



**Verizon NEBS™ Compliance: 12 & 24 Port
Transmit Receive Units**
Verizon Technical Purchasing Requirements
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CHANGE CONTROL RECORD:

Version	Date	Action*	Reason for Revision
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1.0 PURPOSE

The purpose of this Verizon Technical Purchasing Requirement document is to provide FOC testing requirements for 12 and 24 port Transmit Receive (TR) units

2.0 SCOPE

Remote Optical Maintenance Testing

3.0 REFERENCES

FOC Memo #34	TR and Fiber Reel-2006-VJ March 7, 2006
GR-13-CORE	Generic Requirements for Pedestal Terminal Closures
GR-771-CORE	Generic Requirements for Fiber Optic Splice Closures
GR-1209-CORE	Generic Requirements for Passive Optical Components

4.0 ACRONYMS

FOC	Fiber Optic Components
ITL	Independent Testing Laboratory
TR	Transmit Receive
OTDR	Optical Time Domain Refeectometer

5.0 TEST REQUIREMENTS FOR 12 & 24 PORT TRANSMIT RECEIVE UNITS

Verizon is considering using TR-12 and 24 port units with OTDR for remote optical maintenance applications. The following are the test requirements for qualifying 12 and 24 port TR units. All testing must be completed by a Verizon approved ITL.



FOC Test Program for TR-12/24

Task Name	No. Of Samples	Optical Monitoring	Test Conditions
Environmental Performance			
GR-1209: 5.4.1.1: Temp Humidity Aging	3 Test samples	B/D/A IL	75° C/90% Humidity, 7 days
GR-1209: 5.4.1.5: Temperature Cycling	3 Test samples	B/D/A IL	-40° C to 70° C
GR-1209: 5.4.2.2: Humidity/Condensation Cycle	3 Test samples	B/D/A IL	-40° C to 85°C, Hum @ 20% to 85% (uncontrolled)
GR-1209: 5.4.1.2: Vibration Test	3 Test samples	B/D/A IL	10-55 Hz, 1 hour, 1.52mm Amp, 3axes (20minutes/axis), 23C
Mechanical Performance			
GR-1209: 5.4.1.4: Module Impact	3 Test samples	B/D/A IL	200g, 3axes, 2impacts/direction (12 total), Nominal 1.33ms, Half Sine Pulse
GR-1209: 5.4.2.3: Water Immersion	3 Test samples	B/D/A IL	+43C, pH5.5, 7 Days
GR-13: 3.25: Handling Shock	3 Test samples	N/A	Unpackaged Shock
GR-771: 6.3.6 Compression Test	2 Test samples	N/A	300 lbs; 1@-40C and 1@40C both for 15 minutes. No damage
Chemical Testing			
GR-771: 5.4.10: Fungus Resistance	10 test bars	N/A	Casing material only
GR-771: 5.4.8.A Chemical Resistance - Stress Cracking	10 test bars	N/A	Casing material only
GR-13: 3.6.1: Color	2 Test sample	N/A	Casing material only
GR-13: 3.6.2: Appearance	2 Test sample	N/A	Casing material only
GR-13: 3.6.3: Scrape Adhesion	2 Test sample	N/A	Casing material only
Documentation, storage, handling & Labeling			Must meet Verizon RFP and Industry requirement
* B/A Before and After Optical Testing at (1310, 1490, 1550, 1625)			
* D - During Test Optical Testing at (1310, 1490, 1550, 1625)			
* IL -Insertion Loss; use OTDR based Switch system and monitor all the fibers			
* Test 1 to 4 must be performed in series on the same samples			
* Requires FOC ITL tested GR20 fiber and Cable, GR326 Connector and GR-1222 Terminators			