

## Integrated Microwave Transceiver RACK1122

*0.05 – 18 GHz, 1550 nm Externally Modulated Transmitter with Receiver and Integrated AGC, Pre & Post Amps*

The Emcore RACK1122 is an integrated, 1 RU high-performance transceiver with guaranteed performance over the 0.05 – 18 GHz frequency band. It incorporates a high dynamic range externally modulated transmitter, RF preamplifier, optical receiver, RF post amplifier and optical AGC. It provides +6 dBm minimum of optical output power. The optical AGC provides fixed gain operation for a constant RF input power and varying optical link budgets.

The unit can be used to construct transparent optical links for microwave test cell antenna remoting, microwave signal distribution, microwave delay lines, point-to-point data links and other applications where it is necessary to transport RF and microwave signals over long distances without signal degradation.

The unit operates at a nominal optical wavelength of 1550 nm.

### Specifications

#### Electrical

RF Connectors	SMA (female, 50Ω)
Frequency Range	0.05 to 18 GHz
TX RF Input Power	-30 dBm, max
Input IP3 at 18 GHz	-22 dBm, typical
Input P1dB at 18 GHz	-28 dBm, typical
RX RF Output Power Range	-30 dBm, typical

#### Optical

Wavelength	1550 ± 6 nm
Connectors	SC/APC
TX Optical Output Power	+6 to +8 dBm
Optical Power Stability	<± 0.5 dBm over temperature and time
RX Optical Input Power	0 to +6 dBm for AGC operation with constant RF output

#### Physical

Configuration	Self Contained 1 RU Housing, 19" Rack
Dimensions	1.75" H x 17" W x 14" D
Operating/Storage Temperature	0°C to +50°C
Power Requirements	110 VAC @ 100W

#### Interface and Control

RF Gain Control	Optical AGC
Front Panel Indicators	Power, Link Status LED



### Applications

- Microwave Test Cell Antenna Signal Remoting
- Microwave Data Links
- Broadband Delay-Line and Signal Processing Systems
- Frequency Distribution Systems

### Features

- Integrated externally modulated transmitter, preamp, receiver and post amp
- Optical AGC
- 0.05 – 18 GHz specified bandwidth
- High dynamic range
- 1 RU rack mount package
- Front panel RF and optical connections

**For more information on this and other products:**

Contact Sales at Emcore 626-293-3400, or visit [www.emcore.com](http://www.emcore.com)

### Link Performance (with 0 to -6dBm at Receiver)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Link Gain	G	@ 50 MHz	-10	0		dB
	G	@ 18 GHz	-15	-7		dB
Input IP3	IIP3	@10 GHz		-22		dBm
Spurious Free Dynamic Range	SFDR	@ 10 GHz		98		dB/Hz <sup>2/3</sup>
Gain Variation		50 MHz to 18 GHz		7		dB
Noise Figure	NF	50 MHz to 18 GHz		≤20		dB

### Laser Safety

#### Class IIIb Laser Product

FDA/CDRH Class IIIb laser product. All transmitter versions are Class IIIB laser products per CDRH, 21 CFR 2040 Laser Safety requirements. All versions are Class 3B laser products per IEC\*60825-1:1993.

Maximum Power = 8 dBm

**Caution: Use of controls, adjustments and procedures other than those specified herein may result in hazardous laser radiation exposure.**

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

