Environment Sensor Calibration

When comparing multiple environment sensors in an active environment it can be very difficult to determine which is most accurate. Many factors come into play; review the following important considerations for getting the best readings:

Sensor Location
What elevation in the room is the sensor located at? Heat rises; are other sensors at the same elevation? Are there any sources of heat (lights, motors, etc.) or cool air (hvac ducts) located near by? Is the sensor near humid material or open trays?

Atmosphere Uniformity
Is the atmosphere adequately circulated so that the air temperature and humidity are relatively uniform through out the space or are there areas of low movement? Is the sensor located in a dead-space with low air movement?

Sensor Accuracy
The quality of temperature and humidity sensors are not all the same. Agrowtek uses high quality digital/capacity temperature/humidity sensor chips with high accuracy and precision. These chips are calibrated at the chip manufacturer and our sensors report the values calibrated by the manufacturer. The sensors we use have an accuracy of +/- 0.4°C and +/- 3%RH which is typical of most high quality sensors and meters.

Device Design
The highest quality sensor will still be inaccurate if it is located in an enclosure with poor air flow or self heating from components on the circuit board. Shielding the sensor chip and providing active ventilation is the only guaranteed method to ensure the sensor chip is reading the ambient environment accurately. Enclosures that do not shield the sensor from radiation or provide active air movement are likely to read with varying accuracy.

Calibration
Environment sensors are best calibrated with a NIST traceable temperature/humidity meter. A high quality meter will provide a probe separate from the meter instrument which can be located very near the aspirator fan inlet of an Agrowtek environment sensor. This location ensures sampling of the same air that is entering the environment sensor. Keep in mind that even the most expensive NIST traceable meters have an accuracy range similar to Agrowtek's digital sensor chips. Even two NIST meters will not read identical values, however, you can be satisfied that the environment sensors are reading within the allowed tolerances.