

Contents

1 Introduction

1.1 Organization	1-1
1.2 Requirements Terminology	1-1
1.3 Requirement Labeling Conventions	1-2
1.3.1 Numbering of Requirement and Related Objects	1-2
1.3.2 Requirement, Conditional Requirement, and Objective Identification	1-3
1.4 Reasons for Reissue from TA Issue 3	1-3
1.5 Technical Feature/Function Audit	1-4

2 General Information

2.1 Current Methods of Fiber Optic Testing	2-1
2.2 Mechanically Non-Invasive (Clip-on) Testing	2-1
2.3 Optically Non-Invasive (Clip-on) Testing	2-2
2.4 Potential Damage to Fibers	2-3
2.5 Fiber Coloring Issues	2-4
2.6 Terminology	2-5
2.7 Types of Test Sets	2-5
2.8 Separating the Clip-on Device from the Test Set	2-6
2.9 Operating Conditions	2-7

3 General Criteria

3.1 Clip-On/Test Set Interface	3-1
3.2 Physical Design Criteria	3-1
3.3 Optical Fiber and Connectors	3-2
3.3.1 Optical Fiber	3-2
3.3.2 Optical Connectors	3-2
3.4 Documentation	3-2
3.5 Product Marking and Packaging	3-3
3.5.1 Product Marking	3-3
3.5.2 Packaging for Shipment from Supplier	3-4
3.6 Safety	3-4

4 Specific Criteria

4.1 Central Wavelength (Mainframe Unit) - Test Sets with Sources	4-1
4.2 Operational Criteria	4-1
4.2.1 Repeatability	4-1
4.2.1.1 OTDRs, Mini-OTDRs, Talksets, and VFFs	4-1
4.2.1.2 OPMs, HHOPMs, SLSs, OLTSSs, and SVSs	4-2
4.2.2 In-Line Insertion Loss	4-2
4.2.3 Reduction in Measurement Range	4-3
4.3 Fiber Damage	4-4
4.3.1 Fiber Coating Damage	4-4

4.3.2 Fiber Aging and Tensile Strength	4-5
4.4 Mechanical Design: Shock and Vibration	4-5
4.5 Environmental Criteria	4-6
4.5.1 Operating Environment	4-6
4.5.2 Non-Operating (Storage) Environment	4-6

5 Performance Verification and Test Procedures

5.1 Central Wavelength (Mainframe Unit) - Test Sets with Sources	5-2
5.1.1 Separate Clip-on Test Sets	5-2
5.1.2 Integrated Clip-on Test Sets	5-2
5.2 Operational Criteria	5-3
5.2.1 Repeatability	5-3
5.2.1.1 Optical Power Injecting Units: OTDRs, Mini-OTDRs, SLSs, Talksets, and VFFs	5-4
5.2.1.2 Optical Power Extracting Units: OPMs and HHOPMs	5-5
5.2.1.3 OLTSs and SVSs	5-6
5.2.2 In-Line Insertion Loss	5-6
5.2.3 Reduction in Measurement Range	5-7
5.3 Fiber Damage	5-8
5.3.1 Fiber Coating Damage	5-8
5.3.2 Fiber Tensile Strength	5-8
5.4 Mechanical Design: Shock and Vibration	5-9
5.4.1 Shock During Transportation	5-9
5.4.2 Shock During Use	5-9
5.4.2.1 Separate Clip-on Devices	5-9
5.4.2.2 Integrated Clip-on Devices	5-10
5.4.3 Vibration Test	5-10
5.5 Environmental Criteria	5-10
5.5.1 Operating Environment	5-11
5.5.2 Non-Operating Environment	5-13

References

Glossary

Requirement-Object Index

List of Figures

Figure 2-1	Testing with Conventional Test Sets	2-2
Figure 2-2	Testing with Clip-on Test Sets	2-2
Figure 2-3	Testing in Networks Containing Couplers/Splitters	2-3
Figure 4-1	In-Line Insertion Loss	4-3
Figure 4-2	Reduction in Measurement Range	4-4
Figure 5-1	Central Wavelength Test - Separate Clip-on Test Sets	5-2
Figure 5-2	Central Wavelength Test - Integrated Clip-on Test Sets	5-3
Figure 5-3	Repeatability Measurement Locations	5-4
Figure 5-4	Repeatability for Optical Power Launching Units	5-4
Figure 5-5	Repeatability Test for Optical Power Extracting Units	5-5
Figure 5-6	Repeatability Test for OLTSS and SVSSs	5-6
Figure 5-7	In-Line Insertion Loss	5-7
Figure 5-8	Operating Environment/Repeatability for Power Launching Units	5-11
Figure 5-9	Operating Environment/Repeatability for Power Extracting Units	5-11
Figure 5-10	Operating Environment/Repeatability for OLTSS and SVSSs	5-12
Figure 5-11	Operating Environment/In-Line Insertion Loss	5-13

List of Tables

Table 4-1	Testing Required for Fiber Damage	4-5
Table 5-1	Vibration Test Specifications	5-10