

Contents

Telcordia GR-771-Documentation Information

Generic Requirements Notice Of Disclaimer	iii
List of Figures	ix
List of Tables	x
Preface	xi
Telcordia Interactive GR Process	xi
FA-TA-TR to GR	xi
Transition Phase	xi
Comments and Issues List Report Mechanism	xii
GR-771-CORE Current Maturity Level, Status, and Plans	xii
Formatting Comments	xiii
Where and When to Submit Comments	xiii
1 Introduction	
1.1 Purpose and Scope	1-1
1.2 Organization	1-1
1.3 Summary of Changes	1-2
1.4 Requirements Terminology	1-3
1.5 Requirement Labeling Conventions	1-4
1.5.1 Numbering of Requirement and Related Objects	1-4
1.5.2 Requirement, Conditional Requirement, and Objective Identification	1-4
2 General Information	
2.1 Product Description	2-1
2.2 Deployment Environments	2-3
2.3 Installation and Operating Environment	2-4
3 General Requirements and Objectives	
3.1 Documentation	3-1
3.1.1 Practices	3-1
3.1.2 Workcenter Information Package	3-1
3.2 Markings, Packaging, and Shipping	3-2
3.2.1 Identification	3-2
3.2.2 Shipping Container and Packaging Arrangement	3-2
3.2.3 Package Label	3-2
3.2.4 Package Quality	3-3
3.2.5 Consumable Materials	3-3
3.3 Initial Product Qualification and Periodic Requalification	3-3
4 Splice Closure Features and Functions	
4.1 Materials	4-1

4.1.1	Metallic	4-1
4.1.2	Non-Metallic	4-1
4.2	Common Closure Requirements	4-1
4.2.1	Cable Compatibility	4-2
4.2.2	Cable Entrance Capacity	4-2
4.2.3	Cable Termination Hardware	4-3
4.2.4	Bonding and Grounding Hardware	4-3
4.2.5	Closure Mounting Hardware	4-4
4.2.6	Fiber and Splice Organization	4-4
4.2.7	Fiber and Splice Storage Capacity	4-5
4.2.8	Fiber and Splice Protection	4-5
4.2.9	Maintenance	4-6
4.2.10	Components	4-6
4.2.11	Installation Size & Weight	4-6
4.2.12	Safety	4-6
4.2.13	Security	4-7
4.2.14	Tools	4-7
4.3	Taut Sheath Closures (TSCs)	4-7
4.3.1	Closure Configuration	4-7
4.3.2	Cable Termination	4-7
4.3.3	Cable Capacity	4-7
4.3.4	Cable Sheath Opening	4-8
4.3.5	Fiber Splicing	4-8
4.3.6	Fiber and Splice Storage	4-8
4.4	Free Breathing Closures (FBCs)	4-9
4.4.1	Drainage for Condensate	4-9
4.4.2	Insect Resistance	4-9
4.5	Hermetically Sealed Closures (HSCs)	4-9
4.5.1	Air Valve	4-9
4.6	Pre-Terminated Closures (PTCs)	4-10
4.6.1	Closure Dimensions	4-10
4.7	Hybrid Fiber Closures (HFCs)	4-10

5 Performance Requirements and Objectives

5.1	General	5-1
5.2	Electrical Criteria	5-1
5.2.1	Bond Clamp Retention	5-1
5.2.2	AC Fault Test	5-2
5.3	Mechanical Criteria	5-2
5.3.1	Cable Clamping	5-2
5.3.2	Sheath Retention	5-3
5.3.3	Cable Flexing	5-3
5.3.4	Cable Torsion	5-3
5.3.5	Vertical Drop	5-3
5.3.6	Compression	5-4
5.3.7	Impact	5-4

5.3.8 Central Member (CM) Protrusion	5-4
5.4 Environmental Criteria	5-5
5.4.1 Accelerated Thermal Aging	5-5
5.4.2 Assembly	5-5
5.4.3 Temperature and Humidity	5-5
5.4.4 Freeze/Thaw	5-6
5.4.5 Weathertightness	5-6
5.4.6 Water Resistance	5-6
5.4.7 Corrosion Resistance	5-7
5.4.8 Chemical Resistance	5-7
5.4.8.1 Material Degradation	5-8
5.4.8.2 Chemical Immersion	5-8
5.4.9 Ultraviolet Resistance	5-8
5.4.10 Fungus Resistance	5-9
5.5 Conditional Requirements	5-9
5.5.1 Bulletproof Resistance	5-9
5.5.2 Cable Core Blocking Ability	5-9
5.5.3 Rodent Resistance	5-9
5.5.4 Steam Resistance	5-10
5.5.5 Fire Resistance	5-10

6 Performance Verification

6.1 Test Program	6-1
6.1.1 Test Schedule	6-2
6.1.2 Sample Preparation	6-4
6.1.3 Test Conditions	6-4
6.1.4 Optical Measurements	6-4
6.1.5 Retesting	6-4
6.2 Electrical Tests	6-4
6.2.1 Bond Clamp Retention	6-5
6.2.2 AC Fault Test	6-5
6.3 Mechanical Tests	6-6
6.3.1 Cable Clamping	6-7
6.3.2 Sheath Retention	6-7
6.3.3 Cable Flexing	6-9
6.3.4 Cable Torsion	6-10
6.3.5 Vertical Drop	6-11
6.3.6 Compression	6-11
6.3.7 Impact	6-13
6.3.8 Central Member Protrusion	6-13
6.4 Environmental Tests	6-15
6.4.1 Thermal Aging	6-15
6.4.2 Assembly	6-15
6.4.3 Temperature and Humidity	6-16
6.4.4 Freeze/Thaw Test	6-17
6.4.5 Weathertightness (Dust) Test	6-18

6.4.6	Water Resistance Tests	6-18
6.4.7	Corrosion Resistance	6-21
6.4.8	Chemical Resistance Tests	6-21
6.4.8.1	Stress Cracking	6-21
6.4.8.2	Chemical Immersion	6-22
6.4.9	UV Resistance Test	6-24
6.4.10	Fungus Resistance Test	6-25
6.5	Conditional Requirements	6-25
6.5.1	Bullet Resistance	6-25
6.5.2	Cable Core Blocking Test	6-25
6.5.3	Rodent Resistance	6-26
6.5.4	Steam Resistance	6-27
6.5.5	Fire Resistance	6-27

Appendix A: Optical Measurements

A.1	Apparatus	A-1
A.2	Transmission Measurement Facility	A-1
A.3	Backscatter Measurement Facility (OTDR)	A-2

Appendix B: Observational Standard

Appendix C: References

Note	C-4
To Contact Telcordia Customer Service or to Order Documents	C-4
To Order Documents From Within Telcordia (Employees Only)	C-4
Sources for Other References	C-4

Requirement-Object Index

List of Figures

Figure 6-1	AC Fault Test	6-6
Figure 6-2	Splicing Assignment for Ribbon Fiber	6-7
Figure 6-3	Cable Pullout Test	6-8
Figure 6-4	Cable Flex Test	6-9
Figure 6-5	Cable Torsion Test	6-10
Figure 6-6	Compression Test	6-12
Figure 6-7	Central Member Test Fixture	6-14
Figure 6-8	Central Member Protrusion Test	6-14
Figure 6-9	Temperature Cycle	6-16
Figure 6-10	Freeze/Thaw Test	6-17
Figure 6-11	Water Immersion Test	6-19
Figure 6-12	Three Point Test Fixture	6-22
Figure 6-13	Test Bar Samples	6-23
Figure 6-14	Cable Core Blocking Test	6-26
Figure 6-15	Vertical Test Rack	6-30
Figure 6-16	Burner Arrangement – Vertical Test	6-31
Figure 6-17	Horizontal Test Equipment	6-32
Figure 6-18	Sample Placement - Horizontal Test	6-33
Figure A-1	Transmission Measurement Test Facility	A-2
Figure A-2	OTDR Measurement Test Facility	A-2
Figure B-1	Telcordia Observational Standard for Evaluating Dust Accumulation (Redrawn From Original Photograph for Better Screen Representation)	B-1

List of Tables

Table 4-1	Cable Capacity	4-2
Table 4-2	Fiber and Splice Capacity	4-5
Table 5-1	Cable Pullout Criteria Levels	5-3
Table 5-2	Compression Criteria Levels	5-4
Table 5-3	Impact Criteria Levels	5-4
Table 5-4	Freeze/Thaw Criteria	5-6
Table 5-5	Weathertightness Criteria	5-6
Table 5-6	Water Resistance Criteria Levels	5-7
Table 5-7	Corrosion Resistance Criteria Levels	5-7
Table 5-8	Ultraviolet Resistance Criteria	5-8
Table 6-1	Performance Test Sequence	6-2
Table 6-2	Immersion Test Fluids	6-24
Table 6-3	Rodent Chew Ratings	6-27