

SPECIFICATIONS

FEDERAL

- L-P-390 - Plastic Molding Material, Polyethylene, Low and Medium Density.
- QQ-W-343 - Wire, Electrical and Nonelectrical, Copper (Uninsulated).

MILITARY

- MIL-C-17 - Cable, Radio Frequency; Coaxial, Dual Coaxial, Twin Conductor and Twin Lead
- MIL-L-3890 - Lines, Radio Frequency Transmission (Coaxial, Air Dielectric).
- MIL-C-22931 - Cable, Radio Frequency, Semirigid, Coaxial, Semi-Air-Dielectric, General Specification For

STANDARDS

FEDERAL

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

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-130 - Identification Marking of U.S. Military Property.
- MIL-STD-202 - Test Methods for Electronic and Electrical Component Parts.

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications.- The following document forms a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

OFFICIAL CLASSIFICATION COMMITTEE
Uniform Freight Classification Rules

(Application for copies should be addressed to Official Classification Committee, 1 Park Avenue at 33rd Street, New York, N.Y. 10016.)

3. REQUIREMENTS

3.1 Specifications for individual cable types and sizes.- Cable shall be designed and constructed to meet the general requirements herein. In addition, individual cable types, sizes, and impedance ratings shall meet the detail requirements as specified in the affiliated individual specification sheets. Where a conflict exists between the general requirements herein and the detail requirements in the affiliated specification sheets, 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 material for the intended application shall be used and shall be such that the cable meets the requirements specified herein.

3.2.1 Inner conductor.- The inner conductor of the cable shall conform to type S, uncoated, solid copper wire of QQ-W-343, except that sizes shall be as specified in the specification sheet. For purposes of testing in accordance with QQ-W-343, nonstandard sizes specified in the specification sheet shall meet the tensile strength and elongation requirements of the next largest standard size.

3.2.1.1 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 nonacid flux. The overall specified conductor dimension tolerances 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 sheath seamless tubular aluminum with an electrical resistivity of 0.077 ohm (meter, gram) 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 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 III, grade 8, of L-P-390.

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

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

3.4 Electrical requirements.-

3.4.1 Continuity.- The inner and outer conductors in each shipping length of cable shall be continuous, when tested as specified in 4.4.3.

3.4.2 Insulation resistance.- When cables are tested as specified in 4.4.5, the insulation resistance per 1000 feet shall be not less than 10,000 megohms.

3.4.3 Dielectric strength.- The completed cable shall withstand the potential specified in the specification sheet without breakdown, when tested as specified in 4.4.4.

3.4.4 Jacket spark (applicable) to jacketed cable only.- There shall be no breaks or punctures in the jackets, when tested as specified in 4.4.2.

3.4.5 Attenuation.- The maximum attenuation shall be as specified in the detail specification sheet (see 3.1), when cables are tested as specified in 4.4.6.

3.4.6 Impedance.- The impedance shall be as specified in the specification sheet when cables are tested as specified in 4.4.7.

3.4.7 Voltage standing wave ratio (VSWR).- The VSWR of the specimen shall not exceed the values specified in the specification sheet (see 3.1), when tested as specified in 4.4.8. The test connectors shall be included as part of the cable and shall comply with the requirements specified therein.

3.4.8 Capacitance.- When cable is tested as specified in 4.4.7.1, the capacitance shall be as specified in the specification sheet (see 3.1).

3.4.9 Velocity.- When cable is tested as specified in 4.4.7.2, the velocity shall be as specified in the specification sheet (see 3.1).

3.5 Environmental requirements.-

3.5.1 Bending.- When specified in the specification sheet, the cable shall meet the requirements of 3.4.3 and 3.4.7, after being subjected to the bending tests specified in 4.4.9. 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 specification sheet, there shall be no evidence of mechanical damage or insulating separation, and the cable shall meet the requirements of 3.4.7, after

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subject to the temperature cycling tests specified in 4.4.10. 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 4.4.11.

3.6 Marking.- The cable shall be marked in accordance with MIL-STD-130 with the type designation, USN designation (see 3.6.1), the manufacturer's code symbol, and the manufacturer's name. The cable shall be marked with the required information specified herein at least 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 of 4.4.10, as specified in 4.4.1.1.

3.6.1 "USN" prefix.- The designation of all cable procured under this specification shall bear the prefix "USN", except that in the case of small cables the prefix "N" shall be used. Cable procured 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 the sample.

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

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection.- Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 When specified in the contract or order, one copy of all test records shall be forwarded to the command or agency concerned before or at the time of shipment of cable.

4.2 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.

4.3 Quality conformance inspection.- Quality 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 run on the first order, regardless of size, by any manufacturer producing cable to this specification for the first time. (See 4.1.1 for required distribution of test reports.)

4.3.1 Inspection terms and definitions.-

4.3.1.1 Lot size.- The lot size shall be the number of units of product determined as specified in 4.3.1.2.

4.3.1.2 Unit of product.- The unit of product shall be defined as 5,000 feet of cable having the same type designation, whether that length be part of a reel, or consisting of one or more reels.

4.3.1.3 Sample.- The sample shall consist of that number of sample units required by the sampling plan for the lot size determined as specified in 4.3.1.2.

4.3.1.4 Selection of sample.- The number of sample units required for inspection shall be chosen by selecting one reel for each sample unit required, after which the reel shall be treated as the sample unit for purposes of inspection.

4.3.1.5 Specimen.- A specimen is an individual piece of cable taken from a sample unit.

4.3.1.6 Defective unit.- Failure in any one test shall constitute a defect; however, if the sample unit fails more than one test in any test group, it shall be counted as only one defective unit.

4.3.2 Materials inspection.- Materials inspection shall consist of verification that the materials used in fabricating the cables are in accordance with the applicable referenced specifications or requirements prior to such fabrication (see 3.2 through 3.2.4). Materials inspection shall not include the construction of parts.

4.3.3 Production inspection.- Production inspection shall consist of the applicable tests shown in table I, in the order shown, and shall be performed on each continuous length of cable during the process of manufacture. Lengths of cable which fail one or more of the production tests shall not be delivered on the contract or order; however, jacket-spark test failures may be repaired or the cable cut at this point (see 4.4.2).

Table I - Production inspection

Test	Requirement paragraph	Method paragraph
Jacket spark (when applicable)	3.4.4	4.4.2
Continuity	3.4.1	4.4.3
Dielectric strength	3.4.3	4.4.4
Insulation resistance	3.4.2	4.4.5
Attenuation ^{1/}	3.4.5	4.4.6

^{1/} At 400 mhz only.

4.3.4 Group A inspection.- Group A inspection shall consist of visual and mechanical examination (see 4.4.1). Statistical sampling and inspection shall be in accordance with MIL-STD-105 for normal inspection. The acceptable quality level (AQL) shall be 4.0 (percent defective).

4.3.5 Group B inspection.- Group B inspection shall consist of the tests shown in table II.

Table II - Group B inspection

Test	Requirement paragraph	Method paragraph
Attenuation ^{1/}	3.4.5	4.4.6
Impedance	3.4.6	4.4.7
VSWR	3.4.7	4.4.8
Capacitance	3.4.8	4.4.7.1
Velocity	3.4.9	4.4.7.2
Flaring	3.5.3	4.4.11

^{1/} At all specified frequencies.

4.3.5.1 Sampling procedure.- The sampling procedure shall be in accordance with MIL-STD-105 for small-sample inspection. Unless otherwise specified herein, normal inspection shall be used at the start of the contract. The AQL shall be 4.0 (percent defective) and the inspection level shall be level I for normal and tightened inspection and S-4 for reduced inspection.

4.3.5.2 Disposition of sample units.- Sample units, specimens of which fail one or more of the group B tests, shall not be delivered on the contract or order, even though the lot is accepted, and shall not be considered as part of the order.

4.3.6 Group C inspection.- Group C inspection shall consist of the examinations and tests specified in table III, in the order shown. Group C inspection shall be made on sample units selected from inspection lots which have passed the group A and B inspections.

Table III - Group C inspection

Test	Requirement paragraph	Method paragraph
Bending	3.5.1	4.4.9
Temperature cycling	3.5.2	4.4.10

4.3.6.1 Sampling procedure.- Group C inspection shall be performed on the first order for each cable type. Sample units shall be selected from each 6 month's production of cable covered by a single cable type designation in accordance with table IV, except that 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. The sample units shall be selected from different production runs throughout the 6-month period. Where total production run is less than 4 units (20,000 ft.), group C tests need not be made until total production is four units of production, in which case, one sample shall be tested. No failures shall be permitted for group C inspection.

Table IV - Sampling procedure for group C inspection

Lot size (unit of product)	Sample size
3 to 8, inclusive	2
9 to 30, inclusive	3
31 to 80, inclusive	4
81 to 130, inclusive	5
131 to 180, inclusive	6
181 to 240, inclusive	7
241 to 300, inclusive	8

4.3.6.2 Noncompliance.- If a sample fails to pass group C inspection, the supplier shall take corrective action on the process and on all units of product which can be corrected and which were manufactured under the same conditions, and with the same materials, processes, and so forth, and which are considered subject to the same failure. Quality conformance inspection shall be discontinued until corrective action has been taken. After the corrective action has been taken, additional sample units shall be subjected to group C inspection (all inspections, or the inspections which the sample failed, at the option of the command or agency concerned). Materials inspection, production inspection and groups A and B inspection may be reinstated; however, final acceptance shall be withheld until the group C inspection has shown that the corrective action was successful.

4.4 Methods of examination and test.-

4.4.1 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. Examination of the marking shall be conducted on 25 feet of cable unrolled from the sample reel.

4.4.1.1 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. Examination of the design, construction, physical dimensions, and workmanship shall be made on a 3-foot specimen cut from the end of the cable. A micrometer caliper or an instrument of equal accuracy shall be used to determine the proper dimensions.

4.4.2 Jacket spark (applicable to jacketed cable only).- 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 a 60-Hertz root-mean-square (r.m.s.) voltage, 8,000 volts.
- (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.

4.4.3 Continuity. A direct current (d.c.) potential of 6 volts 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 (see 3.4.1).

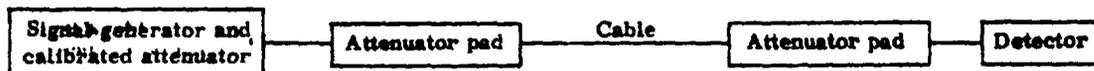
4.4.4 Dielectric strength (see 3.4.3).- The cable shall be tested in accordance with method 6111 of FED-STD-228, except that the cable shall not be immersed in water but shall be tested dry. The following details shall apply:

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

4.4.5 Insulation resistance (see 3.4.2).- 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 not less than 200 volts.
- (c) The potential shall be applied to the inner conductor with the outer conductor grounded.

4.4.6 Attenuation.- Attenuation is defined herein as the total loss in the cable including both reflective and dissipative losses. The attenuation, expressed in decibels (db) per 100 feet, shall be measured at a sufficiently low-power level so that the resulting temperature rise will be negligible. An acceptable method for measuring attenuation is as follows:



In the block diagram, a suitable length of cable with an attenuation greater than the measuring accuracy of the equipment shall be inserted between the connectors. The signal generator and calibrated attenuator shall be adjusted to produce a reasonable indication at the detector, when the detector is tuned. The detector reading shall be 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 shall be readjusted to reproduce the original reading at the detector and the attenuator output level is again recorded. Attenuation is then computed as follows:

$$A = \frac{100}{L} \text{ (Difference in calibrated attenuator readings in db)}$$

where:

A = attenuation in db per 100 feet

L = length of cable under test in feet

For measurements at frequencies of 400 megahertz (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 1,000 mHz, or above, the attenuator pads, connectors, and test cable shall be matched to the same characteristic impedance. Both pads shall be high enough in attenuation value to minimize the error caused by any 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 command or agency concerned 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.

4.4.7 Impedance.- The characteristic impedance of cable shall be determined by calculation from the capacitance and velocity propagation measurements using the following formula:

$$Z_o \text{ in ohms} = \frac{101,600}{(\text{percent velocity})(\text{capacitance in pF/ft})}$$

Capacitance and velocity propagation values shall be determined as specified in 4.4.7.1 and 4.4.7.2.

4.4.7.1 Capacitance.- The capacitance of the cable shall be measured to three significant figures, at any one frequency between 1 kilohertz (kHz) and 1 mHz for each second and reported in picofarads (pF) for each foot. An electrically short piece, that is, less than 1/40 of a wavelength of cable, shall be used for this test.

4.4.7.2 Velocity.- The velocity of propagation is determined in terms of the percentage of velocity of wave propagation along the cable to the velocity of an electromagnetic wave in free space. The velocity of propagation in the cable shall be found by resonating a length of cable at a frequency between 10 and 200 mHz for each second with one end short-circuited or open-circuited (see 5.2 (c)).

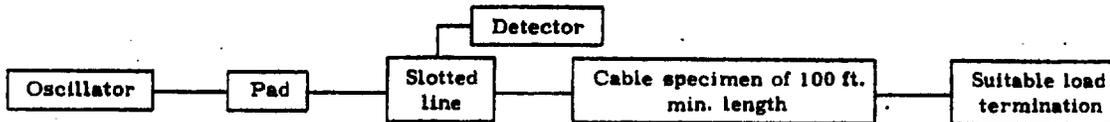
$$\text{Percent velocity} = \frac{fr \times \text{length (ft)}}{2.46 N}$$

where:

fr = resonant frequency in mHz
 N = number of quarter wavelengths in the cable

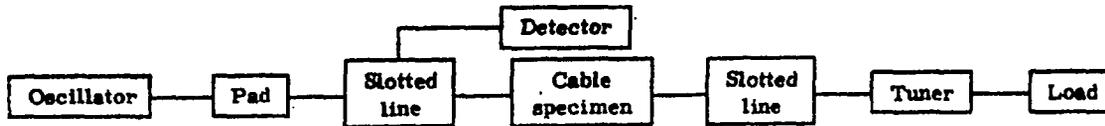
4.4.8 VSWR.- The VSWR with or without conditioning shall be determined as specified in 4.4.8.1 and 4.4.8.2, respectively. The frequencies (or points) at which measurements by the slotted line techniques specified in 4.4.8.1 and 4.4.8.2 are to be made, shall be determined initially by slowly scanning the frequency ranges specified in the specification sheet (see 3.1) by means of a suitable scanning technique such as the reflectometer or other approved method. Specific quantitative measurements by the slotted line techniques then shall be made at the "high points" (a minimum of the three highest points shall be measured within each frequency range).

4.4.8.1 VSWR without conditioning.- The VSWR shall be measured at both ends of a minimum length of 100 feet of cable using the following technique:



Successive input VSWR measurements shall be made at both ends of the specimen.

4.4.8.2 VSWR with conditioning.- The VSWR of the individual specimens that have been subjected to the bending and temperature cycling tests (see 4.4.9 and 4.4.10) shall be measured using the following double slotted line technique:



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

4.4.9.1 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.

4.4.9.2 Procedure.- One end of the test specimen shall be clamped circumferentially at any two points, approximately 45 degrees apart, to a mandrel having a diameter specified in the specification sheet. The specimen shall then be coiled and uncoiled (the mandrel shall be rotated a minimum of 720 degrees). 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 (r.p.m.).

4.4.9.2.1 The VSWR (see 3.4.7) 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.

4.4.10 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-degree turn shall be coiled on a mandrel of a diameter equal to the diameter specified in the specification sheet. (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 V. After the cycling has been completed, the cable shall meet the requirements of 3.4.3, 3.4.7, and 4.4.1.1.

Table V - 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

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

<u>Cable size</u>	<u>Approximate length</u>	<u>Flare O.D.(max)</u>
1/2	24 inches	.700
7/8	36 inches	.960

4.4.11.1 Flaring procedure.- Cut one end of the sample square with a tubing cutter. Carefully remove 1/8 inch of dielectric between inner and outer conductor using special flaring device or standard plumbers tube flaring tool; flare the prepared end of the outer conductor not exceeding the maximum diameter as indicated in 4.4.11.

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging.- Unless otherwise specified in the contract or order, cable shall be preserved and packed in the best commercial manner to insure acceptance by common carrier and safe delivery at destination. Cable ends shall be sealed airtight for protection against water, humidity, and foreign particles. Cables shall be shipped on disposable, non-returnable reels. Shipping containers shall comply with the Uniform Freight Classification Rules, or regulations of other carriers as applicable to the mode of transportation.

5.2 Marking.- 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.

6. NOTES

6.1 Intended use.-

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 (a) normally is not quite as low as that in an air dielectric cable especially at higher frequencies (see MIL-C-22931 and MIL-L-3890), but (b) is approximately 15 percent lower than the attenuation in a solid polyethylene dielectric cable of a corresponding size (see MIL-C-17). The average power rating of foam cable (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 cables have a greater attenuation loss than corresponding air dielectric cable, 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 is recommended for shipboard application because of its resistance to a salt water atmosphere.

6.2 Ordering data.- Procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Type, size, and impedance of cable (see 3.1).
- (c) Distribution of test records.
- (d) Whether samples for bending test shall be jacketed or unjacketed (see 4.4.9).

Preparing activity:
Navy-EC

(Project 6145-N093)

INSTRUCTIONS: In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge (*DO NOT STAPLE*), and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. 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.

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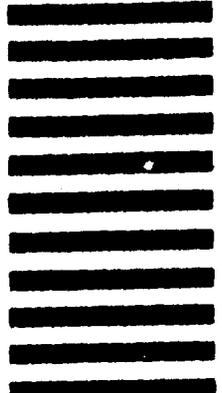
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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER

2. DOCUMENT TITLE

3a. NAME OF SUBMITTING ORGANIZATION

4. TYPE OF ORGANIZATION (Mark one)

VENDOR

USER

MANUFACTURER

OTHER (Specify): _____

b. ADDRESS (Street, City, State, ZIP Code)

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER (Last, First, MI) - Optional

b. WORK TELEPHONE NUMBER (Include Area Code) - Optional

c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional

8. DATE OF SUBMISSION (YYMMDD)