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MIL-W-81822/4A
3 March 1982
SUPERSEDING
MIL-W-81822/4(NAVY)
4 April 1972

MILITARY SPECIFICATION SHEET

WIRE, ELECTRICAL, SOLDERLESS WRAP, POLYIMIDE COATING OVER EXTRUDED POLYTETRAFLUOROETHYLENE (PTFE) INSULATION, SILVER COATED SOLID CONDUCTOR

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

The complete requirements for acquiring the wire described herein shall consist of this document and the issue in effect of Specification MIL-W-81822.

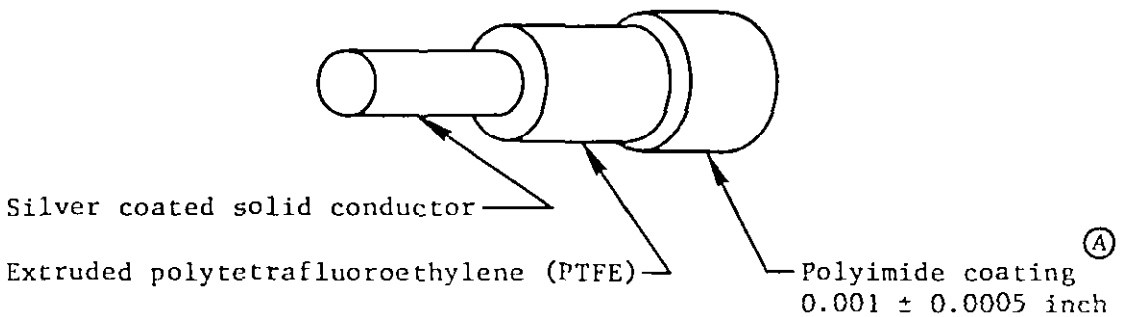

TABLE I. Construction and performance details.

Part no. 1/	Wire size (AWG)	Finished wire diameter (inches)	Finished weight Ⓐ (lb/1,000 ft) (max)	Cut-through load Ⓐ (grams)	Bend testing: Mandrel diameter (ins.) Heat resistance	Bend testing: Mandrel diameter (ins.) Cold bend	Bend testing: Tension load (lbs) Cold bend	Insulation pull-off (lbs) Ⓐ
M81822/4-X30-*	30	0.0195 ± .0010	0.55	500	1/16	1.0	0.25	0.15 to 2.5
M81822/4-X28-*	28	0.0265 ± .0015	0.96	525	5/64	1.0	0.50	0.15 to 2.5
M81822/4-X26-*	26	0.0295 ± .0015	1.32	550	3/32	1.0	0.50	0.25 to 4
M81822/4-X24-*	24	0.0340 ± .0015	1.91	575	7/64	1.0	0.50	0.5 to 4
M81822/4-X22-*	22	0.0390 ± .0020	2.80	600	1/8	1.0	0.75	0.5 to 6
M81822/4-X20-*	20	0.0460 ± .0020	4.19	650	9/64	1.0	0.75	0.5 to 6
M81622/4-X18-*	18	0.0540 ± .0030	6.34	700	11/64	1.0	1.00	0.5 to 6

1/ PART NO.: The "X" in the generalized part numbers of table I shall be replaced by the designator for the conductor type and the asterisk shall be replaced by the code designator for the insulation color. Example: Size 22 wire with type A (soft annealed copper) conductor and black insulation - M81822/4-A22-0.

Ⓐ Denotes changes.

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WIRE RATINGS AND ADDITIONAL REQUIREMENTS

TEMPERATURE RATING: 200°C (392°F) max conductor temperature.
VOLTAGE RATING: 300 volts (rms).
INSULATION TENSILE STRENGTH: 2,500 psi (min).
INSULATION ELONGATION: Wire sizes 28 and 30 - 35 percent (min).
Wire sizes 26 through 18 - 50 percent (min).
COLOR: Black, green, brown, red, yellow or orange, as specified in contract or order (MIL-STD-104 is not applicable to wire of this specification sheet.)
(A) SPARK TEST: 2,000 volts (rms).
INSULATION RESISTANCE: 2,500 megohms-1,000 ft (min).
(A) WET DIELECTRIC TEST: 1,000 volts (rms), 60 Hz.
COLD BEND CONDITIONING: 4 hrs at -65° ± 2°C (-85° ± 3.6°F).
DIELECTRIC TEST FOR CUT-THROUGH: 500 volts (rms), 60 Hz.
INSULATION HEAT RESISTANCE:
Conditioning, 120 hrs at 275° ± 2°C (527° ± 3.6°F).
Shrinkage, 0.062 inch (max).
DIELECTRIC CONSTANT: 2.30 max at 1 MHz.
POWER FACTOR: 0.005 max at 1 MHz.
(A) RESISTANCE TO FLUIDS, APPLICABLE TEST FLUIDS:
Isopropyl alcohol, TT-I-735.
Hydraulic fluid, MIL-H-5606.
Trichlorotrifluoroethane, MIL-C-81302.
Trichloroethane, MIL-T-81533.
FLAMMABILITY: 30 sec (max) after-flame.
3.0 inches (max) flame travel.
No flaming of tissue paper.
SURFACE RESISTANCE: 500 megohms (min).
(A) FUNGUS RESISTANCE: Wire constructed as specified in MIL-W-81822/4A shall be considered fungus resistant in accordance with Requirement 4 of MIL-STD-454 by virtue of the recognized inherent fungus resistance of all components. Fungus resistance test is not required.

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

Preparing activity:
Navy - AS

(Project 6145-0683-5)

Review activities:
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Air Force - 11, 99
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NAME OF ORGANIZATION AND ADDRESS OF SUBMITTER

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