Laser Classes

The old system has been in use with variations in the USA and Canada for some time. There is a European system being adopted in the US ANSI standard, called the Revised System. This has been incorporated in the ANSI Z136.1 – 2007 standard and will lead to harmonization of classification right across the board. Familiarity with both systems is important as older lasers will have the old system classes and newer or overseas lasers will employ the revised system classes. Some key differences or characteristics are shown.

Old System (CRDH)	Power (max) /comment	Revised System	Power (max) / comment
Class I	Inherently safe	Class 1	<0.39mW continuous wave Inherently safe
		Class 1M	Not safe for use with collimating optics
Class II	<1mW Aversion response sufficient	Class 2	<1mW
Class IIa	Low power end of Class II, require >1000s continuous viewing to burn eye	Class 2M	Not safe for use with collimating optics (microscope)
Class IIIa	<5mW continuous or <2.5mW/cm2 Not safe for use with collimating optics	Class 3R	<5mW safe with Restricted beam viewing
Class IIIb	<500mW	Class 3B	<500mW continuous or 30mJ pulsed
Class IV	Anything greater than IIIb	Class 4	Anything greater than 3B

Class 3B and 4 are the creatures of interest that require some safety measures beyond manufacturer design.