

T1200560-v2

aLIGO PSL - 35W laser power adjust procedure (neoLASE) (version Oct 2014)

Weekly check

Check the FE output power via OSC_PD_AMP_DC_OUTPUT.

The following action is necessary if the output power is below 95% of the nominal value:

Increase the pump current until the pump power measured via the FE Pump power pickups is back at 100%. Due to the fact that 2 diodes are connected in series it might not be possible to get both near 100%. In this case increase the current so that the average of the 2 diodes is 100%

The maximum diode current is 70A. When you receive about 90% of the maximum current the residual operating time of the diodes is limited and maintenance needs to be scheduled to change the diode box.

Every time the current has been increased by more than 3 A since the last diode temperature optimization a new diode temperature optimization is necessary (see below).

Check if the FE output power is back at nominal value.

If the output power does not reach the nominal value measure the NPRO power between the two mode matching lenses. If the power is less than 95% of the nominal value increase the pump power of the NPRO diodes to bring the power back to 100%.

Diode Temperature Optimization:

Check if lowering or raising the diode temperature in 1° C steps increases the output power. An increase of 3A current should make a temperature decrease of 1°C necessary but sometimes it is possible that the temperature does not need to be changed or even needs to be increased.

Do this for each diode.

The diode temperature should not set below 16°C due to the risk of water condensation.

Note:

Measure the nominal values of OSC_PD_AMP_DC_OUTPUT and the NPRO power levels if they are not known the first time this procedure is used. Make sure to always use the same power head for the NPRO measurement.