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Area	Laboratory-Safety
Applicability	All Beaumont Hospitals

Laboratory Noise Protection Guidelines

Document Type: Guidelines

I. PURPOSE AND OBJECTIVE:

The Laboratory Noise Protection Guideline outlines the steps to evaluate noise level before and after a laboratory section is constructed and equipped with instrumentation and guidelines for staff to follow when there is a noise level concern.

II. GUIDELINES:

A. **Permissible Noise Exposure**

1. Laboratory departments with large automation systems, multiple analyzers or processing devices with moving mechanical parts may generate higher than average noise levels. Permissible noise exposures are based on duration of hours per day and decibel level. Generally, the ambient noise level in an employee work area should not exceed an 8-hour time-weighted average of 85 decibels (dB). This level of noise requires shouting to be heard in conversation for a prolonged period.

B. **Laboratory Work Space Design**

1. Preferably, before the Laboratory purchases new equipment or designs a new work space, an evaluation of the potential noise level will be conducted by Laboratory Management and, when necessary, include the equipment vendor, the Director of Hospital Safety, Facilities Management and the Laboratory Safety Officer.
2. Consideration for creating a low noise level work area will be given with the design layout and the type of equipment purchased. Screens, barriers or walls can be placed between the source of the noise and the employees to stop or reduce the direct sound. Increasing the distance between a person and the noise source can

reduce noise exposure.

C. **Laboratory Employees**

1. Upon concern about a potential high level of noise in any laboratory area that may have a negative effect on hearing normal levels of conversation, the employee shall be responsible for notifying the department manager of any symptoms and/or concerns.

D. **Laboratory Department Managers**

1. Upon receiving noise level concern:
    a. Contact the Director of Environment and Life Safety (corporate hospital safety), System Manager of Laboratory Quality and Safety, and campus Laboratory Safety Officer to evaluate if a noise measurement is necessary.
        i. If a noise measurement is deemed necessary, then contact the campus Facilities Management (if they have a dosimeter) or the corporate System Manager of Laboratory Quality and Safety to arrange a date and time for the measurement.
        ii. Upon receiving the results of the noise measurement, if the dosimeter noise reading is at 85 dB or higher or if the employees are uncomfortable with the current noise level (lower than 85 dB), Laboratory Management will determine how to improve or adjust the work space to lower the noise level or if the employees need hearing protection equipment.
            a. If the dosimeter result is 85 dB or higher, consideration for hiring an outside vendor to perform a professional noise assessment will be determined by Laboratory Management.

E. **Laboratory Safety Officers or designee**

1. Upon receiving a noise measurement request:
    a. Review the Svantek SV104A Dosimeter user manual, Dosimeter Quick View Job Aid, and Dosimeter Worksheet.
    b. Arrange a date/time with the department manager and selected employee to wear the dosimeter during their shift while performing normal job duties.
    c. Upon completion of the noise measurement session, download the dosimeter data into the Svantek Supervisor Lite software (only hospital Information Technology department can install the Svantek software).
        i. Generate a measurement result report in the Svantek software and complete the Dosimeter Worksheet.
            a. Email both documents to the requesting Laboratory department Manager, site Laboratory Director, System Manager of Laboratory Quality/Safety and the Director

of Environment and Life Safety.

b. Retain a copy of both documents on a share drive (i.e., Sharepoint, S drive, Cloud network).

III. REFERENCES:

A. MIOSHA Part 380 Occupational Noise Exposure in General Industry

B. Hospital Safety policy: Personal Protective Equipment-MIOSHA

C. College of American Pathologists Laboratory General Checklist, GEN.77300 - Excessive Noise

Attachments

Svantek SV104A Dosimeter Quick View Job Aid.pdf

Svantek SV104A Dosimeter Time Display Job Aid.pdf

Svantek SV104A Dosimeter Worksheet.pdf

Approval Signatures

Step Description	Approver	Date
CLIA Site Licensed Medical Directors	Vaishali Pansare: Chief, Pathology	10/18/2022
CLIA Site Licensed Medical Directors	Jeremy Powers: Chief, Pathology	10/12/2022
CLIA Site Licensed Medical Directors	Muhammad Arshad: Physician	10/7/2022
CLIA Site Licensed Medical Directors	Ryan Johnson: OUWB Clinical Faculty	9/29/2022
CLIA Site Licensed Medical Directors	John Pui: Chief, Pathology	9/29/2022
CLIA Site Licensed Medical Directors	Kurt Bernacki: System Med Dir, Surgical Path	9/29/2022
CLIA Site Licensed Medical Directors	Ann Marie Blenc: System Med Dir, Hematopath	9/29/2022
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Policy and Forms Steering Committee Approval (if needed)	Gail Juleff: Project Mgr Policy	9/20/2022
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Operations Directors	Sarah Britton: VP Laboratory Svcs	9/13/2022
Operations Directors	Joan Wehby: Dir, Lab Operations C	9/6/2022
Operations Directors	Amy Conners: Dir, Lab Operations A	9/5/2022
Operations Directors	Amy Knaus: Dir, Lab Operations C	9/2/2022
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Quality Best Practice	Jennie Green: Mgr, Division Laboratory	9/1/2022
	Anne Sepienza: Lab Quality Coord	9/1/2022

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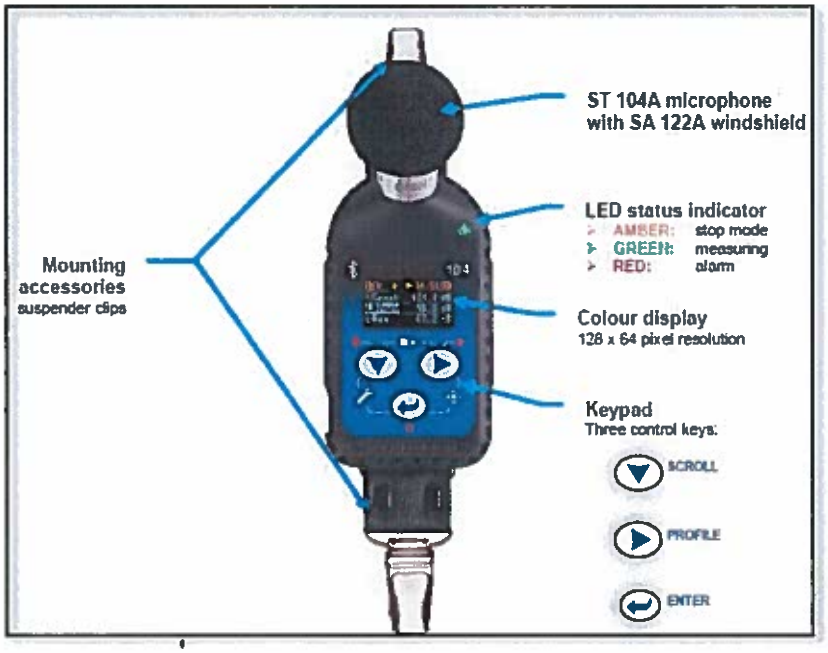
Quick View Job Aid for the Svantek SV104A Dosimeter

The user manual for SV104A dosimeter is included as attachment in the Laboratory Noise Protection Guidelines policy. Refer to the user manual for complete directions on how to operate the dosimeter.

Overview display of the SV104A dosimeter:



1. **Basic directions for calibration and operation (see user manual section 1.5, page 13, for general procedure directions)**
    a. **Turn on the dosimeter by pressing the <Enter> button (<- key)**
        i. Dosimeter will cycle through the status settings, including the battery charge status
        ii. Ensure the dosimeter is fully charged prior to the measuring session.
            1. See the user manual section 4, page 29, for directions on how to charge the dosimeter.
                a. Takes two hours to fully charge
                b. At fully charged, the dosimeter holds enough charge for 48 hours.
            2. Ensure the date/time is correct on the meter display. See the SV104A Time Display job aid located in the Laboratory Noise Protection Guidelines policy for directions how to update the date/time.
        iii. Allow the dosimeter to warm up for at least one minute before calibration or starting measuring session.
    b. **Calibrate before and after the monitoring session**
        i. See section 4.7, pages 34 -36, of the user manual for detail calibration directions.

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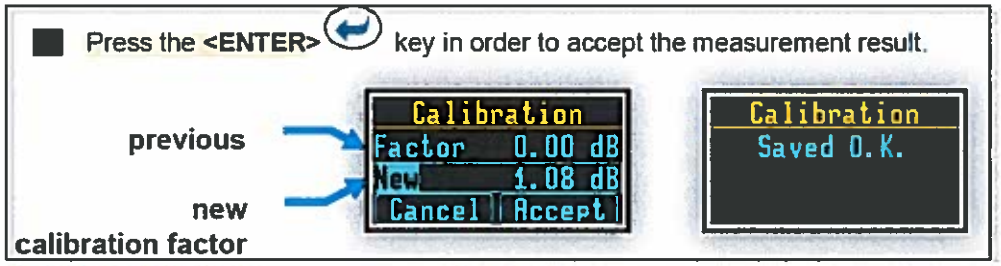
ii. Press the power button on the calibrator and wait 30 seconds for the tone to stabilize before starting the calibration measurement.
iii. Remove the "windshield" cushion cover from the dosimeter microphone.
iv. Insert the dosimeter microphone into the calibrator port.
    1. Ensure proper attachment for accurate results.
v. Start the calibration measurement by pressing the <Enter> key on the dosimeter.
vi. When the calibration is completed, the Calibrator will display the previous and new calibration readings.
vii. Press the **<Enter>** key on the dosimeter to accept the calibration measurement reading.
viii. It is recommended to repeat the calibration measurement. The results should be almost the same (with ±0.1 dB difference).
ix. Remove the dosimeter from the calibrator and place the "windshield" back onto the dosimeter.
x. Calibrator will turn off automatically within 10 seconds.



LED status indication	Description
GREEN flashing once per second	Indicates the **measurement is running** and the dose alarm level has not been exceeded.
AMBER flashing once per over a dozen seconds	Indicates the **measurement is stopped** and the dose alarm level has not been exceeded.
RED single isolated flashes with a duration of nominally one second	Indicates **vibration shock threshold has been detected**. This will go off once the high vibration shock has ceased.
RED flashing quickly, four times per second	Indicates the **alarm conditions**: for instance: the dose has exceeded the alarm level.

2. **Attaching the dosimeter, starting and stopping measurement run**
    a. The dosimeter is attached to the clothing of the employee, shoulder level, close to the ear for the entire shift of their normal performing tasks.
    b. To start the measurements, press the <SCROLL> and <PROFILE> keys at the same time.
        i. Green flashing light will appear in upper left side when measurement is taking place.
        ii. The display will time-out and appear blank, but the dosimeter is still recording as long as the green flashing light appears on the instrument.
    c. After the desired measurement time, remove the dosimeter from the employee.

Quick View Job Aid for the Svantek SV104A Dosimeter

   d. Stop the recording session by pressing the <SCROLL> and <PROFILE> keys at the same time

3. **Post measurement calibration of the dosimeter**
   a. Repeat the calibration step (See step 1-b for directions on how to perform the calibration).
4. **Downloaded dosimeter to PC and generate result report**
   a. See section 6, page 50, in the user manual for detail directions how downloading the dosimeter data into the software application.
   b. See section 6.7, page 68, in the user manual for directions on how to generate a result report out of the software application.
5. **To turn off the dosimeter,** press the <ENTER> key for a couple of seconds during which a countdown ("Shutting down" 3... 2... 1...) is displayed. The dosimeter will then turn off.

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Svantek SV104A Dosimeter Time Display Change

1. Open (launch) the Svantek Supervisor software on your office desk computer.
    a. Note: contact Beaumont Health computer department for the Svantek Supervisor software install.

2. Connect the SV104A dosimeter to the computer USB port via the provided cord in the hardware case.
3. Click on "advanced mode" and "OK" in the Supervisor software.
4. The software will display the main settings page.
5. Click on the SV104 device in the left column.
6. Click on the Clock tab.
    a. If the dosimeter clock is not in sync with the time on your PC, then the time field will display in red in the Supervisor software.
    b. If the dosimeter date/time needs to be updated, click on the small clock icon just to the right of the red time display. The software will sync the time automatically with your PC.
    c. Click "OK" on the "clock update" pop-up window.

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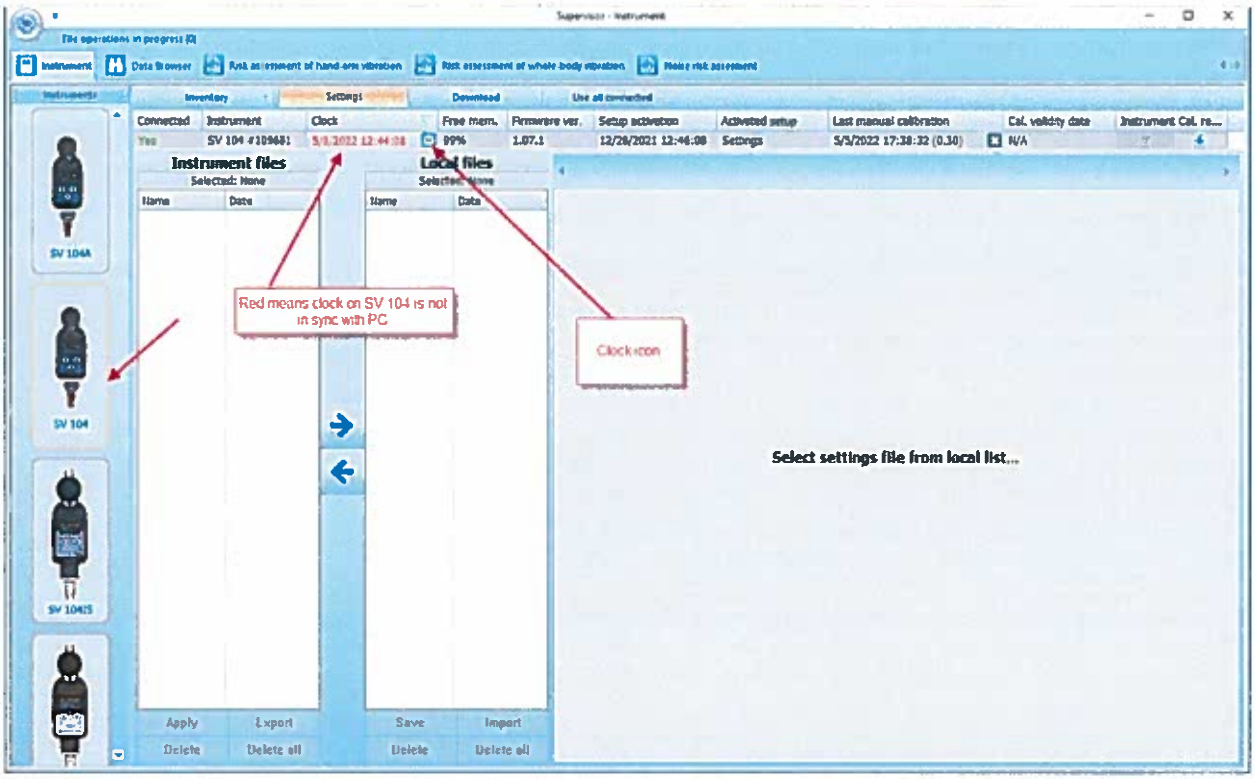

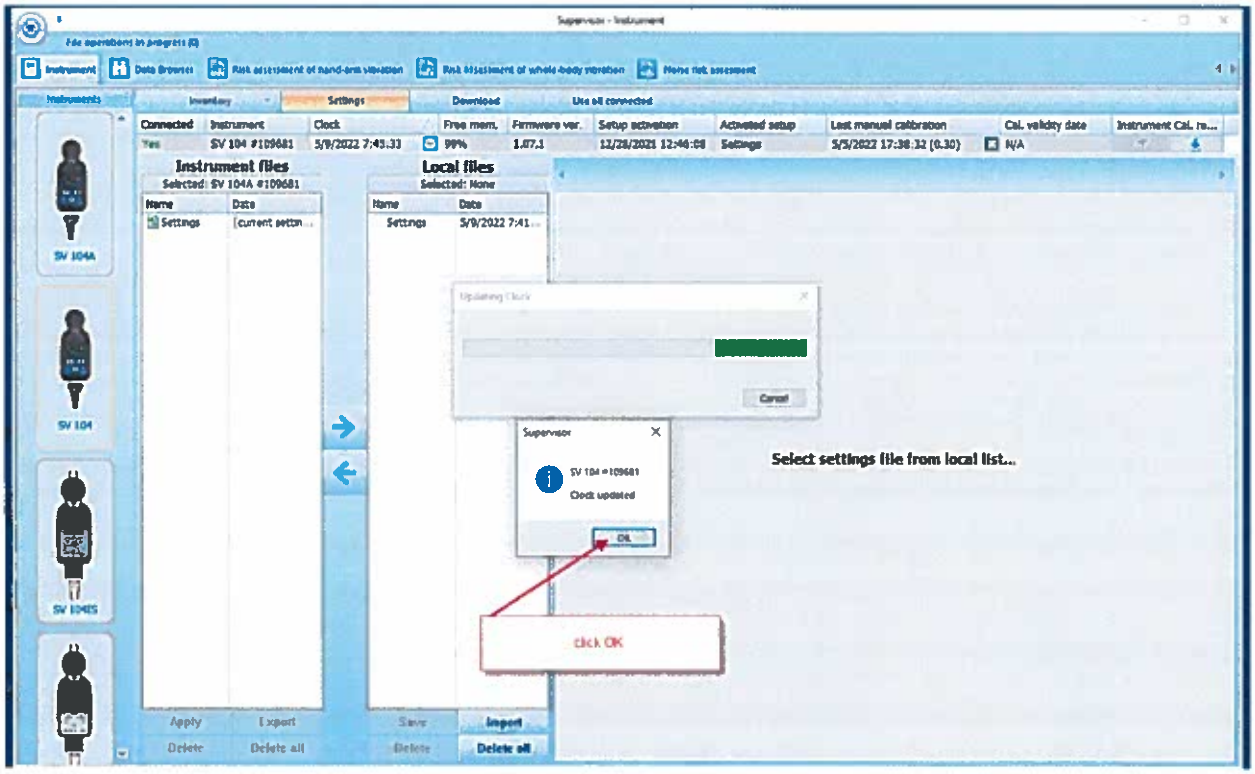

Svantek SV104A Dosimeter Time Display Change

7. Unplug the dosimeter from the computer. Meter will turn off automatically.

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Worksheet for the Svantek SV104A Dosimeter

Svantek SV104A Dosimeter user manual attached in policy:	Laboratory Noise Protection Guidelines policy	Svantek SV104A user manual section 1.5, page 13, contains general procedure instructions.
Dosimeter worksheet and job aid attached in policy:	Laboratory Noise Protection Guidelines policy	
Related (hospital) Environment of Care safety policy:	Personal Protective Equipment - MIOSHA	
TASK	**RESULTS**	**ADDITIONAL INFORMATION**
Date of measurement:		
Campus and Laboratory department requesting measurement:		
Requesting department manager:		
Employee wearing the SV104A Dosimeter and job title:		
Employee performing calibration and measurement set-up:		
Pre-measurement calibration - 1st reading:		1st & 2nd readings should be within 0.1 dB (decibel) Svantek SV104A user manual calibration section 4.7, pages 34-36.
Pre-measurement calibration - 2nd reading:		May need to perform additional calibrations to obtain two readings within 0.1 dB.
Employee instructed to wear Dosimeter throughout their normal work day and to attach the Dosimeter on clothing as close to ear as possible? (yes/no)		
Start time of measurement:		
Stop time of measurement:		
Post-measurement calibration:		Should be within 0.5 dB of the pre-measurement calibration. Reference Svantek SV104A user manual section 1.5, page 13, step 7.
Download measurement into "Supervisor Lite" SV104A software (yes/no):		
Measurement report generated from the Supervisor lite SV104A software (yes/no):		
Average measurement reading in dB (report field is titled "LAeq"):		
Email completed worksheet and copy of the Supervisor Lite measurement report to requesting department manager (yes/no):		
Comments:		
Original completed worksheet and measurement report is retained with campus Laboratory Safety Officer.		
Worksheet created July 2022. Located as an attachment in the Laboratory Noise Protection Guidelines		