



## MEASURING ROOM DIMENSIONS AND MAKING OBSERVATIONS

Version 1.0 (October 2009)

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After preparation and while you are taking air quality measurements, you need to obtain a measurement of the dimensions of the room that you are sampling. You will also need to make and write down observations.

The following sections will help to guide you through the room measurement and observational process.



IV. Describe the room that you are monitoring:  
(within the Location 1 (Day1))

Room Dimensions:

Height: (in meters)	<input type="text"/>	Width: (in meters)	<input type="text"/>
Length: (in meters)	<input type="text"/>		

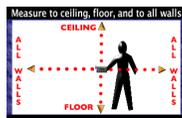
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## How to measure the volume of the room

- 1) Use a sonic measuring device for easy and accurate measurements.



- 2) Measure carefully. Point the device at a 90-degree angle (straight on) to the wall or ceiling in question when measuring. Do not angle the device. You will need to take readings to the ceiling, floor, and 4 walls.



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## Calculate and write down room measurements

**NOTE** This device does not save the measurements you make. So, each measurement must be calculated and recorded by hand on a sheet of paper.

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## MEASURING ROOM DIMENSIONS using the Zircon DM S40 Sonic Measure

The sonic measure is a device that is used to measure distances quickly and easily. For this study the measuring device will be used to determine the length, width and height of the room where air monitoring is being performed.

- This protocol refers specifically to the Zircon DM S40 Sonic Measure but any similar sonic measuring device may be used.
- If you choose to use a sonic measuring device with a laser-guide, it is best to somehow cover the laser. The laser has nothing to do with taking measurements and may draw unnecessary attention.



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## How to use a sonic measuring device:

- 1) Turn the device to the "on" position.
- 3) Press the READ button and hold the device still until the unit displays a reading.



- 2) Point the device at a solid surface to take a reading.



- 4) In this case the device is pointed at the ceiling and measurements read 3 feet 7 inches to the ceiling.

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## How to use a sonic measuring device:

### NOTE:

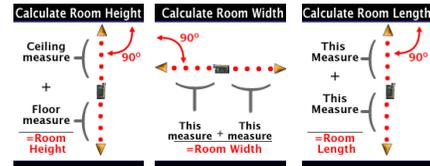
You can switch between measuring in feet and meters by pressing the ft/m button.



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## Measuring height, length and width of a room using the Sonic Measure

- You will need to measure room height, length and width (floor to ceiling, and walls).



Be sure to aim the device straight towards the solid surface (windows included). Avoid diagonal readings and readings that contain obstructions.

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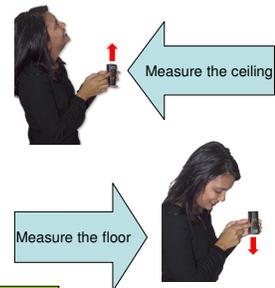
## Measuring room dimensions: Take note

- Ask yourself if the reading makes sense. There are instances where the measuring device is not measuring to the wall that you intend to measure. It may be effected by people, protruding walls, pillars or other objects.
- Some surfaces do not provide accurate readings, like: sound-dampening tiles or heavy curtains.
- If you cannot obtain an accurate reading with the sonic measure, estimate the distance by pacing or walking off the distance.

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## Measure and calculate room volume:

- To calculate room height: Point the device at the ceiling and press READ. Holding the device at the same height, turn the device toward the floor and take another reading of the height to the floor.
- Add the two measurements to calculate the room height.



Height = measure to ceiling + measure to floor

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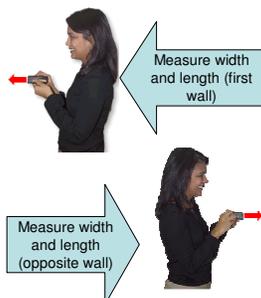
## Measure and calculate room volume:

- Measure the room's width and length using the same method.

NOTE: Walls of windows will read as a solid wall.

Width = measure to a width wall + measure of its opposite wall

Length = measure to a length wall + measure of its opposite wall



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## Sample measurement and potential measurement obstacles

### Example measurement:

Jane Ayer and Anthony Barhokpins visit Mel's Tavern

- Measure the height**  
Holding the device at a fixed point, aim it at the ceiling.  
measurement to the ceiling = 1.59m + (turn the device at the same fixed point and measure to the floor)  
measurement to the floor = 1.2m  
= a total room height of 2.79m

### Measure the width

They measure a wall next from a fixed point:  
Measurement to a wall= 3.2M +  
Measurement to the opposite wall=3.12M  
= a total room width of 6.32

### Measure the length

Finally they measure the length of Mel's Tavern from a fixed point.  
Measurement to a wall= 3.9M  
+ measurement to the opposite wall=3.66M  
= a total room length of 7.58

IV. Describe the room that you are monitoring:  
(within the Location 1 (Day1))

### Room Dimensions:

Height:  
(in meters) 2.63

Length:  
(in meters) 5.9

Width:  
(in meters) 4.7

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## Obstacles and solutions for obtaining the most accurate measurements

### POTENTIAL OBSTACLE



- Obstacles like people, protruding walls, pillars, and tables can interfere with readings

### POSSIBLE SOLUTION



- Lift the device overhead to measure, or step to the side of the obstacle

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## Obstacles and solutions for obtaining the most accurate measurements

### POTENTIAL OBSTACLE



- Odd shaped rooms

### POSSIBLE SOLUTION

- You may have to perform measurements in more than one part of a room in order to calculate the entire room volume.
- If the room is not rectangular then draw a map of the room with measurement points indicated.

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## Obstacles and solutions for obtaining the most accurate measurements

### POTENTIAL OBSTACLE



- You may have fun

### POSSIBLE SOLUTION

- Tobacco control is serious business, pull yourself together...no dancing

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