

METRIC

MIL-PRF-85045/27
18 May 2001

PERFORMANCE SPECIFICATION SHEET

CABLE, FIBER OPTIC, SIX-FIBER BUNDLE, BLOWN OPTICAL FIBER,
CABLE CONFIGURATION TYPE 1 (BUFFERED FIBER), 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 and MIL-PRF-85045.

CLASSIFICATION:

Fiber optic cable configuration type (Cable bundle): 3.

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

DESIGN AND CONSTRUCTION:

Fiber:

Type MM fibers shall be in accordance with MIL-PRF-49291/6.

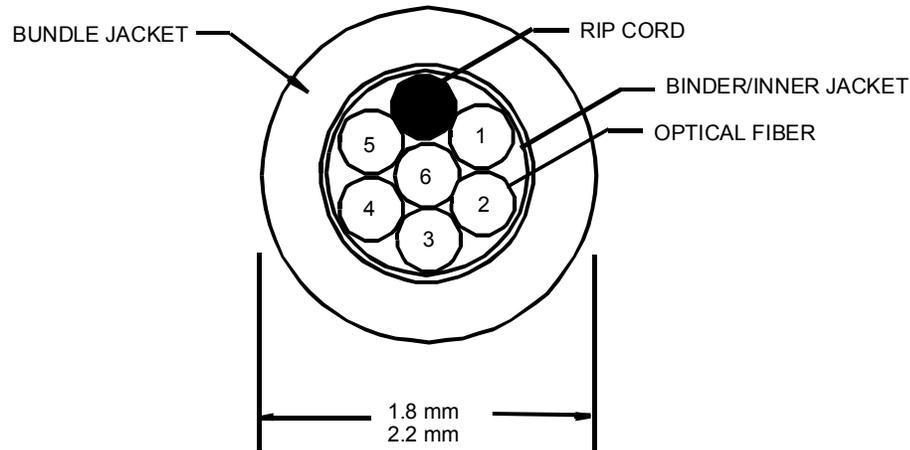
Type SM fibers shall be in accordance with MIL-PRF-49291/7.

Buffer diameter: 250 ± 15 um.

FINISHED CABLE:

Dimensions and configuration: See figure 1. An outer jacket shall be applied over
six optical fibers and a ripcord.

OFCC Kink: Not applicable.

FIGURE 1. Blown optical fiber bundle.

Color: Slate or blue (MIL-PRF-49291/6 fiber)
Yellow (MIL-PRF-49291/7 fiber)

Concentricity: ≥ 0.80 .

Jacket material: The overall jacket shall be composed of a low halogen, low toxicity polymer material.

Mass per unit length: ≤ 3 kg/km.

Short-term minimum bend diameter: 76 mm. (The short-term minimum bend diameter is to be used in all environmental and mechanical tests that specify a cable minimum bend diameter.)

Long term minimum bend diameter: 76 mm.

Minimum continuous length: The minimum continuous length of all cables shall be not less than 0.5 km. If lengths less than 0.5 km are specified in the purchase order, Quality Conformance Inspection shall be performed on test specimens not less than 0.5 km in length from which the purchase order lengths are cut.

Marking: Marking of blown optical fiber bundles is not required. Shipping containers and bundle reels shall be marked.

PERFORMANCE REQUIREMENTS:

Optical properties:

Maximum attenuation rate: 3.75 dB/km at 850 ± 20 nm, 1.25 dB/km at $1,300 \pm 20$ nm for type MM fiber.
0.75 dB/km at $1,310 \pm 20$ nm and $1,550 \pm 20$ nm for type SM fiber.

Bandwidth: Fiber with a minimum bandwidth of 500 MHz-km at 1,300 nm shall be used (multimode cables only). Bandwidth is not specified at 850 nm.

Change in optical transmittance: Measurements to be made at 1300 ± 20 nm. For shock testing only four fibers are required to be monitored.

Crosstalk: Applicable.

Mechanical properties:

Tensile loading and elongation: Not applicable.

Operating tensile loading: Not applicable.

Dynamic bend: Not applicable.

Low temperature flexibility: Not applicable.

Cyclic flexing: 500 cycles at $+25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and 100 cycles at $-28^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Change in optical transmittance measurements are to be made every 100 cycles for the 500 cycle exposure and every 25 cycles for the 100 cycle exposure. Each change in optical transmittance measurement shall be performed with the test specimen in the same position in the test cycle. The cycling may be halted to perform the change in optical transmittance measurement.

Crush: Not applicable.

Cable twist bending: Not applicable.

Impact: Not applicable.

Corner bend: Not applicable.

Dripping: Applicable.

Cable jacket tear strength: Applicable, 40 N/cm minimum, 50 N/cm maximum.

Cable scraping resistance: Not applicable.

Cable to cable abrasion: Not applicable.

Durability of marking: Not applicable.

Environmental properties:

Temperature range:

Operating: -28°C to $+65^{\circ}\text{C}$.

Nonoperating: -40°C to $+70^{\circ}\text{C}$.

Storage: -40°C to $+70^{\circ}\text{C}$.

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 one hour at the end of each temperature plateau.

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

Storage temperature: Applicable.

Fluid immersion: Not applicable.

Flame extinguishing: Applicable.

Flaming smoke generation: $D_m \leq 225$ when tested in the flaming condition in accordance with ASTM-E-662.

Shock: Applicable. The bundle shall be tested within a tube cable.

Paint susceptibility: Not applicable.

Chemical properties:

Halogen content: < 0.2 percent.

Part or Identifying number (PIN):

M85045/27-01 (multimode).

M85045/27-02 (single mode).

Custodians:

Army - CR

Navy - SH

Air Force - 11

NASA - NA

Preparing activity:

Navy - SH

Review activities:

Army - AR, AV, MI

Navy - EC, YD

Air Force - 02, 19, 80, 99

DLA - CC

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