

## 3-4um MIR Widely Tunable Single Frequency Fiber Laser



### Description

OPPO MIR is a supercontinuum laser based on optical parametric oscillation (OPO) to generate MIR wide-spectrum tunable Single frequency Laser. OPPO MIR has tunable wavelength range of 3-4um, with maximum output power of more than 1W at individual wavelength.

OPPO MIR mid-infrared laser has important applications in remote sensing, detection, medical and bioimaging fields. It boasts of high stability, high reliability, and wavelength and power tunability via software support. With the particular high brightness, good coherence performance, it can be widely used in photoelectric confrontation, air pollution detection and infrared sulfur glass characterization etc.

### Features

- Tunable wavelength
- Mode-hop-free sweep
- Excellent power stability
- Diffraction limited beam

### Application

- Gas sensing
- Atmospheric remote sensing
- Biomedical analysis
- Test and measurement

## E/O Characteristics

Specs	Require Value	Testing Value	Unit
Central Wavelength	3400	3436	nm
Tuning Range	300	400	nm
Work Mode	CW	CW	-
Output Power(3.4um)	> 1	1.5	W
Output Mode	Free Space	Free Space with Collimation	-
Power Adjust Range	10-100	10-100	%
Beam Quality (M2)	M2<1.1	/	-
Polarization Ratio	≥20	20	dB
Power Stability	RMS<1%@2 h	PP: 4.2%; RMS: 0.7%	%
Operation Temperature	20-25	23	°C
Store Temperature	20°C-25°C	20°C-25°C	%
Cooling method	Water	24 deg Cold water	-

## Power test

I (A) -1064nm	I (A) -1542nm	3400nm Power(W)	T2(°C)
4	4	0.012	143.67
5	5	0.015	143.67
6	6	0.026	143.67
7	7	0.036	143.67
8	8	0.058	143.67
9	9	0.29	143.67
10	10	0.356	143.67
11	11	0.96	143.67
12	12	1.57	143.67
12.2	12.2	1.65	143.67
12.5	12.2	1.73	143.67

Figure 1: 3400nm laser output power towards Pump Current

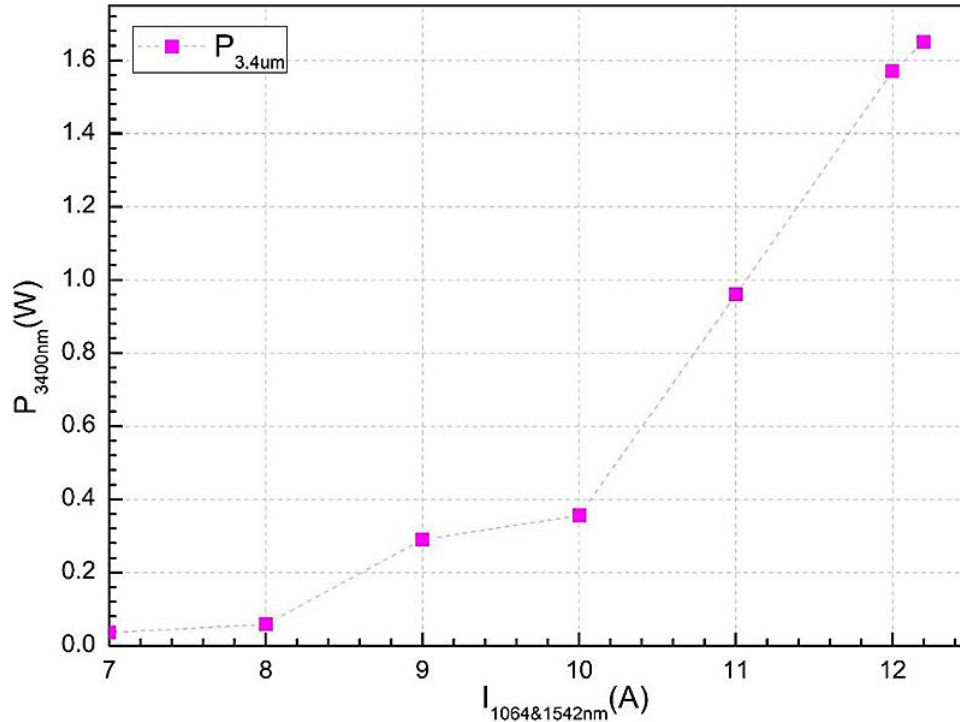


Figure 1. 3400nm MIR Laser Output Towards 1064nm and 1542nm Pump Current, Matching Temperature 143.67°C.

**1. Tuning Range and Testing condition:**

1542nm Laser wavelength Keep the same, 1064nm Changes from 1040nm to 1080nm, The 3.4um wavelength tuning range is 400 nm, The crystal's best matching Temperature changes 22deg, Tuning Spectrum reference Figure 5.

**2. Power stability testing**

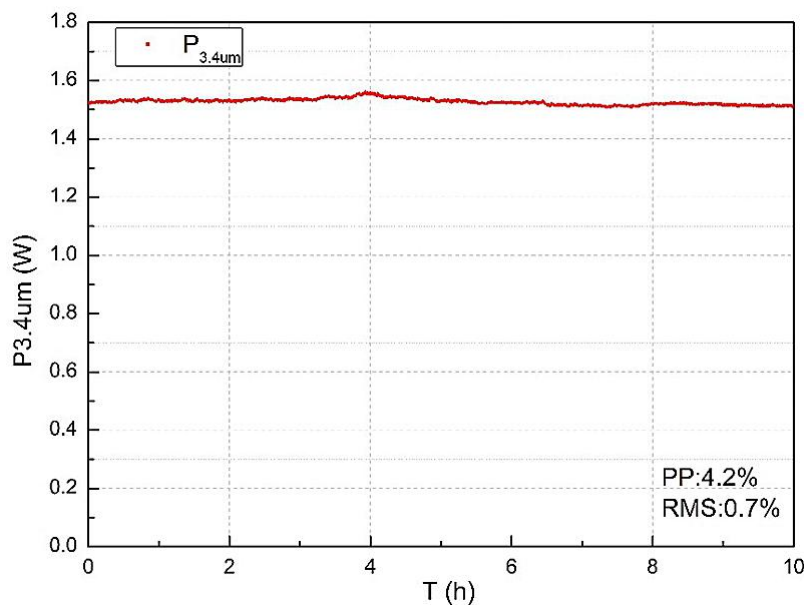


Figure 2. 3.4um Power stability testing, The 10 hour power fluctuation of PP is about 4.2%, RMS is about 0.7%

### 3. Wavelength and spectrum testing

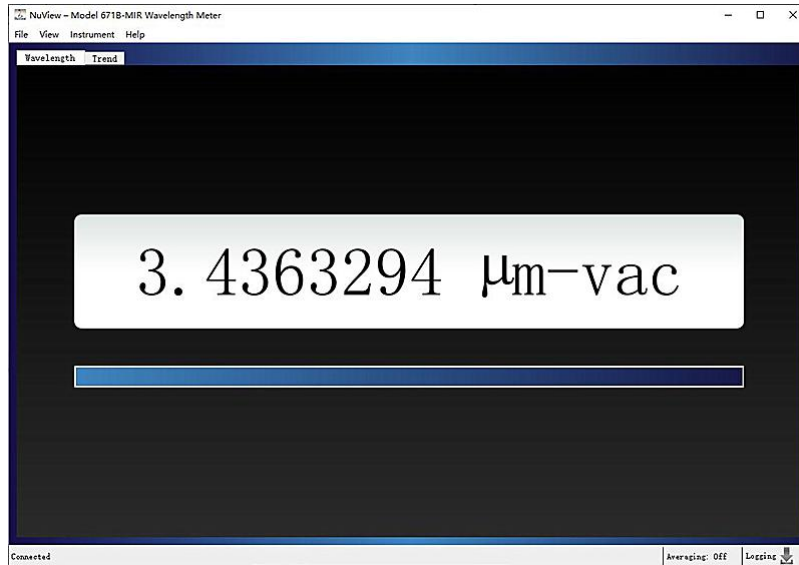


Figure 3 Bristol 671B-MIR Wavelength Meter testing CWL

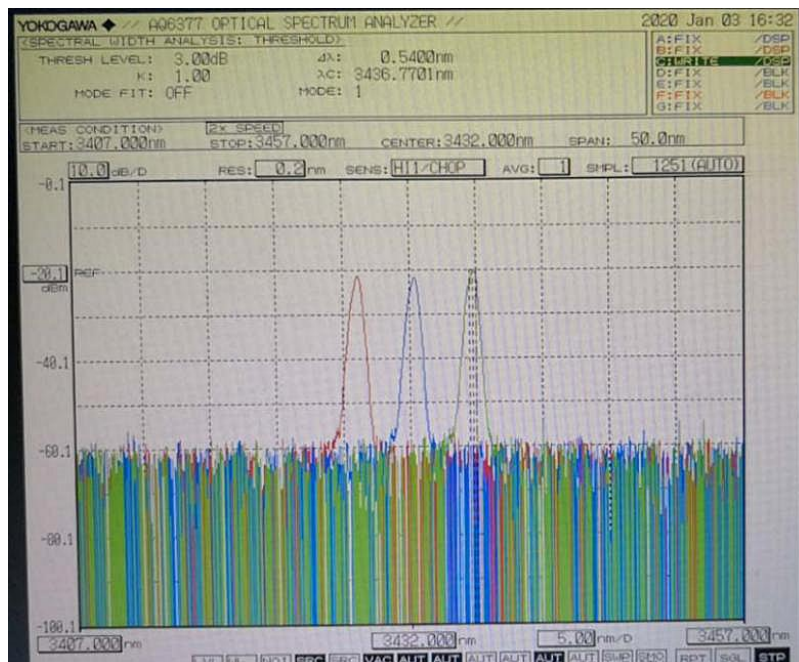


Figure 4a Yokogawa OSA Spectrum

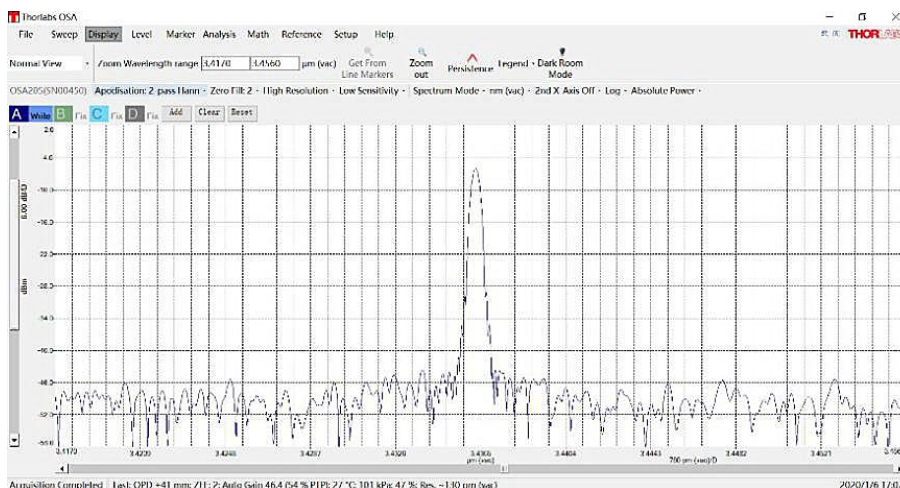


Figure 4b OSA205C Testing Result

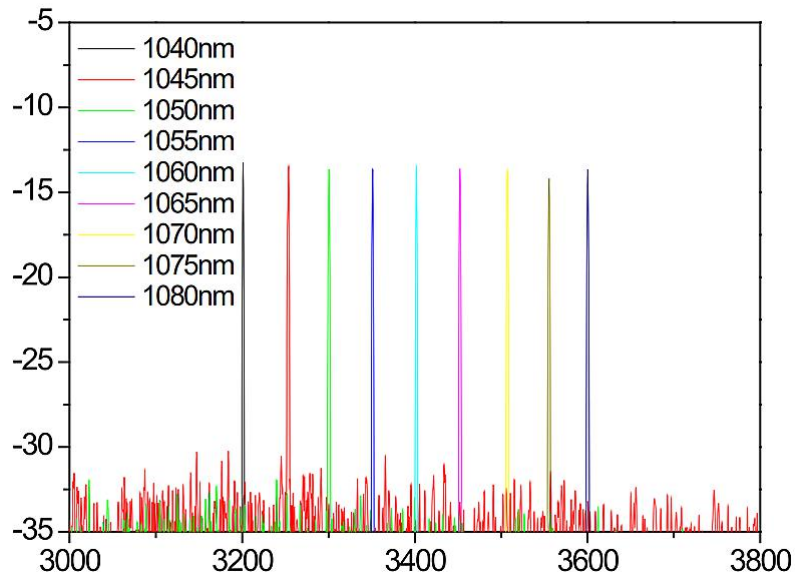


Figure5 3μm Output Wavelength Change toward with1 μ m fundamental optical wavelength

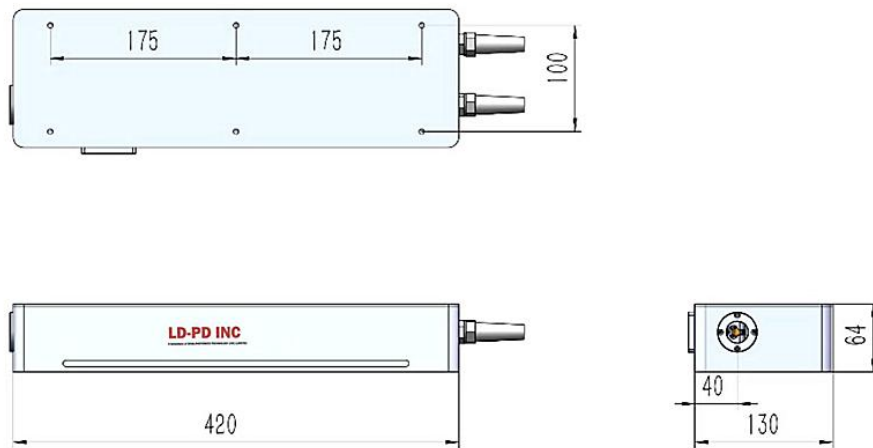


Figure 6 Output Laser Head Size