



## Laser Safety Protocol #009

**TO:** Laser users  
**From:** Laser Safety Program  
**SUBJECT:** ANSI Z136.1– Nominal Hazard Zone Boundary  
**VERSION DATE:** May 2008

---

---

### **Goal**

Document the application and requirements for posting of a laser use area rather than the Nominal Hazard Zone (NHZ) Boundary

### **LBNL Protocol**

Recognizing the nature of research, the majority of times the laser use room will be posted with appropriate laser warning signs rather than the exact demarcation line of safe and unsafe (NHZ). This protocol is in compliance with ANSI Z136.1-2007

### **Applicable Standard and Policies**

#### **ANSI Z136.1 / CDRH Specification**

The ANSI Z136.1 standard for the Safe Use of Lasers is the laser safety programs general guidance document.

The Center for Devices and Radiological Health (CDRH) is the Food and Drug Administration body tasked with developing laser light performance product safety standards for laser sold in the United States.

LBNL Pub 3000, chapter 16 Lasers, also guides laser use at LBNL.

Section 4.3.9.2 of ANSI Z136.1-2000: Warning Sign Posting “Nominal Hazard Zone Boundary (NHZ). The NHZ boundary for a Class 3B or Class 4 laser or laser system shall be identified by the LSO and the NHZ boundary shall be demarcated as a laser hazard area using the appropriate laser warning sign and /or other means to demarcate the region where the hazard is present.”

Section 3.4.1 of ANSI Z136.1-2007 “The LSO shall assure that consideration is given to direct, reflected and scattered radiation in the establishment of boundaries for the laser controlled area. The LSO may declare the laser use area as the NHZ in lieu of calculating all possible NHZ distances, such as in the case of a dedicated laser use room.”

### **Rationale**

In a research setting the actual NHZ may very well be a very limited area less than a few centimeters or vast such as several meters or greater. The LBNL laser safety philosophy is to ensure all laser beams

and reflections are contained to the optical table or within an experimental chamber. In addition due to the fluid nature of research the NHZ may expand or contract due to the changes in the on going research activity. The ANSI Z136.1 2007 version allows the LSO to define the entire laser use room as the NHZ; this is the LBNL preferred approach. The LBNL laser safety program has a concern that setting an line or area in an open lab space as “safe” may cause staff to forget to place laser protective eyewear on when crossing into the hazardous section of the laser work area.

### **Contact Information**

In case of questions or comments, contact Ken Barat, Laser Safety Officer (LSO), at ext. 2544, kbarat@lbl.gov.