



Service Report No. TS-026

GD000003 Light Conversion Pharos Installation Report SN L191325

**Light Conversion,**

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<b>Customer:</b> Lyncean Technologies		<b>System:</b>
<b>End user organization:</b> Lyncean Technologies		
<b>End user address:</b> 47633 Westinghouse Drive, Fremont, CA, 94539		
<b>Contact person:</b> John Khaydarov		
<b>E-mail:</b> john_khaydarov@lynceantech.com		
<input checked="" type="checkbox"/> <b>Installation</b> <input type="checkbox"/> <b>Warranty</b> <input type="checkbox"/> <b>Non-warranty</b>		
<b>Reason for service:</b>	PHAROS Installation	
<b>Work done:</b>		
1. Adjusted oscillator prism such that oscillator repetition rate is set to factory parameters. Checked with oscilloscope.		
2. Optimized 2 <sup>nd</sup> and 4 <sup>th</sup> harmonic phase matching angles for 4 <sup>th</sup> harmonic output		
3. Calibrated compressor position		
4. Original external chiller initially did not have bypass during installation. Bypass installed by 2/17/20 and basic parameters checked again.		
5. Measured laser parameters in correspondence to factory data.		
6. Measured spatial beam profiles from oscillator, 1 <sup>st</sup> and 4 <sup>th</sup> harmonic outputs.		
See appendix to service report for more information on output performance and configuration of the system.		
<b>Installation/Service completed:</b>		<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>
<b>Labor:</b> 1 day		
<b>Field engineer:</b> Tommy Schubert	<b>End user:</b> John Khaydarov	
<b>Date:</b> 02/18/20	<b>Date:</b> 02/18/20	

**Table 1. System Performance**

Parameter	Factory data (2020-01-03)	Actual measurement (2020-02-13)
RA	Bar pump current	30.8 A
	Pulse repetition rate	200 kHz
	RA on delay/cavity dumping time	21.5/256.5 ns
	Output power with open seed (external power meter)	6.31 W
	Output power with open seed (internal power meter)	36299 counts
	Output power with closed seed (external power meter)	3.39 W (400 ns)
	Output power with closed seed (internal power meter)	18741 counts
	PP leakage, output power	<1 mW at 6.31 W
	RA voltage and current	2200 V, 12.5 mA
	PP voltage and current	2200 V, 12.5 mA
	RA bar temperature	25.4/25.6 °C
	RA humidity	22.7 %
	RA temperature	24.6 °C
Osc	Osc mode-locking range	17.5 – 16.0 = 1.5 A
	Osc. ouput (CW) at:operating current:	14 mW (16.0 A) 174 mW (16.5 A) 841 mW (17.5 A)
	Osc. ouput (ML) at:operating current:	1192 mW (16.0 A) 1275 mW (16.5 A) 1333 mW (17.5 A)
	Osc bar temperature	24.9 °C
	Osc humidity	27.6 %
	Osc temperature	23.2 °C
	Ambient humidity	26.2 %
Ambient temperature		23.8 °C
Optimum compressor position in steps		0
		0

#### 4<sup>th</sup> Harmonic Information

Repetition Rate (kHz)	Power Laser (W)	External Power (mW)	RA ON Delay / Cavity Dumping Time ns	Compressor Postion in Steps
1	1.5	149.8	21.5/257.4	34500

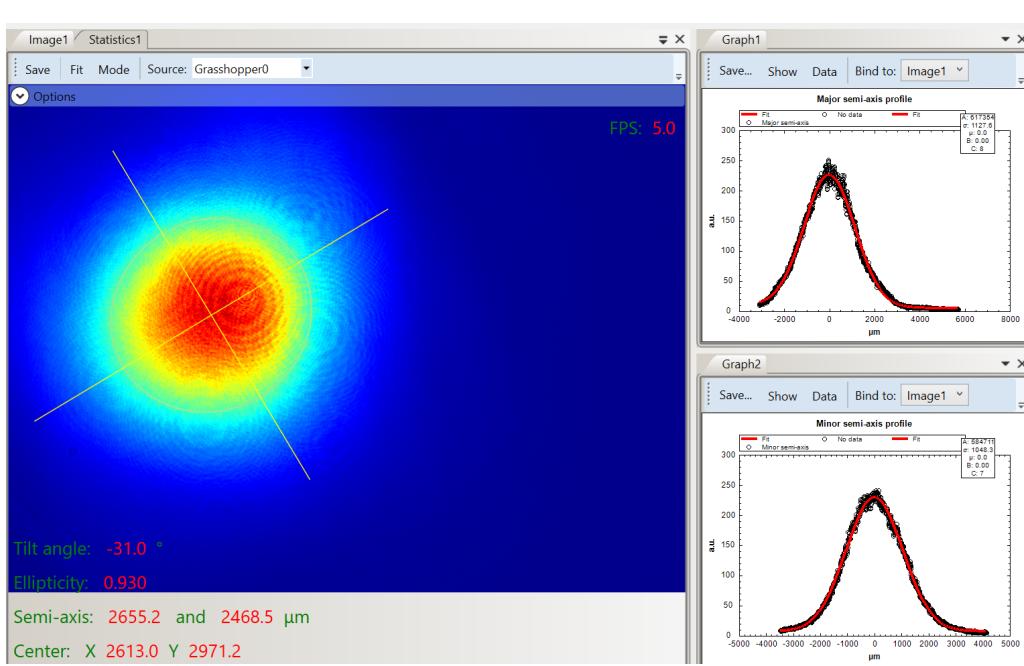
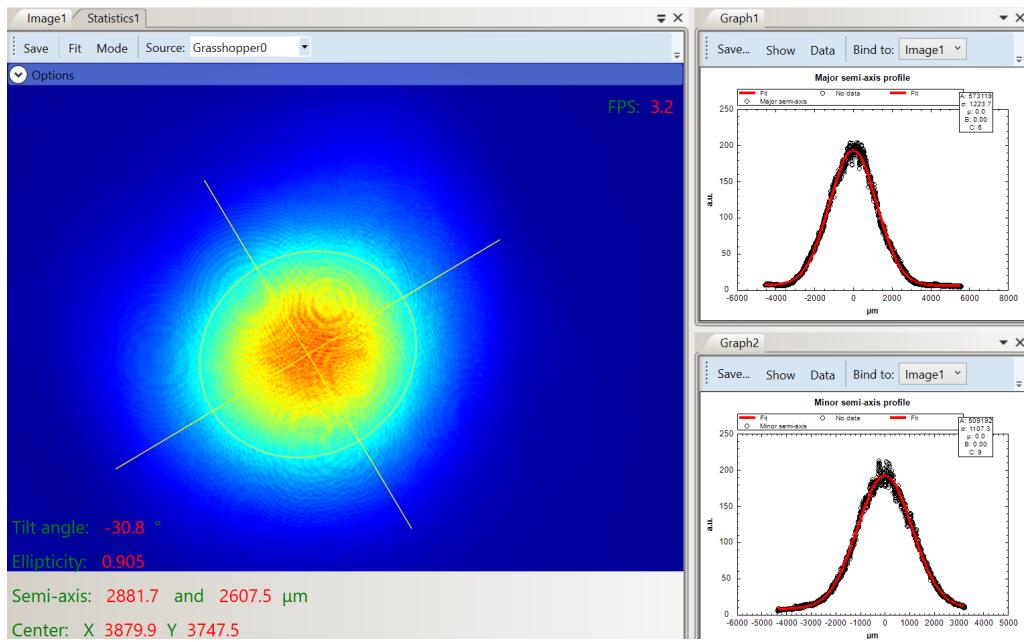
#### Beam position

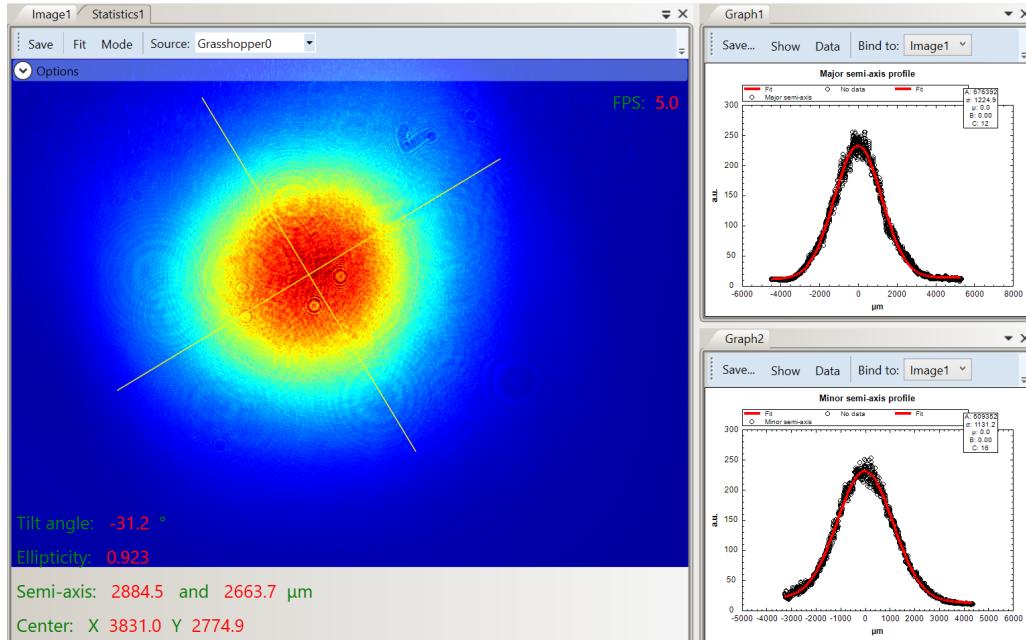
The beams are centered on output ports

#### Output Power

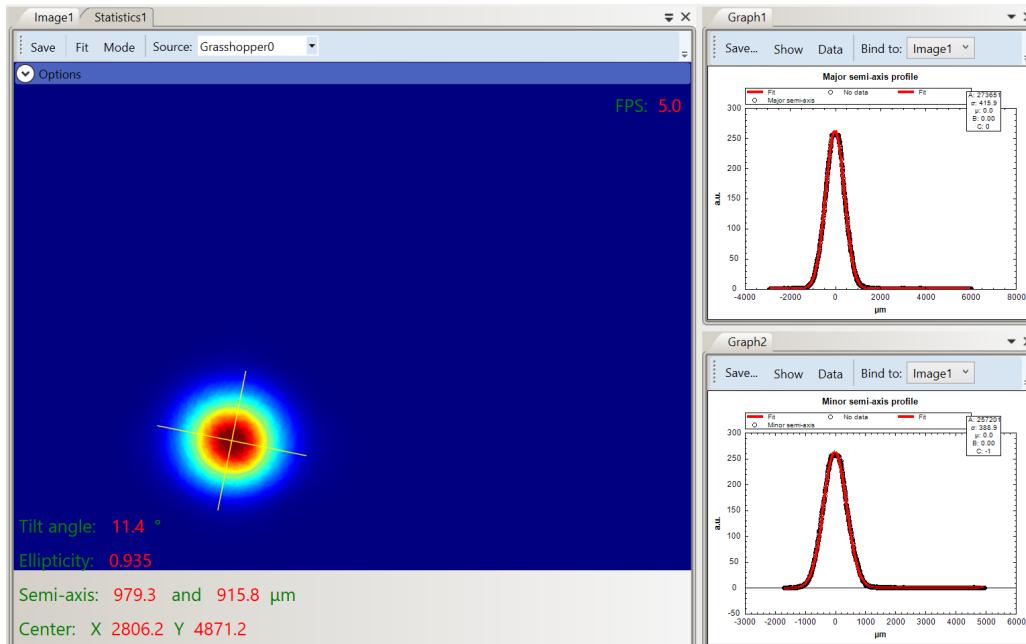
Repetition Rate (kHz)	Power (W)	Current (A)	RA ON Delay / Cavity Dumping Time ns	Pulse Energy (μJ)
1	1.58	29.69	21.5/257.4	1580
2	3.04	30.39	21.5/257.2	1520
4	6.10	33.60	21.5/257.0	1525
10	6.05	32.88	21.5/257.0	605
50	6.11	31.88	21.5/257.0	122
200	6.07	30.44	21.5/256.5	30

## Beam Profiles

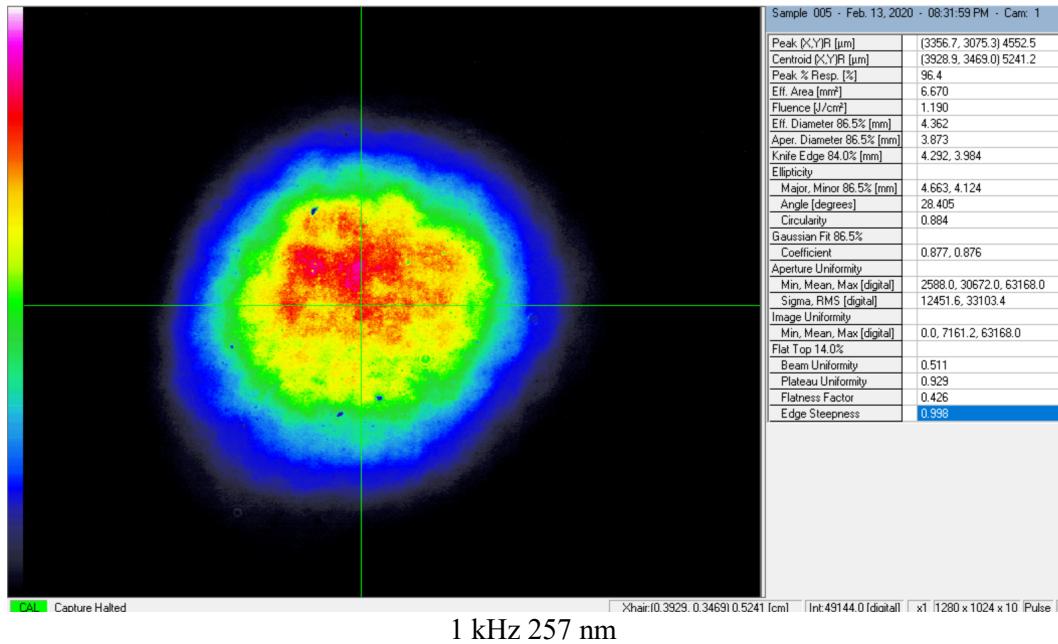




200 kHz 6.3 W 1030 nm



Oscillator output 64.909 MHz (>0.55 W)



### Functionality Check

1. Mechanical remote interlock – good
2. Internal attenuator control– good