

527 DQ YLF LASER SYSTEM TEST REPORT

DATE: January 2 2002
S.O. No.: C079798
S/N: 547
LASER NR. 3

CUSTOMER: Caltech
JOB No.: M914850
TESTED BY: Angel Marrero

	<u>LASER HEAD COMPONENTS</u>	<u>ITEM NUMBER</u>	<u>MODEL/SERIAL#</u>
1.0	LASER HEAD COMPONENTS		
1.1	LASER	<u>0104-00336</u>	<u>527 DQ /</u>
1.2	LASER CRYSTAL	<u>1001-00955</u>	<u>Y10015</u>
1.3	KRYPTON LAMP ASSEMBLY	<u>0201-03806</u>	
1.4	A-O Q-SWITCH	<u>0103-02443</u>	<u>53795-004</u>
1.5	POLARIZER ASSEMBLY	<u>0203-03374</u>	
1.6	TRANSMISSION MIRROR	<u>1102-01288</u>	<u>10-23-02</u>
1.7	HR MIRROR @ 1053nm	<u>1102-00915</u>	<u>11-5-02</u>
1.8	HR@1053&HT@527 MIRROR	<u>1102-01121</u>	<u>8-12-02</u>
1.9	HT@1053&HR@527 MIRROR	<u>1102-02290</u>	<u>10-14-02</u>
1.10	LBO ASSEMBLY	<u>0203-03396</u>	<u>4056</u>
1.11	118 GOLD REFLECTOR ASSY.	<u>0201-03725</u>	
1.12	SPHERICAL LENS ASSY.	<u>0204-01014</u>	
1.13	CYLINDRICAL LENS ASSY.	<u>0204-01375</u>	

2.0	COOLER / POWER SUPPLY	<u>0102-00499</u>	<u>214 S/N 81</u>
2.1	LAMP POWER SUPPLY	<u>3101-00809</u>	<u>22 H 7935</u>
2.2	391 R.F. DRIVER	<u>0103-02508</u>	<u>799</u>

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 ☒

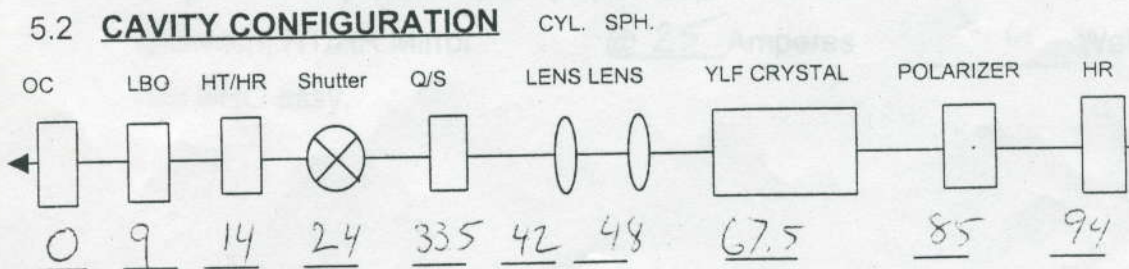
4.0 LASER POWER SUPPLY TEST

- 4.1 Lamp Ripple @ 35 Amperes 26 % P-P
- 4.2 Maximum Current 38 Amperes

5.0 COMPONENT CHECKS

- 5.1 Check Polarizer Plate ☒

5.2 CAVITY CONFIGURATION



All Dimensions Are In Centimeters

6.0 **LASER DATA**

- 6.1 Fundamental Laser Wavelength 1053 nm
- 6.2 Laser Threshold Current w / Spherical Lens 6.7 Amperes
- 6.3 Output Power (MM) w /Spherical Lens 50 Watts
@ 25 Amperes
- 6.4 Output Power (MM, Polarized) w / Spher. Lens 50 Watts
@ 25 Amperes
- 6.5 Output Power (MM, Polarized) w / Spher. Lens 46 Watts
& Cylin. Lens @ 25 Amperes
- 6.6 Output Power (MM, Polarized, CW) w / Spher. Lens 45 Watts
Cylin. Lens & Q-Switch @ 25 Amperes
- 6.7 Instability (w / Photodiode & Oscilloscope@ 5ms/div) 3 % P-P
- 6.8 Output Power (MM, Pol., CW) Spher.,Cylin. Lens, 45 Watts
Q-Switch and HT/HR Mirror @ 25 Amperes
- 6.9 Output Power (MM, Pol., CW) Spher.,Cylin. Lens, 40 Watts
Q-Switch, HT/HR Mirror @ 25 Amperes
and SHG assy.

7.0 **Q-SWITCHED LASER DATA**

7.1 Q-Switch RF Driver Forward Power

18 Watts

7.2 Q-Switch RF Driver Reflected Power

40.5 Watts

8.0 **1053nm PERFORMANCE @ 25 Amps**

FREQ. (KHz)	AVG. POWER (Watts)	PULSEWIDTH (nsec.)	INSTABILITY % P-P
0.5	11.0	215	3
1.0	19.8	255	3
2.0	27.0	307	3
3.0	32.0	345	3
4.0			
5.0			

8.1 527nm PERFORMANCE @ 27 Amps

FREQ. (KHz)	AVG. POWER (Watts)	PULSEWIDTH (nsec.)	INSTABILITY % P-P
0.5	12.3	145	3
1.0	21.0	160	3
2.0	28.5	246	3
3.0	32.0	333	3
4.0			
5.0			

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

 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

