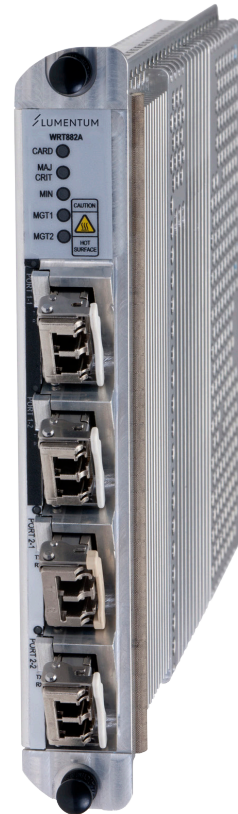# WaveReady® WRT-882

Dual 10 G Tunable Transponder

DWDM Reach Extension and Regeneration

The WaveReady WRT-882 is a dual bidirectional OTN transponder that converts short-reach 10 G optical signals to long-reach OTN optical interfaces. Its network interface is C-band tunable and supports mapping of client signals into OTU2 (G.709) with forward error correction (FEC). The WRT-882 can double the usable bandwidth of a single WaveReady shelf to over 260 G.

The WaveReady WRT-882 provides a 10 G small form-factor pluggable (XFP) tunable line interface and pluggable XFP client-side optics. The 10 G XFPs support various protocols and reaches, including 8 G Fibre Channel, OC-192/STM-64 (SR-1), and 10 Gigabit Ethernet (10 GE).

The module supports 3R (reshape, retime, and regeneration) operation at all supported rates.

Optical Service Demarcation
The WRT-882 also has advanced demarcation capability, including such features as remote management, performance statistics on network and client interfaces, data-rate provisioning, loopback testing, and power monitoring. These functions facilitate fault location and correction and simplify operations required by service management and service level agreements (SLA).

Key Benefits
- Increases optical transport layer channel density: two independently provisionable 10 G circuits per card support up to 260 G per chassis
- A single module provides OTN mapping, reach extension, and OTN regeneration
- All-XFP design supports CWDM and DWDM line- and client-side optics to interface with 850, 1310, or 1550 nm equipment
- Collects performance monitoring data on client and line interfaces
- Supports TL1 and SNMP management, including remote management through embedded communication channel
- Improves transmission performance with FEC (G.975) or EFEC regeneration

Key Features
- Dual 10 G OTN transponder (4 port, all XFP) and OTN Mapper (8 G FC, OC-192, 10 GE WAN/LAN)
- Transparent protocol mapping from 9.8 to 11.3 Gbps
- Dual OTN regeneration
- 3R regeneration on all ports
- High FEC coding gain >8 dB
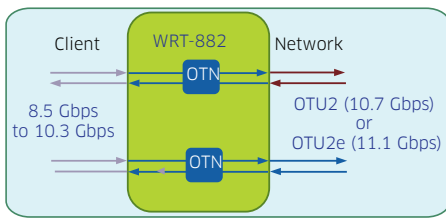- Diagnostic loopbacks

Compliance
- GR-253-CORE, Issue 3, Sections 4.1 (Physical Layer Classifications), 5.6.1 (Jitter for Regenerators), and 7(Other Generic Criteria)
- Telcordia NEBS Level 3; UL 60950, first edition; CAN/CSA C22.2 No. 60950 01; FCC class A; CE; IEC 60825-2
- RoHS compliant (exemptions 7b, 8a)

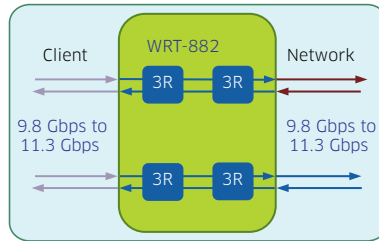## Simple and Effective High-Density OTN Transport

The WRT-882 provides a simple, transparent high-density transport solution for the services delivered over optical transport layer (OTN). Nonintrusive performance statistics network fault isolation while providing service availability metrics. In addition, transport over the OTN provides an embedded management channel (EMC), which can be used to manage remote nodes and improve transmission performance by using standard or enhanced FEC.

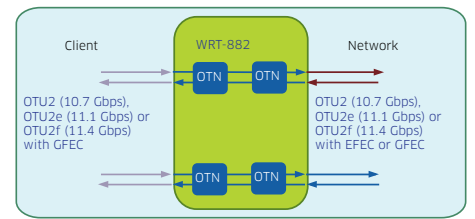## Reduced Inventory and Faster Service Turn-Up

The WRT-882 is a tunable transponder that can be used in C-band deployments and can be configured to any wavelength within the selected band. Because the WRT-882 is a tunable transponder, it can be used as a spare to replace any 10 G transponder in existing systems, significantly reducing costs associated with spare transponders. The WRT-882 also reduces turn-up time for new services, because it can be configured rapidly to use any wavelength available in the network.

Dual Transponder Mode

Transparent Transponder Mode

Dual OTN Regeneration Mode

Specifications

Parameter[1]		Minimum	Typical	Maximum
Optical Transport and Customer Interface Side				
OTN mode	Client data rates to network OTU-2 (10.7 Gbps)	8G Fibre Channel & OC-192/STM-64/10 GE WANPHY		
	Client data rates to network OTU-2e	10 GE LANPHY		
Transparent mode network and client data rates		CPRI 7 (9.83 Gbps), 9.953 Gbps (OC-192/STM-64), 10.312 Gbps (10 GE LAN PHY) 10.519 Gbps (10 G FC), 10.709 Gbps (OTU-2), 11.09 Gbps (OTU-2e), 11.3 Gbps (OTU-2f)		
Monitors				
Tx and Rx		Refer to XFP specifications for all ports		
Electrical[2]				
DC supply voltage		—	–48 V	—
Power dissipation (approximate)		—	32 W	50 W
Alarm relay signals		Dry contact major and minor alarms; relay open under normal operation; relay closed when power is off		
Physical				
Size (H x W x L)		17.5 x 2.5 x 22.3 cm (6.8 x 1 x 8.8 in)		
Weight (approximate)		0.91 kg (2.0 lb)		
Environmental				
Normal operating temperature		0°C	—	40°C
Extended operating temperature		–5°C	—	55°C
Storage temperature		–40°C	—	85°C
Relative humidity (noncondensing)		5%	—	90%

1. All specifications are guaranteed over the life, operating temperatures, wavelength range, and input voltage specified.
2. Electrical specifications assume installation in a WaveReady 3500F-HP shelf (DMS-3500FSE04).

Specifications

Interface	Description
Optical	LC/PC XFP interface on all ports, SMF or MMF, as specified for the XFP
Craft communications	Requires WaveReady 3500F-series shelf and a WaveReady COM-300 5.1 module. Craft access through USB, Ethernet via RJ45, and Ethernet via OSC
TL1/SNMP	Requires WaveReady 3500F-series shelf and a WaveReady COM-300 communications module. TL1/SNMP interfaces via the 10/100BaseT Ethernet/RJ45 connector on the front panel of a COM-300
Front panel	Five LEDs: CARD (power); MAJ/CRIT (major/critical alarm); MIN (minor alarm); MGT1 (management for transponder 1); MGT2 (management for transponder 2)

XFP Channel Plan

ITU Channel	Frequency [THz]	Wavelength [nm]	ITU Channel	Frequency [THz]	Wavelength [nm]	ITU Channel	Frequency [THz]	Wavelength [nm]
17	191.70 191.75	1563.86 1563.45	32	193.20 193.2	1551.72 1551.32	47	194.70 194.75	1539.77 1539.37
18	191.80 191.85	1563.05 1562.64	33	193.30 193.35	1550.92 1550.52	48	194.80 194.85	1538.98 1538.58
19	191.90 191.95	1562.23 1561.83	34	193.40 193.45	1550.12 1549.72	49	194.90 194.95	1538.19 1537.79
20	192.00 192.05	1561.42 1561.01	35	193.50 193.55	1549.32 1548.91	50	195.00 195.05	1537.40 1537.00
21	192.10 192.15	1560.61 1560.20	36	193.60 193.65	1548.51 1548.11	51	195.10 195.15	1536.61 1536.22
22	192.20 192.25	1559.79 1559.39	37	193.70 193.75	1547.72 1547.32	52	195.20 195.25	1535.82 1535.43
23	192.30 192.35	1558.98 1558.58	38	193.80 193.85	1546.92 1546.52	53	195.30 195.35	1535.04 1534.64
24	192.40 192.45	1558.17 1557.77	39	193.90 193.95	1546.12 1545.72	54	195.40 195.45	1534.25 1533.86
25	192.50 192.55	1557.36 1556.96	40	194.00 194.05	1545.32 1544.92	55	195.50 195.55	1533.47 1533.07
26	192.60 192.65	1556.55 1556.15	41	194.10 194.15	1544.53 1544.13	56	195.60 195.65	1532.68 1532.29
27	192.70 192.75	1555.75 1555.34	42	194.20 194.25	1543.73 1543.33	57	195.70 195.75	1531.90 1531.51
28	192.80 192.85	1554.94 1554.54	43	194.30 194.35	1542.94 1542.54	58	195.80 195.85	1531.12 1530.72
29	192.90 192.95	1554.13 1553.73	44	194.40 194.45	1542.14 1541.75	59	195.90 195.95	1530.33 1529.94
30	193.00 193.05	1553.33 1552.93	45	194.50 194.55	1541.35 1540.95	60	196.00 196.05	1529.55 1529.1
31	193.10 193.15	1552.52 1552.12	46	194.60 194.65	1540.56 1540.16	61	196.10	1528.77

Supported XFPs

The WRT-882 supports several WaveReady XFP pluggables.

General information, including compatibility with this module, data rates, and channel plans for currently supported XFP pluggables is available in the **WaveReady™ 100 Mbps to 11.3 Gbps SFP, XFP, and SFP+ Optical Transceivers** selection guide available here: http://www.lumentum.com/ProductLiterature/wrsfpxfp-sg-cms-nse-ae.pdf.

Full technical details for all currently supported WaveReady SFP, SFP+, and XFP pluggables are available in the **WaveReady Pluggables Reference Guide** available here: http://www.lumentum.com/ProductLiterature/ WRPluggables_ReferenceGuide_22028376.pdf.

Ordering Information

For more information on this or other products and their availability, please contact your local Lumentum account manager or Lumentum directly at customer.service@lumentum.com.

Description	Part Number
Dual 10 G tunable transponder with GFEC and EFEC	WRT-882DT000B
Associated Parts	
7RU WaveReady WR3500F shelf	DMS-3500FSE04
8RU WaveReady WR3500F high-power shelf	DMS-3500FSE05
Communications module 300 (COM-300)	COM-300ET003Y-5.1
40-channel universal multiplexer, channels 20 to 59	MDX-40UX100CB
40-channel mux/demux with test port, channels 20 to 59	MDX-40MD101CB
44-channel mux/demux with test port, channels 18 to 61	MDX-44MD101CB

Description	Part Number
WaveReady multichannel (DWDM) C-band optical amplifier, max output power: 17 dB	WRA-217C0001B
WaveReady multichannel (DWDM) C-band optical amplifier, max output power: 17 dB, 1510 nm add/drop filters	WRA-217CSC01B
WaveReady multichannel (DWDM) C-band optical amplifier, max output power: 17 dB, 1510 nm add/drop filters, tilt capable	WRA-217CSC02B
WaveReady multichannel (DWDM) C-band optical amplifier, max output power: 19 dB	WRA-219C0001B
WaveReady multichannel (DWDM) C-band optical amplifier, max output power: 19 dB, 1510 nm add/drop filters	WRA-219CSC01B
WaveReady multichannel (DWDM) C-band optical amplifier, max output power: 19 dB, 1510 nm add/drop filters, tilt capable	WRA-219CSC02B
WaveReady intelligent line amplifier,standard, 1RU	WRA-L20C1001B
WaveReady intelligent line amplifier, extended temperature, 2RU	WRA-L20C2H01B

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