FEDERAL SUPPLY CLASS
6010

RATIONALE

REVISED TO MAKE CABLE MORE PRODUCIBLE.

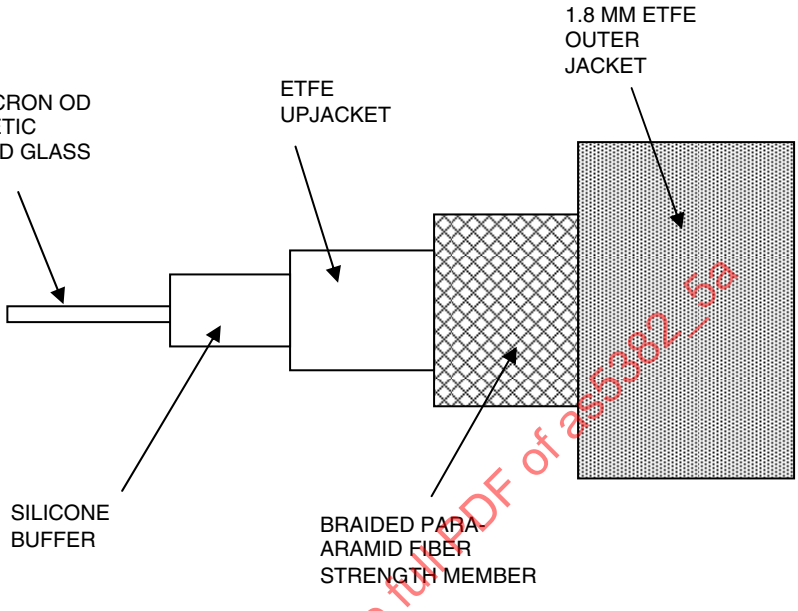


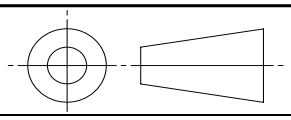
FIGURE 1 - CABLE CONFIGURATION

1. Construction Description

1.1 Optical Fiber Dimensions and Materials

Core Diameter:	50 µm ± 3.0 µm (0.00195 in ± 0.00012 in)
Core Material:	Graded Index Silica Glass
Cladding Diameter:	125 µm ± 2 µm (0.0049 in ± 0.00008 in)
Cladding Material:	Silica Glass
Core to Cladding Ellipticity:	3% maximum
Core to Cladding Offset:	3 µm maximum
Hermetic Coated:	Yes
Coating Diameter:	450 µm ± 25 µm (0.0177 in ± 0.001 in)
Coating Material:	Silicone
Coating Concentricity:	65% minimum

THIRD ANGLE PROJECTION



ISSUED 2004-04 REVISED 2007-09

CUSTODIAN: SAE AE-8/AE-8D

PROCUREMENT SPECIFICATION: NONE

SAE Aerospace
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AEROSPACE STANDARD

CABLE, FIBER OPTIC, MULTI-MODE,
50/125/450 µm, GRADED INDEX,
HERMETIC COATED, TIGHT BUFFER

AS5382/5
SHEET 1 OF 4

REV. A

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)** **Tel: 724-776-4970 (outside USA)**
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1.2 Cable Dimensions and Materials

Upjacket Diameter:	900 µm ± 50 µm (0.0354 in ± 0.002 in)
Upjacket Material:	Ethylene-Tetrafluoroethylene Copolymer (ETFE)
Strength Member:	Braided Para-Aramid Fiber
Yarn Size:	380 Denier
Number of Ends:	16
Braid Picks/Inch:	14.5
Outer Jacket Diameter:	1800 µm ± 100 µm (0.0709 in max ± 0.039 in max)
Outer Jacket Material:	Ethylene-Tetrafluoroethylene Copolymer (ETFE)
Outer Jacket Concentricity:	6% of Jacket Outer Diameter

1.3 Cable Performance

Operational Mode:	Multi-mode
Temperature Rating:	-55 to +165 °C
Storage Temperature:	-55 to +85 °C
Outer Jacket Color:	Orange
Finished Cable Weight:	4.0 kg/km maximum

2. Optical Fiber Requirements

Maximum Attenuation:	≤6 dB/km @ 850 nm, ≤4 dB/km @ 1300 nm
Numerical Aperture:	0.20 ± 0.02
Fiber Tensile Proof Test:	200,000 psi minimum
Bandwidth	≥400 MHz-km @ 850 nm & 1300 nm

3. Environmental

Fluid Immersion:	See Table 1 for test fluid listing.
Freezing Water Immersion:	≤0.5 dB change in optical transmittance during the test with ≤0.5 dB permanent change after test
Humidity Resistance:	≤0.5 dB change in optical transmittance during the test with ≤0.5 dB permanent change after test
Wicking:	Water Penetration of 88.5 mm maximum
Fungus Resistance:	Fungus inert per MIL-HDBK-454 Guideline 4
Blocking:	No areas of localized adhesion

4. Mechanical

Cold Bend:	≤0.5 dB change in optical transmittance after test
Cyclic Flex:	≤0.5 dB change in optical transmittance during the test with ≤0.5 dB permanent change after test Test temps: -55 °C, +25 °C, +150 °C
Impact Resistance:	≤0.5 dB change in optical transmittance during the test with ≤0.5 dB permanent change after test Test Cycles: 50 at -55 °C, 100 at +25 °C, 50 at +150 °C
Crush Resistance:	≤0.5 dB change in optical transmittance during the test with ≤0.5 dB permanent change after test

Corner Bend:	≤0.5 dB change in optical transmittance during the test with ≤0.5 dB permanent change after test
Cable Tensile Load and Bending:	≤0.5 dB change in optical transmittance during the test with ≤0.5 dB permanent change after test Maximum tensile load 132 N
Jacket Material Tensile and Elongation:	Tensile Strength: 900 N/cm^2 minimum Elongation: 125% minimum
Durability of Manufacturer's Identification:	Required unless identification marking is under a clear jacket
Jacket Strippability:	Easily Removed, No damage to Fiber at 10X

5. Thermal

Flammability:	After Flame: 30 seconds maximum Flame Travel: 3 inches maximum Tissue Flaming: None
Thermal Shock:	Temperature Range: -55 to +165 °C Maximum Cable Diameter Change of ±10% ≤0.5 dB change in optical transmittance after test
Property Retention After Thermal Aging:	750 h at 180 °C 300 h at 200 °C 100 h at 220 °C Maximum Cable Diameter Change of ±10% ≤0.5 dB change in optical transmittance after test Jacket tensile and elongation: 75% of initial value
Storage Life:	Temperature Range: -55 to +85 °C No Visual Damage at 10X Magnification ≤0.5 dB change in optical transmittance after test
Temperature Cycling:	5 cycles, temperature range: -55 to +165 °C Maximum Cable Diameter Change of ±10% ≤0.5 dB change in optical transmittance during the test with ≤0.5 dB permanent change after test
Temperature Cycling With Mandrel:	5 cycles, temperature range: -55 to +165 °C Wrapped 5 times around a 0.75 inch mandrel ≤0.5 dB change in optical transmittance during the test with ≤0.5 dB permanent change after test
Jacket Shrinkage:	2.3 mm maximum in a 360 mm sample