Consumer Flier

(Sample)

Get Peace of Mind with an Air Quality & Mold Detection Survey

The average family spends 90% of their time indoors, so the quality of your indoor air is paramount to your health and to the health of your loved ones.

In fact, the EPA has listed indoor air pollution among the top five environmental dangers posed to Americans today.

Getting regular measurements of your home's indoor air quality is a vital step in ensuring the health of your family.

Fast & Accurate Measurement

Because you can't often see or smell mold and air contaminants, we'll measure particulate matter, including mold spores, in every room of your house, pinpointing any issue areas.

Instant Results

You will receive a summary report, which will help you determine the condition of the air in you home and whether any areas require additional sampling.

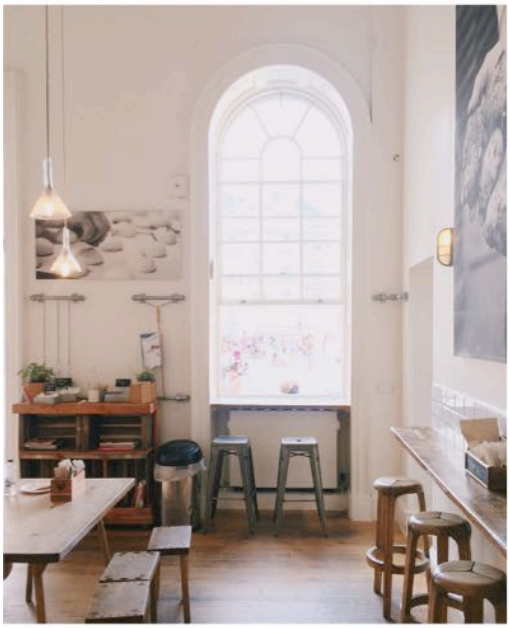
A Cost-Effective Solution

Mold sampling and lab work is expensive and often unnecessary. Our air quality and mold detection survey provide a thorough and inexpensive alternative.

Protect Your Family's Health - Get a Comprehensive Air Quality and Mold Detection Survey Today!

YOUR LOGO HERE

(555) 123-4567
Other Contact Info Here



Consumer Flier

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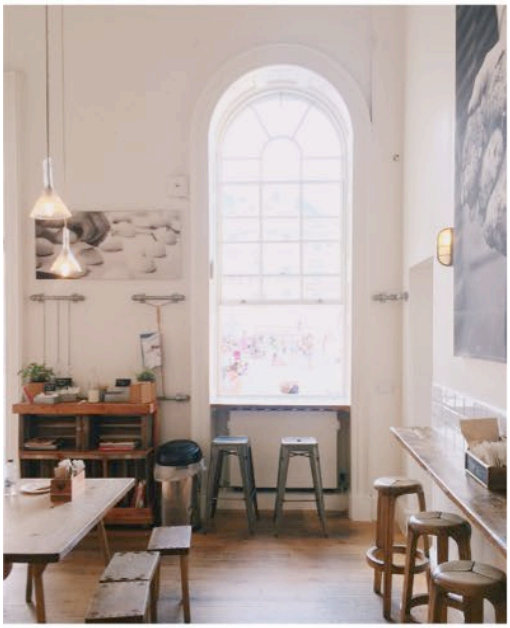
Get Peace of Mind with an Air Quality & Mold Detection Survey



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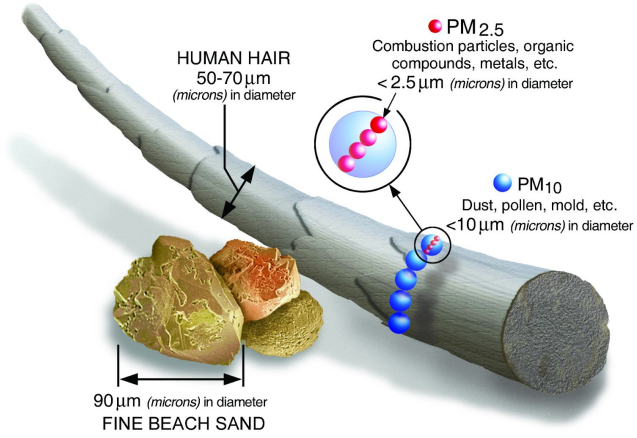
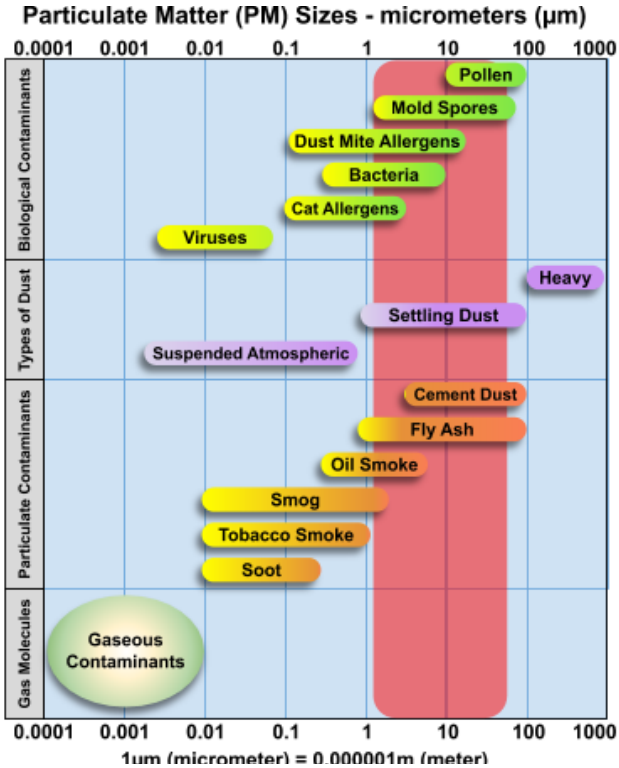
Indoor Air Quality Causes and Health Effects

PM2.5 & PM10 - Particulate Matter Sizes in Micrometers

What are PM2.5 and PM10 Pollutants?[1]

Particulate matter (PM) or particle pollution in the air is a mixture of airborne tiny particles and liquid droplets that consists of tiny solid fragments, liquid fragments, and fragments mixing with both solid and liquid.





These tiny fragments are made up of various components, such as acids, toxic exhaust, organic chemicals, metal, dust, soot, soil, or a mixture of these components. There are many classes of particulates. However, among these classes, PM10 and PM2.5 are the most regulated ones.

- PM10 refers to inhalable coarse particles that are with a diameter of about 10 micrometers.
- PM2.5 refers to fine particles that are 2.5 micrometers in diameter and smaller.

Sources of PM2.5 & PM10

There are both natural and anthropogenic (i.e. manmade) sources of PM2.5. Carbonaceous (organic) material from traffic causes a direct adverse effect on health and has been identified as a most evident source of PM2.5. Burning fuels such as oil, gasoline, or wood can directly contribute to the rising of PM levels. On the other hand, windblown dust and chemical reactions between different gases (e.g., nitrogen, sulfur, phosphorus etc.) and other substances (e.g., ammonia) can indirectly enhance the rising of atmospheric PM levels.

Power stations as well as Industrial sources contribute most to manmade pollutants (35%), trailed by vehicles or road traffic (24%), suburban (13%), and shipping (10%). Natural sources of particulate matter include sea salt that results in 5-15% of urban background PM2.5 and with higher contributions found near the coastal areas.

[1] https://www.medical-reference.net/2014/01/what-are-particulate-matter-25.html

Health Effects of PM2.5 & PM10

Exposure to airborne particulate matter (PM) has harmful consequences on human health, the environment, and climate change. Many researches have already provided multitudes of information concerning the hazardous adverse effects of PM exposure.

As PM2.5 are finer particles, they can penetrate deeply and travel through the respiratory system to reach the lung. The Committee on the Medical Effects of Air Pollutants (COMEAP) reported that high-level exposure to PM could increase hospital admissions and premature death of the old and sick because of respiratory and cardiovascular system illnesses. As evidence, the COMEAP showed statistical data on high pollution days and this data revealed that both PM10 and PM2.5 caused additional hospital admissions and premature deaths. The EPA has more information on the effects of particulate pollution.[2]

Long-term PM exposure is associated with chronic respiratory, cardiovascular, and neurological diseases, including lung cancer, neurodevelopmental disorders, poor cognitive function, diabetes, and heart attack.

Short-term PM exposure during pollution episodes can produce less severe effects, including temporary breathing difficulty, worsening of asthma symptoms, feeling of unwell, decreased activity level, etc.

In addition to adverse health effects, PM2.5 also has other widespread effects on the environment and climate change. The environmental effect can contribute to biodiversity loss, damaging plants as well as corrosion of buildings.

eTVOC - Equivalent Total Volatile Organic Compounds

What Does eTVOC Mean?

eTVOC stands for equivalent total volatile organic compounds (VOCs) and is a measurement of the total amount of any emitted gases coming from toxins and chemicals. When you have an enclosed space like a home or office, these emitted gases accumulate and pollute the air. The air quality survey does **NOT** speciate what all the VOCs are, it simply gives the total amount of all VOCs in the air.[3]

Volatile organic compounds are gases that are given off by many indoor sources that evaporate at room temperature. Concentrations of most volatile organic compounds are higher in indoor air than outdoor air.

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[2] https://www.epa.gov/pmcourse/particle-pollution-exposure
[3] https://docs.smartcitizen.me/Components/sensors/CCS811/

Sources of VOCs

Some sources of VOCs include the burning of fuels such as gas, wood and kerosene and tobacco products. VOCs can also come from personal care products such as perfume and hair spray, cleaning agents, dry cleaning fluid, paints and paint thinner, lacquers, varnishes, hobby supplies, alcohols, vinegars and from copying and printing machines.

Elevated VOC levels could be caused by a **Mold** infestation, gas leak, or off gassing of building materials and is a concern for overall indoor air quality. These compounds include a number of toxic compounds, including benzene, toluene, and formaldehyde. **Mold** can produce a number of VOCs. These compounds are what produce the "musty" smell associated with **Mold** infested dwellings. While most of the compounds are innocuous, there is experimental evidence that some of these compounds could be toxic.[4] **Detection of VOC is yet another tool that can be used to detect and locate an active mold infestation, as they are only produced by actively growing mold colonies.**

VOCs can be released from products during use and even in storage. However, the amount of VOCs emitted from products tends to decrease as the product ages.

Formaldehyde, one of the most common VOCs, is a colourless gas with an acrid (sharp and bitter) smell. It is common in many building materials such as plywood, particleboard and glues. Formaldehyde can also be found in some drapes and fabrics and in certain types of foam insulation.

Formaldehyde compounds are not speciated with the Pocket Particle AQI 2.0 Sensor.

Health Effects of VOCs

VOCs include a variety of chemicals that can cause eye, nose and throat irritation, shortness of breath, headaches, fatigue, nausea, dizziness and skin problems. Higher concentrations may cause irritation of the lungs, as well as damage to the liver, kidney, or central nervous system. Long-term exposure may also cause damage to the liver, kidneys or central nervous system.

Some VOCs are suspected of causing cancer and some have been shown to cause cancer in humans. The health effects caused by VOCs depend on the concentration and length of exposure to the chemicals.

Most people are not affected by short-term exposure to the low levels of VOCs found in homes. Some people may be more sensitive, such as people with asthma. For long-term exposure to low levels of VOCs, research is ongoing to better understand any health effects from these exposures.[5]

[4] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4591661/
[5] https://www.healthlinkbc.ca/healthlinkbc-files/air-quality-VOCs

eCO2 - Equivalent Carbon Dioxide

What Does eCO2 Mean?

Equivalent carbon dioxide, also known as “CO2e”, “eCO2”, “CO2eq”, “CO2equivalent”, or even “CDE”, and these terms can be used interchangeably. This term is used for describing different greenhouse gases in a common unit. For any quantity and type of greenhouse gas, eCO2 signifies the amount of CO2 which would have the equivalent global warming impact. eCO2 bottomline starts at 400 ppm (parts per million), the current environmental background level of CO2.[6-7]

Sources of CO2

CO2 is the fourth most abundant gas in the earth's atmosphere. At room temperature, carbon dioxide (CO2) is a colorless, odorless, non-flammable gas. At other temperatures and pressures, carbon dioxide can be a liquid or a solid. Solid carbon dioxide is called dry ice because it slowly changes from a cold solid directly into a gas.

Carbon dioxide is a byproduct of normal cell function when it is breathed out of the body. CO2 is also produced when fossil fuels are burned or decaying vegetation. Surface soils can sometimes contain high concentrations of this gas, from decaying vegetation or chemical changes in the bedrock.[8]

Health Effects of CO2

Exposure to CO2 can produce a variety of health effects. These may include headaches, dizziness, restlessness, a tingling or pins or needles feeling, difficulty breathing, sweating, tiredness, increased heart rate, raised blood pressure, coma, asphyxia, and convulsions.[9]

---

[6] https://docs.smartcitizen.me/Components/sensors/CCS811/
[7] https://ecometrica.com/assets/GHGs-CO2-CO2e-and-Carbon-What-Do-These-Mean-v2.1.pdf
[8] https://www.dhs.wisconsin.gov/chemical/carbondioxide.htm
[9] https://www.dhs.wisconsin.gov/chemical/carbondioxide.htm

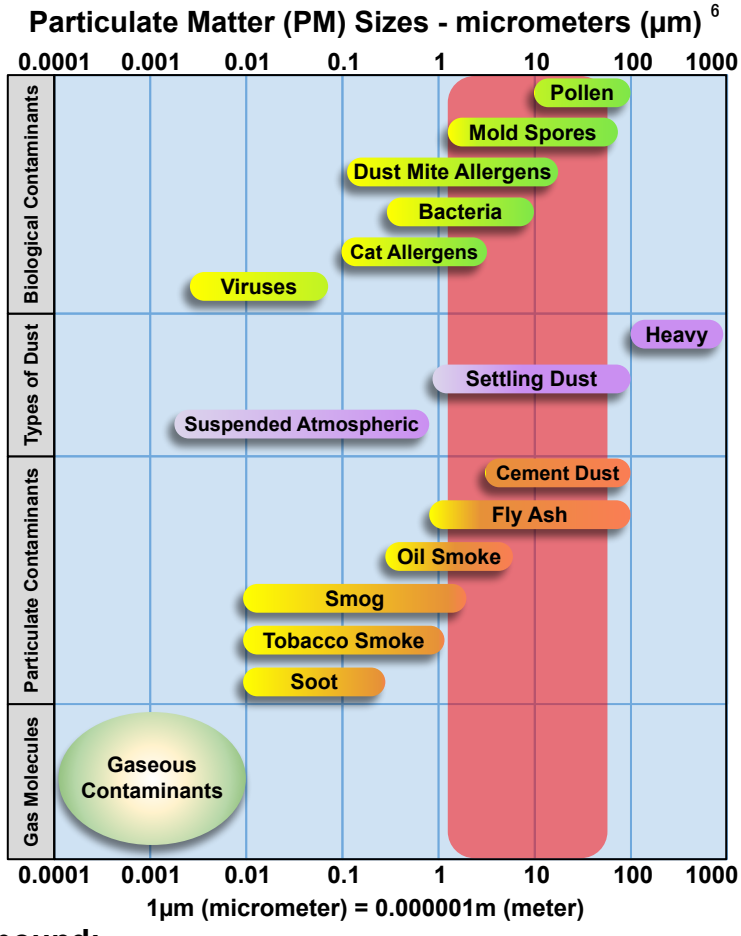
AQI Table
(Air Quality Index)

WHAT DOES THE AIR QUALITY SURVEY DATA MEAN?

PM2.5 & PM10 - Particulate Matter:

Reductions in airborne particulate matter have been shown to have a wide range of positive effects[1]. The toxicity of particulate matter depends on the type of particulate matter, but elevated particulate levels of all types have been associated with adverse health effects.

PM2.5/10 (µg/m³)	LEVEL[2]	MEANING
0 - 50	Good	Air quality is considered satisfactory air pollution poses little or no risk
50 - 100	Moderate	Air quality is acceptable
100 - 150	Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects
150 - 200	Unhealthy	Everyone may begin to experience health effects
200 - 300	Very Unhealthy	Health Alert: Everyone may experience more serious health effects
300 - 500	HAZARDOUS	Health Warning: Emergency conditions



eTVOC - Equivalent Total Volatile Organic Compound:

Total VOC concentration represents all VOCs in the air. Some types of VOCs like formaldehyde are very dangerous and should be monitored at lower levels. Below is guidance published by the German Federal Environmental Agency that allows for direct comparison to the assessment data readings.

eTVOC (ppb)	LEVEL	EXPOSURE LIMIT	RECOMMENDATIONS[3]
0 - 65	Background	No Limit	No action required
65 - 220	Normal	No Limit	Ventilation recommended
220 - 660	Elevated	< 12 Months	Ventilation recommended, look for sources
660 - 2,200	High	< 1 Month	Intensified ventilation, look for sources
> 2,200	Dangerous	Hours	Should be avoided, intense ventilation

eCO_2 - Carbon Dioxide Equivalent:

Elevated levels of carbon dioxide can cause headache and fatigue, while very high concentrations can cause dizziness, nausea, and vomiting. Extremely high levels can cause loss of consciousness and even death.

eCO_2 (ppm)	LEVEL	HEALTH EFFECTS[4–5]
250 - 350	Background	Normal level for outdoor air
350 - 1,000	Normal	Typical concentrations found in indoor air
1,000 - 2,000	Elevated	Symptoms will begin to develop, starting with drowsiness
2,000 - 5,000	High	Headaches, sleepiness, poor concentration, increased heart rate and slight nausea
> 5,000	Dangerous	Dizziness, fatigue, nausea, vomiting, loss of consciousness and death

[1] Fisk, W.J. (2013). Health benefits of particle filtration. Indoor Air,23(5), 357-368. doi:10.1111/ina. 12036
[2] https://www.airnow.gov/index.cfm?action=aqibasics.aqi#good
[3] http://www.innenraumanalytik.at/pdfs/handreichung.pdf
[4] https://www.dhs.wisconsin.gov/chemical/carbondioxide.htm
[5] https://ohsonline.com/articles/2016/04/01/carbon-dioxide-detection-and-indoor-air-quality-control.aspx?m=1
[6] https://www.medical-reference.net/2014/01/what-are-particulate-matter-25.html

Sample Survey Report

Upload Your Own Company Logo

Your Company Name

Sample Home Inspection Company

100 Stanley Ave
Toronto, ON L6X 4M9 647-448-4125

Your Company Address and Phone Number

PROPERTY NAME

Customers Property Name

123 Main St, Atlanta, GA, 30301

Customers Property Description

DigitalEnvironment

Powered by Digital Environment

Property Summary report for: PROPERTY NAME

123 Main St, Atlanta, GA, 30301

Home Inspector performing the Air Quality Survey

Owner: John Sanders (danielshimko+demo@digienv.com)

Manager of the Home Inspector
*Possibly the same as the Home Inspector

Creator: Daniel Shimko (danielshimko86@gmail.com)

Sensors: Audio via Android/iOS, GPS via Android/iOS, Images via Android/iOS, Notes via Android/iOS, Pocket Particle AQI 2.0, BLE

Pocket Particle 2.0

Summary of all the Property Rooms Air Quality Readings

Room	# of Meas. collected	PM2.5 Min (µg/m³)	PM2.5 Average (µg/m³)	PM2.5 Max (µg/m³)	PM10 Min (µg/m³)	PM10 Average (µg/m³)	PM10 Max (µg/m³)
Exterior	23	5.2	8.2	14.0	4.0	5.3	6.0
Family Room	23	7.4	9.5	12.0	4.0	5.0	6.0
Washroom	23	8.0	192.6	999.0	5.0	50.9	305.2
Basement	23	7.4	79.2	357.4	6.0	67.2	293.6
Kitchen	25	5.0	16.0	43.0	4.0	5.3	7.0

Recent Shower

Mold Detected

Room	# of Meas. collected	VOC Min (ppb)	VOC Average (ppb)	VOC Max (ppb)	eCO2 Min (ppm)	eCO2 Average (ppm)	eCO2 Max (ppm)
Exterior	23	0.0	0.4	1.8	400.0	403.5	415.4
Family Room	23	1027.2	2165.2	7897.4	2150.0	2680.0	5364.2
Washroom	23	10.0	23.5	33.6	466.0	557.8	621.2
Basement	23	0.0	14.7	74.4	400.0	499.2	891.0
Kitchen	25	5.8	455.5	2070.2	440.8	1363.1	2632.8

Improper Ventilation

Recent Cleaning or Cooking

This page is used to and explain the results of the Air Quality and Mold Detection Survey to the customer

DigitalEnvironment

Pocket Particle AQI 2.0, BLE

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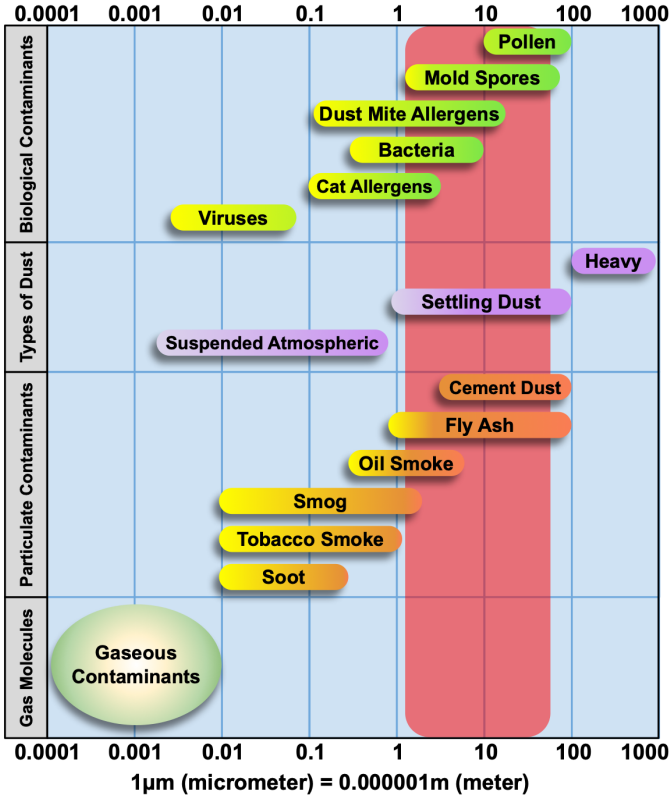
Particulate Matter (PM) Sizes - micrometers (µm) [6]



1µm (micrometer) = 0.000001m (meter)

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[2] https://www.airnow.gov/index.cfm?action=aqibasics.aqi#good
[3] http://www.innenraumanalytik.at/pdfs/handreichung.pdf
[4] https://www.dhs.wisconsin.gov/chemical/carbondioxide.htm
[5] https://ohsonline.com/articles/2016/04/01/carbon-dioxide-detection-and-indoor-air-quality-control.aspx?m=1
[6] https://www.medical-reference.net/2014/01/what-are-particulate-matter-25.html

1st Room of the Property - Exterior Area Control Survey

Room Summary report for: Exterior

Control Air Quality readings from outside the property

Room Description

Participants: John Sanders

Sensors: Pocket Particle 2.0, Images

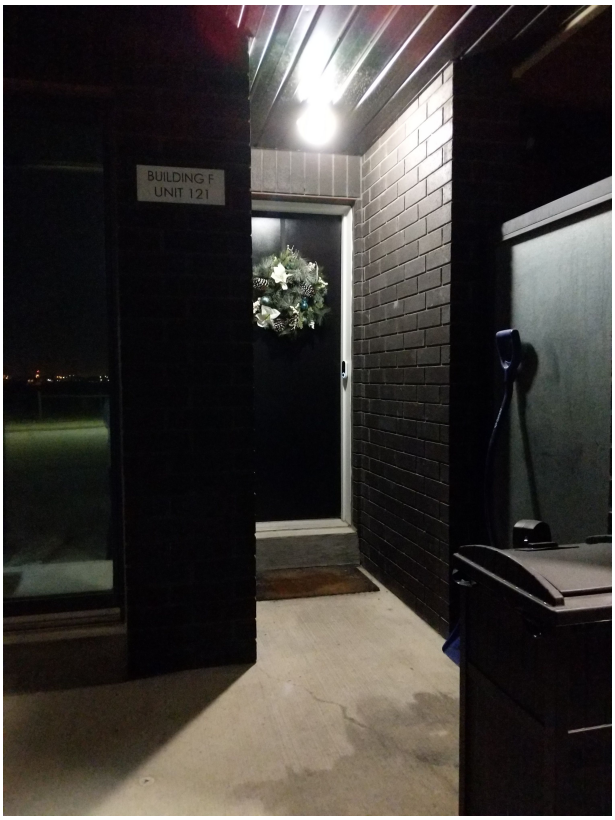
Last Updated: 3/25/2020 12:58 am EDT

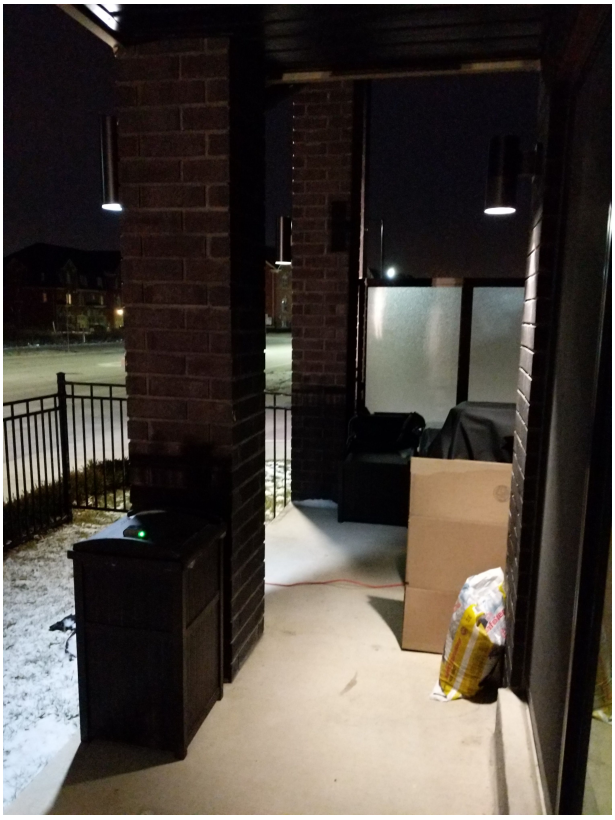
Location: 43.68119878, -79.84188322

GPS Map location of the room being surveyed

Images

Pictures of the Room / Area that are taken within the mobile app can be included in the report (Up to 4 total)





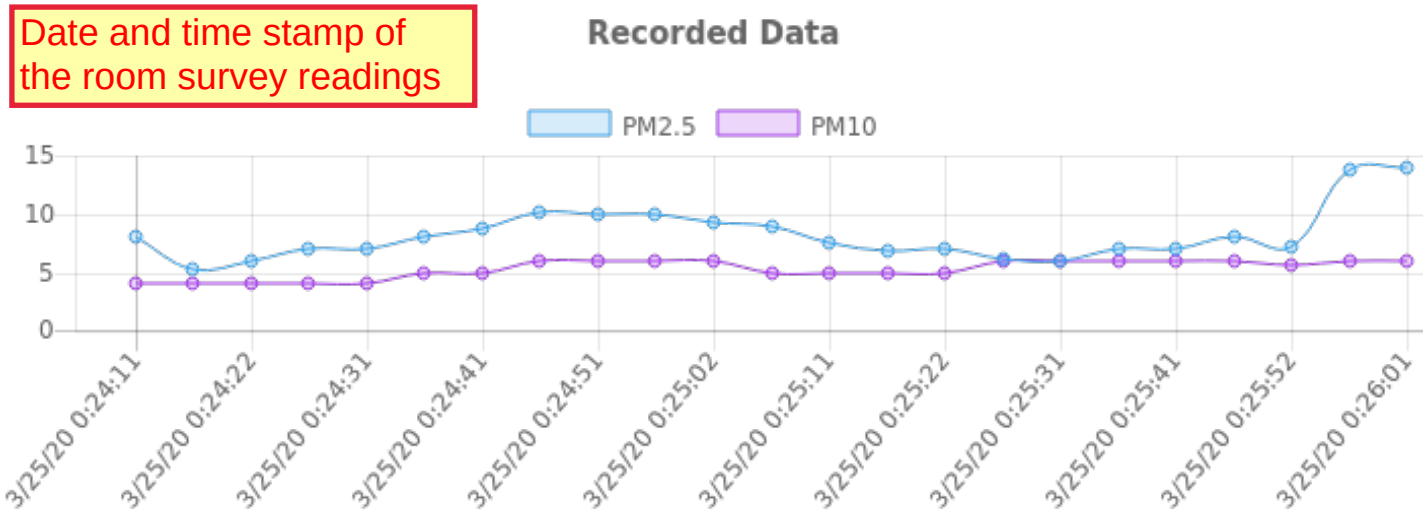
Pocket Particle 2.0

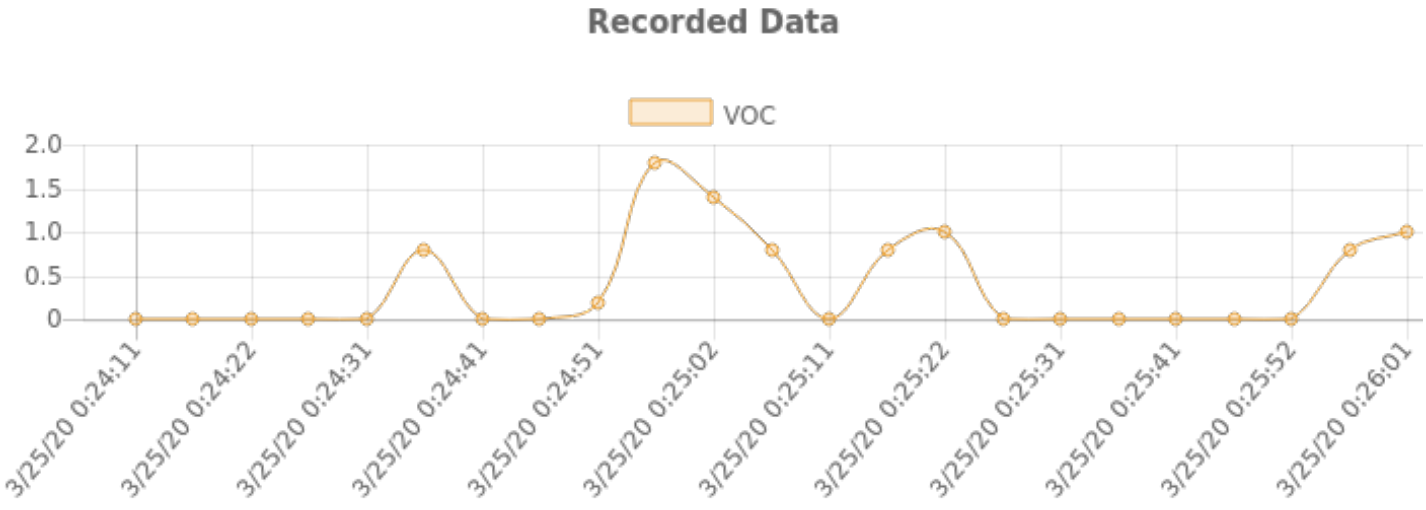
Summary of the room survey readings

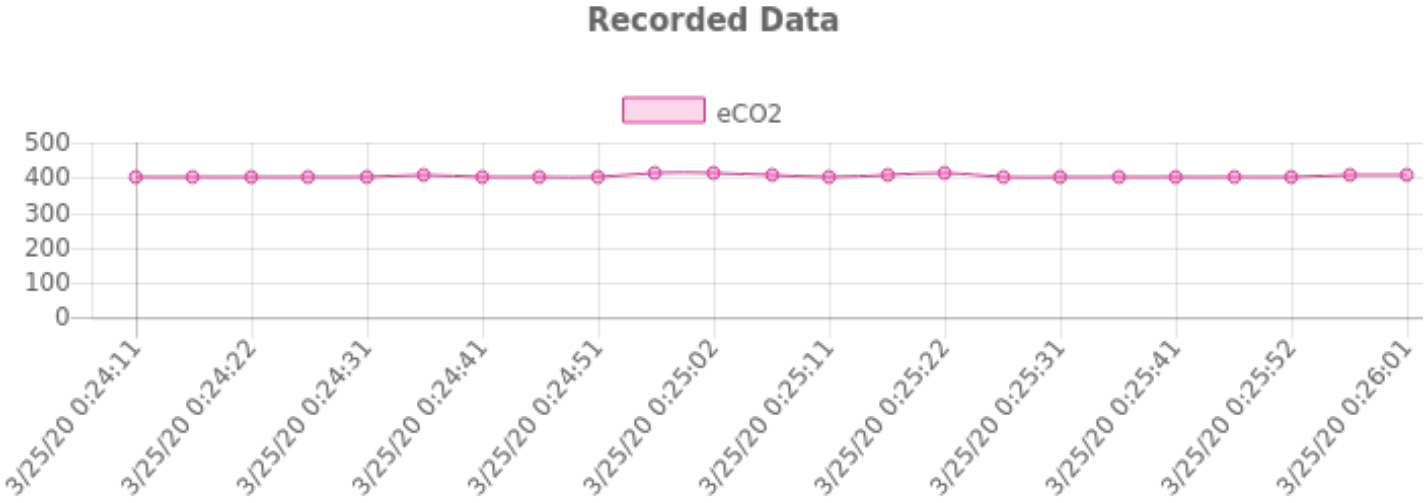
PM2.5 Average	PM10 Average	VOC Average	eCO2 Average
8.2 (µg/m³)	5.3 (µg/m³)	0.4 (ppb)	403.5 (ppm)

Min	Max	Min	Max	Min	Max	Min	Max
5.2 (µg/m³)	14.0 (µg/m³)	4.0 (µg/m³)	6.0 (µg/m³)	0.0 (ppb)	1.8 (ppb)	400.0 (ppm)	415.4 (ppm)

Date and time stamp of the room survey readings







Room Summary report for: Family Room

Main Floor - 300 square feet

Participants: John Sanders

Sensors: Pocket Particle 2.0, Images

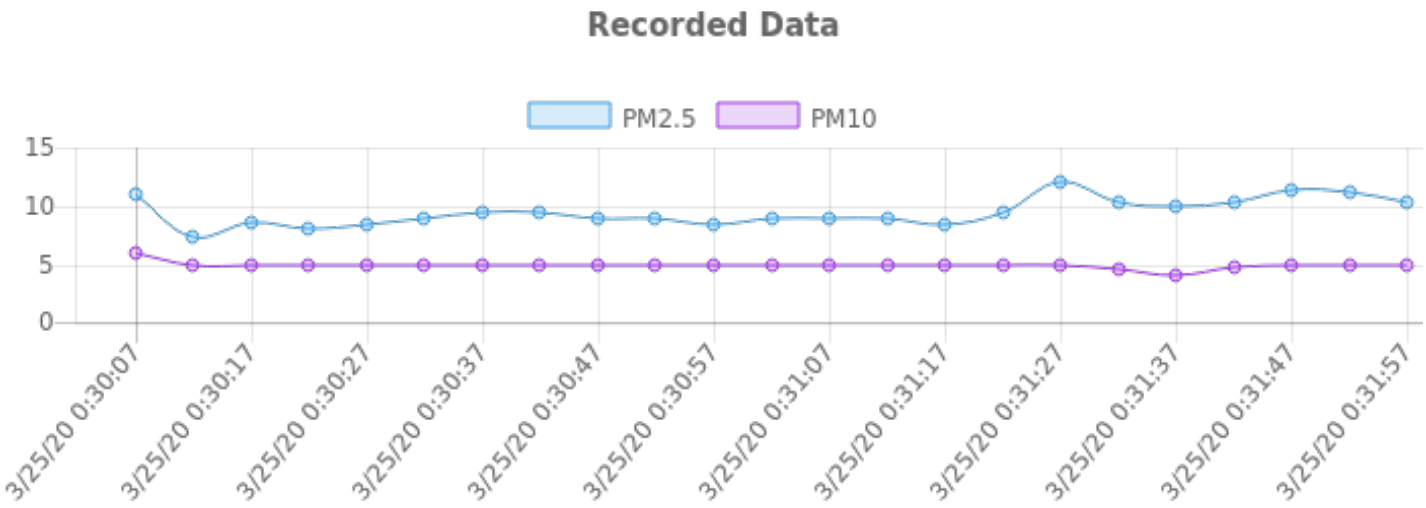
Last Updated: 3/25/2020 12:58 am EDT

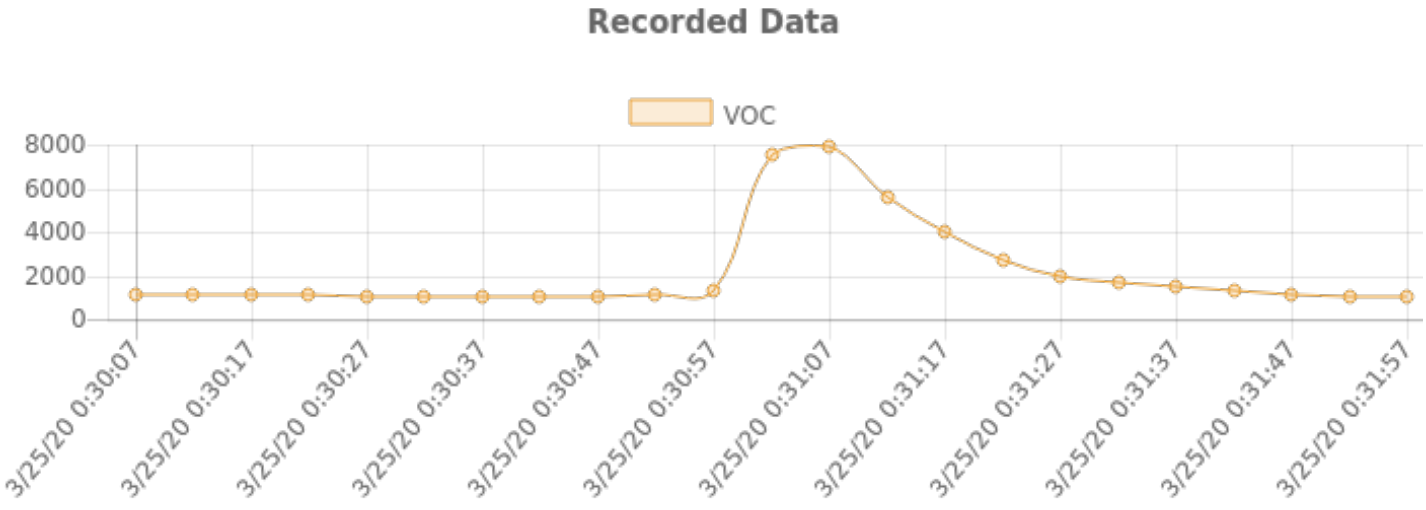
Location: 43.68093023, -79.84188324

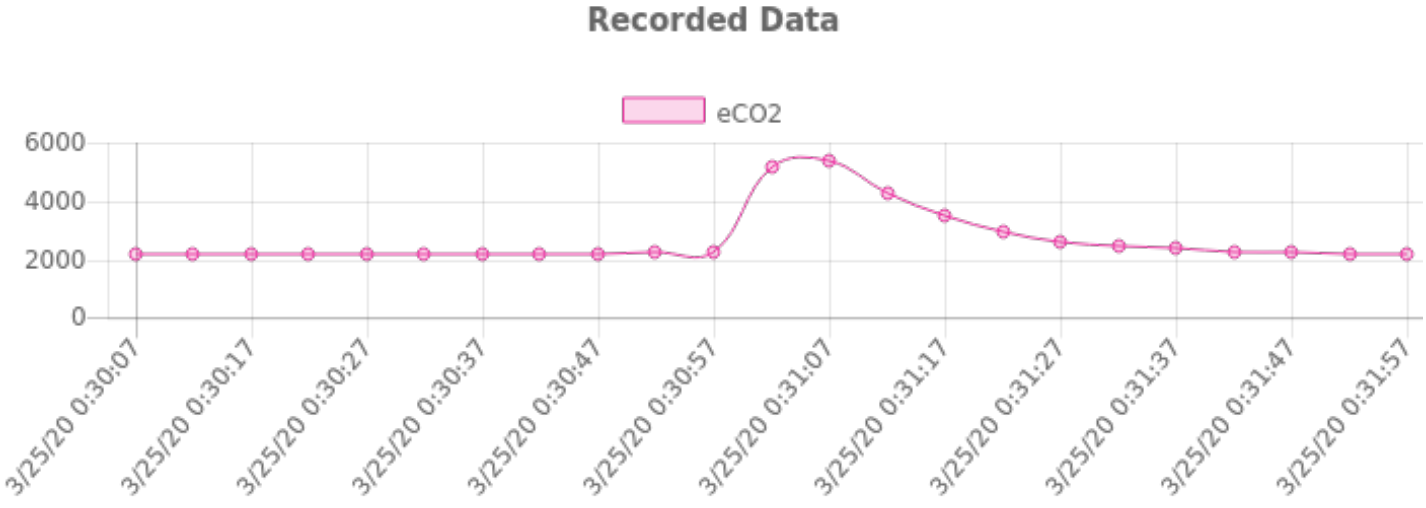
Images

PM2.5 Average	PM10 Average	VOC Average	eCO2 Average
9.5 (µg/m³)	5.0 (µg/m³)	2165.2 (ppb)	2680.0 (ppm)

PM2.5 Min	PM2.5 Max	PM10 Min	PM10 Max	VOC Min	VOC Max	eCO2 Min	eCO2 Max
7.4 (µg/m³)	12.0 (µg/m³)	4.0 (µg/m³)	6.0 (µg/m³)	1027.2 (ppb)	7897.4 (ppb)	2150.0 (ppm)	5364.2 (ppm)







Room Summary report for: Washroom

Main Floor - 80 square feet

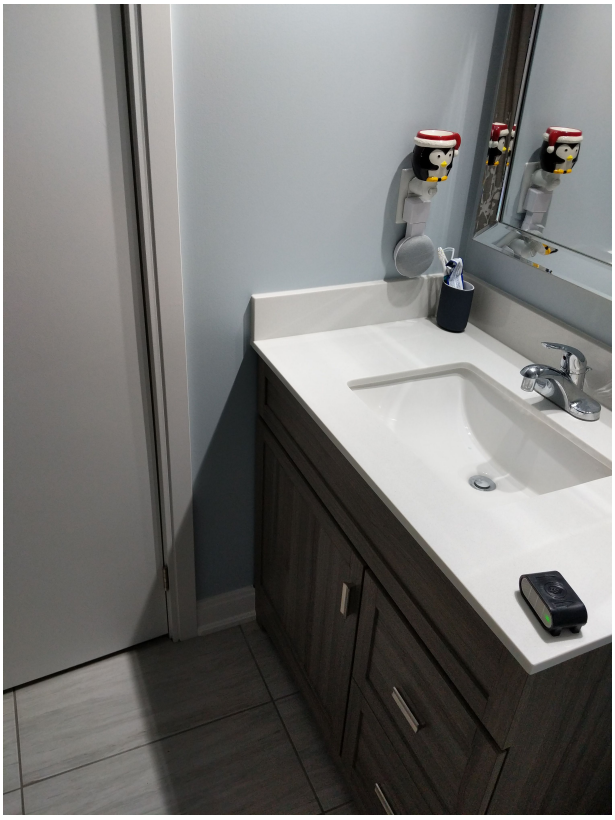
Participants: John Sanders

Sensors: Pocket Particle 2.0, Images

Last Updated: 3/25/2020 12:58 am EDT

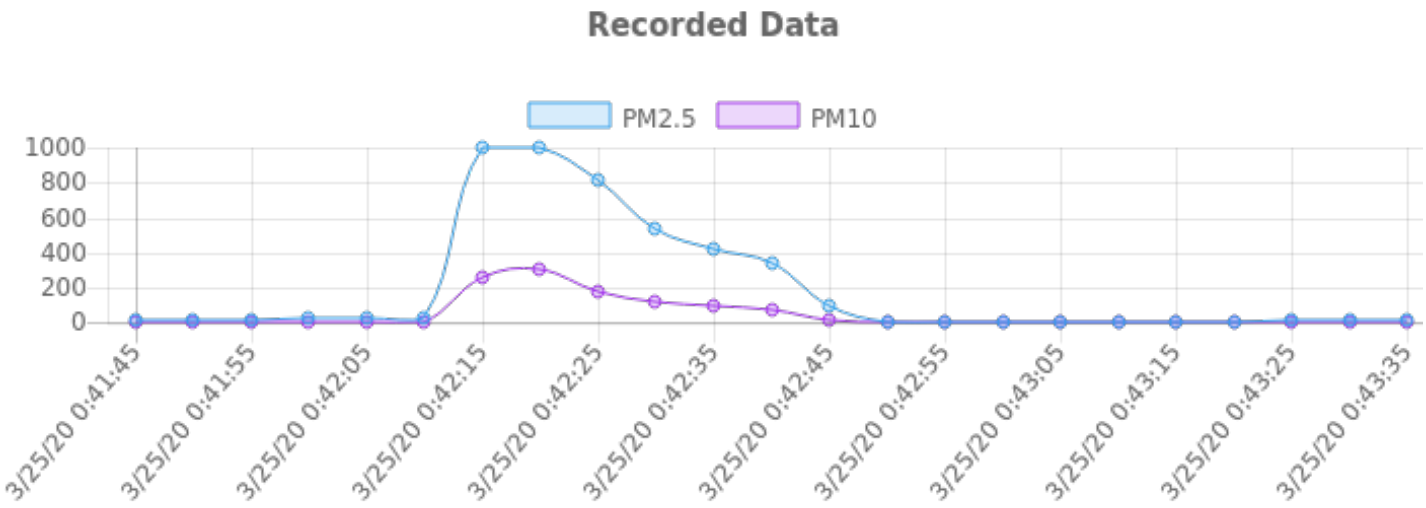
Location: 43.681186, -79.84190625

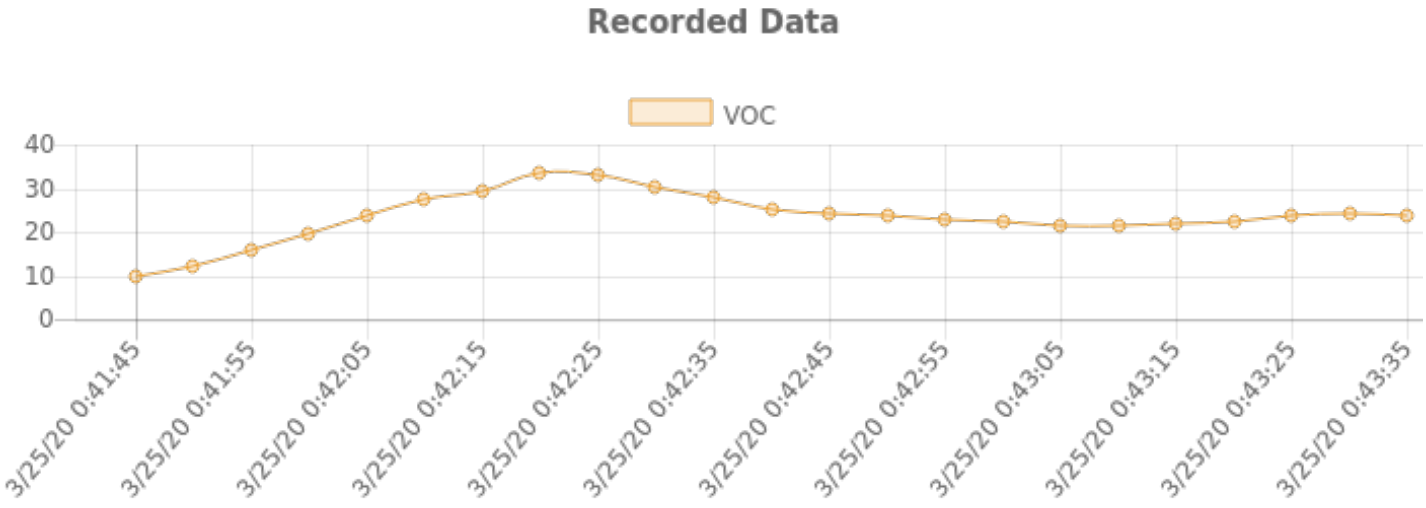
Images

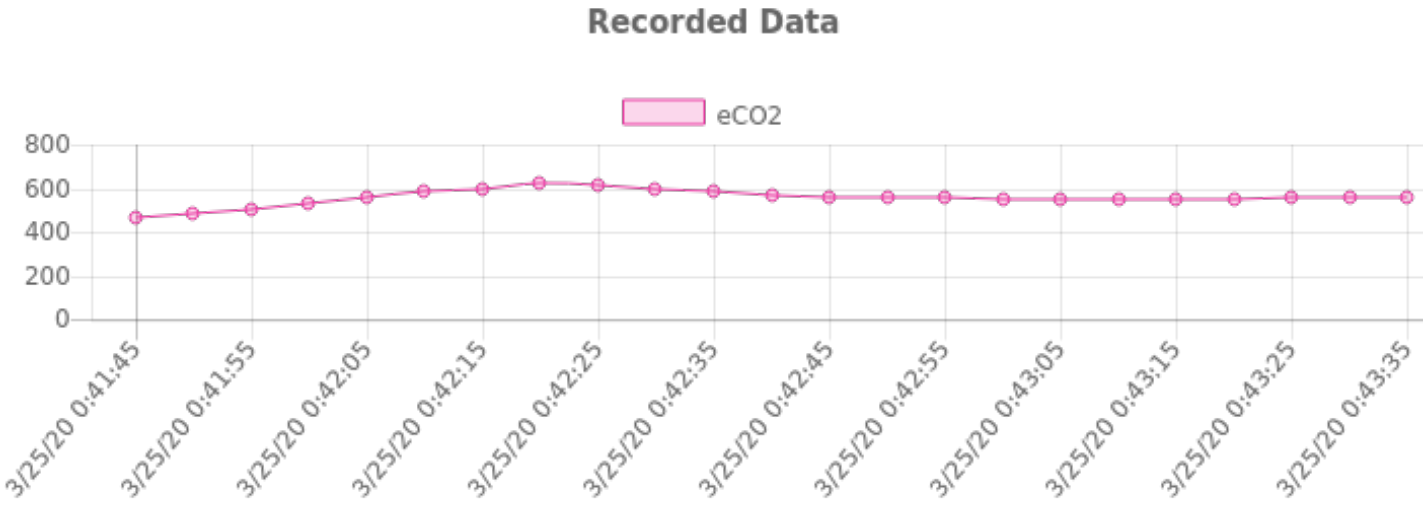


PM2.5 Average	PM10 Average	VOC Average	eCO2 Average
192.6 (µg/m³)	50.9 (µg/m³)	23.5 (ppb)	557.8 (ppm)

Min	Max	Min	Max	Min	Max	Min	Max
8.0 (µg/m³)	999.0 (µg/m³)	5.0 (µg/m³)	305.2 (µg/m³)	10.0 (ppb)	33.6 (ppb)	466.0 (ppm)	621.2 (ppm)







Room Summary report for: Basement

Basement - 500 square feet

Participants: John Sanders

Sensors: Pocket Particle 2.0, Images

Last Updated: 3/25/2020 12:57 am EDT

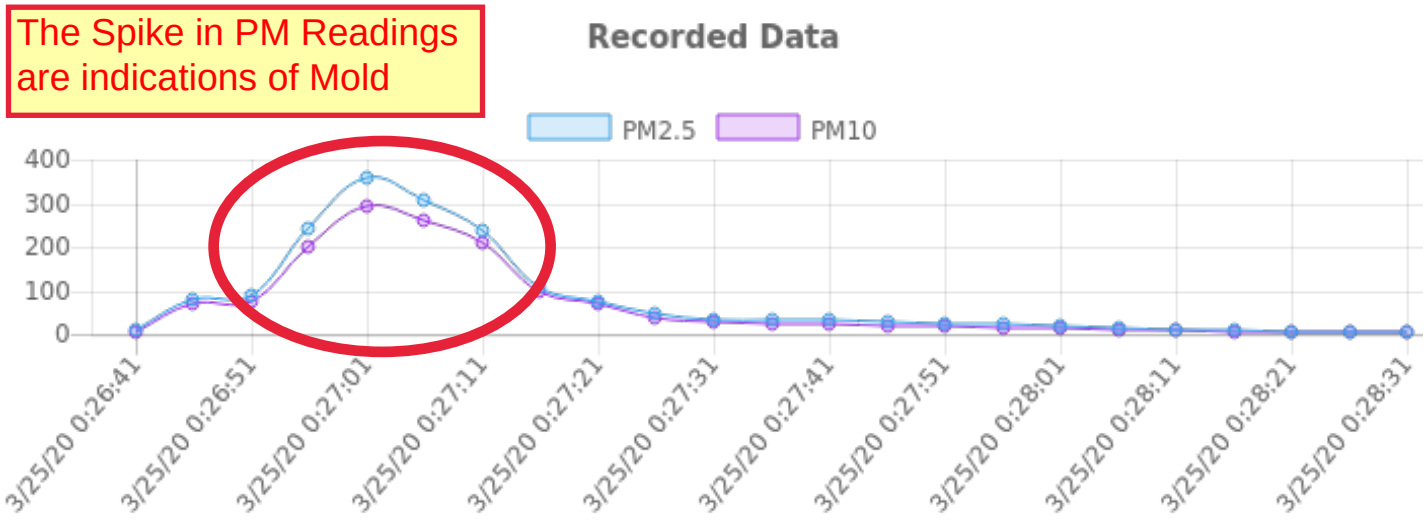
Location: 43.68135394, -79.84168778

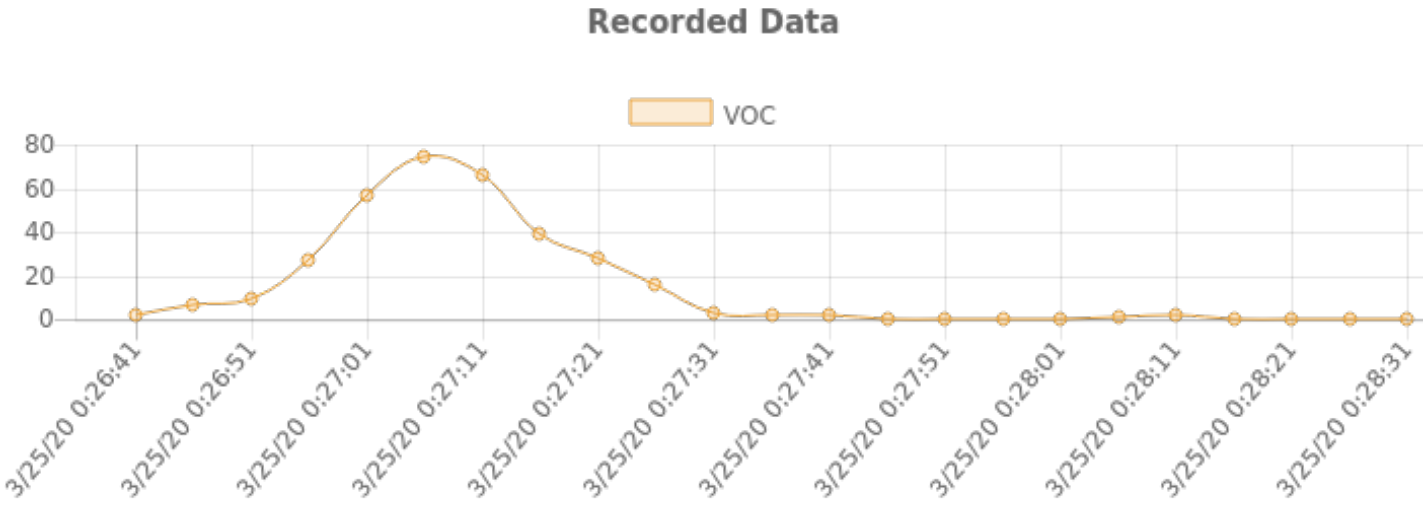
Images

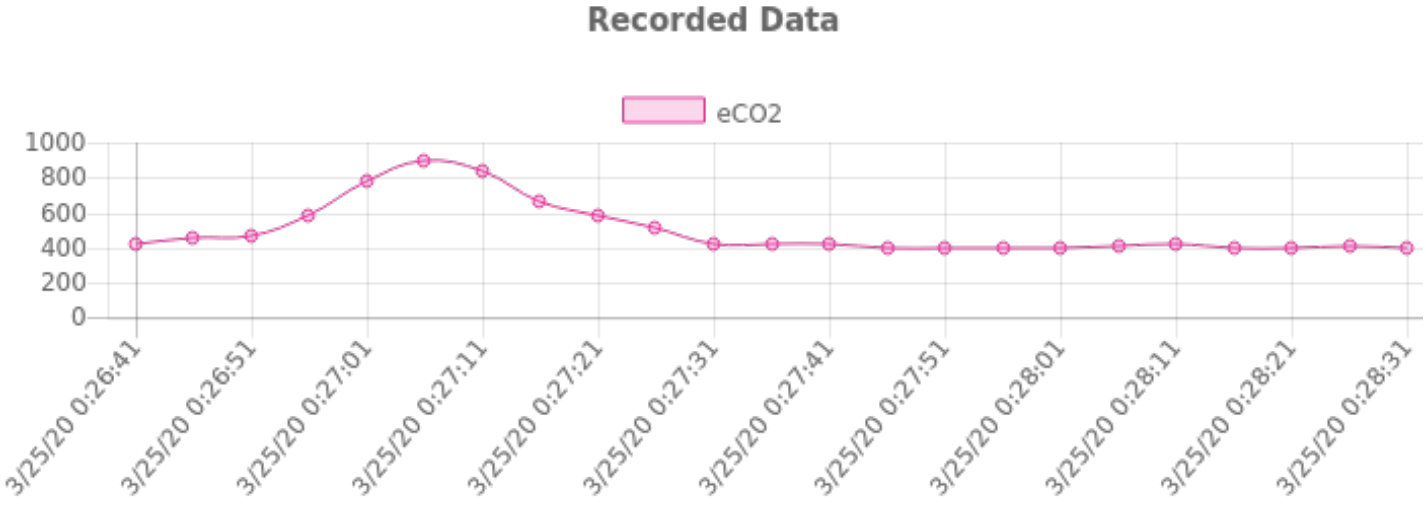
PM2.5 Average	PM10 Average	VOC Average	eCO2 Average
79.2 (µg/m³)	67.2 (µg/m³)	14.7 (ppb)	499.2 (ppm)

Min	Max	Min	Max	Min	Max	Min	Max
7.4 (µg/m³)	357.4 (µg/m³)	6.0 (µg/m³)	293.6 (µg/m³)	0.0 (ppb)	74.4 (ppb)	400.0 (ppm)	891.0 (ppm)

The Spike in PM Readings are indications of Mold







Room Summary report for: Kitchen

Main Floor - 200 square feet

Participants: John Sanders

Sensors: Pocket Particle 2.0, Images

Last Updated: 3/25/2020 12:57 am EDT

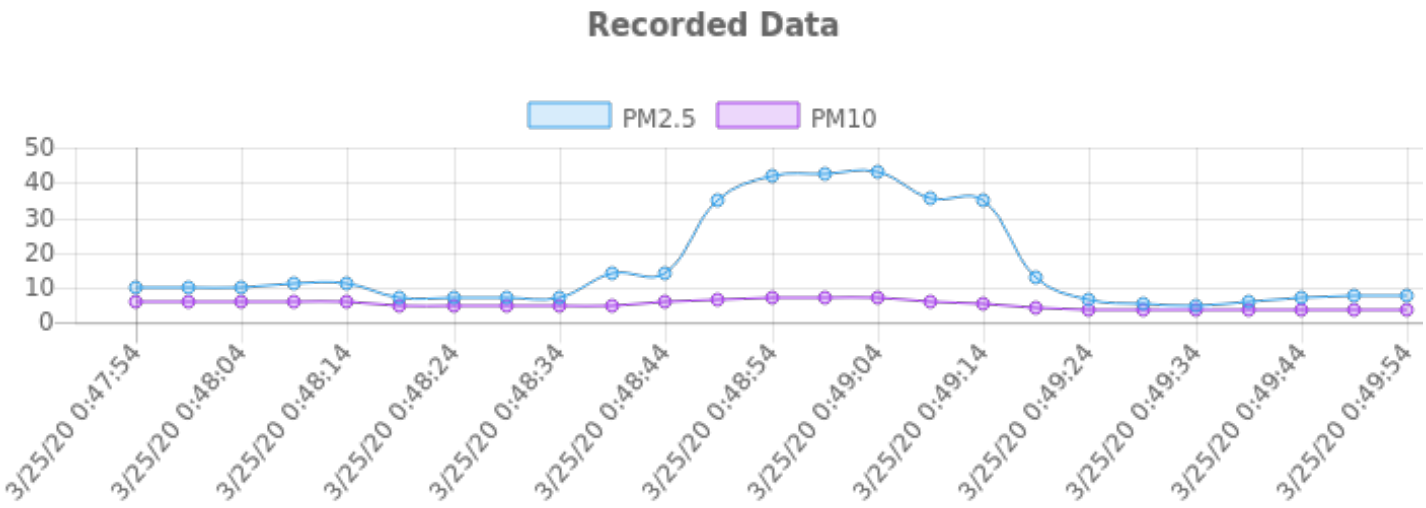
Location: 43.68132044, -79.84239984

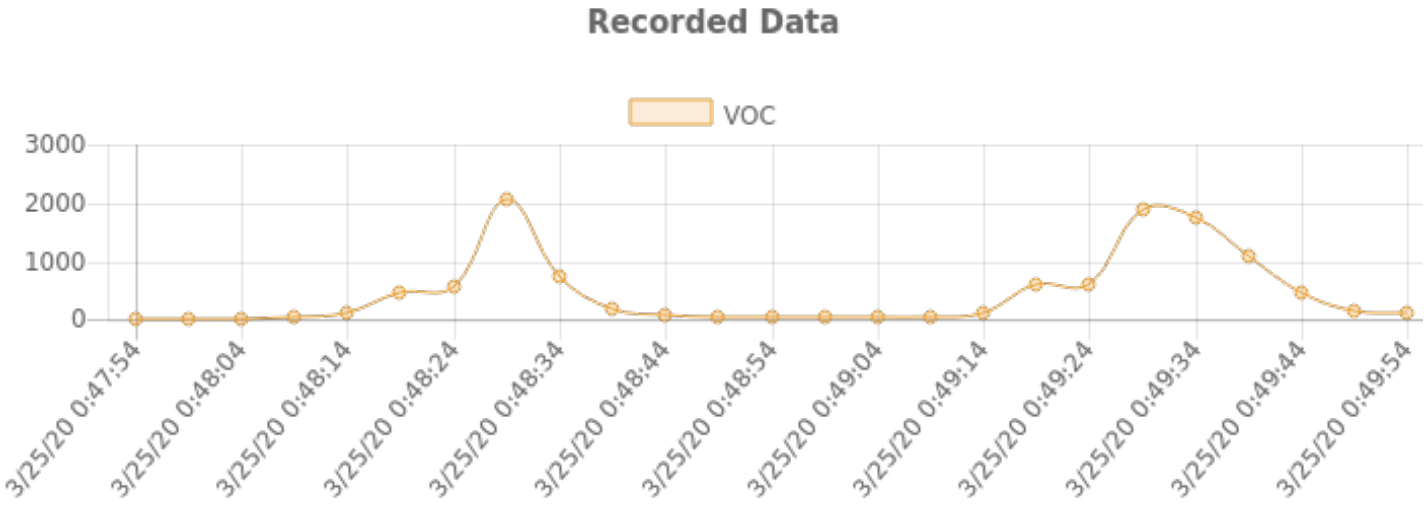
Images

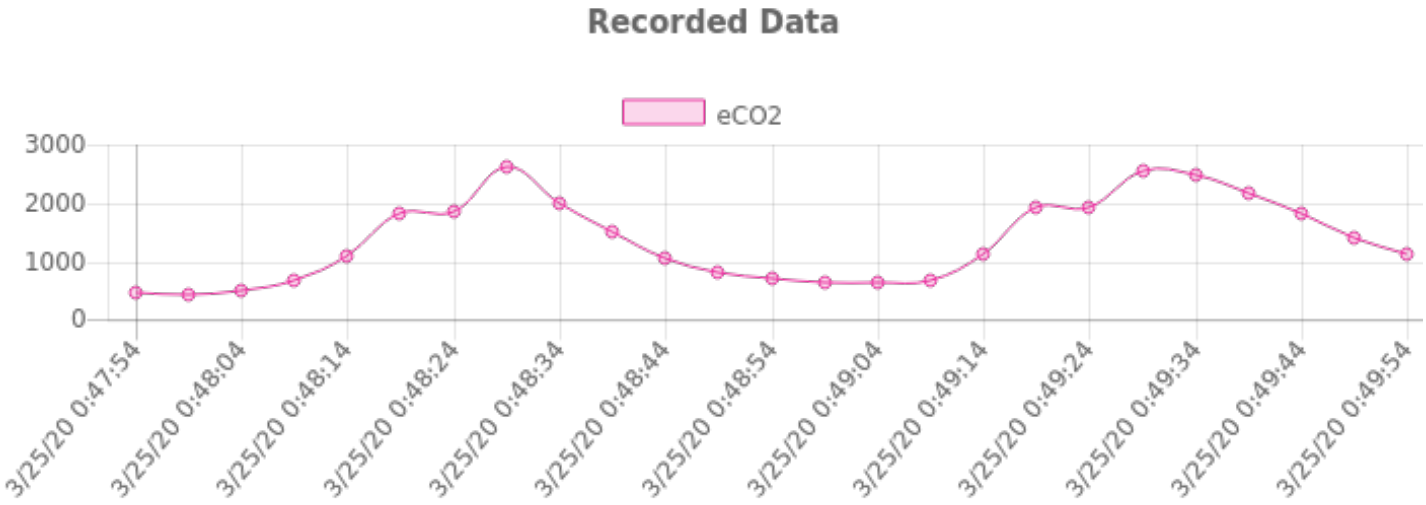
Pocket Particle 2.0

PM2.5 Average	PM10 Average	VOC Average	eCO2 Average
16.0 (µg/m³)	5.3 (µg/m³)	455.5 (ppb)	1363.1 (ppm)

Min	Max	Min	Max	Min	Max	Min	Max
5.0 (µg/m³)	43.0 (µg/m³)	4.0 (µg/m³)	7.0 (µg/m³)	5.8 (ppb)	2070.2 (ppb)	440.8 (ppm)	2632.8 (ppm)







Digital Environment Color Codes and Font Information

Digital Environment

#13355D	#33669B	#3BC5F3
R: 19	R: 51	R: 59
G: 53	G: 102	G: 197
B: 93	B: 155	B: 243

FONTS:
- Sansation Regular
- *Sansation Italic*
- **Sansation Bold**
- ***Sansation Bold Italic***

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Digital Environment

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