

AIR QUALITY ANALYSIS



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Reception of a student dorm

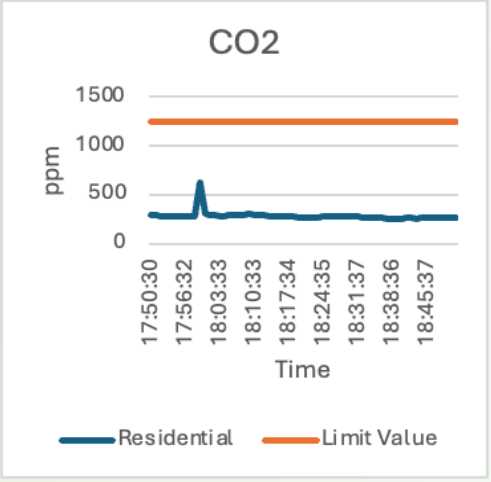
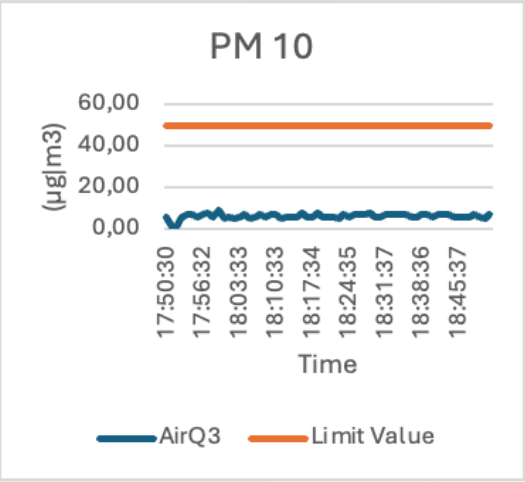
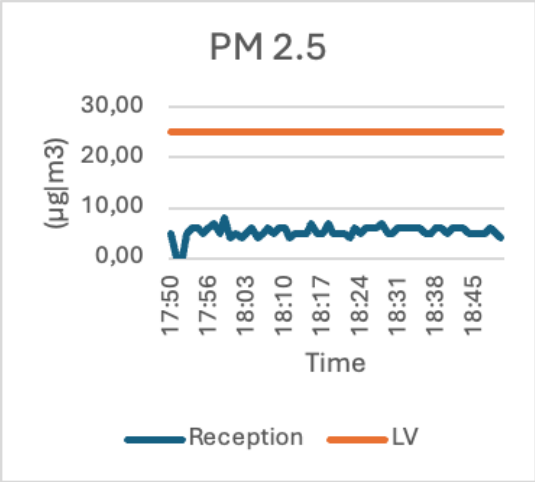
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- **Occupancy:** two receptionists during the day and passing occupancy.
- **Activity:** Sedentary
- **Measurement duration:** 1 hour
- **Space characteristics:**
 - **Cleaning habits:** One per day
 - **Ventilation:** Mechanical ventilation, HAVC, Doors to the exterior;
 - **There is furniture inside and a road outside.**
- **Predictions.**



Data treatment

Reception of a student dorm

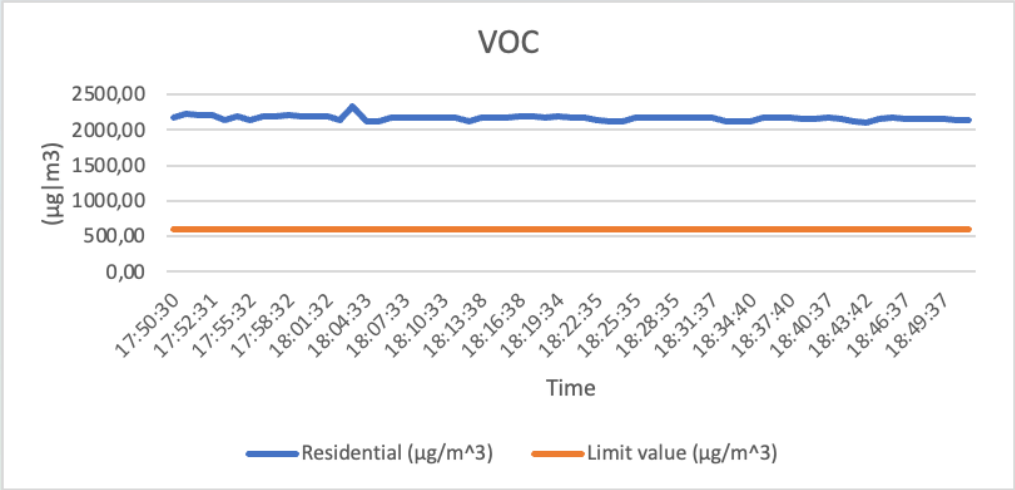


Pollutant	CO2 (ppm)	PM2.5 ($\mu\text{g}/\text{m}^3$)	PM10 ($\mu\text{g}/\text{m}^3$)
LV	1250	25	50
MAXIMUM	621	8,00	9,00
Complies	OK	OK	OK

Data treatment

Reception of a student dorm

Pollutant	VOCs (µg m3)
LV	600
MAXIMUM	2338,21
Complies	NOT OK



Possible Causes	Corrective Measures
Emissions from furniture	Use low-VOC or VOC-free furniture. Regularly air out the space.
Frequent automatic door openings	Increase ventilation rates to mitigate outdoor pollutants.
Proximity to road and vehicle emissions	Install double doors with an airlock system.
Cleaning products containing VOCs	Switch to eco-friendly, low-VOC cleaning products. Ensure proper ventilation after cleaning.

Entrance & locker room of a gym

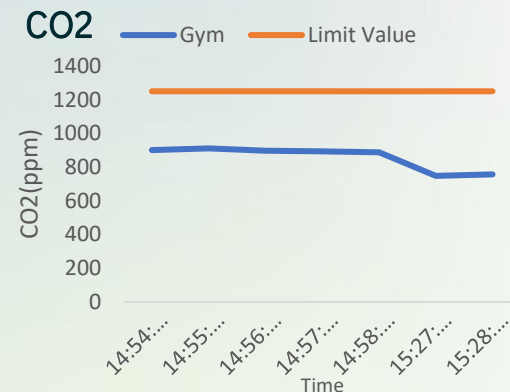
2

- **Occupancy:** Receptionists and high density of people;
- **Activity type:** High
- **Measurement duration:** 10 minutes
- **Space characteristics:**
 - **Cleaning habits:** High cleaning habits;
 - **Ventilation:** Mechanical ventilation, no windows, HVAC
 - **Furniture:** Tables, lockers
- **Predictions:**



Data treatment

Entrance & locker room of a gymnasium

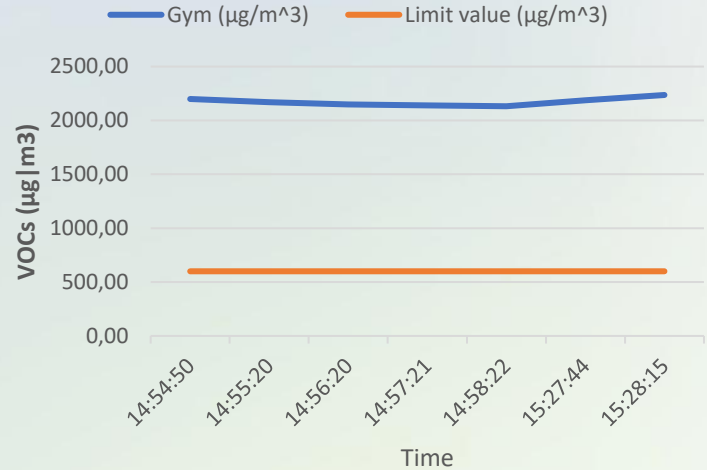


Pollutant	CO2 (ppm)	PM2.5 ($\mu\text{g}/\text{m}^3$)	PM10 ($\mu\text{g}/\text{m}^3$)
LV	1250	25	50
AVERAGE	852	3,86	4
MAXIMUM	911	6	7
Complies	OK	OK	OK

Data treatment

Entrance & locker room of a gymnasium

Pollutant	VOCs ($\mu\text{g}/\text{m}^3$)
LV	600
MAXIMUM	2236,17
Complies	NOT OK



Possible Causes	Corrective Measures
Emissions from furniture	Use low-VOC or VOC-free furniture. Regularly air out the space when possible.
Mechanical ventilation without windows (HVAC)	Regularly maintain and clean HVAC systems. Increase fresh air intake to reduce VOCs.

Bathroom with incense

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- **Occupancy:** 0 people
- **Area:** 5 m^2
- **Measurement duration:** 29 minutes
- **Space characteristics:**
 - **Cleaning habits:** Weekly
 - **Ventilation:** Mechanical ventilation

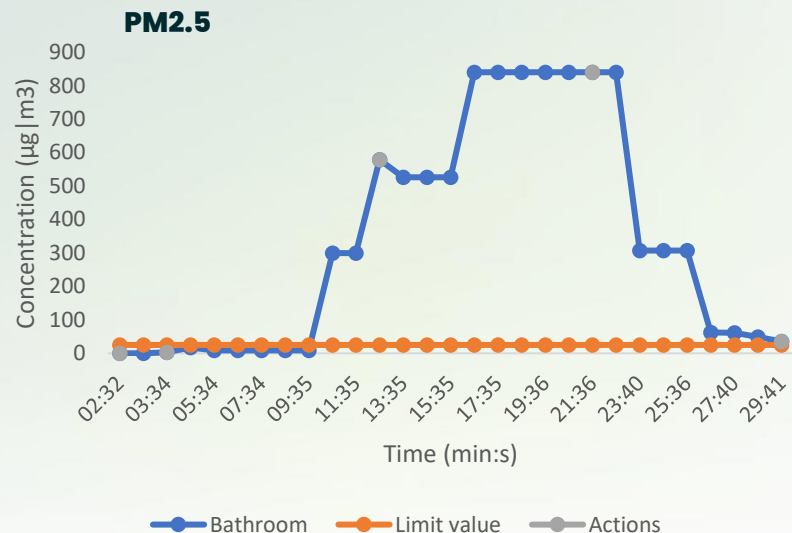
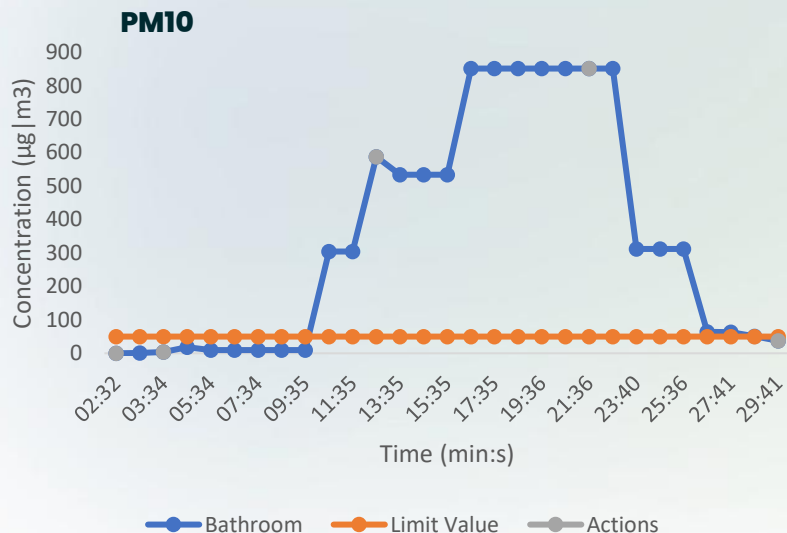
Measurement procedure	
Time	Test steps
02:32	Beginning of test, with close door
03:32	Light the incense
12:32	Turn on exhaust fan
21:32	Open the door
29:41	End of test



Data treatment

Use of incense in a bathroom

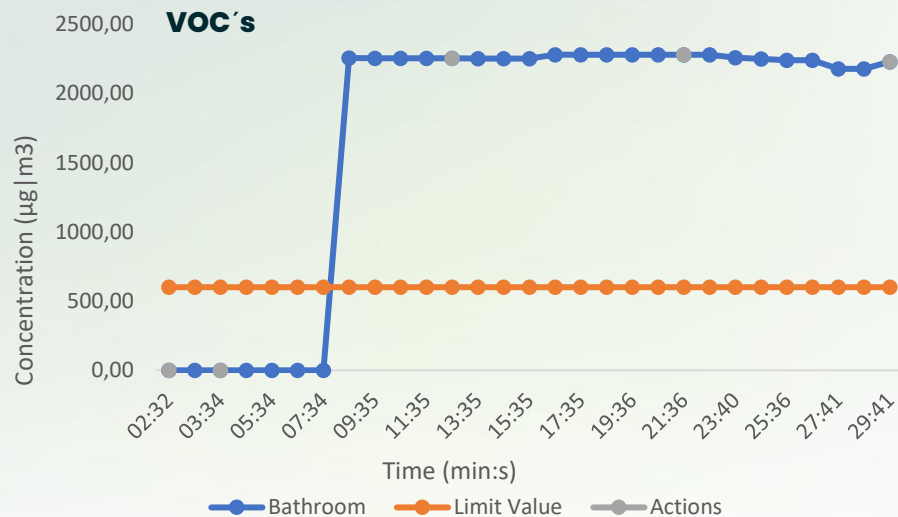
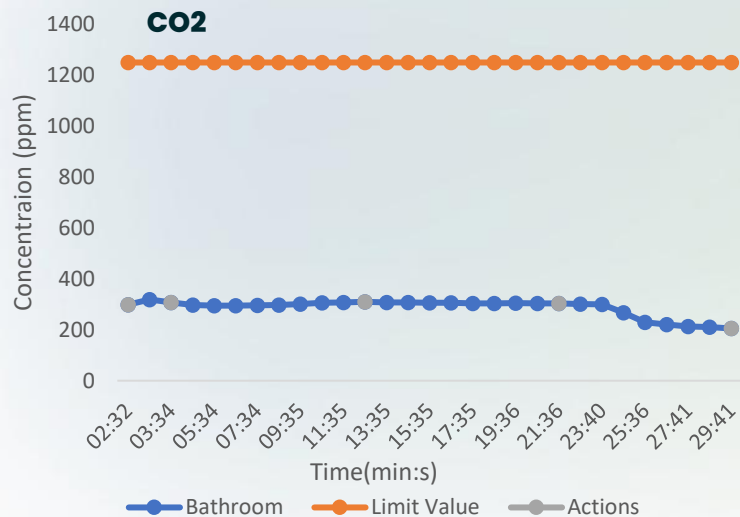
Pollutant	PM10	PM2.5
Limit Value ($\mu\text{g}/\text{m}^3$)	50	25
MAX ($\mu\text{g}/\text{m}^3$)	851	840



Data treatment

Use of incense in a bathroom

Pollutant	CO2	VOC
Limit Value ($\mu\text{g}/\text{m}^3$)	1250	600
MAX ($\mu\text{g}/\text{m}^3$)	287	2279



Relevant Conclusions

**Regular
Measurements**

**Source
Identification &
Possible Causes**

**Health &
Environmental
Impacts**

**Regulatory
Compliance**

**Recommendations
& Mitigation
Strategies**