

DETAIL SPECIFICATION SHEET

CABLE, ELECTRICAL, TYPE LSC5FS (INCLUDING VARIATIONS LSC5FSW, LSC5OS, AND LSC5OSW)

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-24643.

This cable can be manufactured in four variations: LSC5FS (Metallic Foil Shield, Non-Watertight), LSC5FSW (Metallic Foil Shield, Watertight), LSC5OS (Metallic Foil and Braid Shield, Non-Watertight), and LSC5OSW (Metallic Foil and Braid Shield, Watertight).

REQUIREMENTS:

Qualification Required.

Construction (Metallic Foil Shield, Watertight and Non-Watertight)

- | | | |
|--------|---|---|
| First | - | Copper conductor, solid, 24 AWG nominal. |
| Second | - | Polyolefin insulation. Wall thickness as necessary, in order for the completed cable to meet the specified electrical requirements. Maximum insulation diameter shall not exceed 0.046 inch. |
| Third | - | Two insulated conductors, twisted together such that they meet the electrical requirements specified below. Wire identification codes shall be in compliance with ANSI/TIA -568-B.2 as follows:

Pair 1 – white/blue and blue,

Pair 2 – white/orange and orange,

Pair 3 – white/green and green,

Pair 4 – white/brown and brown. |
| Fourth | - | Four pairs cabled together with a lay as required to meet electrical requirements. |
| Fifth | - | For watertight variant, filler material shall meet the requirements of 3.3.5 and 3.3.5.3 of MIL-DTL-24643. |

Construction Variant for types LSC5FS and LSC5FSW

- Sixth - An optional binder tape applied with overlap.
- Seventh - 24 AWG nominal TC drain wire.
- Eighth - Metallic foil/polyester tape. (Metallic foil side facing in and in contact with the drain wire.)
- Ninth - Cross-linked polyolefin jacket. Minimum thickness of 0.040 inch.

Construction Variant for types LSC5OS and LSC5OSW

- Sixth - An optional binder tape applied with overlap.
- Seventh - Metallic foil /polyester tape. (Metallic foil side facing out and in contact with the braid.)
- Eighth - Braided shield of 36 AWG or 34 AWG tin-coated copper. Coverage as required to meet shield performance requirements.
- Ninth - Optional binder tape applied with overlap.
- Tenth - Cross-linked polyolefin jacket. Minimum wall thickness of 0.040 inch.

TABLE I. Details.

Military Part No. M24643/59	Type	Number of Pairs	Overall Diameter (in.)	
			Minimum	Maximum
-01UO	LSC5FS-4	4	0.240	0.360
-02UO	LSC5FSW-4	4	0.240	0.380
-03UO	LSC5OS-4	4	0.290	0.400
-04UO	LSC5OSW-4	4	0.300	0.420

EXAMINATION AND TESTS:

Basic Electricals:

DC resistance (ohms/100 m)	9.38 max.
DC resistance unbalance	5% max.
Jacket flaws	No Failure
Conductor and shield continuity	No Failure

Group A:

Visual and dimensional	No Failure
Watertightness (types LSC5FSW and LSC5OSW only)	No Failure
Capacitance	
Mutual capacitance of a pair (max. @1 kHz)	5.6 nf/100 m
Pair to ground capacitance unbalance (max. @1 kHz)	330 pf/100 m
Input impedance (1 MHz to 100 MHz)	100 ohms ±15%

TABLE II. Swept electrical parameters.

Frequency (MHz)	1.0	4.0	10	16	31.25	62.5	100
Return Loss dB/100 m (min.)	20.0	23.0	25.0	25.0	23.6	21.5	20.1
Insertion Loss dB/100 m (max.)	2.0	4.1	6.5	8.2	11.7	17.0	22.0
NEXT dB/100 m (min.)	65.3	56.3	50.3	47.2	42.9	38.4	35.3
ELFEXT dB/100 m (min.)	63.8	51.8	43.8	39.7	33.9	27.9	23.8
PS NEXT dB/100 m (min.)	62.3	53.3	47.3	44.2	39.9	35.4	32.3
PS ELFEXT dB/100 m (min.)	60.8	48.8	40.8	36.7	30.9	24.9	20.8
Propagation Delay ns/100 m (max.)	570	552	545	543	540	539	538
Delay Skew ns/100 m (max.)	45	45	45	45	45	45	45
Note: Values are for reference only. Actual values shall be determined utilizing the formulas in ANSI/TIA-568-B.2.							

Group B:

Drip – 95 ±1 °C	Zero
Tear (pounds per inch thickness, min.) (ASTM D470)	35
Physicals (unaged)	
Insulation	
Tensile strength (lb/in ² , min.)	1300
Elongation (percent, min.)	160
Jacket	
Strength (lb/in ² , min.)	1300
Elongation (percent, min.)	160
Cross-linked proof test (percent, max.)	
Jacket	50

Group C:

Physicals (aged air oven)

Insulation (polyolefin)

Tensile strength (percent of unaged, min.) – lb/in², min. 75%

Elongation (percent of unaged, min.) 75%

Jacket (136 °C for 168 hrs.)

Tensile strength (percent retained, min.) – lb/in², min. 60%

Elongation (percent retained, min.) 60%

Shrinkage

No Failure

Cable filler removability

No Failure

Heat distortion (percent of unaged, max.)

30

Conformance to material, construction and coverage

No Failure

Surface transfer impedance (type LSC5OS and LSC5OSW only)

Milliohms per meter, max. 700

EMP response, dB, min. 60

Permanence of printing (jacket) (cycles, min.)

125

Group D:

Flame propagation (cable)

No Failure

Qualification Inspection:

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

Aging and compatibility (cable) 95 ± 2 °C No Failure

Abrasion resistance (jacket) No Failure

Acid gas equivalent (percent, max.)

Jacket 2

Fillers 8

Insulation 18

Halogen content (percent, max.)

Jacket 0.2

Fillers 0.2

Immersion (jacket)

Tensile strength (percent of unaged, min.) 50

Elongation (percent of unaged, min.) 50

Smoke index, max.

Jacket	25
Fillers	45
Insulation	45

Toxicity index, max.

Jacket	5
Fillers	5
Insulation	1.5
Durometer (jacket) – Type A (hardness, min.)	80
Weathering (jacket)	No Failure

Custodians:
 Army – MI
 Navy – SH

Preparing Activity:
 Navy – SH
 (Project 6145-2358-000)

Review Activities:
 Army – AR, AV, CR
 Navy – CG, EC
 DLA – IS

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>.