

METRIC
 MIL-PRF-85045/8A
 28 January 2003
 SUPERSEDING
 DOD-C-85045/8
 31 March 1987

PERFORMANCE SPECIFICATION SHEET

CABLE, FIBER OPTIC, RADIATION HARDEDENED, CABLE CONFIGURATION
 TYPE 1 (BUFFERED FIBER), APPLICATION E (GROUND TACTICAL),
 CABLE CLASS MM, (METRIC)

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 and MIL-PRF-85045.

CLASSIFICATION:

Fiber optic cable configuration type: 1 (buffered fiber).

Fiber cable class: MM (graded-index, glass core and glass cladding, multimode).

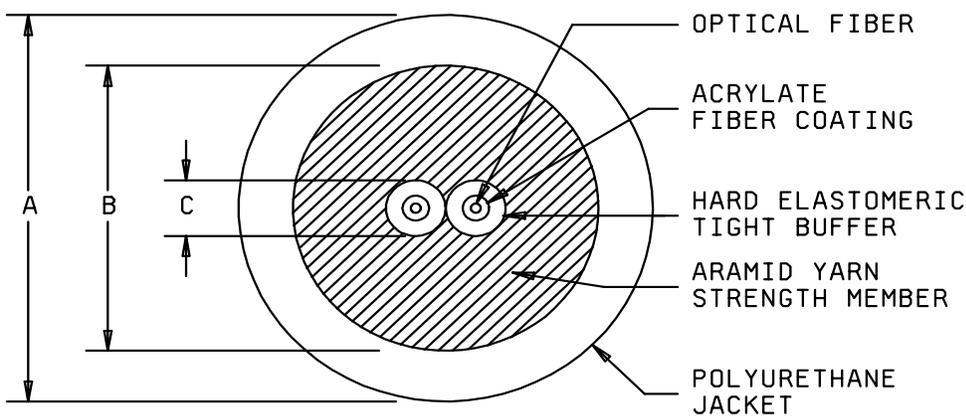
DESIGN AND CONSTRUCTION:

Fiber:

Class MM fibers shall be in accordance with MIL-PRF-49291/1 (50/125 μm).

Class MM fibers shall be in accordance with MIL-PRF-49291/6 (62.5/125 μm).

Buffer diameter: 900 \pm 50 μm .



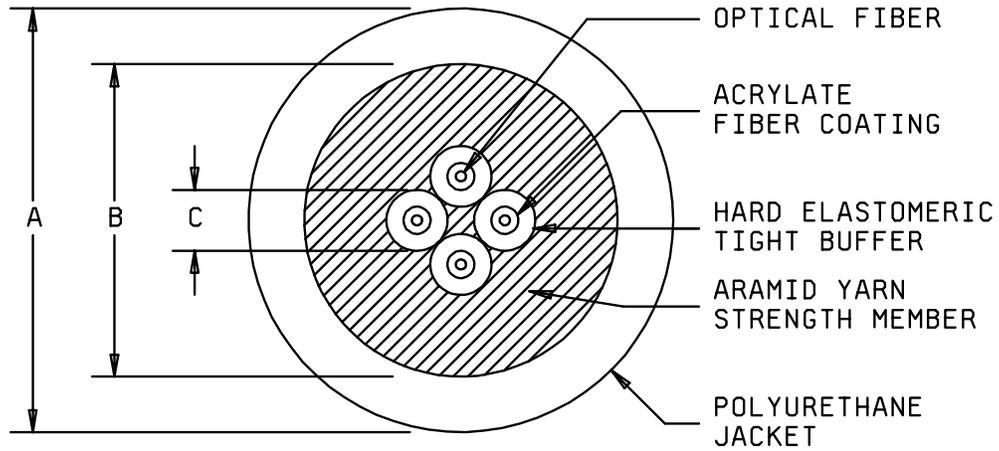
Dimensions		
A	B	C
5.8 \pm 0.15	2.7 \pm 0.15	0.9 \pm 0.15

mm	Inches
0.15	0.006
0.9	0.035
2.7	0.106
5.8	0.23

NOTES:

1. Dimensions are in millimeters.
2. Inches are in parenthesis.

FIGURE 1. Two-fiber cable (85045/8X2A).



Dimensions		
A	B	C
5.8 ±0.15	2.9 ±0.15	0.9 ±0.15

mm	Inches
0.15	0.006
0.9	0.035
2.9	0.114
5.8	0.23

NOTES:

1. Dimensions are in millimeters.
2. Inches are in parenthesis.

FIGURE 2. Four-fiber cable (M85045/8X4A).

REQUIREMENTS:

Finished cable:

Dimensions and configuration: See figure 1 and 2.

Number of fibers: 2 or 4 (see PIN).

Materials:

Fiber coating: Acrylate or equivalent.

Buffer: Hard elastomeric or equivalent.

Jacket material: Flame retardant polyurethane, or equivalent.

Strength members:

Polyarylamide, type PAA (Aramid yarn), or equivalent.

Impregnated glass rods (if required)

Short term minimum bend diameter: Five times the cable outer diameter. (The short term minimum bend diameter is to be used in all environmental and mechanical tests which specify a cable minimum bend diameter).

Long term minimum bend diameter: Ten times the cable outer diameter.

Optical fiber cable component (OFCC): Not applicable.

Cable bundle jacket: Not applicable.

Cable jacket:

Cable jacket concentricity: > 0.65.

Cable mass per unit length: 32 kg/km maximum.

Performance requirements:

Optical properties:

Maximum attenuation rate:

50/125 micron fiber: 3.50 dB/km @ 850nm \pm 20nm.

1.0 dB/km @ 1300nm \pm 20nm.

62.5/125 micron fiber: 3.75 dB/km @ 850nm \pm 20nm.

1.50 dB/km @ 1300nm \pm 20nm.

Crosstalk: Applicable.

Mechanical properties:

Tensile loading and elongation: Applicable, except the induced attenuation shall be measured only after releasing the load. The complete post-test visual and mechanical testing is not required. A post-test visual jacket examination shall be made under 10X magnification.

Operating tensile load: Applicable, except the complete post-test visual and mechanical testing is not required. A post-test visual jacket examination shall be made under 10X magnification.

Dynamic bend: Not applicable.

Corner bend: Applicable. Test force = 500 N.

Knot: Applicable.

Cable jacket material tensile strength and elongation: Applicable.

Cable shrinkage: Applicable.

Cable element removability: Applicable.

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Durability of identification marking: Applicable.

Environmental:

Temperature range:

Operating temperature: -46°C, +71°C.

Storage temperature: -57°C, +85°C.

Temperature cycling: Change in optical transmittance measurements may be made periodically. At a minimum, one optical transmittance measurement shall be made over a period of 1 hour at the end of each temperature plateau.

Thermal Shock: Use test schedule A.

Temperature/humidity cycling: Applicable.

Barometric pressure (reduced):

Operating: 3,000 m. (Test condition letter B)

Nonoperating: 12,200 m.

Life aging: Test exposure time shall be 240 hours at 110 degrees C.

Freezing water immersion: Applicable. Use method A, procedure I.

Weathering: Applicable.

Wicking: Not applicable

Jacket self-adhesion or blocking: Not applicable. (Manufacturers should provide reasoning for not performing test).

Flammability (60 degree angle): Cables should be tested in accordance with MIL-PRF-85045.

Smoke generation and flame propagation: Not applicable.

Shock: Not applicable.

Water absorption: Applicable.

Paint susceptibility: Not applicable.

Electromagnetic effects: Applicable.

Acid gas generation: Not applicable.

Halogen content: Not applicable.

Toxicity: Not applicable.

Fungus resistance: Applicable.

Part or Identifying Number (PIN) (see table I):

M85045/8-B2A --- 2 Fiber Cable with 62.5/125 micron fiber

M85045/8-B4A --- 4 Fiber Cable with 62.5/125 micron fiber

M85045/8-B2B --- 2 Fiber Cable with 50/125 micron fiber

M85045/8-B4B --- 4 Fiber Cable with 50/125 micron fiber

TABLE I. Supersession data.

OLD PIN	Superseding PIN
D85045/8-B2A	M85045/8-B2A

Manufacturers who are qualified under this specification sheet for 50/125 micron 2 fiber cable and whose 62.5/125 micron 2 fiber cable passes the visual and mechanical, attenuation rate, temperature cycling, temperature/humidity cycling, storage temperature, cyclic flexing, crush, cable twist-bend, impact, (low temperature only), tensile loading and elongation, operating tensile loading, thermal shock inspections specified herein, are qualified by similarity under this specification for 62.5/125 micron 2 fiber cable. This qualification by similarity is applicable if the only difference between the previously qualified cable and the cable under test is that the optical fiber had been changed from 50/125 to 62.5/125 optical fiber. Testing may be performed on either one or two lengths of cable, each with a minimum length of 0.5 km. Test order must be observed up to and including the storage temperature test. If only one cable length is used, the thermal shock test shall be performed after the storage temperature test.

Manufacturers who are qualified under this specification sheet for 50/125 micron 4 fiber cable and who produce 50/125 micron 2 fiber cable, are qualified by similarity for the 50/125 micron 2 fiber cable construction. This qualification by similarity is applicable if the only difference between the previously qualified cable and the cable under test is that the number of fibers in the cable had been changed from 4 fibers to 2 fibers. Testing may be performed on either one or two lengths of cable, each with a minimum length of 0.5 km. Test order must be observed up to and including the storage temperature test. If only one cable length is used, the thermal shock test shall be performed after the storage temperature test.

Manufacturers who are qualified under this specification sheet for 50/125 micron 4 fiber cable and who produce 50/125 2 fiber cable, and whose 62.5/125 micron fiber cable passes the visual and mechanical, attenuation rate, temperature cycling, temperature humidity cycling, storage temperature, cyclic flexing, crush, cable twist-bend, impact, (low temperature only), tensile loading and elongation, operating tensile loading, thermal shock inspections specified herein, are qualified by similarity under this specification for 62.5/125 micron 2 and 4 fiber cable. This qualification by similarity is applicable if the only difference between the previously qualified cable and the cable under test is that the optical fiber had been changed from 50/125 to 62.5/125 optical fiber. Testing may be performed on either one or two lengths of cable, each with a minimum length of 0.5 km. Test order must be observed up to and including the storage temperature test. If only one cable length is used, the thermal shock test shall be performed after the storage temperature test.

Custodians:
 Army - CR
 Navy - SH
 Air Force - 11
 DLA – CC

Preparing activity:
 DLA - CC
 (Project 6015-0041)

Review Activities:
 Navy - AS
 Air Force - 13, 19, 93
 DIA - DI