

REV	A	APPLICATION	
		NEXT ASSY	USED ON
SHT	1		
NAVSEA DRAWING NO.	8479606		
ESWBS	408		

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
-	RELEASED AS REVISION -	10/23/12	<i>Robert A Throm</i>
A	REVISE MM ATTEN 850	12/13/17	<i>Robert A Throm</i>

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REV STATUS OF SHEETS	REV	A	A	A	A													
	SHEET	1	2	3	4													

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		CAGE CODE CONTRACT NO.			DEPARTMENT OF THE NAVY NAVAL SEA SYSTEMS COMMAND WASHINGTON, D.C. 20362-5101				
FRACTIONS +/-	DECIMALS .xx+/-	APPROVED	R. THROM	12/13/17					
ANGLES P	.xxx+/-	ENGINEER	C. GOOD	12/13/17	<b>CABLE, FIBER OPTIC, 18 FIBERS, ENHANCED PERFORMANCE, CONFIGURATION TYPE 2 (OFCC), APPLICATION B (SHIPBOARD), CLASS MM/SM MIXED</b>				
DO NOT SCALE DRAWING		CHECKED	M. CASTELO	12/13/17					
MATERIAL:	ACCEPTED FOR NAVSEA	PREPARED	C. GOOD	12/13/17	SIZE	CAGE	ESWBS	DRAWING NO.	REV
FINISHES:	APPROVED BY NAVSEA	SIGNATURE DOES NOT DENOTE APPROVAL			A	53711	408	8479606	A
(SIGN ONLY IF ENGINEERING HAS BEEN APPROVED BY MANUFACTURE AND TEST)					SCALE: NONE	UCI	WT GRP	SHEET 1 of 4	

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**1. Scope.**

This Navy Drawing contains the detailed requirements for an 18 Fiber, Enhanced Performance, Cable Configuration Type 2 (OFCC), Application B (shipboard), Cable Class MM/SM Mixed cable containing both MM and SM fiber for use on Navy ships and submarines. This mixed cable is based on MIL-PRF-85045/22 and will be implemented in the next revision, MIL-PRF-85045/22A.

MIL-PRF-85045/22A, when published, supersedes this NAVSEA Drawing.

**2. Applicable Documents.**

2.1. Government documents.

MIL-PRF-85045 CABLES, FIBER OPTICS, (METRIC), GENERAL SPECIFICATION FOR

MIL-PRF-85045/22 CABLE, FIBER OPTIC, EIGHTEEN FIBERS, CABLE CONFIGURATION TYPE 2 (OFCC), APPLICATION B (SHIPBOARD), CABLE CLASS SM AND MM, (METRIC)

2.2. Order of precedence. In the event of a conflict between the contents of this drawing and the references cited herein, the order of precedence shall be as follows:

- a. This drawing
- b. MIL-PRF-85045/22
- c. MIL-PRF-85045
- d. Other references

Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

**3. Requirements.**

3.1. All requirements for the product described herein shall consist of this drawing, MIL-PRF-85045/22 and MIL-PRF-85045.

3.2. Design and construction.

3.2.1. Fiber:

-01 Mix configuration:

Nine fibers shall be MM and in accordance with MIL-PRF-49291/6.  
 Nine fibers shall be SM and in accordance with MIL-PRF-49291/7.

Buffer diameter:  $900 \pm 50 \mu\text{m}$ .

3.2.2. OFCC marking:

-01 Mix configuration:

Each MM OFCC shall be uniquely marked with a number between 1 and 9.  
 Each SM OFCC shall be uniquely marked with a number between 10 and 18.

The form of the marking shall be the printed spelling of the number, followed by a dash, followed by the printed Arabic numeral. The marking shall be applied and repeated every 0.10 m along the OFCC jacket.

3.3. Performance Requirements.

3.3.1. Optical Properties:

Maximum attenuation rate: 5.0 dB/km at  $850 \pm 20 \text{ nm}$ , 2.0 dB/km at  $1300 \pm 20 \text{ nm}$  for class MM fiber.  
 1.5 dB/km at  $1310 \pm 20 \text{ nm}$  and  $1550 \pm 20 \text{ nm}$  for class SM fiber.

For cables with radiation cross-linked jackets, the change in attenuation rate measurement may be made up to 30 days after cross-linking of the cable jacket.

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3.3.2. Mechanical Properties:

Low temperature flexibility: The exposure temperature shall be -40°C.

Impact: 50 cycles at 25°C ± 2°C and 20 cycles at -40°C ± 2°C. Upon final visual examination at all tested temperatures, there shall be no jacket damage such as splitting or cracking.

Cable scraping resistance: 750 cycles.

Cable to cable abrasion: 500 cycles.

3.3.3. Environmental Properties:

Life aging: Applicable, except that the jacket material shall be tested at 175°C for 4 hours.

Fluid immersion: Exposure to automobile gasoline and tap water are not required and the following test temperatures shall be used for the fluids indicated in Table I.

TABLE I. Fluid Immersion.

Fluid	Temperature (°C)
Fuel oil	98 - 100
Turbine fuel	48 - 50
Lubricating oil	98 - 100

NOTE: This is not a complete list of fluids. MIL-PRF-85045 provides direction for fluid list and specifications.

Flame extinguishing (and smoke generation): Applicable (including smoke generation). The pass/fail criteria shall be as follows. Cables shall be self-extinguishing and shall not burn to the top of the tray. The total smoke released and the peak smoke release rate shall be not greater than 95m<sup>2</sup> and 0.25m<sup>2</sup>/s, respectively. The verification method shall be as follows. Cables shall be subjected to the UL Flame Exposure test of UL-1685 in accordance with Measurement 3406 of MIL-STD-1678-3. Specimen length and quantity shall be as specified in UL-1685. The information specified in a through d shall be reported:

- a. Flame temperature.
- b. Period of time between burner shut off and cessation of flame on the specimen.
- c. Overall distance of specimen jacket damage above the burner.
- d. Total smoke released (m<sup>2</sup>) and peak smoke release rate (m<sup>2</sup>/s).

Smoke generation and flame propagation: Not Applicable.

3.3.4. Chemical Properties:

Cross-link verification: This test is applicable for cables with cross-linked jackets only. The test shall be conducted in accordance with ICEA standard T-28-562 and run at 200°C. The test shall be sequenced after the weathering test in the qualification test sequence and after the fluid immersion test in the group C quality conformance test sequence. The hot creep elongation shall not exceed 100 percent and the hot creep set shall not exceed 10 percent.

3.4. Identification Marking:

The cable shall be marked with the following information:

- a. This Navy Drawing number [i.e. "NAVSEA DWG 8479606"].
- b. Mix configuration identifier [e.g. "-01", indicating nine MM fibers and nine SM fibers].
- c. Description of mix configuration [e.g. "(18 Fiber - 9 x 62.5/125, 9 x 9/125)"].

Example of identification marking: NAVSEA DWG 8479606-01 (18 Fiber - 9 x 62.5/125, 9 x 9/125)

4. Verification.

4.1. Conformance Inspection.

4.1.1. Group A inspection shall be performed in accordance with MIL-PRF-85045/22 and MIL-PRF-85045 on 100 percent of delivered product.

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**5. Packaging.**

5.1. The packaging requirements for the cable furnished under this drawing shall be in accordance with MIL-PRF-85045 and MIL-PRF-85045/22.

**6. Notes.**

6.1. Qualification by similarity.  
 Manufacturers, who are qualified under MIL-PRF-85045/17, MIL-PRF-85045/20 and MIL-PRF-85045/22 for SM and MM fiber and whose cable passes the tests indicated in Table II in accordance with MIL-PRF-85045/22 and MIL-PRF-85045, are qualified under this Navy Drawing. This qualification by similarity is applicable only if the same OFCCs and same cable materials used in the previously qualified cables are used in the cable under test. Testing may be performed on a single length of cable, with a minimum length of 0.5 km.

TABLE II. Qualification by similarity tests.

Test
Visual
Mechanical
Attenuation rate

6.2. Approved Sources of supply.  
 See the Navy Recommended Fiber Optic Components Parts List web site at <http://www.navsea.navy.mil/Home/Warfare-Centers/NSWC-Dahlgren/What-We-Do/Navy-Shipboard-Fiberoptics/>  
 Navy Recommended Fiber Optic Components Parts List may also be obtained by sending a request to [DLGR\\_NSWC\\_Foweb@navy.mil](mailto:DLGR_NSWC_Foweb@navy.mil).

**End of this drawing.**

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