System, AMP* LIGHTRAY* MPO, Fiber Optic

1. SCOPE

1.1. Content

This specification covers the performance, tests, and requirements for optical fiber components used in the AMP* LIGHTRAY* Multi-fiber Push On (MPO) Optical Fiber System. Components include cable, connectors, adapters, patch panels, and patch cords as indicated in Figure 4. Performance testing shall be configured and tested in a link configuration per Figures 5 and 6.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 2 shall be used. All inspections shall be performed using the applicable inspection plan(s) and product drawing(s).

1.3. Qualification Test Results

Successful qualification testing on the subject product line was completed on 14Apr97. The test file number for this testing is OIL 2353-009. This documentation is on file at and available from the Global Optical Cable and Accessories Laboratory.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1. AMP Documents

A.	102-1099:	Quality Specification
B.	114-4402:	NETCONNECT Warranted Part Number List
C.	501-381:	Test Report

2.2. Commercial Standards

A.	EIA/TIA-455-A:	Standard Test Procedures for Fiber Optic Fibers, Transducers, Sensors, Connecting and Terminating Devices and Other Fiber Optic Components
B.	EN50173, 1996:	Performance Requirements of General Cabling Schemes
C.	ISO/IEC 11801, 1995(E):	Information Technology - Generic Cabling For Customer Premises
D.	TIA/EIA-568-A, Oct 95:	Commercial Building Telecommunications Cabling Standards

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of the design, construction, and physical dimensions specified on the applicable product drawing(s).

* Trademark
I Indicates change

3.2. Optical Power Source

Optical Power Source wavelength shall be 1300 ± 30nm.

3.3. Ratings

Performance	Value	Units
Horizontal Link Attenuation, MPO Mini-Trunk	5.4	dB Max
Horizontal Link Attenuation, MPO Fanout	4.5	dB Max

Figure 1

3.4. Performance and Test Description

Product is designed to meet the optical transmittance performance requirements specified in Figure 2. Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing.	EIA-455-13. Visual, dimensional, and functional per applicable quality inspection plan.
Horizontal Link		
Attenuation.	Per Figure 1	EIA/TIA-526-14A, Method B. One reference jumper. Test in one direction at 1300nm.

Figure 2

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)	
	1	2
	Test Sequence (b)	
Examination of product	1	1
Attenuation	2	2

NOTE

(a) See Para 4.1.A.

(b) Numbers indicate sequence in which tests are performed.

Figure 3

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Test samples and link components shall be selected at random from current production per Figure 4. See test configurations in Figure 5 and 6.

Test Group	Part No.	Quantity	Length(m)	Test Group
MPO Mini-Trunk	492105-5	3	100	1,2
MPO-ST LDD Fanout (a)	492361-8	3	8	2
MPO-ST DUALAN Fanout (b)	492358-8	3	8	2
ST Cable Assembly	502144-3	36	5	1,2
MPO Coupling Adapter	503810-1	3	NA	2
ST Coupling Adapter	501381-1	36	NA	1,2
ST Coupling Adapter	501381-1	24	NA	2
Lightray WIMS Box	492357-1	6	NA	1

NOTE

(a) LDD, Light Duty Dual
(b) DUALAN 12 fiber round

Figure 4

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

4.2. Requalification Testing

If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

4.3. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 2. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal. Upon acceptance, product shall be placed in AMP Specification 114-44002.

4.4. Quality Conformance Inspection

Applicable AMP quality inspection plan will specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

5. SPECIAL INSTRUCTIONS

5.1. Cleaning

If at anytime a connector sample is uncoupled during qualification testing, the optical interface shall be cleaned according to the applicable Instruction Sheet prior to any subsequent optical measurements. Additional cleaning techniques deemed necessary by product engineering shall be described in the test report. After cleaning the connector as prescribed, and the loss performance exceeds the specified limit, or if presence of debris at the optical interface is suspected, perform the cleaning procedure a second time. If the resultant optical reading still exceeds specification, clean the interface a third time and accept that reading.

5.2. Test Configuration

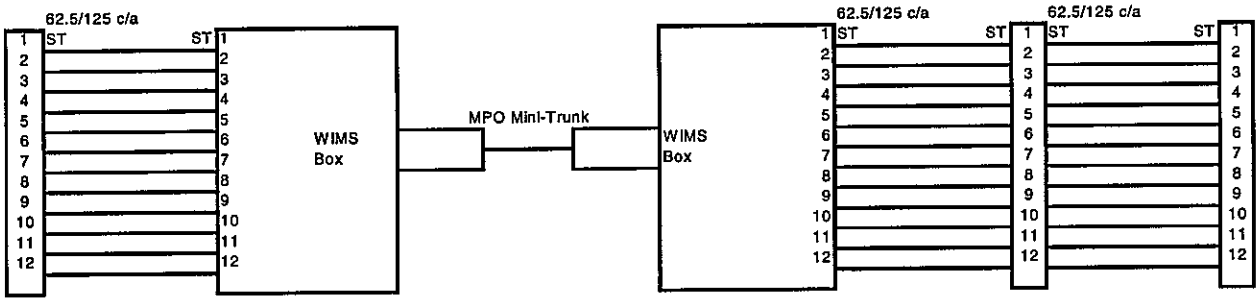

Figure 5
Setup for Group 1

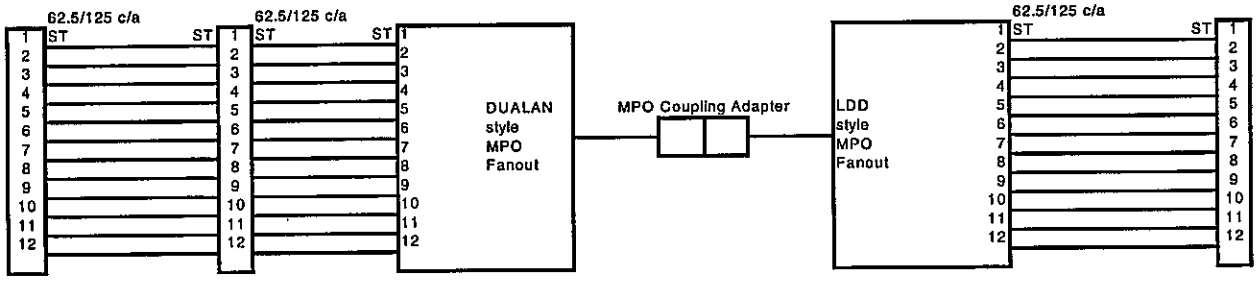

Figure 6
Setup for Group 2