

QUICK SHEET

VERNIER UV-B Sensor (UVB-BTA)

LOCATION of EQUIPMENT:

Hardware: See lab attendant

Software: Requires handheld Vernier LabQuest 2 unit; see lab attendant

INSTRUCTIONS FOR USE:

1. Plug sensor into one of the three side analog ports of the handheld unit (Vernier LabQuest 2)
2. The unit will automatically enter the appropriate screen to observe ultraviolet radiation
 - a. If it does not, press the home button in the bottom right corner of the handheld unit's display, then press the LabQuest App option in the top left corner
3. Ultraviolet levels of the "B" range (approx. 290-320 nm) will begin to appear on the handheld unit, measured in milliwatts per meter squared (mW/m^2)
4. For data logging options, refer to the quicksheet on the Vernier LabQuest 2
5. When done recording/logging, unplug the sensor from the handheld unit

HELPFUL TIPS:

1. For UV-B readings, it is recommended to wait 2 seconds in each location of desired measurement for the most accurate measurement
2. For UV-B readings, it is helpful to record a range (ex. 26-27 mW/m^2 or 5,012-5,190 mW/m^2)
3. The UV-B Sensor includes a built-in light diffuser making it less sensitive to its orientation, meaning that it should not be of concern which direction the sensor is pointed

OVERVIEW:

The Vernier UV-B Sensor is an ultraviolet light sensor that responds primarily to UV-B radiation (approx. 290 to 320 nm). The amount of UV-B radiation that penetrates the atmosphere is dependent on the angle of the sun and the amount of ozone along the light path. Radiation at these UV wavelengths is responsible for reddening of the skin (erythema, or 'sunburn'), cataracts, and skin cancers. It is generally agreed that UV-B radiation is the primary danger to humans, in comparison to other wavelengths of UV radiation, and thus it becomes an important measurement in post-occupancy studies related to occupant health.

SUGGESTED APPLICATIONS:

- Comparing different window and glass types and technologies and their radiation transmittance through a measuring of exterior and interior UV-B levels
- Measuring radiation levels of specific areas to determine if occupants are exposed to unhealthy levels of UV-B radiation
- Experiments involving sunlight and its penetration into buildings

RELEVANT TOPICS:

Post-Occupancy Studies, Daylighting Studies, Performance of Glass in Eliminating UV-B Radiation (Transmittance)