Optiva OTS-1 Ref-400
400 MHz Reference Oscillator Link

ORTEL®
A Photonics Foundries Enterprise

DATASHEET | JANUARY 2024 SATCOM

The Optiva OTS-1 Ref-400 Reference Oscillator Link is optimized for the transport of 400 MHz high-level reference signal input. It features low phase noise and high-dynamic-range, with optically-isolated DFB lasers that run cool and have low power consumption requirements.

Optiva Reference Oscillator Links are SNMP compliant. They can be housed in the same chassis and monitored by the same Network Management System (NMS) as other Optiva cards to support transport of multiple signal formats and frequency bands in a single flexible platform.

Applications

- Satellite Reference Signals
- Satellite Time Code

Features

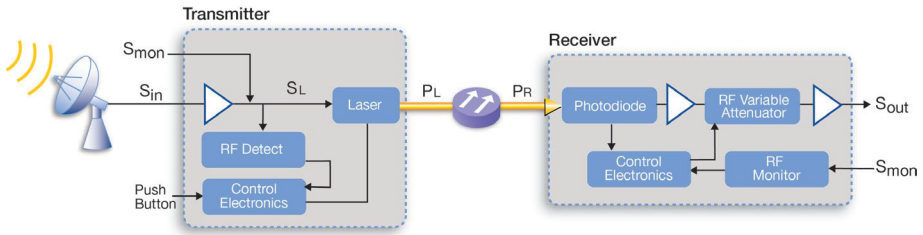
- Optimaized 400 MHz Refrence Signals
- Designed for High Level Signal Input
- RF 50 Ohm SMA, Optical E2000
- Receiver RF Power Monitoring via LED, SMA & Remote Monitoring
- SNMP Monitoring and Control
- High-Dynamic-Range, Optically-Isolated DFB Lasers Run Cooler and Require Less Power
- Fits in Optiva Enclosures – 16, 6, 2, & 1 Slot Enclosures Available
- Hot Swap Redundant Power Supplies Virtually Eliminate Downtime
- CE & CSA Certified, RoHS Compliant

System Design

The Optiva platform includes a wide range fiber optic transport products for satellite and microwave communications from 1 MHz to 40 GHz. These units can be used to construct transparent inter- and intra-facility links for short- and long-haul RF and microwave signal transport, antenna remoting, electronic warfare systems and other high-dynamic-range applications.

Optiva is a completely modular, hot-swappable platform. Both 19” rack-mount and compact tabletop, or wall-mountable enclosures are available. The 3 RU 19” rack- mount, fan-cooled enclosures (Model OT-CC-16 and OT-CC-16F) can support up to 16 insert cards and utilize two dual-redundant, hot-swappable 200 watt power supplies. The 1 RU 19” rack-mount, fan-cooled enclosure (Model: OT-CC-6-1U) can accommodate 6 insert cards and utilizes two hot-swappable 60 watt power supplies. Compact one-slot (OT-DTCR-1), or two-slot (OT-DTCR-2) enclosures are also available that use an external wall-mount power supply.

Block Diagram



Optiva OTS-1 Ref-400
400 MHz Reference Oscillator Link

ORTEL®
A Photonics Foundries Enterprise

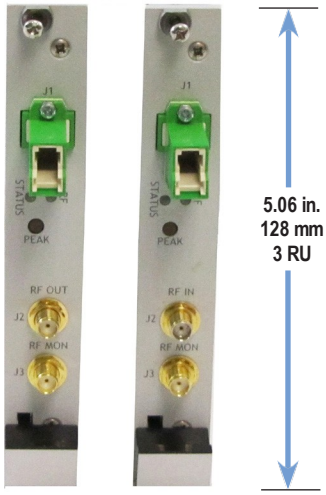
DATASHEET | JANUARY 2024 SATCOM

Performance Highlights

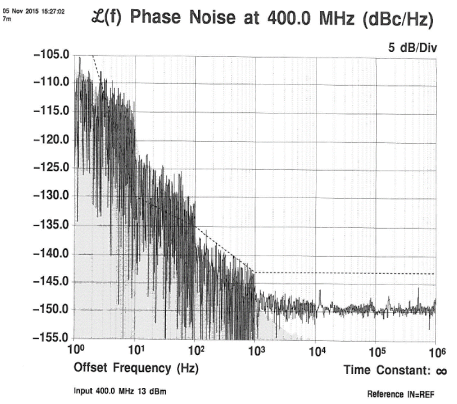
	Parameter	Min	Typical	Max	Units
Link	Frequency Range	350	-	400	MHz
	Fiber Distance	0	2	4	Km
	Optical Loss[2]	0	1	2	dBo
	Phase Noise[2] @ +11 dBm RF Input, 1 dB Optical loss, 25°C > 10 Hz > 100 Hz > 1 kHz	 - - -	 - - -	 -100 -125 -145	dBc/Hz
	Air Temperature	-10	-	50	˚C
TX	RF Input[2]	-	+14	-	dBm
	2nd Order Harmonic	-	-	-40	dBc
	Non Harmonic Distortion	-	-	-80	dBc
	Wavelength	1280	-	1340	nm
	Input Return Loss	-12	-	-	dB
	RF Monitor Port Insertion Loss		29		dB
	DC Power (@ 25°C)[3]	- -	12 -	- 500	V mA
	Optical Output	6	7	-	dBmo
RX	RF Output (Tx at peak, 1 dBmo into Rx)	-	14	-	dBm
	Output Return Loss	-10	-	-	dB
	Optical Input	5	6	-	dBmo
	DC Power	- -	12 -	- 300	V mA

1. dBmo & dBo indicate optical power & loss to minimize confusion with RF dBm & dB
2. May degrade when operating outside of specified RF input and optical loss
3. 1.5 A Max Current at Temperature

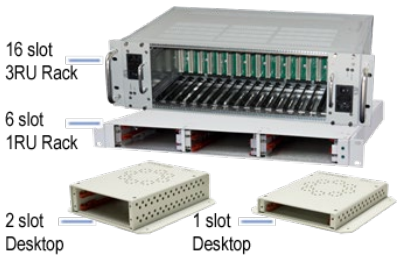
OTS-1 Ref (Tx & Rx)



Typical Phase Noise



Enclosure Options



sales@ortel.com | www.ortel.com

Optiva OTS-1 Ref-400
400 MHz Reference Oscillator Link

ORTEL®
A Photonics Foundries Enterprise

DATASHEET | JANUARY 2024 SATCOM

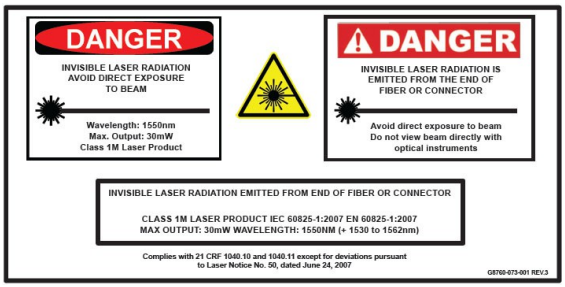
Ordering Information

Product Code	Specifications
OTS-1RefT-400/S5-1307-E2-IC	Transmitter, Frequency Reference, 400 MHz, SMA 50 ohm, 1310 nm, 7 dBm, E2000
OTS-1RefR-400/S5-E2-IC	Receiver, Frequency Reference, 400 MHz, SMA 50 ohm, E2000
OPV-CTLR-IC	NMS SNMP Controller Card & MIB for Optiva Family
OTP-1ETR-A2/A2	Optical Tcvr, 1 Ch, Ethernet, SM, Dual LC
OT-CC-16F-XXX	Chassis, Rack-Mount, 16-Slot, 3 RU -- See OT-CC-16F data sheet for exact models
PS-200F-XX	Power Supply, 12 VDC, 100 to 240 VAC, 50/60 Hz, (Specify power cord (NA, EU, UK)
OT-CC-6-XX	Chassis, Rack-Mount, 6-Slot, 1 RU – See OT-CC-6 data sheet for exact models
OT-DTCR-1 / OT-DTCR-2	Chassis, Flange-Mount, w/Power Supply, 1 slot / 2 slot – See OT-DTCR data sheet for exact models

Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All Versions of this laser are Class 1M laser product, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example: eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example: telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 µm.
Maximum power = 30 mW.



*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

*IEC is a registered trademark of the International Electrotechnical Commission.

FCC PART 15 COMPLIANT RoHS COMPLIANT CE MADE IN USA