527DQ YLF LASER SYSTEM TEST REPORT

DATE: 3-11-02 CUSTOMER: Calif. Insti. of tecnology

S.O. No.: C072898 JOB No.: M898140

S/N: 330 TESTED BY: Angel Marrero

LASER NR: 2

1.0	LASER HEAD COMPONENTS	ITEM NUMBER	MODEL/SERIAL#
1.1	LASER	0104-00270	527DQ/ 330
1.2	LASER CRYSTAL (4X145 FW YLF)	1001-00955	3791
1.3	KRYPTON LAMP ASSEMBLY	0201-03806	-
1.4	A-O Q-SWITCH	~~201319~~ 0103-02443	50309-015
1.5	POLARIZER ASSEMBLY	0203-03374	-
1.6	TRANSMISSION MIRROR	1102-01288	B6P95
1.7	HR MIRROR @ 1053nm	1102-00915	B6P4
1.8	HR@1053&HT@527 MIRROR	1102-01121	B7P34
1.9	HT@1053&HR@527 MIRROR	1102-02290	B7P6
1.10	LBO ASSEMBLY	0203-03396	4A84
1.11	SHG ASSEMBLY	0204-01359	-
1.12	SPHERICAL LENS ASSY.	0204-01014	-
1.13	CYLINDRICAL LENS ASSY.	0204-01375	-

2.0	**COOLER / POWER SUPPLY**	0102-00499	234 S/N 55
2.1	LAMP POWER SUPPLY	3101-00809	21N11900
2.2	391 R.F. DRIVER	~~0103-02389~~ 0103-02508	771

History

mean. Kms

3.0 COOLER AND INTERLOCK TESTS

3.1 Water Flow Rate 7 GPM (Spec. 5.5 GPM Min.)

3.2 D.I. Water Temperature 29 °C @ 35A (Spec. 29 °C)

3.3 Thermal Shutdown 33.7 °C (Spec. 39 °C Max.)

3.4 Check Level Switch ☒

3.5 Check For Leaky Fittings ☒

4.0 LASER POWER SUPPLY TEST

4.1 Lamp Ripple @ 35 Amperes .26 % P-P

4.2 Maximum Current 38 Amperes

5.0 COMPONENT CHECKS

5.1 Check Polarizer Plate ☒

6.0 LASER DATA

6.1 Fundamental Laser Wavelength 1053 nm

6.2 Laser Threshold Current w/ Spherical Lens 7.9 Amperes

6.3 Output Power (MM) @ 25 Amps w/Spherical Lens 51.0 Watts

6.4 Output Power (MM, Polarized) @ 25 Amperes w/ Spher. Lens 50.0 Watts

6.5 Output Power (MM, Polarized) @ 25 Amperes w/ Spher. Lens & Cylin. Lens 46.0 Watts

6.6 Operating Current 25 Amperes

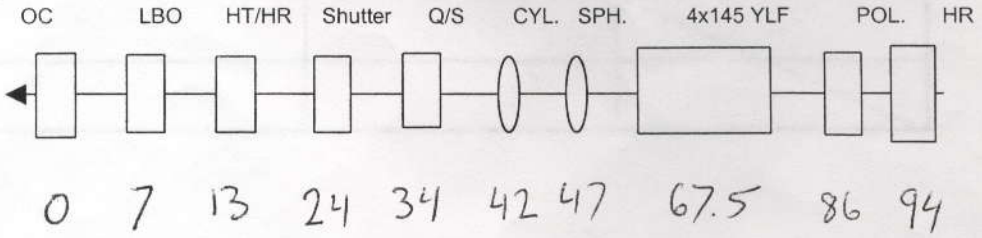
6.7 Output Power (MM, Polarized, CW) w/ Q-Switch @ Operating Current 46.0 Watts

6.8 Instability (w/ Photodiode & Oscilloscope @ 5 ms/div) 3 % P-P

6.9 Output Power (Polarized,CW) w/ Q-Switch, & SHG Assembly @ Operating Current 44 Watts

6.10 Threshold for Full Cavity – Amperes

6.0 CAVITY CONFIGURATION



All Dimensions Are In Centimeters

7.0 **Q-SWITCHED LASER DATA**

7.1 Q-Switch RF Driver Forward Power 14 Watts

7.2 Q-Switch RF Driver Reflected Power <0.5 Watts

8.0 **1053nm PERFORMANCE @26 Amps**

FREQ. (KHz)	AVG. POWER (Watts)	PULSEWIDTH (nsec.)	INSTABILITY % P-P
.1	2.3	153	3
.5	13.0	177	3
1	23.0	210	3
2	32.0	275	3
3	38.0	313	3

8.1 **527nm PERFORMANCE @ 25 Amps**

FREQ. (KHz)	AVG. POWER (Watts)	PULSEWIDTH (nsec.)	INSTABILITY % P-P
.1	2.37	94	3
.5	11.5	96	3
1	19.5	109	3
2	26.5	145	3
3	28.0	184	3

9.0 **SYSTEM BURN-IN**

9.1 Burn-In Time @ Operating Conditions 16 Hours

9.2 Long Term Power Stability with Strip Chart Recorder @ Operating Conditions 3 % @ 527nm

9.3 ETM 1963 Hours

10.0 **CHECK LIST**

10.1 "X" and "Y" Mirror Adjustments Are Locked Down ☒

10.2 Drain Water ☐

10.3 CDRH Log Has Been Updated ☒

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Revision: A
Issued: 1/11/01

Document No:	Title:	
QSR 7.8	TEST DATA SHEET 234 POWER SUPPLY/COOLER	PAGE 1 OF 1

Job No.: 898460	Serial No.: 55	Date: 1.8.02	
Control Unit: 82		Cooler: 94	
Remote: (optional) No Remote		Lamp: 118	
RF Driver: 771		Kilo Watt: 10K	
Power Distribution: 82			
Power Supply: 21N11900		Tested by: Rose	
Primary Water Flow: 7 GPM		RF Over-Temp: OK	
Flow Switch shuts off cooler at: 3 GPM		RF Mis-Match: OK	
Upper Float warning: OK		RF On/Off: OK	
Lower Float shut off: OK		PRF On/Off: OK	
Operating Temp. set at: 29 °C		RF Power: 20 Watts	
Thermal shut down: 33.7 °C			
DI Water Warning: 41=		PS/C Over-night Run: OK	
Displayed P.S. Current: (Spec.: +/- 1)· 37.7 AMPs		Measured: 37.5 AMPs	
Ground Fault Test: N/A			

Percent Ripple Test:

6KW %R = .5 max
10KW %R = .7 max

(check one)

CUURRENT Amps	DC mV	AC mV	%R p-p
20	110	.6	.54
25	160	.6	.37
30	210	.7	.33
35	260	.7	.26
38	290	.7	.24