Native Green™

Why LaserMax Native Green?

Although video devices are capable of utilizing the Red, Green, and Blue (RGB) color space as a light source to enable more compact and lighter video devices, red laser diodes were the first of the three versions to be made commercially available. When LaserMax first began integrating the red laser diodes into spring guide lasers for firearms in the 1990's, this was the only developed technology that could be applied. Blue laser diodes were the next version to become commercially available driven out of the commercial applications such as Blue Ray players. While awaiting the development of a practical green diode laser technoology, LaserMax filled the customer need for green lasers utilizing Diode Pumped Solid State (DPSS) technology. Most recently, the commercial availability of green laser diodes has enabled the development of miniature projectors for mobile devices such as smartphones and cameras. These miniature projectors will enable anyone to carry PowerPoint presentations or favorite videos with them and view them at a reasonable size for use on a wall or projector screen. The compact green laser diodes have an optical output of up to 50 milliwatts, but LaserMax is required by the FDA to limit the output of our gunsights to just under 5 mW. Green laser diodes also have a high beam quality and are direct emitting - the laser light is produced directly in the semiconductor.

LaserMax has been carefully tracking green laser diode technology advancements in order to determine the right time to apply the technology into our miniaturized, ruggedized laser products offering customers a green laser sight that overcomes the obstacles related to the current DPSS green laser technology.

About DPSS

The technology contains a 808 nm IR diode laser that pumps a Nd:YVO4 laser crystal that in turn outputs 1064 nm light. This is immediately doubled inside a non-linear KTP crystal, resulting in green light at the half-wavelength of 532 nm. This beam is then expanded and infrared-filtered. This complex approach is very sensitive to the position of all the components to one another as well as temperature variations. This leads to challenges in manufacturing, increased sensitivity to shock and narrow operating temperature range for the user. The native green diode technology eliminates these sensitivities and limitations.

LASERMAX®

NATIVE GREEN™

The direct emitting green laser diodes features the following advantages:

- High thermal stability
- Compact design
- High-quality beam
- Rapid modulation speeds

Advantages of Native Green vs. Red as Firearm Aiming Laser:

- Our eyes see green better than any other color in any lighting condition. In daytime conditions, the human eye has maximum sensitivity at the 555 nm wavelength. In nighttime conditions the human eye has maximum sensitivity of 512 nm wavelength. The wavelength of red lasers is 635 – 670 nm. The wavelength of native green lasers is 515 – 530 nm.
- Better tactically - Green transitions better from light to dark and back to light again better than any other color.
- Be able to differentiate between potentially lethal (red) and non-lethal (green). For instance, tasers are red.

Advantages of Native Green vs. DPSS Green as Firearm Aiming Laser:

- Native green lasers have a larger operating temperature range than DPSS Green lasers.
- Native green lasers are more compact which allows them to be used in smaller packages (i.e. Guide Rod Lasers)
- Native green lasers are an emerging technology. Cost will go down as volume and applications go up. DPSS Green laser is a mature technology and the cost is as low as it will go.
- DPSS lasers use multiple parts with critical positioning requirements. The native diode does not use multiple parts and therefore, is inherently less sensitive to movement from shock.
- DPSS green lasers emit harmful infrared light which can damage eyes if not properly filtered. Native green lasers do not emit harmful infrared light.
- The wavelength of Native Green (515 – 530 nm) is closer to the maximum sensitivity of the human eye at night (512 nm), when most lasers are used, than the wavelength of DPSS (532 nm).