

Fire Science Laboratory

PDA System Review

The purpose of this form is to provide a way for students to review their understanding of the Vaporizer. This information can be found in the PDA System Standard Operating Procedures. This form is to be submitted with the [Sign-up and Summary Sheet](#).

General

1. Describe in general the components of the PDA system.

2. What data can be obtained using the PDA system?

3. In what direction(s) does the PDA system measure velocity?

4. How is the measurement volume defined?

Safety

5. Under what conditions of exposure can the laser beam cause injury?

6. What is the difference between a diffuse reflection and a specular reflection, and why is this difference important?

7. How are the Nominal Hazard Zone (NHZ) and the Laser Controlled Area defined?

8. What precautions must be followed to ensure personal safety around the laser beam?

9. What precautions must be followed to prevent injury of others (both in the lab and outside) during laser operation?

Theory

10. What characteristic of the beam intersection is important in determining the velocity of a particle passing through it?

11. Why do the beams intersect at the narrowest part of the beam (the beam waist)?

12. What is a Doppler Burst?

13. What is the purpose of the Bragg cell? What does it do to the measurement?

14. How does the system measure particle size and concentration?
