



## Laser Safety Technical Bulletin

### **Introduction:**

Proper safety measures should be implemented when using or servicing devices that make use of laser radiation.

### **Background:**

Lasers must be designed, installed and used safely in order to minimize the risk of laser accidents, especially those involving eye injuries.

In the US, the FDA regulates all lasers and laser devices by having specific requirements for compliance and certification. Tiger Optics' units utilize Class IIIb lasers. Lasers in this class may damage the eye if the beam were to enter it directly. There are specific FDA requirements for servicing the units, as well as for labeling and documentation associated with them.

Tiger analyzers are classified as Class I in normal operation. This indicates that the analyzers are inherently safe, with no possibility of eye damage.

### **Precautions for Standard Operation:**

Tiger Optics' analyzers are designed to operate with the laser beam totally enclosed within the fiber-optic cable and associated equipment. Hence, they are certified as a Class I laser product and in compliance with 21 CFR 1040.10 and 1040.11.

Ruggedized fiber optic cables with metal jackets are used to minimize the risk that a fiber optic cable may be severed. In the unlikely event that a fiber optic cable is severed and light is emitted, do not stare into the end of any broken, severed, or disconnected optical fiber or cable.

The analyzer side panels serve as a protective housing for radiation and should not be removed during operation.

### **Precautions for Service and Installation:**

During the installation or servicing of the unit, the system can no longer be considered enclosed and there is a risk of exposure to optical energy if the system is energized.

Only authorized, trained personnel shall be permitted to perform installation and/or service on a Tiger Optics' gas analyzer if access to laser emission is required.

All unauthorized personnel shall be excluded from the immediate area of access to laser radiation during service and installation when there is a possibility that the system will emit laser radiation outside of the protective housing. The immediate area shall be considered a temporary laser-controlled area.

**Conclusion:**

It is important to understand the safety precautions that must be taken for the different classes of lasers and laser products. Different safety measures must be taken, depending on if the user is operating the laser product or servicing it. Only trained personnel are permitted to work on a laser product if exposure to laser emission is required.