be such that the cable meets the requirements specified herein.

3.2.1 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.2.1.1 Inner conductor. The inner conductor of the cable shall conform to type S, uncoated, solid copper wire in accordance with A-A-59551 or copper-clad aluminum wire requirements of ASTM B566, except that sizes shall be as specified in the detail specification sheet. For purposes of testing in accordance with A-A-59551 or ASTM B566, nonstandard sizes specified in the specification sheet shall meet the tensile strength and elongation requirements of the next largest standard size.

3.2.1.2 Inner conductor joints. There shall be no joints in solid conductors made subsequent to the last drawing operation. Joints shall be brazed or silver soldered, using a no acid flux. The overall specified conductor dimension tolerance shall be maintained and the tensile strength of the joint shall be equivalent to or greater than that of the inner conductor itself.

3.2.2 Dielectric material. The core material shall be continuous homogeneous, unicellular foam polyethylene extruded on the inner conductor.

3.2.3 Outer conductor. The outer conductor of the cable shall be smooth seamed or seamless tubular aluminum with an electrical resistivity of 0.077 ohm maximum at 20°C. Joints shall be within the specified dimension and tensile strength limits for the conductor itself.

3.2.3.1 Surface integrity. The outer conductor shall be round, smooth and free from grooves, marks or scratches or any other deformities greater than .004 inch in depth.

3.2.4 Jackets (when specified). Jackets, when specified, shall consist of a continuous sheath of polyethylene conforming to type I or II, class C in accordance with ASTM D1248.

3.3 Design, construction and dimensions. Design, construction and dimensions of the cable shall be as specified in the detail specification sheet (see 3.1).

3.3.1 Temperature rating. The temperature operating range shall be -55°C to +85°C.

3.4 Electrical requirements. The electrical requirements for the cables shall be as follows.

3.4.1 Jacket spark (applicable to jacketed cable only), There shall be no breaks or punctures in the jacket when tested as specified in 4.5.2.

3.4.2 Continuity. The inner and outer conductors in each shipping length of cable shall be continuous, when tested as specified in 4.5.3.

3.4.3 Dielectric strength. The completed cable shall withstand the voltage specified in the detail specification sheet (see 3.1) without breakdown, when tested as specified in 4.5.4.

3.4.4 Insulation resistance. When cables are tested as specified in 4.5.5, the insulation resistance per 1,000 feet shall not be less than 10,000 megohms.

3.4.5 Attenuation. The maximum shall be as specified in the detail specification sheet (see 3.1). The cable shall not exceed the maximum attenuation when tested as specified in 4.5.6.

3.4.6 Impedance. The impedance shall be as specified in the detail specification sheet and the requirement shall be met when tested in accordance with 4.5.7.

3.4.7 Capacitance. When the cable is tested as specified in 4.5.7.1, the capacitance shall be as specified in the detail specification sheet (see 3.1).

3.4.8 Velocity of propagation. When cable is tested as specified in 4.5.7.2, the velocity of propagation shall be as specified in the detail specification (see 3.1).

3.4.9 Voltage Standing Wave Ratio (VSWR). The VSWR of the specimen shall not exceed the values specified in the detail specification sheet (see 3.1), when tested as specified in 4.5.8. The test connectors shall be included as part of the cable and shall comply with the requirements specified herein.

3.5 Environmental requirements. The environmental requirements for these cables shall be as follows.

3.5.1 Bending. When specified in the detail specification sheet (see 3.1), the cable shall meet the requirements of 3.4.3 and 3.4.9, after being subjected to the bending tests specified in 4.5.9. There shall not be any evidence of wrinkles, splits, or fractures of the outer conductor after the bend test.

3.5.2 Temperature cycling. When specified in the detail specification sheet (see 3.1), there shall be no evidence of mechanical damage or insulation separation, and the cable shall meet the requirements of 3.4.9 after being subjected to the temperature cycling test as specified in 4.5.10. Insulation separation is defined as expansion, detraction, or separation (loose fit) of insulation on the inner conductor.

3.5.3 Outer conductor flaring. There shall be no splitting or cracking of the flared section when tested as specified in 4.5.11.

3.6 Marking. The cable shall be marked in accordance with MIL-STD-130 with the type designation, USN designation (see 3.6.1), CAGE or logo, and the manufacture's name. The cable shall be marked with the required information specified herein at a minimum of every 2 feet. Marking shall not permanently indent, deform, or otherwise damage the jacket or outer conductor. Marking shall be legible and capable of withstanding normal installation practices. Marking shall withstand the temperature cycling test in 4.5.10.
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3.6.1 "USN" prefix. The designation of all cable acquired under this specification shall bear the prefix "USN", except that in the case of small cables the prefix "N" shall be used. Cable acquired under a contract which either permits or requires any changes in any of the conditions or requirements of this specification shall not bear the prefix "USN" nor any abbreviation thereof. In the event a cable sample fails to meet the requirements of this specification, the manufacturer shall remove the "USN" or "N" prefix from the sample tested, and also from all those cables represented by that sample.

3.6.2 Container. In addition to any special marking required by the contract or order, the shipping container or reel shall be marked in accordance with MIL-STD-129, and as follows:

a. Length of each piece, in the order wound, and total length of cable.
b. Nominal characteristic impedance.
c. The following warning: "WARNING: KEEP ENDS SEALED; MOISTURE DAMAGES CABLE; STORE IN COOL, DRY LOCATION."

3.7 Workmanship. Cable shall be manufactured and processed in a careful and workmanlike manner in accordance with good design and sound practices. The cable shall be free from any burrs, die marks, chatter marks, imperfections, or other foreign material which may affect its serviceability.

4. VERIFICATION

4.1 Classification of inspection. The inspections specified herein are classified as follows.

a. Materials inspection (see 4.2).
b. Conformance inspection (see 4.4).
c. Periodic inspection (see 4.4.1.4)

4.2 Materials inspection. Materials inspection shall consist of certification supported by verifying data that the materials specified in table I, used in fabricating the cables, are in accordance with the applicable referenced specification or requirements prior to fabrication.

TABLE I. Materials inspection.

Material	Requirement paragraph	Applicable specification
Wire, copper	3.2.1.1	A-A-59551
Aluminum	3.2.1.1	ASTM B566
Polyethylene	3.2.4	ASTM D1248

4.3 Inspection conditions. Unless otherwise specified herein, all inspections shall be performed in accordance with the test conditions specified in the "GENERAL REQUIREMENTS" of MIL-STD-202.

4.4 Conformance inspection.

4.4.1 Inspection of product for delivery. Conformance inspection shall consist of materials inspection, production inspection, and groups A, B and C inspection. Group A, B and C tests shall all be preformed on the first order, regardless of size, by any manufacturer producing cable to this specification for the first time.

4.4.1.1 Inspection lot. An inspection lot shall consist of all cable covered by a single specification sheet, produced under the essentially the same conditions, and offered for inspection at the same time.

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

TABLE II. Group A inspection.

Examination or test	Requirement paragraph	Test paragraph	Sampling plan
Subgroup 1			
Visual and mechanical	3.1, 3.6 and 3.7	4.5.1	See 4.4.1.2.1
Subgroup 2			
Jacket spark (when applicable)	3.4.1	4.5.2	100 % Inspection required
Continuity	3.4.2	4.5.3	
Dielectric strength	3.4.3	4.5.4	
Insulation resistance	3.4.4	4.5.5	
Attenuation 1/	3.4.5	4.5.6	

1/ At 400 MHz only.

4.4.1.2.1 Sampling plan. Statistical sampling and inspection for subgroup 1 shall be specified in table III, except the number of sample units shall not be more than two times the number of reels in the inspection lot. No more than two sample units shall be selected from each reel of cable. When two sample units are required from one reel, they shall be cut from each end of the reel. For subgroup 2, each reel in the inspection lot shall be tested.

TABLE III. Sampling plan for group A and B inspections.

Inspection lot size Cable length (feet)	Sample units	Accept on (No. of failures)
0 to 16,000	5	0
16,001 to 26,000	8	
26,001 to 64,000	13	
64,001 to 160,000	20	
160,001 to 440,000	32	
440,001 to 2,200,000	50	
2,200,001 and over	80	

4.4.1.2.2 Sample unit. For subgroup 1, a sample unit is a piece of cable three feet in length and cut from the reel of cable. For subgroup 2, the complete length of cable on each reel shall be tested.

4.4.1.2.3 Defective unit. A defective unit is any sample unit failing any test in any test group. The reel of cable from which the sample unit was taken shall be considered defective.

4.4.1.2.4 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 re-inspection. Such lots shall be separate from new lots, and shall be clearly identified as re-inspected lots.

4.4.1.2.5 Disposition of sample units. Sample units, and the reels of cable from which the sample units were taken which failed one or more inspections shall not be delivered on the contract or order. However, insulation defects, spark failures may be repaired or the cable cut at this point (see 4.5.2), and shipped.

4.4.1.3 Group B inspection. Group B inspection shall consist of the examinations and test specified in table IV, in the order shown, and shall be made on reels of cable which have been subjected to and have passed the group A inspection.

4.4.1.3.1 Sampling plan. The sampling plan shall be specified in table III.

TABLE IV. Group B inspection.

Examination or test	Requirement paragraph	Test paragraph
Attenuation 1/	3.4.5	4.5.6
Impedance	3.4.6	4.5.7
Capacitance	3.4.7	4.5.7.1
Velocity of propagation	3.4.8	4.5.7.2
VSWR	3.4.9	4.5.8
Flaring	3.5.3	4.5.11

1/ At all specified frequencies.

4.4.1.3.2 Sample unit. A sample unit is a piece of cable cut from the reel of cable and the length specified for the applicable test method.

4.4.1.3.3 Defective unit. A defective unit is any sample unit failing any test or inspection in table IV. The reel of cable from which the sample unit was taken will be considered defective.

4.4.1.3.4 Rejected lots. If an inspection lot is rejected, the supplier may rework it to correct the defect(s), or screen out the defective units, and resubmit for re-inspection. Such lots shall be kept separate from new lots, and shall be clearly identified as re-inspected lots.

4.4.1.3.5 Disposition of sample units. Sample units and the reels of cable from which the sample units were taken may be delivered on the contract or order, if the sample unit(s) have passed all the group B inspection and the lot was accepted.

4.4.1.4 Periodic inspection. Periodic inspection shall consist of group C inspection.

4.4.1.4.1 Group C inspection. Group C inspection shall consist of the examinations and tests specified in table V, 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 V. Group C inspection.

Examination or test	Requirement paragraph	Test paragraph
Bending	3.5.1	4.5.9
Temperature cycling	3.5.2	4.5.10

4.4.1.4.2 Sampling plan. Group C inspection shall be performed on the first order of each cable type. Sample units shall be selected from each 6-months' production of cable covered by a single specification sheet, as specified in table III, except that the number of sample units shall be not more than two times the number of reels in the inspection lot. No more than two sample units shall be selected from each reel of cable.

When two sample units are required from one reel, they shall be cut from each end of the reel. The sample units shall be selected from different production runs throughout the 6-month period. Where the total production run is less than 20,000 feet, group C tests need not be made until total production is 20,000 feet or greater. No failures shall be permitted for group C inspection.

4.4.1.4.3 Sample unit. A sample unit is a piece of cable cut from the reel of cable of the length specified for the applicable test method.

4.4.1.4.4 Defective unit. A defective unit is any sample unit failing any test or inspection as specified in table V. The reel of cable from which the sample unit was taken will be considered defective.

4.4.1.4.5 Disposition of sample units. Sample units which have been subjected to group C inspection shall not be delivered on the contract or purchase order. The reel from which the sample unit was taken may be shipped, if the sample unit was not defective, and the lot was accepted.

4.4.1.4.6 Noncompliance. If a sample fails to pass group C 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 materials, processes, etc., and which are considered subject to the same failure. Acceptance of the product shall be discontinued until corrective action has been taken. Group C 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 and B inspections may be re-instituted; however, final acceptance shall be withheld until the group C re-inspection has shown that the corrective action as successful. In the event of failure after re-inspection, information concerning the failure and corrective action taken shall be furnished to the contracting officer.

4.5 Methods of examination and test.

4.5.1 Visual and mechanical examination. The cable shall be examined to verify that the design, construction, physical dimensions, marking, and workmanship are in accordance with the applicable requirements on a 3-foot specimen cut from the end of the cable. (see 3.1, 3.6 and 3.7). A micrometer caliper or an instrument of equal accuracy shall be used to determine the proper dimensions. 1/

1/ A marking discrepancy shall be considered as a failure if the marking is illegible initially or becomes illegible as a result of subjection to the temperature cycling test.

4.5.2 Jacket spark (applicable to jacketed cable only, see 3.4.1). The cable shall be tested in accordance with method 6211 of FED-STD-228. The following details shall apply:

a. The test voltage shall be 8,000 V rms at 60 Hertz.
b. The potential shall be applied between the outer conductor and the outer surface of the jacket. A puncture of the jacket by the applied voltage shall constitute a point of failure. The cable may be cut at this point, or it may be repaired to the satisfaction of the Government.

4.5.3 Continuity (see 3.4.2). A potential of 6 Volts dc, maximum, shall be applied through an appropriate indicator, to the inner and outer conductor (conductors) of the cable. The voltage may be applied to the conductors individually or in series.

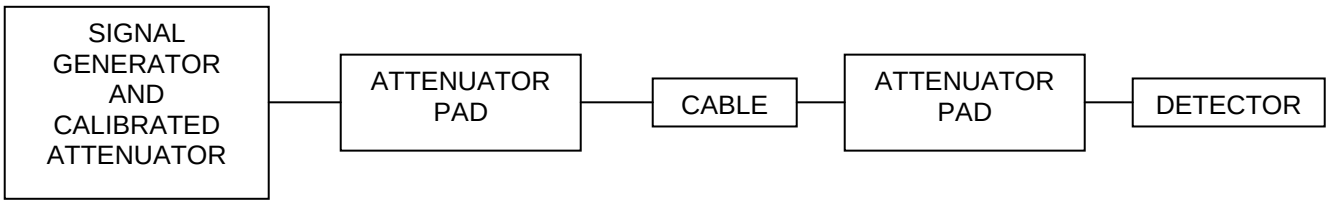
4.5.4 Dielectric strength (see 3.4.3). The cable shall be tested in accordance with method 6111 of FED-STD-228, except that the cable shall not be immersed in water but shall be tested dry. The following details shall apply:

a. The test shall be performed on completed cable only.
b. The test voltage shall be as specified (see 3.1).
c. The potential shall be applied to the inner conductor with the outer conductor grounded.

4.5.5 Insulation resistance (see 3.4.4). The cable shall be tested in accordance with method 6031 of FED-STD-228, except that the cable shall not be immersed in water but shall be tested dry. The following details shall apply:

a. The test shall be performed on completed cable only.
b. The test voltage shall be 200 Volts, minimum.
c. The potential shall be applied to the inner conductor with the outer conductor grounded.

4.5.6 Attenuation (see 3.4.5). The attenuation, expressed in decibels (dB) per 100 feet, shall be measured at a sufficiently low-power level that the resulting temperature rise will be negligible. An acceptable method for measuring attenuations is as follows:



In the block diagram, a suitable length of cable with an attenuation greater than the measuring accuracy of the equipment is inserted between the connectors. The signal generator and calibrated attenuator are adjusted to produce a reasonable indication at the detector, when the detector is tuned. The detector reading is noted, and the calibrated attenuator output level is recorded. The cable under test is then withdrawn and the circuit completed with the connectors (or a very short length of cable). With the detector tuned, the calibrated attenuator is readjusted to reproduce the original reading at the detector and the attenuator output level is again recorded. Attenuation is then computed as follows:

$$A = \frac{100}{L} \quad \text{(Difference in calibrated attenuator reading in dB)}$$

Where:
A = Attenuation in dB per 100 feet.
L = Length of cable under test (in feet).

For measurement at frequencies of 400 MHz or less, the characteristic impedance of the attenuator pads and connectors shall preferably be the same as that of the cable under test. For measurement at frequencies of 1 GHz or above, the attenuator pads, connectors, ant the test cable shall be matched to the same characteristic impedance. Both pads shall be high enough in the attenuation value to minimize the error caused by mismatch of the signal generator and detector. For the majority of measurements, it is recommended that the attenuation of each pad be approximately 10 dB. Tuning stubs may be used in the circuit for impedance matching purposes. Any other method approved by the procuring activity may be used in lieu of that described herein. When the attenuation of the cable under test is less than 1 dB at the test frequency, the attenuation may be measured by the short circuit method.

4.5.7 Impedance (see 3.4.6). The characteristic impedance of the cable shall be determined by calculation from the capacitance and velocity of propagation measurements using the following formula:

$$Z_o \text{ in ohms} = \frac{101{,}600}{\text{Velocity of propagation (\%) x Capacitance (pF/ft.)}}$$

NOTE: The capacitance and velocity of propagation shall be as determined as specified in 4.5.7.1 and 4.5.7.2.

4.5.7.1 Capacitance (see 3.4.7). The capacitance of the cable shall be measured to 3 significant figures, at any one frequency between 1 KHz and 1 MHz for each second and reported in pF/ft. An electrically short piece, that is less than 1/40 of a wavelength of cable, shall be used for this test.

4.5.7.2 Velocity of propagation (see 3.4.8). The velocity of propagation is determined in terms of the percentage of velocity of propagation along the cable to the velocity of an electromagnetic wave in free space. The velocity pf propagation in the cable shall be found by resonating a length of cable at a frequency between 10 and 200 MHz with one end short-circuited or open-circuited or by an equivalent method subject to the approval of the procuring activity. The same sample may be used for velocity and capacitance measurements.

$$\text{Percent velocity} = \frac{\text{Fr. X length (ft)}}{2.46\ N}$$

Where:
Fr. = Resonant frequency in MHz.
N = Number of quarter wavelengths in the cable.

4.5.8 VSWR (see 3.4.9). The VSWR of a minimum length of 100 feet of cable shall be measured over the specified frequency range (see 3.1) using a swept frequency technique with capability of measuring a VSWR of 1.04 or less. The measurement system may be in the form of directional coupler(s), hybrid, reflection coefficient bridge, or any other method acceptable to the Government, and shall have a directivity of at least 35 dB.

4.5.9 Bending (see 3.5.1). Unless otherwise specified (see 6.2) the bending test shall be conducted on unjacketed samples.

4.5.9.1 Specimen. The length of cable shall be sufficient to provide three complete coils around the mandrel specified (see 3.1) and shall be taken from the test sample used for the initial VSWR test.

4.5.9.2 Procedure. One end of the test specimen shall be clamped circumferentially at any two point, approximately 45° apart, to a mandrel having a diameter specified (see 3.1). The specimen shall then be coiled and uncoiled (the mandrel shall be rotated a minimum of 720°). After the cable has been initially coiled on the mandrel it shall then be uncoiled or coiled in the reverse direction to a total of five coils. Although no special tools shall be used during the bending of the cable, a mechanism may be provided to guide the cable on the mandrel. The cable shall be coiled and uncoiled at a rate between 1 and 5 revolutions per minute.

The VSWR (see 3.4.9) and dielectric strength (see 3.4.3) shall be measured on the coiled sample after the fifth cycle. The VSWR may be measured on the sample while coiled.

4.5.10 Temperature cycling. The specimen shall be taken from the test sample used for the initial VSWR test. A length of cable with connectors properly attached, sufficient to make one complete 360° turn shall be coiled on a mandrel of the diameter as specified (see 3.1). The mandrel with cable firmly attached shall be placed in a chamber(s) and subjected to the temperature cycling specified in table VI. After the cycling has been completed, the cable shall meet the requirements of 3.4.3, 3.4.9, and the Note cited in 4.5.1.

TABLE VI. Temperature cycling.

Step	Temperature (°C)	Time (Hours)
1	-55° ± 2°	4 to 8
2	25° +10°, -5°	4 to 24
3	85° ± 2°	4 to 8
4	25° +10°, -5°	4 to 24

4.5.11 Outer conductor flaring. The cable shall be subjected to the flaring of the outer conductor to the diameter as specified below. The cable specimen length and maximum flare diameter are as follows:

Cable size (inch)	Approximate length (inch)	Flare OD (max.)
.5	24	.700
.875	36	.960

4.5.11.1 Flaring procedure. Cut one end of the sample square with a tubing cutter. Carefully remove .125 inch of dielectric between inner and outer conductor using a flaring device or standard plumbers tube flaring tool; flare the prepared end of the outer conductor not exceeding the maximum diameter as specified in 4.5.11.

5. PACKAGING

5.1 Packaging requirements. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department’s or Defense Agency’s automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

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

6.1 Intended use. Cables covered by this specification are intended for use in Shipboard Radio Frequency communications equipment.

6.1.1 General information regarding foam dielectric cable. Foam dielectric cables are noted for their low loss characteristics. Attenuation loss in a foam dielectric cable are as follows:

a. Normally is not quite as low as that in air dielectric cable especially at higher frequencies (specified in MIL-DTL-22931 and MIL-DTL-3890).

b. Is approximately 15 percent lower than the attenuation of a solid polyethylene dielectric of a corresponding size (specified in MIL-DTL-17).

c. The average power rating of foam dielectric cables (as limited by temperature rise) is between solid polyethylene (which has a lower power rating) and air dielectric (which has a higher power rating) for corresponding cable sizes. Even though foam dielectric cables have a greater attenuation loss than corresponding air dielectric cables, the foam cable has one major advantage in that it does not have to be pressurized with dry air or nitrogen.

6.1.2 Type I. Type I cable is unjacketed, and is therefore approximately 10 to 15 percent more economical than the jacketed version. Type I is not recommended for use in a corrosive atmosphere such as on shipboard.

6.1.3 Type II. Type II cable is identical to type I, except that it has a polyethylene jacket for corrosion resistance. Type II cable is recommended for shipboard application because of its resistance to salt water atmosphere.

6.2 Acquisition requirements. Acquisition documents should as a minimum specify the following:

a. Title, number, and date of this specification.
b. Type, size, and impedance of the cable (see 3.1).
c. Packaging requirements (see 5.1).
d. Distribution of test records.
e. Whether samples for bending test be jacketed or unjacketed (see 4.5.9).

6.3 Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible to meet the requirements of this specification. Table VII lists the Environmental Protection Agency (EPA) top seventeen hazardous materials targeted for major usage reduction. Use of these materials should be minimized or eliminated unless needed to meet the requirements specified herein (see 3.2).

TABLE VII. EPA top seventeen hazardous materials.

Benzene	Dichloromethane	Tetrachloroethylene
Cadmium and Compounds	Lead and Compounds	Toluene
Carbon Tetrachloride	Mercury and Compounds	1,1,1 - Trichoroethane
Chloroform	Methyl Ethyl Ketone	Trichloroethylene
Chromium and Compounds	Methyl Isobutyl Ketone	Xylenes
Cyanide and Compounds	Nickel and Compounds	

6.4 Subject term (key word) listing.

Copper
Polyethylene

6.5 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 – SH
Air Force – 11
DLA – CC

Preparing activity:
DLA – CC

(Project 6145-2006-018)

Review activities:
Army – AR, AV, MD, MI
Navy – MC, SA, YD
Air Force - 71

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at http://assist.daps.dla.mil.