

Laser safety regarding Otoscan

**The laser on Otoscan is classified as a Class 2 laser product.
The product meets the requirements of: IEC 60825-1: 2014,
Edition 3.0. (Intertek Testing, 2017).**

Lasers on Otoscan

In Otoscan you will find two types of lasers. The first, the ring laser, is not actually a laser, but a ring of clear blue LED lights. Therefore, the ring laser does not provide any hazard at all. The second, the line laser, is classified as a Class 2 laser. During the scanning process, the line laser should be pointed at the ear at all times to provide the best scan. The ear and skin are not reflective materials, and accordingly there is no safety hazard when using Otoscan.

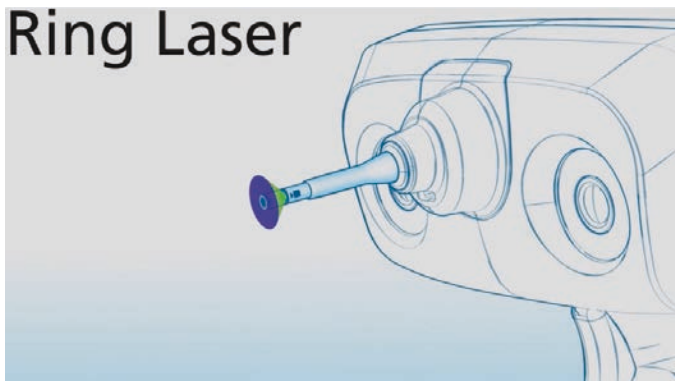
Class 2 lasers

Class 2 lasers are considered safe for normal operation. They emit visible light only. Their output power is below 1 milliwatt (mW) and the beam must have a wavelength between 400 and 700 nm. In many countries, Class 2 lasers can be sold as “pointers” or for pointing purposes. A Class 2 laser is relatively weak, and normally would not harm an eye unless a person deliberately stares into the beam for a prolonged period of time. Laser protective eyewear is usually not necessary. A Class 2 laser is not a skin or materials burn hazard. (www.lasersafetyfacts.com/2/)

Risk of eye hazard

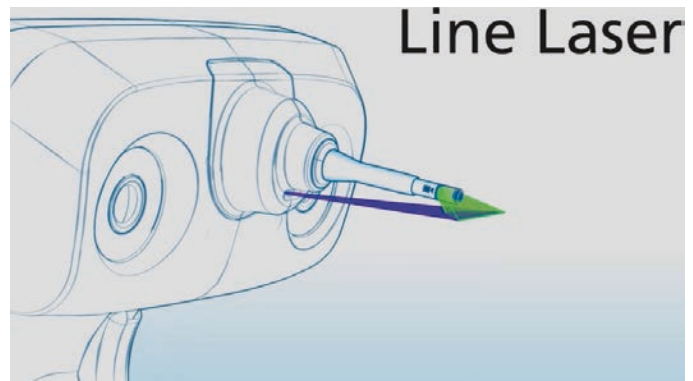
Class 2 lasers always have visible light and are considered safe for unintentional eye exposure. Because a person usually turns away or blinks to avoid the bright light, the beam will not have contact with the eye for more than 0.25 seconds, and therefore Class 2 laser beams will not cause any harm. However, do not stare deliberately into the beam for a longer period of time – this can cause injury to the retina in the back of the eye. Be aware of beam reflections off glass and other shiny surfaces. Depending on the surface, the reflected beam could be about as strong and as focused as a direct beam. (www.lasersafetyfacts.com/2/)

Ring Laser



Picture 1. The Ring laser.

Line Laser



Picture 2. The Line laser.

Classification of lasers

In order to better understand the classifications of lasers, you will find a listing of them here. The classifications scheme provides an indication of the potential health risk, where the higher the class is, the greater the radiation power of the laser is. Notice that Class 2 lasers are in the green area, which indicates low risk.

Class 1: Not dangerous, even though staring deliberately into the source.

Class 1C: Not dangerous. Is used on skin or internal body tissue for medical purposes.

Class 1M: Usually not dangerous, even if staring deliberately into the source for a longer period of time. Laser might be blinding in darker rooms.

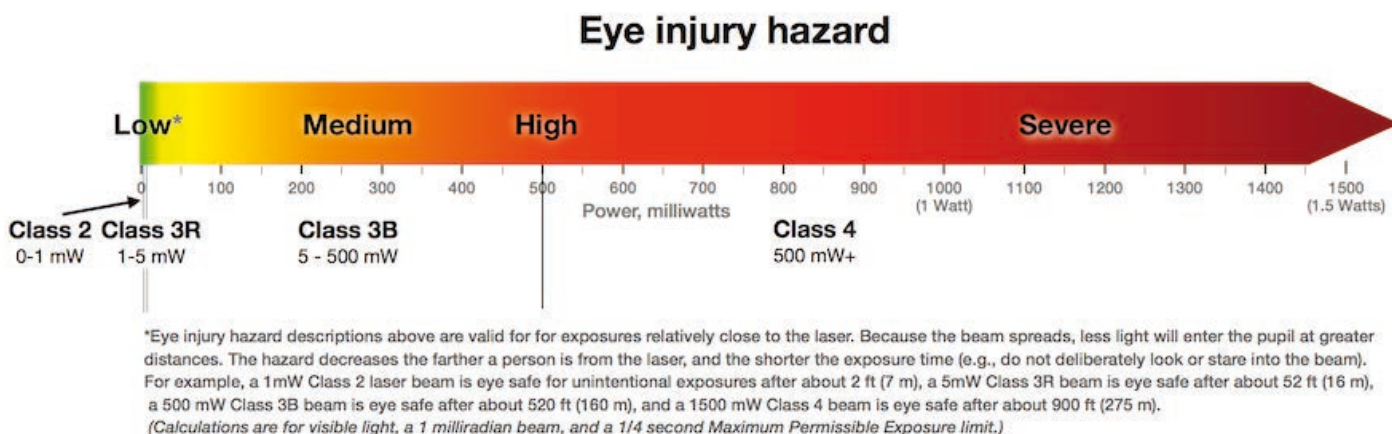
Class 2: **Visible light. Is not dangerous, if you only look into the beam for a short period of time (0.25 seconds). Laser might be blinding in darker rooms.**

Class 2M: Visible light. Is not dangerous, if you only look into the beam for at short period of time (0.25 seconds). Can provide eye damage when used with a microscope.

Class 3R: Low risk of eye damage, but only used when there is little chance of contact with eyes. Eye protection is needed.

Class 3B: Dangerous. Eye damage under direct and reflected viewing. Can give burns in some cases. Always use eye protection.

Class 4: Dangerous. Eye damage under direct and reflected viewing. Will give burns if contact with skin occurs. Always use eye protection. (www.gov.uk/government/publications/laser-radiation-safety-advice/laser-radiation-safety-advice)



The product covered by this paper is used to visually inspect the ear canal, concha, and helix, to capture and store pictures and 3D scans, and to transmit scans and images to hearing instrument manufacturers and ear mold laboratories in association with hearing instrument orders. It uses a camera for visually inspecting and capturing images of the ear canal, and a 3D scanner for scanning the ear canal, concha, and helix. Otoscan is used in connection with a desktop computer with a 120 V AC power supply application for annotating and accessing client scans. Otoscan is powered via a standard 5 V DC USB connection (Intertek Testing, 2017).

Visit hearing-balance.natus.com/otoscan for more information

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