INCH-POUND

MIL-DTL-49285/20A
1 March 2010
SUPERSEDING
MIL-C-49285/20
19 October 1989

DETAIL SPECIFICATION SHEET

CABLE, SPECIAL PURPOSE, ELECTRICAL, TWO INDIVIDUALLY SHIELDED PAIRS OF 22 (7 X 30) AWG

Inactive for new design after 16 June 1997.

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

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-DTL-49285.

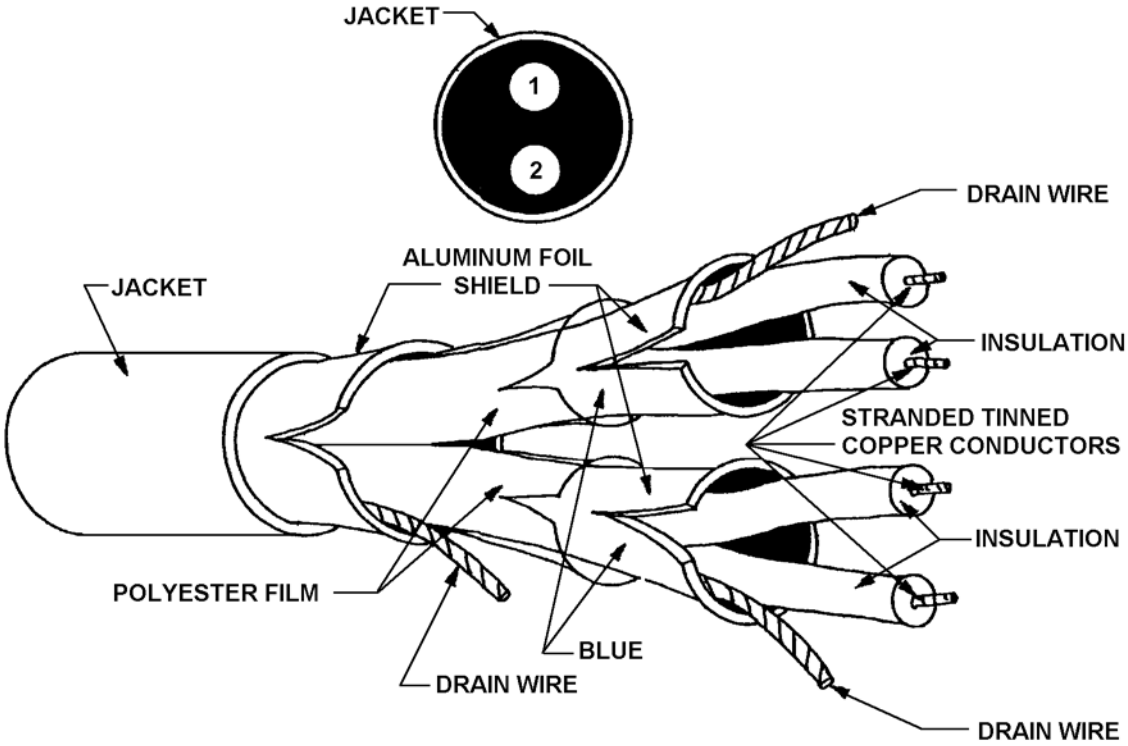

FIGURE 1. Cable illustration.

Engineering information: See table I.

Note: Not for aerospace use.

TABLE I. Description, electrical.

Electrical characteristics	Requirements
Nominal capacitance between conductors	35 pF/ft (picofarads/foot)
Nominal capacitance between the conductor and the shield with one conductor tied to the shield	62 pF/ft
Continuous working voltage	400 V rms maximum between conductors
Nominal capacitance between adjacent shields	150 pF/ft
Continuous working voltage between adjacent shields	50 volts maximum
Shield dc resistance	19.5 ohms/1,000 feet maximum

TABLE II. Description, physical.

Components	Construction details
Number of pairs	Two individually shielded
Conductor type and wire size	Stranded tinned copper 22 AWG
Conductor stranding	7 X 30 AWG
Conductor insulation	Polypropylene
Conductor insulation thickness	0.008 inch nominal thickness
Drain wire type and size	Stranded tinned copper 24 AWG
Drain wire stranding	16 X 36 AWG
Jacket material	Polyvinyl chloride
Jacket thickness	0.026 inch
Finished cable diameter	0.216 inch maximum outside diameter
Cable style (UL)	2717
Tensile strength (jacket)	2,000 pounds per square inch minimum
Elongation (jacket)	150 percent minimum
Overall cabling lay length	9.5 twists per foot ± 10 percent

REQUIREMENTS:

Design and construction: (see table II and figure 1):

Shield location and orientation. The polyester aluminum shield is to be located on the outer circumference of the pair, with the aluminum foil side outward. Insulation on the interior of the shield is to be complete with no aluminum available for contact.

Drain wire location. The drain wire is to be spirally located between the noise reducing tape and the aluminum foil shield, and is to be in continuous contact with the aluminum surface of the foil shield and the noise reducing tape throughout the cable.

Cable temperature rating. The cable temperature rating shall be -20°C to +80°C.

Shield integrity test.*

Frequency	Response **
100 kHz	112 dB below reference
500 kHz	105 dB below reference
1 MHz	99 dB below reference
5 MHz	83 dB below reference
10 MHz	76 dB below reference
15 MHz	73 dB below reference
20 MHz	71 dB below reference
25 MHz	67 dB below reference
30 MHz	63 dB below reference

* Any two readings may deviate to a value of 0.9 times the stated limits.

** All values are a minimum numerical value.

Fixture resonance will occur between 40 and 70 MHz.

At 100 MHz: At least 43 dB below reference.

Crosstalk test limits. Crosstalk testing is not required for this configuration.

Conductor color code.

1st pair	2nd pair
1st conductor: Red	1st conductor: Green
2nd conductor: Black	2nd conductor: White

Shield color code. The shield color code shall be as follows:

Pair number one: Blue
Pair number two: Blue
Overall shield: Blue

Cabling. This construction shall be cabled on a common axis to reduce the diameter.

Barrier tape. The individual pairs are to be covered with a plastic barrier tape applied over the pair shields.

Insulation resistance between shields: 100 megohms/1,000 feet (minimum).

Durometer hardness. The cable jacket shall have a "Shore A" hardness of 82 ± 5.

Part or Identifying Number (PIN): The PIN shall be M49285/20.

Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Referenced document. This document references MIL-DTL-49285.

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – SH
Air Force – 85
DLA – CC

Preparing activity:
DLA - CC

Review activities:
Army – MI
Air Force - 71
DLA – IS

(Project 6145-2009-005)

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.