PHOTONICS INDUSTRIES
INTERNATIONAL, INC.

390 Central Avenue, Bohemia, NY 11716
Tel.: (631) 218-2240 Fax: (631) 2182275

Test Data and Operational Parameters

Date: July 15th, 2013 Model Number: DP20-447 Serial Number: 11-381

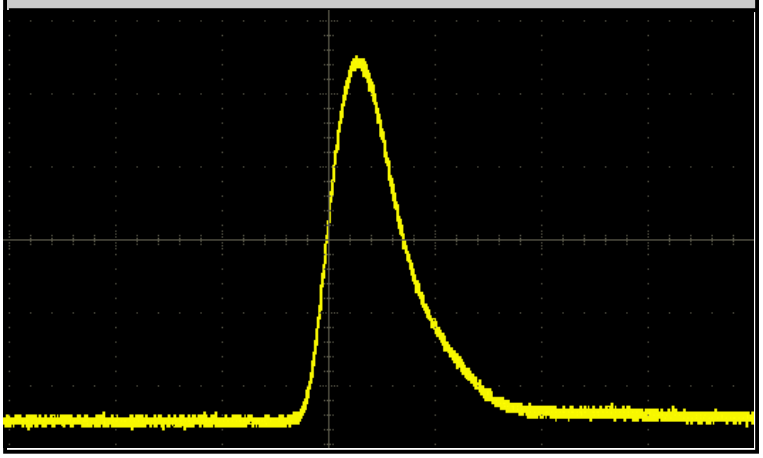
Operational Parameters

Parameter	Actual	Set Point
Operating Current (I_{op}) (A)	**50.86**	**51.00**
Chiller Temperature (°C)	**24.6**	**25.0**
SHG Temperature (°C)	**50.2**	**50.0**
THG Temperature (°C)	**51.0**	**50.8**

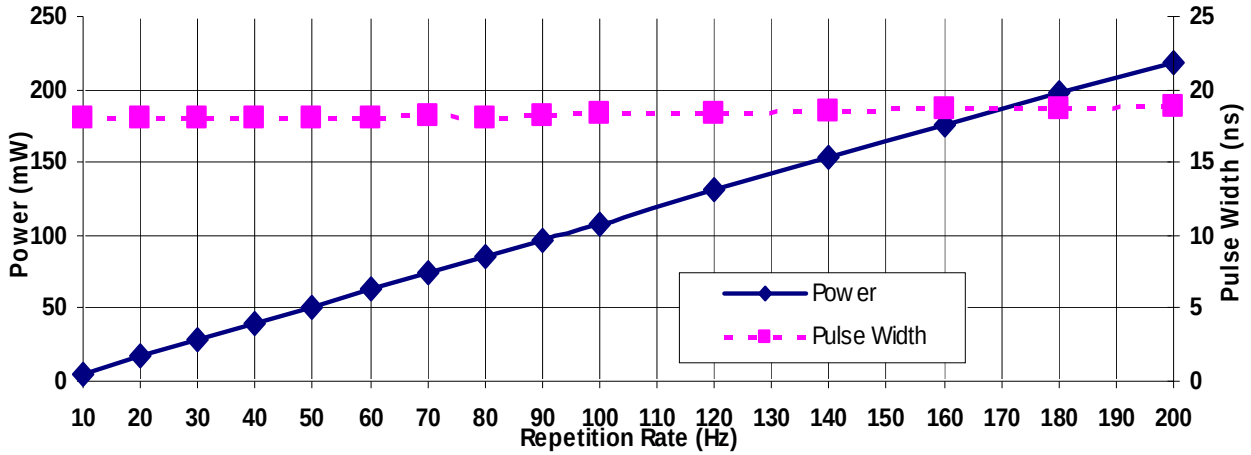
Power / Pulse Data at Constant I_{op}= 51.00 A

P.R.F. (Hz)	Average Power (mW)	Pulse Width (ns)
10	5	18.0
20	17	18.1
30	29	18.1
40	40	18.1
50	51	18.1
60	63	18.1
70	74	18.2
80	85	18.1
90	97	18.2
100	108	18.4
120	131	18.4
140	153	18.5
160	175	18.6
180	197	18.7
200	219	18.9

Pulse Envelope at 100Hz



Polarization Direction	Polarization Ratio	Operational P.R.F. Range	Wavelength
Vertical	**>100:1**	**0-200Hz**	**447 nm**



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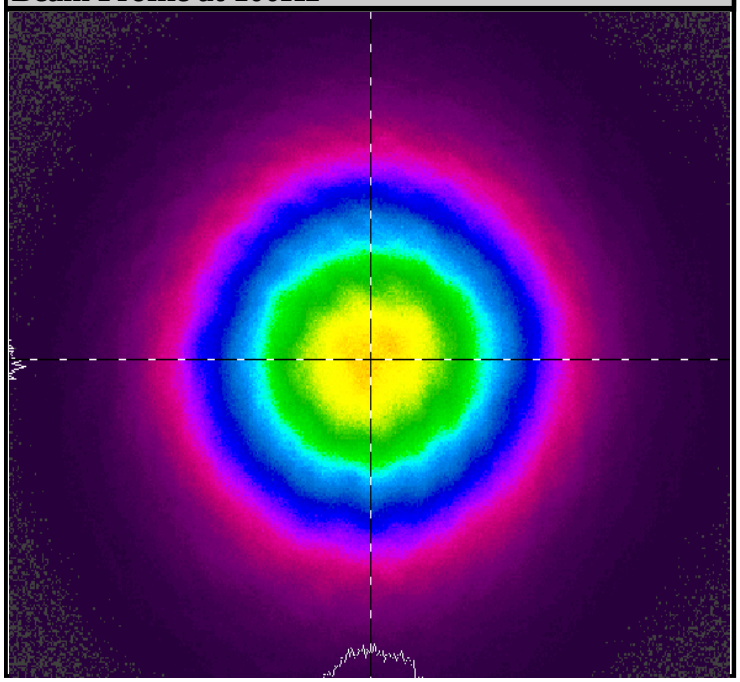
Beam Characteristics and Stability

Date: July15th, 2013 Model Number: DP20-447 Serial Number: 11-381

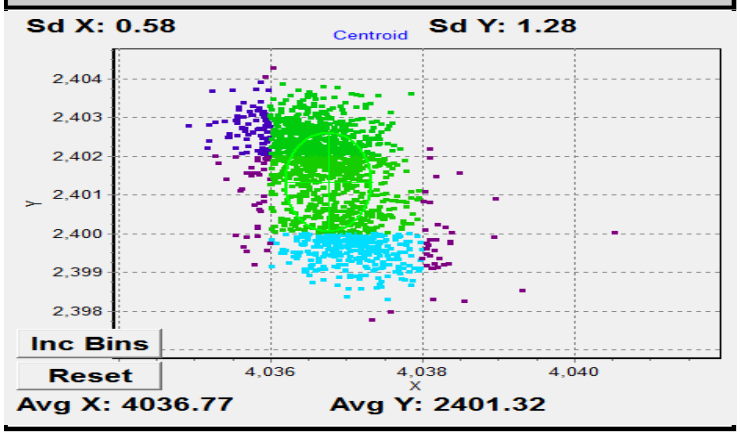
Beam Profile at 100Hz



Beam Characteristics[3]

Parameter	Measurement
Beam Diameter (at exit)	**0.58 mm**
Beam Diameter (at 500mm)	**1.31 mm**
Beam Diameter (at 1000mm)	**2.11 mm**
Full-Angle Far-Field Divergence	**1.65 mRad**
Pointing Stability (Full-Angle)	**3.29 uRad**
Astigmatism [1]	**0.26**
Asymmetry [2] (at focus)	**1.13**
M^2	**1.12**

Beam Pointing Stability (at 1m)[4]



Optional Features

- ☐ Pulse Energy Control
- ☐ First Pulse Suppression
- ☐ Power Attenuator
- ☐ Beam Expander
- ☐ Power Monitor
- ☐ Twin Pulses
- ☐ Other

1. *Astigmatism: A figure of merit that gauges severity of on axis astigmatism , measured as:* $2 * \frac{|Z_{ox} - Z_{oy}|}{Z_{rox} - Z_{rox}}$
2. *Asymmetry: Circularity of beam at focus, measured as: (Roundness)$^{-1}$ or the greater of* $\frac{W_{ox}}{W_{oy}}$ *or* $\frac{W_{oy}}{W_{ox}}$
3. *All Beam measurements are taken using "second moment method" or "4σ"*
4. *Standard Deviations in X and Y directions are listed in microns*

Long Term Stability	Pulse-Pulse Stability	Warm-Up Time (standby)	Warm-Up Time (Cold Start)
< 3%	1.8 % RMS	< 2 minutes	< 5 minutes

Inspector (Print):_____Ricardo Barba_____

Signature (Sign):_____

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Beam Characteristics and Stability

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Pulse Characteristics at constant Current 51.00A					
PRF (Hz)	Pulse Width (ns)	Pulse Width Stability (%)	Pulse Jitter (ns)	Pulse Intensity (mJ)	Pulse Intensity Stability (%)
10	18.0	1.6	2.0	1.12	0.4
20	18.1	1.6	2.0	1.14	0.4
30	18.1	2.1	1.5	1.19	0.4
40	18.1	1.7	1.5	1.20	0.4
50	18.1	2.0	1.5	1.21	0.4
60	18.1	1.6	1.5	1.22	0.4
70	18.2	1.9	1.5	1.23	0.4
80	18.1	1.5	1.5	1.23	0.4
90	18.2	1.5	1.5	1.24	0.4
100	18.4	1.8	1.5	1.24	0.4
120	18.4	1.8	1.5	1.24	0.4
140	18.5	1.4	1.5	1.24	0.4
160	18.6	1.6	1.5	1.23	0.4
180	18.7	1.9	1.5	1.23	0.4
200	18.9	2.0	1.5	1.22	0.4

Inspector (Print):____Ricardo Barba _____

Signature (Sign):_____

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Pulse Characteristics at constant 100Hz PRF		
Current (A)	**Pulse Width (ns)**	**Power (mW)**
51.0	**18.7**	**108**
49.0	**18.7**	**107**
47.0	**18.6**	**106**
45.0	**18.5**	**105**
43.0	**18.3**	**104**
41.0	**18.3**	**102**
39.0	**18.2**	**101**
37.0	**18.5**	**98**
35.0	**18.8**	**93**
33.0	**19.4**	**87**
31.0	**19.9**	**79**
29.0	**20.8**	**70**
27.0	**22.3**	**60**
25.0	**23.5**	**51**
23.0	**25.1**	**42**
21.0	**27.6**	**33**
19.0	**30.9**	**24**
17.0	**37**	**16**
15.0	**47.6**	**9**
13.0	**-**	**3**
11.0	**-**	**1**