Technical Audit: Facility

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **General Technical Question or ISO 17025:2017 and Handbook 143:2023 Criteria** | **Numerical Response** | **Yes** | **No** | **Describe (reference objective evidence)*** **How the laboratory complies with this item; or**
* **Actions that the laboratory is taking to achieve compliance.**
 |
| Age of laboratory |  | --- | --- |  |
| Year of latest modifications |  | --- | --- | Describe modifications that have been completed or are in process. |
| Are modifications being planned or are in process? | --- |  |  | Describe efforts underway. |
| Is a new laboratory being planned? | --- |  |  | Describe stage and efforts underway. Provide a timeline for expectedoccupancy. |
| Number of laboratory rooms |  | --- | --- | List names of the rooms by parameter/measurements conducted in them. |
| 7.1.7. Clients have reasonable access to witness tests. | --- |  |  | Describe how adequate security is maintained. Describe how client confidentiality is maintained for other clients. |
| 7.10.1. Nonconforming work. Work is stopped when required environmentalconditions are not maintained. | --- |  |  | Describe who determines when work can continue and what limits of deviation are acceptable (if any). |
| 6.3.1. If there are facility limitations that may impact laboratory results or uncertainties, describe how laboratory methods are selected toensure suitable quality of measurement results. | --- | --- | --- | Describe an example. |
| 6.3.2. Laboratory facility requirements for accommodations and environmental conditions aredocumented. | --- |  |  | Complete the Laboratory Room Assessment Table (Table 1). |
| 6.3.3. Laboratory temperature and humidity conditions are monitored. | --- |  |  | Describe how in the Laboratory Room Assessment Table (Table 1). |
| 6.3.4. Effective separation ofincompatible activities. | --- |  |  | Describe the areas that are considered incompatible and how they areseparated. |
| 6.3.4. Adequate security. | --- |  |  | Describe the controls maintained for security and access. List the staff who have access to which rooms of the laboratory. Describe the staff training for each person who has access to any laboratory room. |
| 6.3.4. Adequate housekeeping. | --- |  |  | Describe the cleaning procedures and personnel responsible for cleaning andgeneral housekeeping in the laboratory. |
| 6.4.1. Equipment. Do facility environmental ranges meet thespecifications established by the | --- |  |  | Describe any deviations or inconsistencies from the Laboratory Room Assessment Table (Table 1) versus manufacturer instrument specifications. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| instrument manufacturers (e.g., balances)? |  |  |  |  |
| 6.5. Measurement Traceability. All environmental measuring equipment has an established calibration interval and is up to date on its calibrationstatus. | --- |  |  | List the equipment and calibration status on the Laboratory Room Assessment Table (Table 1). |
| 6.4.3. Handling of Test and Calibration Items. All calibration items are stored before, during, and after calibrations in a secure, well-identified, and environmentally controlled (as needed) area. | --- |  |  | Describe receipt and storage facility areas, include in Laboratory Room Assessment Table (Table 1) and indicate security level controls. |
| HB 143, B.1 Dimensional Areas | --- | --- | --- | --- |
| B.2.1. Dimensional areas are nominally 20 °C or appropriate coefficient of expansion correctionsare used. | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1). Indicate N/A if not applicable. |
| B.2.2. Environmental variations are less than 1 °C over 24 h and less than0.5 °C during any 1 h period and accuracy of temperature measuringinstruments have accuracy better than0.5 °C. | --- |  |  | Describe. Indicate N/A if not applicable. |
| B.2.2.2. The relative humidity should not exceed 50 percent. | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1). Indicate N/A if not applicable. |
| Excessive vibration should be avoided or precautions are taken. | --- |  |  | Describe. Indicate N/A if not applicable. |
| HB 143. D.2 Mass Laboratories | --- | --- | --- | --- |
| D.2.2. Mass Echelon III Areas are maintained to 18 °C to 27 °C with maximum change less than 3 °C perhour. | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1). Indicate N/A if not applicable. |
| D.2.1. Mass Echelon II Areas are maintained to 18 °C to 23 °C with maximum change less than 1.5 °C per hour. | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1). Indicate N/A if not applicable. |
| D.2.1. Mass Echelon I Areas aremaintained to 18 °C to 23 °C with | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1). Indicate N/A if notapplicable. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| maximum change less than 0.7 °C per hour. |  |  |  |  |
| D.2.1. Mass Echelon III Areas are maintained to 40 % to 60 % relativehumidity with maximum change ± 20 % per 4 hours. | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1). Indicate N/A if not applicable. |
| D.2.1. Mass Echelon II Areas are maintained to 40 % to 60 % relative humidity with maximum change± 10 % per 4 hours. | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1). Indicate N/A if not applicable. |
| D.2.1. Mass Echelon III Areas are maintained to 40 % to 60 % relative humidity with maximum change ± 20 % per 4 hours. | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1). Indicate N/A if not applicable. |
| D.2.2.4 Cleanliness, air flow, contamination are suitable. | --- |  |  | Describe any concerns about laboratory air flow, possible cross contamination.Describe whether paper, notebooks, or printers are allowed in the laboratory. Describe the laboratory policy on refraining from food/drive in the laboratory. |
| D.2.2.5. Vibration does not impactmeasurement results. | --- |  |  | Describe any source of vibration that impact the laboratory or where suitablesteps have been taken to minimize effects due to vibration. |
| D.2.2.6. Static electricity control methods are suitable. | --- |  |  | Describe any specific steps the laboratory has taken to minimize the impact of static electricity. |
| D.2.4. Environmental equipment isof suitable accuracy. | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1). Indicate N/A if notapplicable. |
| D.2.4.5.6. Documentation of uncertainty and traceability of environmental measurement results maintained | --- |  |  | Describe documentation process and results |
| HB 143, D.3 Volume Laboratories | --- | --- | --- | --- |
| D.3.2. Do you have an indoor facility? | --- |  |  | If no, describe the test location and controls. |
| D.3.4.2. Does your indoor facility have a temperature control system? | --- |  |  | If no, describe any limitations placed on testing. |
| D.3.2. Does your indoor facility have a humidity control system? | --- |  |  | If no, describe any limitations placed on testing. |
| Do you have a raised or fixed or adjustable platform for the standards or are you using a hoist/forklift/pallet jack/truck or other system for placement of provers under test?  | --- |  |  | Describe your configuration for calibrating provers. How tall is your platform? |
| D.3.2. Volume Transfer, Echelon II areas are maintained to 18 °C to 27 °C with maximum change less than 2 °C per hour. | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1). Indicate N/A if not applicable. |
| D.3.2. Volume Transfer, Echelon II areas are maintained to 35 % to 65 % relative humidity with maximum change ± 20 % per 4 hours. | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1). Indicate N/A if not applicable. |
| D.3.2. Volume Gravimetric, Echelon I areas are maintained to 18°C to 23 °C with maximum change less than 1 °C per hour. | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1). Indicate N/A if not applicable. |
| D.3.2. Volume Gravimetric, Echelon I areas are maintained to 40% to 60 % relative humidity with maximum change ± 10 % per 4 hours. | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1). Indicate N/A if not applicable. |
| D.3.2. Vibration, air currents, and rapid temperature changes do notimpact measurement results. | --- |  |  | Describe. |
| D.3.4. Water quality is acceptable for calibrations made in the laboratory and there is adequate storage. (Also a reference material.). | --- |  |  | Describe sources of water and how quality is assessed. What is the approximate flow rate from the supply? (E.g., if you don’t know “flow rate” per se, how long does it take to fill each prover you calibrate?) |
| HB 143, 2.6.2. Alternative calibration sites do not invalidate measurement results. | --- |  |  | If not applicable, note N/A. State how non-laboratory facility space complies to requirements and assurances are made. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 6.3.1. Environmental equipment isof suitable accuracy. | --- |  |  | Describe on the Laboratory Room Assessment Table (Table 1), Appendix A. What the frequency for calibration? Indicate N/A if notapplicable. |
| Handbook 143 – Add other parameters and sections of Technical Requirements in Appendix E as appropriate based on Recognition levels (e.g., Electrical Watt Hour Meter, Thermometry, Hydrometer, and Force calibrations) | --- |  |  |  |

**Table 1**: Laboratory Room Assessment

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Designated Laboratory Rooms**  | **Parameters and Echelons** | **Temperature****Range (controlled)** | **Humidity Range (controlled)** | **Describe environmental monitoring instruments, calibration status and frequency, and method of monitoring** |
| *Example: Large Mass* | *Mass Echelon III and Volume Echelon I* | *18 °C to 27 °C* | *45 % ± 5 %* | *Vaisala, PTU 300, last calibrated March 2022 by Vaisala, calibrated bi-annually, connected to PC and data automatically collected every 20* |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |