INCH-POUND

MIL-DTL-49104A
27 October 2000
SUPERSEDING
MIL-C-49104(CR)
19 December 1978

DETAIL SPECIFICATION

CABLE, TELEPHONE WD-1A/TT (FIELD WIRE, PARALLEL PAIR)

Inactive for new design after 16 June 1997

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

1. SCOPE

1.1 Scope. This specification covers stranded conductor, polyethylene insulated, parallel lay field telephone cable. Each conductor consists of seven strands: four of copper and three of steel.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 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 documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications and standards. The following specifications and standards 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

FEDERAL

L-P-390	-	Plastic, Molding and Extrusion Material, Polyethylene and Copolymers (Low, Medium and High Density)
A-A-59551	-	Wire, Electrical, Copper (Uninsulated)

DEPARTMENT OF DEFENSE

Beneficial comments (recommendations, additions, deletions) and any pertinent data that may be of use in improving this document should be addressed to: Defense Logistics Agency, Defense Supply Center, Columbus (DSCC-VAI), P.O. Box 3990, Columbus, OH 43216-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 6145

MIL-R-3241 - Reels, Cable (Reels DR-5( ), DR-7( ), DR-8( ), RC-453( )/G, RL-159( )/U)

STANDARDS

FEDERAL

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

(Unless otherwise indicated, copies of the above specifications and standards are available from the Document Automation and Production Service, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents that are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A641 - Standard Specification for Steel Wire, Zinc-coated (Galvanized) Carbon (DoD adopted)

(Application for copies should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

NATIONAL CONFERENCE OF STANDARDS LABORATORIES (NCSL)

ANSI/NCSL Z540-1 - Calibration Laboratories and Measuring and Test Equipment, General Requirements (DoD adopted)

(Application for copies should be addressed to the National Conference of Standards Laboratories, 1800 - 30th Street, Suite 305B, Boulder, CO 80301-1032.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated specifications or 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 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.3.

3.2 Materials.

3.2.1 Copper strands. Copper strands shall be tinned, soft or annealed copper wire in accordance with A-A-59551. Each strand shall be .011 inch ±5% in diameter.

3.2.2 Steel strands. Steel strands shall be round steel wire .011 inch ±5% in diameter. The wire shall be coated with a smooth, continuous, uniform and adherent zinc coating of commercially pure zinc (galvanized) in accordance with ASTM A641. The weight of zinc shall not be less than 25 grams of zinc per kilogram of coated strand.

3.2.3 Insulation compound. The insulation compound shall be black high-density polyethylene or copolymer, Type III, Class H, Grade 1, in accordance with L-P-390, except that the carbon black content shall be no greater than 2.5 percent.

3.2.4 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.

3.3 Construction.

3.3.1 Conductors. Each conductor shall be composed of four coated copper strands and three coated steel strands.

3.3.1.1 Stranding. The maximum length of lay of the strand conductor shall be one inch and the direction of lay shall be left hand. The outside strands shall lie evenly and smoothly around the central strand without crowding. An antioxidant, such as Liquid Antox manufactured by E.I. duPont deNemours and Co., Inc.; Bayol 35, manufactured by Humble Oil and Refining Co.; MX-910 lube-oil manufactured by Mohawk Refining Co.; or an equally satisfactory light oil, may be used as a lubricant in the stranding operation, in which case there shall be no excess oil on the finished stranded conductor.

3.3.2 Finished cable characteristics. The finished cable shall consist of a pair of conductors in parallel, commonly insulated in an approximate figure-8 cross section (see figure 1). The finished cable shall be twisted right-hand-lay (such as in a bunch strander) to make one twist per 12 inches when averaged over a 100-foot length. Separation of the conductors of the pair shall be by snipping the insulation at the end of the pair midway between the conductors and then tearing them apart. The tensile force necessary to separate the two conductors shall be not less than 1 pound or more than 3 pounds. After the conductors are separated, the insulation shall not pull away from either conductor. No insulation repairs or wire splices shall be permitted in finished cable. The dimensions of the cable shall be as follows (see figure 1):

A	Major axis	.135±.005 inch	
B	Minor axis	.070±.003 inch	
C	Conductor separation	.033±.003 inch	(between inside surface of the conductors)
D	Conductor diameter	.033±.003 inch	

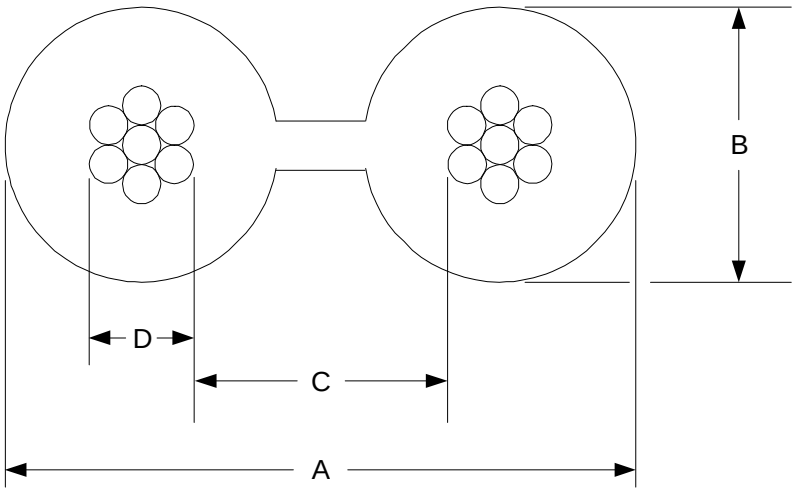

FIGURE 1. Dimension characteristics.

3.3.2.1 Insulation. The pair of conductors shall be insulated with a tight well-centered compound as specified in 3.2.3 with a minimum wall thickness of .014 inch. The insulation on the separated conductors shall strip cleanly and readily with the use of pliers.

3.4 Physical characteristics.

3.4.1 Cable.

3.4.1.1 Tubing. The finished cable shall be capable of being looped back and wound tightly on itself for five loose turns without showing any visible strains or cracking of the insulation.

3.4.1.2 Deformation. The decrease in diameter of an insulated conductor shall not exceed 15 percent after being exposed to a temperature of 95±1 °C for 1 hour +5, -0 minutes.

3.4.1.3 Cold bend and aging. The finished cable shall be capable of withstanding cold bending and aged cold bending at -40 °C.

3.4.1.4 Insulation cutting load. The insulation of the finished cable shall withstand a cutting load of not less than 55 pounds.

3.4.1.5 Insulation breaking load. The insulation of the finished cable shall withstand a breaking tension load of not less than 170 pounds.

3.5 Performance.

3.5.1 DC resistance. The direct current (dc) resistance of the cable, at or corrected to 20 °C, shall not exceed 46 ohms per 1,000 loop-feet.

3.5.2 Dielectric strength. The cable shall withstand a potential of 1,000 volts root-mean-square.

3.5.3 Insulation resistance. Insulation resistance of cable, at or corrected to 15.6 °C, shall not be less than 10,000 megohms per 1,000 feet.

3.5.4 Attenuation. The attenuation of each pair of conductors shall not exceed the range of values shown in figure 2 under both wet and dry conditions. The dry readings shall be not more than 30% below the wet readings.

3.5.5 Crosstalk. The crosstalk to an adjacent similar cable shall be at least 55 dB down.

3.6 Flatness. The cable shall lie flat and straight when uncoiled from a reel or a spool or dispenser onto a level surface.

3.7. Workmanship. The conductors, insulation and cable shall be uniform in quality and free from defects that affect performance, serviceability, or appearance, such as lumps, kinks, splits, abrasions, scrapes, corroded surfaces, skin impurities, and faulty extruded surfaces.

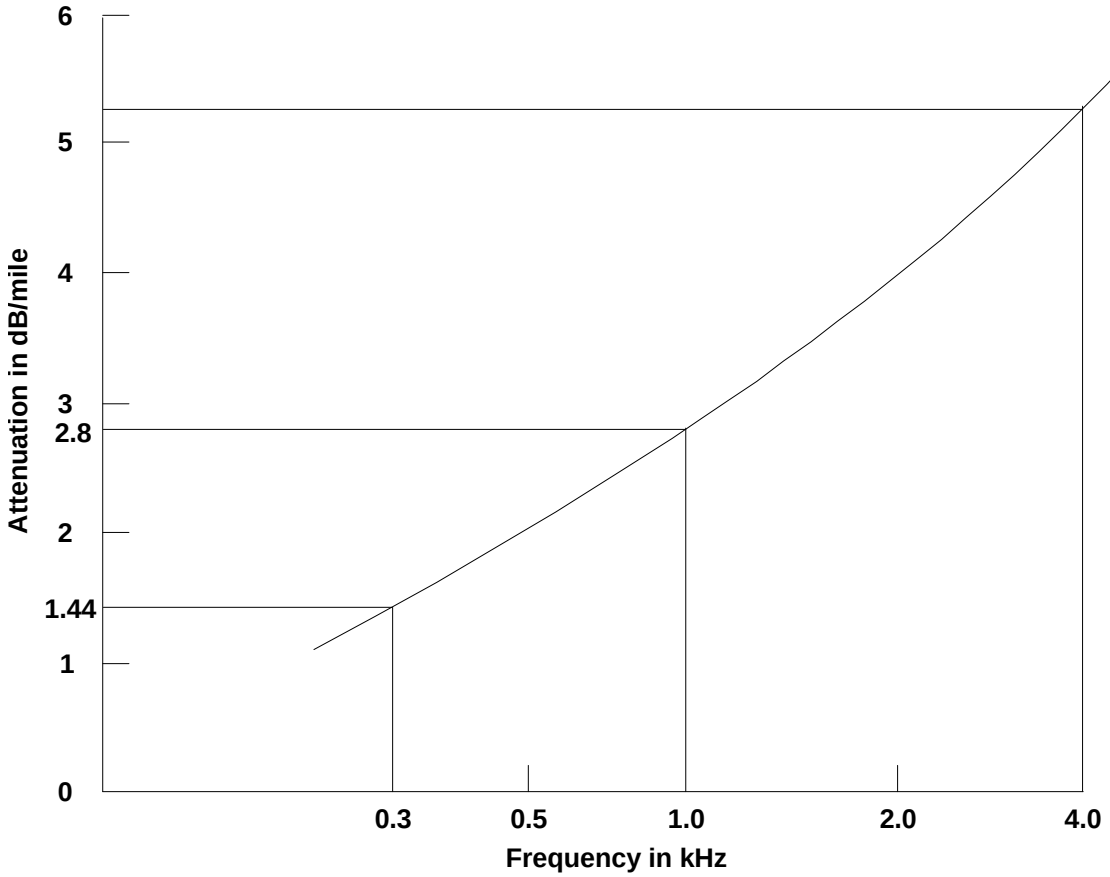

FIGURE 2. Attenuation.

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., non-Government standard [NGS] or federal or military standard) shall be done in accordance with ANSI/NCSL Z540-1, or equivalent requirement.

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

a. First article inspection (see 4.3).
b. Conformance inspection (see 4.4).

4.3 First article inspection. When required (see 6.2), first article inspection shall be performed on a representative sample of cable fabricated under the manufacturer's normal production methods. The sample shall consist of two 1-mile lengths of finished cable with each mile wound on a Reel DR-5( ) conforming to MIL-R-3241. The first article inspection shall consist of the Group A and Group B inspections and tests specified in tables I and II, respectively.

TABLE I. Group A inspection.

Inspection	Requirement	Verification
Visual and dimensional	3.3	4.5.1
DC resistance	3.5.1	4.5.10
Dielectric strength	3.5.2	4.5.8
Insulation resistance	3.5.3	4.5.9
Workmanship	3.7	4.5.1

TABLE II. Group B inspection.

Inspection	Requirement	Verification
Coating	3.2.2	4.5.2
Conductor separation	3.3.2	4.5.14
Tubing	3.4.1.1	4.5.3
Deformation	3.4.1.2	4.5.4
Cold bend and aging	3.4.1.3	4.5.5, 4.5.5.1
Insulation cutting load	3.4.1.4	4.5.6
Insulation breaking load	3.4.1.5	4.5.7
Attenuation	3.5.4	4.5.11
Crosstalk	3.5.5	4.5.12
Flatness	3.6	4.5.13

4.4 Conformance inspection. Conformance inspection shall consist of the inspections listed for component inspection and Group A and B inspections as specified in tables I and II. Conformance inspection shall be performed on every lot of cable procured under this specification.

4.4.1 Inspection lot. Unless otherwise specified (see 6.2), an inspection lot shall consist of all cable of the same part or identifying number (PIN), produced under essentially the same conditions on the same machine, that is presented for inspection and shipment at one time.

4.4.2 Unit of product. The unit of product for determining lot size for sampling shall be the quantity of cable offered for inspection on one coil, one reel, or one spool, as applicable.

4.4.3 Component inspection. The components of the cable listed in table III shall be inspected using the applicable documents (see 4.5.1) for each lot.

4.4.4 Group A inspection. Group A inspection shall consist of the inspections specified in table I and shall be performed on each lot of cable acquired under the specification. Group A inspections may be performed at an appropriate stage of the manufacturing operation rather than on the finished cable.

4.4.5 Group B inspection. Group B inspection shall consist of the inspections specified in table II. Group B inspection shall be performed on sample units that have been subjected to and have passed the Group A inspection. Group B inspection shall be performed in any order on randomly selected samples from an inspection lot.

4.4.5.1 Sampling. A random sample shall first be selected from each lot. The sample size shall be based on the inspection lot size from which the sample was selected for Group A inspection. Sampling for inspection shall be in accordance with table IV.

4.4.5.2 Specimen lengths. The specimen shall be of the length specified in the applicable test method.

TABLE III. Visual and dimensional examination.

Examination	Requirements	Verification
Construction:		
Conductors	3.3.1	Visual examination (4.5.1)
Stranding	3.3.1.1	FED-STD-228, method 1531
Insulation thickness	3.3.2.1	FED-STD-228, method 1018 1/, 2/
Finished cable characteristics	3.3.2	Visual and dimensional examination (4.5.1)

NOTES:

1/ An average diameter shall be the average of the readings obtained by making two measurements at right angles to each other at three different points along the length of a 12-inch specimen.

2/ The average wall thickness shall be considered equal to one-half the difference between the average diameter of the insulated conductor and the non-insulated conductor for the same specimen.

TABLE IV. Inspection sample.

Inspection lot size 1/	Accept on zero sample size
1	1
2 to 8	2
9 to 90	3
91 to 150	12
151 to 280	19
281 to 500	21
501 to 1,200	27
1,201 to 3,200	36
3,201 to 10,000	38
10,001 to 35,000	46

NOTE:

1/ Lot size is based on number of reels, spools, or coils.

4.4.6 Rejected lot. Failure to pass any of the tests and inspections shall constitute failure of the lot and the lot shall be rejected. If an inspection lot is rejected, the lot may be reworked to correct the defects or screen out the defective units, and the lot submitted for re-inspection. Such lots shall be separated from new lots and shall be identified as re-inspected lots.

4.4.7 Noncompliance. If a sample fails to pass Group B inspection (see 4.4.5), the contractor shall notify the cognizant inspection activity of such failure and take corrective action on the materials, processes, or both, as warranted, on all units of the product. Acceptance and shipment of the product shall be discontinued until corrective action has been taken. After the corrective action has been taken, Group B inspection shall be repeated on replacement articles. (This includes all tests and examinations, or only the test that the original sample failed, at the option of the cognizant inspection activity.) Group A inspection may be re-instituted; however, final acceptance and shipment shall be withheld until Group B inspection has shown that the corrective action was successful. In the event of failure after re-inspection, information concerning the failure shall be provided to the cognizant inspection activity.

4.5 Methods of inspection.

4.5.1 Visual and dimensional examination. The cable shall be examined to verify that the workmanship and the characteristics listed in table III are in accordance with the applicable requirements. The examinations and measurements specified in table III shall be made on specimens not less than 2

feet in length and cut no closer than 5 feet from the end of the sample unit. The examinations and measurements shall be performed as specified in table III.

4.5.2 Coating. The weight, uniformity, and adherence of zinc coating on steel strands shall be measured as specified in the tests for weight of tin or zinc coating, uniformity of zinc coating (Preece method; see 6.3), and adherence of zinc coating for classes 1, 2, and 3 wire of ASTM A641, with the following modifications of the Preece method:

a. All specimens shall withstand at least one immersion.

b. Uniformity shall be measured on three specimens from each sample unit of strand and the time of immersion shall be 15 +1, -0, seconds. The coating shall be uniform if all three specimens withstand the same number of immersions ±1 before the end point of the measured time is reached.

4.5.3 Tubing. A specimen of finished cable shall be looped back and wound tightly on itself for five close turns. The ends shall be securely taped and the specimen shall be placed in an air oven maintained at a temperature of 95±1 °C for one hour +5, -0, minutes. The specimen shall then be removed from the oven and the insulation examined for strains or cracks under a magnification of at least three diameters (focal distance of 8 centimeters).

4.5.4 Deformation. A gage used for this measurement shall consist of a dial micrometer graduated to read in increments of .001 inch and equipped with a flat anvil not less than .375 inch in diameter and a flat pressure foot .375 inch in diameter attached to a plunger. The anvil and pressure foot shall be parallel to within .0001 inch. The plunger shall support a weight of 250 grams. The gage shall be placed in an oven maintained at a temperature of 95±1 °C for a period of 1 hour +5, -0, minutes. A specimen of finished cable at room temperature shall then be placed on the platform, centrally located under the foot, and its diameter shall be read exactly 5 seconds after being so placed. The gage and specimen shall then remain in the oven for a period of 1 hour +5, -0, minutes at the above temperature and the diameter of the specimen again read without disturbing the specimen or gage.

4.5.5 Cold bend. A specimen of finished cable and a mandrel of .080±.003 inch diameter shall be placed in a cold chamber maintained at a temperature of -40±1 °C for a period of 24 +1, -0, hours. At the end of this time, while still in the cold chamber, the specimen shall be wound around the mandrel for five close turns at the rate of approximately one turn per second. The specimen shall then be examined under a magnifying glass of at least three-diameters magnification (focal distance of 8 cm) for visible evidence of cracking of the insulation. During the above processing, no object having a temperature higher than -40±1 °C shall come within 12 inches of the part of the specimen being examined.

4.5.5.1 Aging. A specimen of finished cable shall be dried in an air oven for a period of at least 24 hours at 80±1 °C and then transferred directly (within 5 minutes) from the air oven to an oxygen bomb containing an atmosphere of oxygen at 300±10 pounds per square inch at a temperature of 70±1 °C and held there for a period of 96 +2, -0 hours. Alternately, the specimen may be transferred directly to a desiccator containing a drying agent to preclude re-absorption of water and then to the oxygen bomb when the bomb is available. After 96 +2, -0 hours in the oxygen bomb, the specimen shall be transferred directly to a desiccator containing a drying agent and held there for at least 24 hours and until such time as the specimen is transferred directly to a cold chamber. The conditioned specimen shall then be tested as specified in 4.5.5.

4.5.6 Insulation cutting load. A specimen of finished cable shall be cut in half and the insulation stripped from one end of each piece. One piece shall be formed into a loop, the ends of which shall be tightly clamped in one of the grips of a tensile tester. The second piece shall be passed through the loop and its ends shall be tightly clamped in the other grip of the tensile tester. The two bare ends shall be connected in series with an electrical alarm circuit and a load shall be applied to the looped conductors by separation of the grips, at a rate of 2 inches per minute, until the grips cut through the insulation, thus

making electrical contact as indicated by the electrical alarm. One of the metal grips of the tensile machine may have to be electrically insulated from the rest of the machine to avoid false indications.

4.5.7 Insulation breaking load. The breaking tension (see 3.4.1.5) load or tensile strength of the finished cable insulation shall be measured using the apparatus and method described in method 3211 of FED-STD-228.

4.5.8 Dielectric strength. The dielectric strength of the finished cable shall be measured as specified in method 6111 of FED-STD-228, except that:

a. The immersion period shall be 4 hours.

b. One terminal shall be both conductors connected together and the other shall be the water.

4.5.9 Insulation resistance. The insulation resistance of the finished cable shall be measured after the dielectric strength test (see 4.5.8) is accomplished. This test shall be performed as specified in method 6031 of FED-STD-228, except that:

a. The immersion period shall be 4 hours.

b. The test voltage shall be not less than 100 volts dc.

c. The polarity of the conductors shall be maintained negative with respect to the water.

d. One terminal shall be both conductors connected together and the other shall be the water.

e. For the purpose of computation, twice the field wire footage shall be taken as the length of conductor under test.

f. If the measurement is made at a temperature other than 15.6 °C, the measured value of insulation resistance shall be corrected to15.6 °C. However, if the insulation resistance is equal to or greater than that required by 3.5.3, then the measurement is made at a temperature greater than 15.6 °C, and no correction factor need be employed.

g. The insulation resistance test may be terminated in less than one minute if the galvanometer has ceased fluctuating and the reading indicates that a steady insulation resistance value has been obtained. However, readings obtained on 5 percent of the lengths after 1-minute electrification shall be recorded.

4.5.10 DC resistance. The dc resistance of the finished cable shall be measured after the dielectric strength test (see 4.5.8) is accomplished. The test shall be performed as specified in method 6021 of FED-STD-228, except that the immersion period shall be 4 hours.

4.5.11 Attenuation. The attenuation of the pair of conductors shall be measured on a 50-foot length of cable and computed to db per mile. The wet readings shall be taken on cable that has been in water at least 96 hours. Measurements shall be taken at frequencies of 300 hertz, 1 kilohertz, and 4 kilohertz. If any individual reading does not meet the requirement of 3.5.4, several samples shall be measured and an average taken. The attenuation shall be calculated from direct measurements of the parameters R, L, C, and G and using the standard formula for the attenuation of a two-wire transmission line as follows:

$$S = 8.69\sqrt{1/2\left(\sqrt{(R^2+W^2L^2)\ (G^2+W^2C^2)}\ +RG-W^2LC\right)}\ \text{dB/mile}$$

Where attenuation is in decibels per mile, and 8.69 is a factor to convert nepers to decibels.

R = Resistance in ohms per mile

L = Inductance in henries per mile
C = Capacitance in farads per mile
G = Conductance in mhos per mile
W = $2\pi f$, where f = frequency in hertz

4.5.12 Crosstalk. The crosstalk of the finished cable shall be measured on two lengths of cable, each being one mile long, and taped together at approximate one-foot intervals. The referenced measurement shall be made on the near end. The two cables shall not be twisted together while taping. Crosstalk shall then be measured with the cables strung aerially and laid on the ground. Both ends of the taped cable may be brought back to the same point for ease in testing. The 600-ohm non-wirewound resistors shall be connected between conductors at the terminal ends of each pair in the two pair assembly, except on the cable end that shall be used for the disturbing signal. This signal shall be applied using an oscillator set at 600 ohms internal output impedance. Readings at .3, 1, and 4 kilohertz shall be taken of the amount of signal received in the other (disturbed) pair in db below the disturbing signal.

4.5.13 Flatness. One hundred feet of finished cable shall be pulled from a reel or spool or dispenser, as applicable, and allowed to lie free on a flat floor. With no strain on the free end, a point along the cable 3 feet from the free end shall be not less than 96 feet from the original 100-foot mark on the cable.

4.5.14 Conductor separation. A specimen of the finished cable shall be subjected to a tensile force necessary to separate the two conductors and the force shall be measured using the apparatus and method described in method 3021 of FED-STD-228.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point packaging activity within the Military Department or Defense Agency, or within the Military Department's Systems Command. Packaging data retrieval is available from the managing Military Department or Defense Agency 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. This specification covers stranded conductor, polyethylene insulated, parallel lay field telephone cable for military use by the U.S. Army.

6.2 Ordering data. Acquisition documents should specify the following:

a. Title, number, and date of this specification.

b. The quantity of cable required.

c. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2.1 and 2.3).

d. Whether a first article inspection is required (see 3.1 and 4.3).

e. If inspection lot size is other than as specified (see 4.4.1).

f. Packaging, packing, preservation, and marking requirements (see 5.1).

6.3 The Preece Method may be found in ASTM A239-95, Standard Practice for Locating the Thinnest Spot in a Zinc (Galvanized) Coating on Iron or Steel Articles (see 4.5.2).

6.4 Subject term (key word) listing.

Field telephone cable
Wire, telephone

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 extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army - CR
DLA - CC

Preparing activity:
DLA - CC

(Project 6145-2272)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7, and send to preparing activity.
3 The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of 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.

I RECOMMEND A CHANGE:	**1. DOCUMENT NUMBER**	**2. DOCUMENT DATE** *(YYYYMMDD)*
	MIL-DTL-49104A	**20000926**

3. DOCUMENT TITLE

Cable, Telephone WD-1A/TT (Field Wire, Parallel Pair)

4. NATURE OF CHANGE *(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)*

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME *(Last, First, Middle Initial)*	b. ORGANIZATION	
c. ADDRESS *(Include zip code)*	d. TELEPHONE *(Include Area Code)* (1) Commercial (2) DSN *(if applicable)*	7. DATE SUBMITTED *(YYYYMMDD)*

8. PREPARING ACTIVITY

a. NAME Defense Logistics Agency Defense Supply Center, Columbus	b. TELEPHONE *(Include Area Code)* (1) Commercial 614-692-0538 (2) DSN 850-0538
c. ADDRESS *(Include Zip Code)* DSCC-VAI P.O. Box 3990 Columbus, Ohio 43216-5000	**IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:** **Defense Standardization Program Office (DLSC-LM)** **8725 John J. Kingman Road, Suite 2533** **Fort Belvoir, Virginia 22060-6621** **Telephone 703 767-6888 DSN 427-6888**