INCH-POUND

MIL-C-83522D
AMENDMENT 1
11 May 1995

MILITARY SPECIFICATION

CONNECTORS, FIBER OPTIC, SINGLE TERMINUS,
GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-C-83522D, dated 25 June 1992, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 1

1.1: Delete the third sentence.

1.1: Delete the fifth sentence and substitute:

"Statistical process control (SPC) techniques are required in the manufacturing process of these connectors to minimize variation."

1.2, first sentence: Delete "Plug and receptacle" and substitute "Plug, adapter, and receptacle."

PAGE 4

3.3.2, second sentence: Delete "anyway" and substitute "any way."

3.3.3.3: Delete.

PAGE 5

3.3.7: Delete in its entirety and substitute:

" 3.3.7 Overall finish. The resultant finish on all parts covered by the individual specification sheets shall be stainless steel passivate in accordance with QQ-P-35" and substitute "Unless otherwise specified (see 3.1), the resultant finish on all items covered by the individual specification sheets shall be CRES passivated in accordance with QQ-P-35."

3.4, first sentence: Delete "The connectors, backshells, protective covers, etc.", and substitute "The plugs, adapters, receptacles,".

3.4.1, second sentence: Delete "shall be provided for the following minimum classes" and substitute "are provided for the following minimum styles:"

3.4.5: Delete in its entirety and substitute:

"3.4.5 Fiber optic termini. The fiber optic terminus shall be a non-removable integral part of the fiber optic connector. The specification sheets define the design and construction of the optical termination.

a. Method of optical alignment such as tube, straight sleeve, or grooved plate.

b. Coating requirements, as applicable."

3.4.5.1: Delete in its entirety and substitute:

"3.4.5.1 Fiber attachment. Unless otherwise specified (see 3.1), fiber attachment shall be provided by adhesive bonding."

Add new paragraph 3.4.5.2:

"3.4.5.2 Cable strength member attachment. Unless otherwise specified (see 3.1), cable strength member attachment shall be provided by crimping and adhesive bonding."

3.4.6, first sentence: Delete "in field equipment" and substitute "in protected field equipment."

PAGE 6

3.4.8: Delete the second, fourth, and fifth sentences in their entirety.

3.4.8: Delete the seventh sentence in its entirety and substitute: "The optical faces of the connector shall be cleanable using wipes, denatured alcohol, or compressed air."

3.4.8.1: Delete the second sentence in its entirety.

3.4.9, first sentence: Delete "(plugs and receptacles)" and substitute "(plugs, adapters, and receptacles)."

3.5.1.1, second sentence: Delete "at any time" and substitute "at any time during qualification or quality conformance testing."

PAGE 8

3.5.3.2.a: Add the following:

"3. Storage: -62°C to +85°C."

3.5.3.2.b: Add the following:

"3. Storage: -65°C to +200°C."

PAGE 10

Table I: Delete:

"

Epoxies	3.3.3.1	---

"

Table I: Delete:

"

Radioactive materials	3.3.3.3	---

"

PAGE 11

4.5.1, first sentence: Delete "Fourteen connectors of the same PIN with its mating connector" and substitute "Fourteen connector pairs of the same PIN with their appropriate adapters."

4.5.4, second and third sentences: Delete "The first report for groups A, B, and C is required at 12 months. Thereafter, groups" and substitute "Groups."

4.5.4, fifth sentence: Delete "Initial retention of qualification shall be at an 18-month interval; subsequent retention of qualification at a 36-month interval" and substitute "Retention of qualification shall be at a 36-month interval."

4.6.1.1.1.2: Add the following sentence after the first sentence:

"The manufacturer is not required to notify the qualifying activity of defective units screened out during the group A inspections."

PAGE 12

4.6.1.2.1.1, first sentence: Delete "1 year" and substitute "3 years."

4.6.1.2.1.1, third sentence: Delete "after 200,000 connectors have been produced." and substitute "2 years after qualification or after 200,000 connectors have been produced, whichever occurs first."

PAGE 14

4.7.1.b: Delete "PA" and substitute "Preparing activity (PA)."

PAGE 15

Table V, group I: Delete "Submersion" and substitute "Water submersion."

Table V, group II: In the insertion loss column for ozone exposure, delete the "X".

PAGE 16

4.7.2, first sentence: Delete "Connectors and associated fittings" and substitute "Connector plugs, adapters, and receptacles."

4.7.3, first sentence: Delete "Connector plugs and receptacles" and substitute "Connector plugs, adapters, and receptacles."

4.7.4, first sentence: Delete "Connector plugs and receptacles" and substitute "Connector plugs, adapters, and receptacles."

Table VI: Delete "70/70 restricted or equivalent mandrel wrap" and substitute "Overfill (initial insertion loss only) or 70/70 restricted or equivalent mandrel wrap."

4.7.6: Delete in its entirety and substitute:

" 4.7.6 Insertion loss (see 3.5.1.1). The initial insertion loss shall be measured in accordance with method C of EIA-455-34, using overfill launch conditions. A second insertion loss shall be measured using 70/70 launch conditions or equivalent after the initial insertion loss measurement. For subsequent insertion loss tests, 70/70 launch conditions or equivalent shall be used."

4.7.8, second sentence: Delete "25°C" and substitute "+25°C ±5°C."

PAGE 17

4.7.11.3.1, fifth sentence: Delete "after the test and every 500 cycles during the test" and substitute "after the completion of every five hundredth cycle during the test and after the test."

4.7.15, third sentence: Delete "measured every 100 cycles" and substitute "measured after the completion of every one hundredth cycle."

4.7.16.b, first sentence: Delete "the end of the plug extends to the center of the steel block" and substitute "the end of the plug extends 1.5 meters below the cable clamp to the center of the steel block."

4.8.1.b: Delete "2,000 feet per minute" and substitute "2,500 feet per minute."

PAGE 18

4.8.2: Delete in its entirety and substitute:

" 4.8.2 Temperature (see 3.5.3.2). Mated cable-connector assemblies shall be subjected to the specified operating temperature extremes as indicated. The change in optical transmittance (see 4.7.7) shall be measured at the end of each temperature plateau.

Step	Duration
1. Maintain +25°C ±2°C	1 hr minimum
2. Optical transmittance measurement	
3. Ramp to high operating temperature	2 hrs maximum
4. Maintain high operating temperature	24 hrs minimum
5. Optical transmittance measurement	
6. Ramp to +25°C ±2°C	2 hrs maximum
7. Maintain +25°C ±2°C	1 hr minimum
8. Optical transmittance measurement	
9. Ramp to low operating temperature	2 hrs maximum
10. Maintain low operating temperature	24 hrs minimum
11. Optical transmittance measurement	
12. Ramp to +25°C ±2°C	2 hrs maximum
13. Maintain +25°C ±2°C	1 hr minimum
14. Optical transmittance measurement"	

4.8.5.b: Delete "monitored during vibration" and substitute "monitored during the vibration test with equipment having a time resolution sufficient to resolve discontinuities of 50 microseconds duration."

PAGE 21

4.8.6: Delete the third sentence in its entirety.

4.8.6.d: Delete "monitored during shock" and substitute "monitored during the shock test with equipment having a time resolution sufficient to resolve discontinuities of 50 microseconds duration."

PAGE 22

4.8.10.e: Add the following after the second sentence:

"If the change in optical transmittance measurements are within the limits specified during the dust test, the mated pairs of connectors shall not be demated until the completion of the temperature cycling test."

PAGE 23

4.8.15: Delete in its entirety and substitute:

" 4.8.15 Nuclear radiation resistance (see 3.5.3.14). When specified (see 3.1), mated cable-connector assemblies shall be tested in accordance with EIA-455-49, except that the test sample shall be the mated cable-connector assembly instead of a fiber. The test shall be performed at a wavelength of 1300 ±20 nm at the low operating temperature and at +25°C ±5°C. The change in optical transmittance shall be measured during and after each test. If the change in optical transmittance at +25°C is greater than the change in optical transmittance at the low operating temperature, then a mated cable-connector assembly shall be tested at the high operating temperature."

4.8.16, third sentence: Delete "steps 3, 5, 7, and 9" and substitute "steps 1, 3, 5, 7, and 9 for each cycle."

4.8.16, step 1: Delete "Room ambient" and substitute "+25°C ±2°C."

4.8.16: Delete "The change in optical transmittance (see 3.5.1.2) shall be monitored during and after the test."

4.9.1: Add "(see 3.5.4.1)" at the end of the title.

4.9.2: Add "(see 3.5.4.2)" at the end of the title.

4.9.3: Add "(see 3.5.4.3)" at the end of the title.

4.9.4: Add "(see 3.5.4.4)" at the end of the title.

PAGE 24

6.1.e: Delete "mobile marine environment" and substitute "sheltered uncontrolled mobile marine environment."

PAGE 25

Add as a new paragraph 6.3.1:

" 6.3.1 Requalification. Requalification shall be performed every 36 months. Requalification tests shall be performed on test samples selected from the first lot produced during the 36 month period and from a lot randomly selected from production later in the 36 month period (see 4.6.1.2.1.1)."

6.5, first sentence: Delete "sequentially assigned dash number" and substitute "3 to 5 character alpha-numeric."

6.5, example: Delete "Dash number from specification sheet (see 3.1)" and substitute "3 or 4 character alpha-numeric (see 3.1)."

Add as a new paragraph 6.7:

" 6.7 Definitions."

Add as a new paragraph 6.7.1:

" 6.7.1 Receptacle. A receptacle is considered to be a mated plug-adapter assembly or a printed circuit board mounting active device adapter."

CONCLUDING MATERIAL

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

Review activities:
Army - MI
Navy - EC, AS
Air Force - 13, 17, 19, 80, 82, 84, 90, 99
DLA - ES

Preparing activity:
Air Force - 85

Agent:
DLA - ES

(Project 6060-0109)