CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Laser Interferometer Gravitational Wave Observatory (LIGO) Project

To/Mail Code:	
From/Mail Code:	Daniel Sigg
Phone/FAX:	
Refer to:	LIGO-T0900214-v1
Date:	May 6, 2009

RF Source Test Procedure

Required equipment:

- Power supply
- RF frequency counter
- RF power meter
- RF network analyzer (~100MHz bandwidth)

Preparations:

Test Engineer	Date	Pass

Write down revision and the serial number.

Module/Boards	Revision	Serial
D080702		
D080705		
D080708		
D070071		
D080665		

Power up the board and check that the current drawn from the +15V power supply is around nominal. Check that the LED is on.

Power supply	Current	Nominal
+24V		0.3A
–24V		0.25A
+12V		1.2A

Output Signal:

Measure the output power as function of the step attenuator a 10dBm sine wave into the input and measure the output power. Adjust internal attenuators as needed.

Step	**Measured [dBm]**	**Nominal**
0		13 dBm
3		10 dBm
6		7 dBm
10		3 dBm

Locking:

Set the nominal frequency of the oscillator. Hook up a fiber to the timing system. The LED of the PLL status should switch from red to green after a minute or two. Increase the frequnecy by 100Hz and watch that the LED goes red immediately and becomes green again after a while. Measure the frequency with frequency counter in each case.

Step	**Does lock (yes/no)**	**Frequency (MHz)**
Initial Locking		
After frequency step		

Harmonics:

Use the network analyzer to measure the harmonics.

Harmonics	Measured [dBc]	Nominal
2 order		>30 dBc
3 order		>30 dBc
4 order		>30 dBc
5 order		>30 dBc
7 order		>30 dBc

Locking Parameters:

Look at the diagnostics parameters of the timing slave and write down the following parameters:

Parameter	Value	Nominal
VCXOControl		2.5V±2V
HasOCXO		1
OCXOLocked		1
OCXOError		<1µs
OCXOControl		5V±4V
SetFrequency		same as front panel
OCXOFrequency		within 1Hz of above