MILITARY SPECIFICATION SHEET

CABLE, FIBER OPTIC, CROSS-LINKED FOUR FIBERS, CABLE CONFIGURATION TYPE 2 (PIGTAIL), APPLICATION B (SHIPBOARD), CABLE CLASS SM AND 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 sheet and the issue of the following specification listed in that issue of the Department of Defense Index of specifications and Standards (DODISS) specified in the solicitation: MIL-C-85045.

CLASSIFICATION:

Fiber optic cable configuration type: 2 (OFCC).

Fiber cable class: SM (dispersion-unshifted, glass core and glass cladding, single-mode).
MM (graded-index, glass core and glass cladding, multimode).

DESIGN AND CONSTRUCTION:

Fiber: Type MM fibers, (see figure 1) shall be in accordance with MIL-F-49291/6.
Type SM fibers, (see figure 1) shall be in accordance with MIL-F-49291/7.

Buffer diameter: 900 ± 50 μm.

OFCC:

Dimensions and configuration: See figure 2.

The tolerance on all dimensions shall be ± 10 percent.

Mass per unit length: ≤ 15 kg/km.

Tensile loading: ≥ 270 N.

Dynamic bend tensile load: 90 N minimum.

Cable overall jacket: Cross-linked.

FINISHED CABLE:

Dimensions and configuration: See figure 1.

Four OFCC units shall be helically laid over the central member with a maximum lay of 25 cm. The tolerance on the finished cable diameter shall be ± 10 percent.

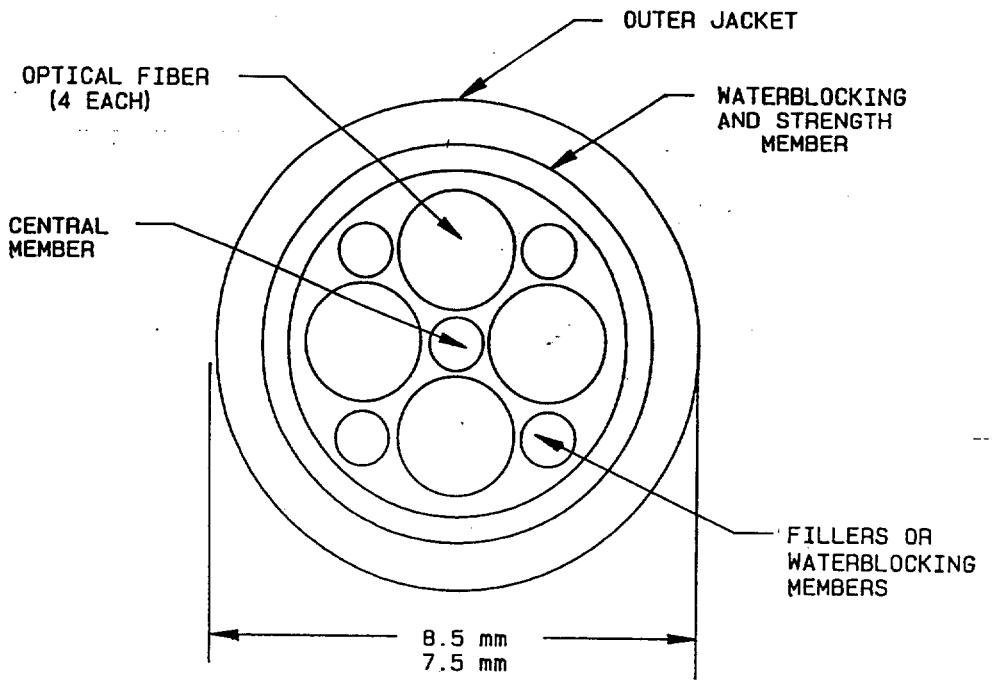
Number of fiber: 4, one per OFCC (see figure 1).

Concentricity: ≥ 0.8.

Mass per unit length: ≤ 100 kg/km.

Change in optical transmittance: Measurements to be made at 1300 ± 20 nm.

Maximum attenuation rate: 4.5 dB/km at 850 ± 20 nm, 2.0 dB/km at 1300 ± 20 nm for type MM fiber.
1.0 dB/km at 1310 ± 20 and 1550 ± 20 nm for type SM fiber.



NOTE: Buffered fiber includes the core, cladding, coating and additional buffered material.

FIGURE 1. Four OFCC fiber optic cable.

Bandwidth: 500 Mhz.Km.

Wavelength: 1300 ± 20 nm.

Tensile loading: ≥ 1875 N.

Crush: Applicable, but crosstalk measurement not required.

ENVIRONMENTAL:

Temperature range:

Operating: -54°C to 65°C.
Storage: -62°C to 71°C.

Radial compression: Applicable.

Hosing: Both low pressure and hydrostatic pressure applicable.

Dripping: Applicable.

Storage temperature: Applicable.

Weathering: Applicable.

Flame extinguishing: Applicable.

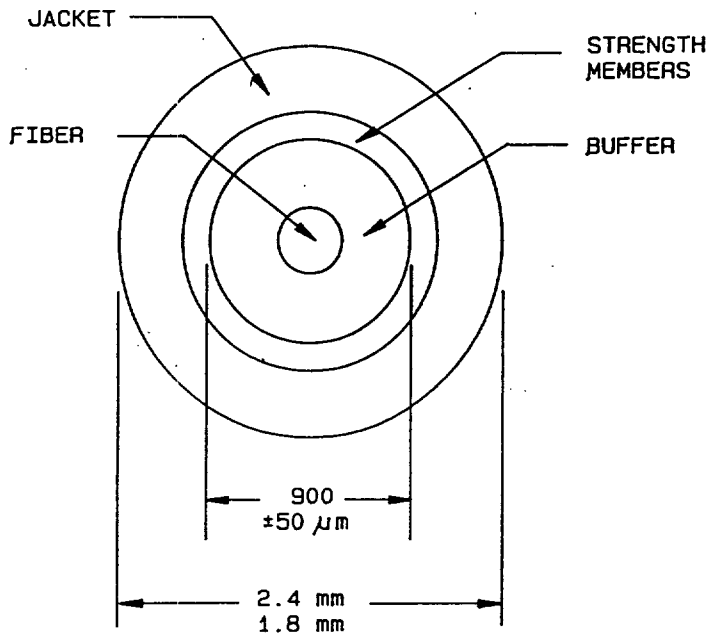


FIGURE 2. Optical fiber cable component.

Fluid immersion: Applicable (The diameter of the finished cable shall not deviate more than 15 percent), the following fluids and conditions apply.

TABLE I. Fluid immersion fluids and conditions.

Fluids	Specification	Test temperature (°C)	Time (hours)
Fuel oil	MIL-F-16884	98-100	24
Turbine fuel (JP-4) Turbine fuel (JP-5)	MIL-T-5624	48-50	24
Isopropyl alcohol	TT-I-735	20-25	24
Hydraulic fluids	MIL-H-5606 MIL-H-17672	48-50	24
Lubricating oils	MIL-L-17331 MIL-L-23699	98-100	24
Coolant	1/	20-25	24
Seawater	ASTM-D-1141	20-25	24

1/ Monsanto Coolanol 25 or equivalent

Smoke generation and flame propagation: Applicable, except the pass/fail criteria shall be as follows: The peak optical density and the average optical density of smoke produced shall be not greater than 0.5 and 0.15, respectively. In addition, the flame spread-time product at the 10 minute point shall be not greater than 27.5 meters-minutes when calculated in accordance with ASTM-E-84.

Shock: Applicable.

Cable life: Jacket material shall be tested at 175°C for 4 hours.

Cross-linked verification: When tested in accordance with ICEA standard T-28-562 and run at 200°C, the tensile strength shall be at 900 N/cm. The elongation of the jacket shall not be less than 160%.

Cable scraping resistance: 750 cycles.

Cable to cable abrasion: 500 cycles.

Impact: 20 impacts at maximum operating temperature. Upon visual examination at all tested temperatures, there shall be no jacket damage such as splitting, cracking or softening.

Paint susceptibility: Applicable.

Halogen content: < 0.2%.

Tempest: Applicable for M85045/18-01T and M85045/18-02T.

Part Identifying Number: M85045/18-01 (multimode).
M85045/18-01T.
M85045/18-02 (single mode).
M85045/18-02T.

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - SH
Air Force - 85

Review activities:
Army - MI, AR, AV
Navy - EC, YD
Air Force - 13, 17, 19, 80, 90, 99
DLA - ES

User activities:
Navy - OS

Preparing activity:
Navy - SH

Agent:
DLA - ES

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