# Technical Note #01

## YLP-HC Model Lasers

### Introduction

IPG has a long record of continuous product improvement and this note describes incremental improvements that have been made with the release of the YLP–HC lasers.

The –HC version laser are direct plug-compatible replacement for the older non –HC lasers that IPG continues to supply with no change to the form factor of the laser. IPG will continue to sell and support the older lasers. The new models being offered are:

- YLP-1-100-20-20-HC
- YLP-1-120-50-50-HC
- YLP-1-100-30-30-HC
- YLP-0.5-100-20-10-HC

### Increased Maximum Repetition Rate, 200kHz

The maximum repetition rate for all –HC version lasers is now 200 kHz. This is increased from 80 kHz or 100 kHz in the older models. There is no change to any other pulse specification (pulse width, pulse energy, etc.) with this change. There is a significant opportunity for process speed improvements available with an increase in repetition rate.

### Laser Switching Off Time

The time that is required to end a pulse train has been significantly reduced. Depending on the model it takes <3 µsec to end a pulse train (Booster Off) and bring the laser power from 100% to 0.1% of rated power, as shown opposite.

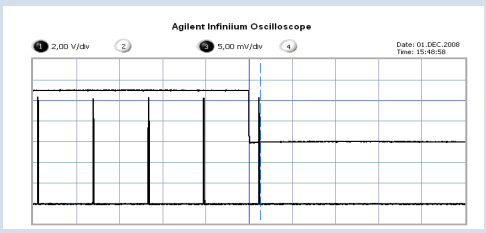


**Figure 1**

This is reduced from up to 50 mW in the older units and will reduce the 'tail' that was sometime seen on sensitive materials at the end of a vector. It will also reduce the long dwell times that were sometimes required to prevent tails thus improving effective processing speeds (see Figure 1).

### No Leakage, Average power with Booster Off

The YLP–HC lasers have <2 mW of leakage when the laser is between vectors or is ready for marking. This is condition is with the Master Oscillator: On, and the Booster: Off. This reduction, from as much as 50 mW in the older design, will prevent 'ghost' marks that were sometime seen when moving to the start of a new vector over sensitive materials.

### Laser Power Monitor, Removed

The optional laser output power monitor will no longer be offered. This is the signal that had been supplied as an option on Pin 25 of the DB-25 Control Connector. There is no replacement or alternative signal available.

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