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| **AUTHOR(S)** | DATE | Document Change Notice, Release or Approval |
| **Rana Adhikari** | 05-Nov-2019 |  |

1. **Description**

Specifications for laser amplifier to be used in the LIGO 40m lab at Caltech.

Output power > 20 W CW, with nominal input from a 20 mW CW laser (1064 nm) with a 1 kHz linewidth.

Long term reliability: < 5% degradation in output power over 1 year of continuous (24 hrs / 7 days per week) usage.

Fiber coupled (PMF-FC/APC) input. Either fiber or free-space output.

1. **Beam Shape**

<10% non-TEM00 mode output for fiber coupled input

1. **Power Requirements**

Line Voltage: AC, 110V

Applies to laser amplifier, as well as to laser chiller (if water cooling is req’d)

1. **Relative Intensity Noise (RIN)**

* < 1% RMS (1 – 100,000 Hz)
* < 10-6 /rtHz (f > 1 kHz)
* < 3 x 10-7/rtHz ( f > 1 MHz)

1. **Polarization**
   1. Linear polarized input
   2. Linear polarized output (extinction ratio > 30 dB)
2. **Diagnostics**

Monitoring of laser electronics (pump diode voltage/current) and laser power. Available through standard serial or parallel interface.

External interlock connection for emergency shutoff triggered by safety system.