INCH-POUND

MIL-DTL-49285/15A
31 March 2010
SUPERSEDING
MIL-C-49285/15
19 October 1989

DETAIL SPECIFICATION SHEET

CABLE, SPECIAL PURPOSE, ELECTRICAL, TWENTY-SEVEN 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.

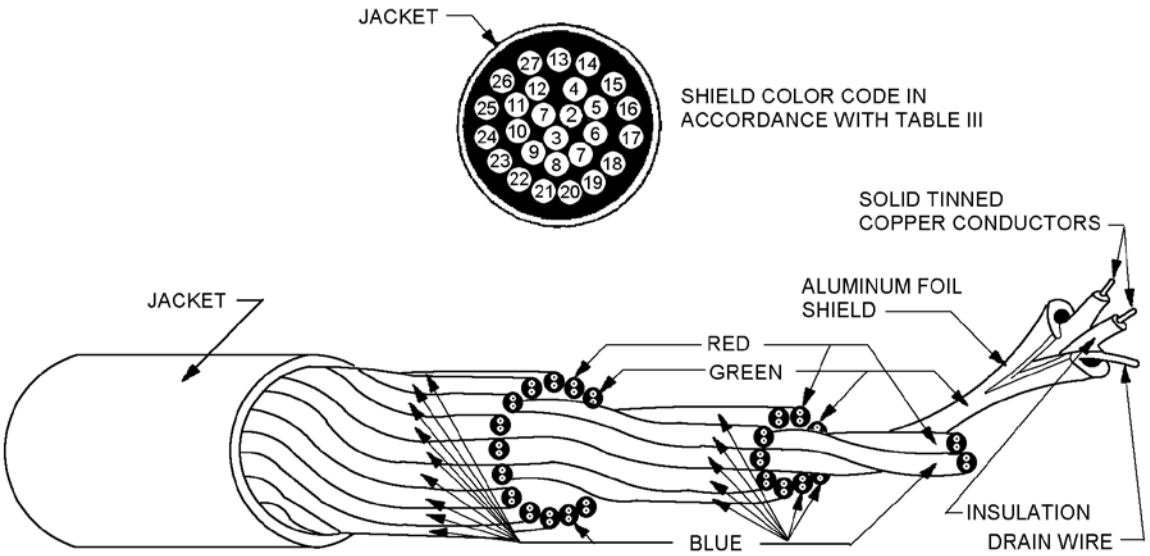

FIGURE 1. Cable illustration.

Engineering information: See table I.

Note: Not for aerospace use.

TABLE I. Description, electrical.

Electrical characteristics	Requirements
Nominal capacitance between conductors	30 pF/ft (picofarads/foot)
Nominal capacitance between the conductor and the shield with one conductor tied to the shield	55 pF/ft
Continuous working voltage	300 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	14 ohms/1,000 feet maximum

TABLE II. Description, physical.

Components	Construction details
Number of pairs	Twenty-seven individually shielded
Conductor type and wire size	Stranded tinned copper 22 AWG
Conductor stranding	7 X 30 AWG
Conductor insulation	Polypropylene
Conductor insulation thickness	0.010 inch nominal thickness
Drain wire type and size	Stranded tinned copper 22 AWG
Drain wire stranding	16 X 34 AWG
Jacket material	Polyvinyl chloride
Jacket thickness	0.050 inch
Finished cable diameter	0.783 inch maximum outside diameter
Cable style (UL)	2493
Tensile strength (jacket)	2,000 pounds per square inch minimum
Elongation (jacket)	150 percent minimum
Overall cabling lay length	1.3 twists per foot ± 10 percent

Cabled pair orientation: The position of the red and green pair shield shall determine the rotation direction for pair location (see figure 1).

TABLE III. Shield color code.

Pair numbers	Shield color
Center core	
1st pair	Red
2nd pair	Green
3rd pair	Blue – 1
Outer layer	
4th pair	Red
5th pair	Green
6th pair	Blue – 1
7th pair	Blue – 2
8th pair	Blue – 3
9th pair	Blue – 4
10th pair	Blue – 5
11th pair	Blue – 6
12th pair	Blue – 7
13th pair	Red
14th pair	Green
15th pair	Blue – 1
16th pair	Blue – 2
17th pair	Blue – 3
18th pair	Blue – 4
19th pair	Blue – 5
20th pair	Blue – 6
21th pair	Blue – 7
22th pair	Blue – 8
23th pair	Blue – 9
24th pair	Blue – 10
25th pair	Blue – 11
26th pair	Blue – 12
27th pair	Blue - 13

REQUIREMENTS:

Design and construction: See tables II and III:

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.

Flammability. The cable shall pass UL 2556 flame test requirements.

Shield integrity test.*

Frequency	Response **
100 kHz	115 dB below reference
500 kHz	107 dB below reference
1 MHz	101 dB below reference
5 MHz	87 dB below reference
10 MHz	81 dB below reference
15 MHz	77 dB below reference
20 MHz	73 dB below reference
25 MHz	69 dB below reference
30 MHz	65 dB below reference
100 MHz	45 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.

Crosstalk test limits. All values are minimums.

Frequency (kHz)	Near end crosstalk (dB)	Far end crosstalk (dB)
40	57	57
70	54	53
100	52	51
1,000	53	51

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

Durometer hardness. The cable jacket shall have a “Shore A” hardness of 82 $\pm$ 5.

Part or Identifying Number (PIN): The PIN shall be M49285/15.

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 documents. This document references MIL-DTL-49285 and UL 2556.

CONCLUDING MATERIAL

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

Preparing activity:
DLA - CC

Review activities:
Army – MI
Air Force – 99
DLA – IS

(Project 6145-2009-019)

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 https://assist.daps.dla.mil.