



PHOTONICS INDUSTRIES INTERNATIONAL, INC.

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

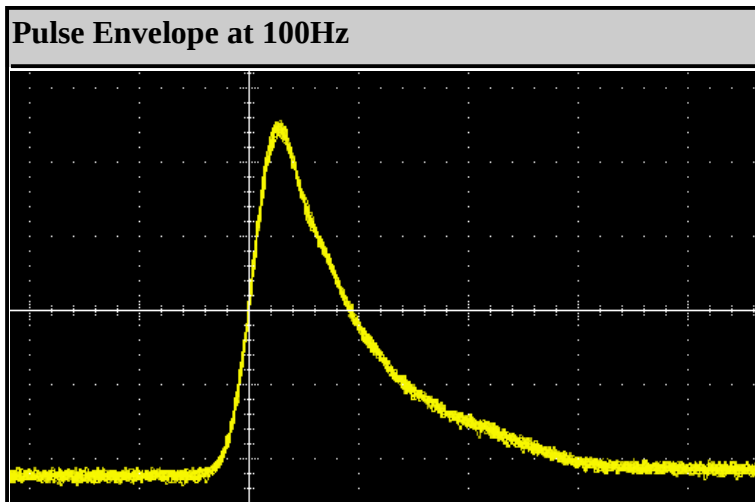
Test Data and Operational Parameters

Date: September 30th, 2013

Model Number: DP20-447

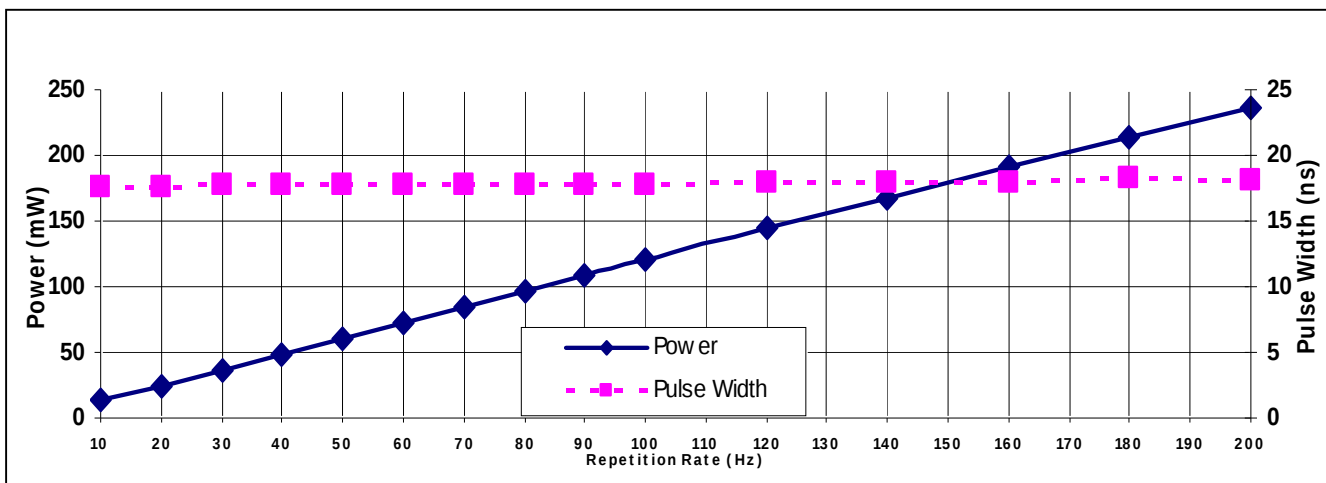
Serial Number: 11-381

Operational Parameters		
Parameter	Actual	Set Point
Operating Current (I_{op}) (A)	50.86	51.00
Chiller Temperature ($^{\circ}\text{C}$)	27.0	27.0
SHG Temperature ($^{\circ}\text{C}$)	50.0	49.8
THG Temperature ($^{\circ}\text{C}$)	51.0	50.8



Power / Pulse Data at Constant $I_{op} = 51.00\text{A}$		
P.R.F. (Hz)	Average Power (mW)	Pulse Width (ns)
10	12	17.6
20	22	17.6
30	32	17.8
40	43	17.8
50	54	17.7
60	65	17.7
70	76	17.8
80	86	17.8
90	97	17.8
100	108	17.8
120	130	18.0
140	150	18.0
160	172	18.0
180	192	18.2
200	212	18.1

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





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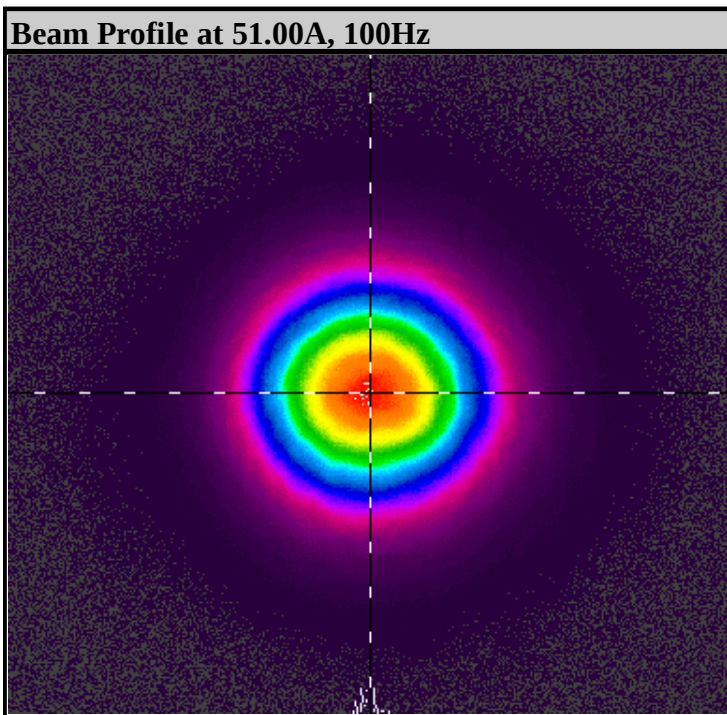
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Beam Characteristics and Stability

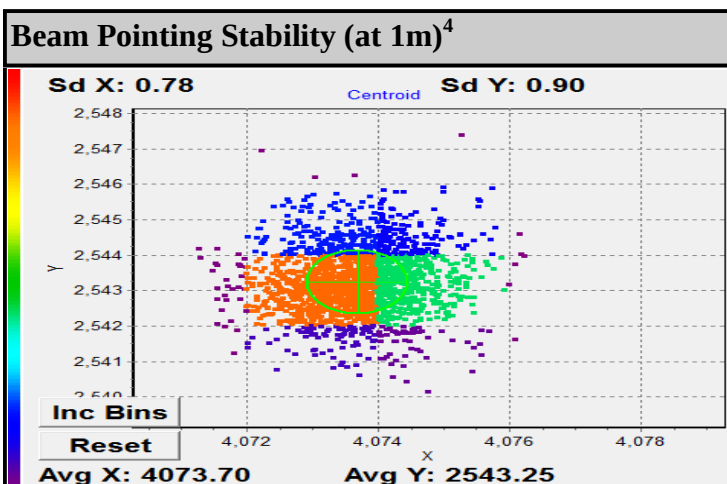
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Beam Characteristics ³ 51.00A, 100Hz	
Parameter	Measurement
Beam Diameter (at exit)	0.7 mm
Beam Diameter (at 500mm)	1.5 mm
Beam Diameter (at 1000mm)	2.3 mm
Full-Angle Far-Field Divergence	1.7 mRad
Pointing Stability (Full-Angle)	2.8 uRad
Astigmatism ¹	0.30
Asymmetry ² (at focus)	1.01
M ²	1.24



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

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%	1.3% RMS	< 2 minutes	< 5 minutes

Inspector (Print): Rajendra Gurdial

Signature (Sign): _____



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Pulse Characteristics at 51.00 A					
PRF (Hz)	Pulse Width (ns)	Pulse Width Stability (%)	Pulse Jitter (ns)	Pulse Intensity (mJ)	Pulse Intensity Stability (%)
10	17.6	1.6	2.0	1.2	0.4
20	17.6	1.1	2.0	1.1	0.4
30	17.8	1.4	1.5	1.1	0.4
40	17.8	1.2	1.5	1.1	0.4
50	17.7	1.5	1.5	1.1	0.4
60	17.7	1.1	1.5	1.1	0.4
70	17.8	1.5	1.5	1.1	0.4
80	17.8	1.7	1.5	1.1	0.4
90	17.8	1.4	1.5	1.1	0.4
100	17.8	1.2	1.5	1.1	0.4
120	18.0	1.3	1.5	1.1	0.4
140	18.0	1.7	1.5	1.1	0.4
160	18.0	1.8	1.5	1.1	0.4
180	18.2	1.5	1.5	1.1	0.4
200	18.1	1.3	1.5	1.1	0.4

Inspector (Print): Rajendra Gurdyal

Signature (Sign): _____



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Pulse Characteristics at constant 100Hz PRF	
Current (A)	Power (mW)
51	108
49	107
47	106
45	104
43	103
41	102
39	100
37	97
35	94
33	87
31	79
29	70
27	60
25	50
23	40
21	31
19	22
17	14
15	6
13	1