

INCH-POUND

MIL-DTL-24643/43E

22 August 2002

SUPERSEDING

MIL-C-24643/43D

22 November 1994

DETAIL SPECIFICATION SHEET

CABLE, ELECTRICAL, 600 VOLTS TYPES, LS2SJ, LS3SJ AND LS4SJ

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 the issue of MIL-DTL-24643 listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation.

REQUIREMENTS:

Qualification required.

Construction (non-watertight)

- First - Copper conductor, tin coated, ASTM B 286, AWG sizes 14 and smaller. Uncoated for AWG sizes 12, class B stranding, ASTM B8, and larger.
- Second - Separator may be used at manufacturer's option where required to provide free-stripping insulation.
- Third - Ethylene propylene rubber or cross-linked polyethylene insulation. (see table I for dimensions). Standard identification code applied by method 3.
- Fourth - Two, three or four conductors, as required, cabled together with fillers to form a firm, well rounded assembly.
- Fifth - Braided shield of tin coated copper.
- Sixth - Binder tape, applied helically with overlap.
- Seventh - Cross-linked polyolefin jacket. (Minimum average wall thickness 0.035 inch.)

TABLE I. Details.

Military part no. M24643/43	Conductors				Insulation wall thickness (min avg) (inch)	Lay of conductor maximum m (inches)	Type's overall diameter (inches)		Conductor resistance (ohms)
	Size	No.	Size ^{1/}				LSSJ		
			ASTM B 286	ASTM B 8			min	max	
-01UO	22	2	22-19		0.016	1-1/2	0.261	0.275	16.54
-02UO	20	2	20-19		0.016	1-1/2	0.273	0.290	10.16
-03UO	18	2	18-19		0.016	1-1/2	0.295	0.310	6.47
-04UO	16	2	16-19		0.016	2-1/2	0.309	0.325	5.02
-05UO	14	2	14-19		0.016	2-1/2	0.337	0.350	3.17
-06UO	12	2		12(class B)	0.024	3	0.417	0.430	1.72
-07UO	11	2		10(class B)	0.025	3	0.447	0.460	1.085
-08UO	9	2		9(class B)	0.031	4	0.525	0.545	0.86
-09UO	7	2		7(class B)	0.032	4	0.600	0.615	0.54
-10UO	22	3	22-19		0.016	1-1/2	0.271	0.285	16.54
-11UO	20	3	20-19		0.016	1-1/2	0.284	0.300	10.16
-12UO	18	3	18-19		0.016	1-1/2	0.308	0.325	6.47
-13UO	16	3	16-19		0.016	2-1/2	0.323	0.340	5.02
-14UO	14	3	14-19		0.016	2-1/2	0.353	0.370	3.17
-15UO	12	3		12(class B)	0.024	3	0.440	0.455	1.72
-16UO	9	3		9(class B)	0.031	4	0.594	0.620	0.86
-17UO	20	4	20-19		0.016	1-1/2	0.303	0.320	10.16
-18UO	16	4	16-19		0.016	2-1/2	0.346	0.360	5.02
-19UO	14	4	14-19		0.016	3	0.380	0.395	3.17

^{1/} Size designation does not correlate to conductor size for all types and sizes.

EXAMINATION AND TESTS:

Basic electrical:

Requirements

Conductor resistance - omhs/1000 feet at 25°C, maximum	(see table I)
Voltage withstand - volts, root mean square, minimum	
Conductor to conductor	1200
Conductor to shield.....	600
Insulation resistance - Megohms -1000 feet minimum.	
Conductor to shield.....	500
Jacket flaws	No failure
Conductor and shield continuity	No failure

Group A:

Visual and dimensional.....	No failure
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Group B:

Cross-linked proof test (percent, maximum)	
Insulation	50
Jacket (When tested at 200°C).....	50
Tear - pounds per inch thickness, minimum (ASTM D 470)	35
Physicals (unaged)	
Insulation	
Ethylene propylene rubber	
Tensile strength - lb/in ² , minimum	700
Elongation - percent, minimum	250
Cross-linked polyethylene	
Tensile strength - lb/in ² , minimum	1800
Elongation - percent, minimum	250
Jacket (cable)	
Tensile strength - lb/in ² , minimum	1300
Elongation - percent, minimum	160

Group C:

Physicals (aged)	
Insulation	
Ethylene propylene	
Air Oven	
Tensile strength - percent of unaged, minimum	75
Elongation - percent of unaged minimum	75
Cross-linked polyethylene	
Air Oven	
Tensile strength - percent of unaged, minimum	80
Elongation - percent of unaged minimum	80
Jacket (cable)	
Air oven	
Tensile strength - percent of unaged, minimum	60
Elongation - percent of unaged minimum	60
Hot oil immersion	
Tensile strength - percent of unaged, minimum	50
Elongation - percent of unaged, minimum	50
Shrinkage	No failure
Heat distortion - percent of unaged, maximum	30
Permanence of printing (jacket) - cycles, minimum	125
Shield - conformance to material, construction and coverage.....	No failure
Surface transfer impedance	
Milliohms per meter, maximum	700
EMP response time - dB, minimum.....	60

Group D:

Flame propagation (cable) No failure

QUALIFICATION INSPECTION:

Qualification inspection shall include basic electrical, all of groups A, B, C and D, plus the following:

	<u>Requirements</u>
Aging and compatibility (cable)(125 ± 5°C)	No failure
Abrasion resistance (jacket) - scrapes, minimum	75
Acid gas equivalent - percent, maximum	
Jacket	2
Fillers	2
Insulation	18
Halogen content - percent, maximum	
Jacket	0.2
Fillers	0.2
Immersion (jacket)	
Tensile strength - percent of unaged, minimum	50
Elongation - percent of unaged, minimum	50
Smoke index, maximum	
Jacket	25
Fillers	45
Insulation	45
Toxicity index, maximum	
Jacket	5
Fillers	5
Insulation	1.5
Durometer (jacket) - (type A) hardness, minimum.....	80
Weathering (jacket).....	No failure

UNIT ORDERING LENGTHS: 1000 feet nominal.

Custodians:

Army - MI
Navy - SH

Preparing Activity:

Navy - SH
(Project 6145-2308-041)

Review Activities:

Army - AV, CR
Navy - CG, EC
DLA - CC