

Test Report

In an office with an average of 102 employees present, the average odour sensor value was reduced by 40 over a period of 25 days.

Note 1: When the sensor differential is over 40, there is a difference in the level of odour that can be perceived by humans.

Note 2: The calculation of average number of people working in the office includes weekends.

Test outline

Panasonic internal research.

Target: air (odour) in an office.

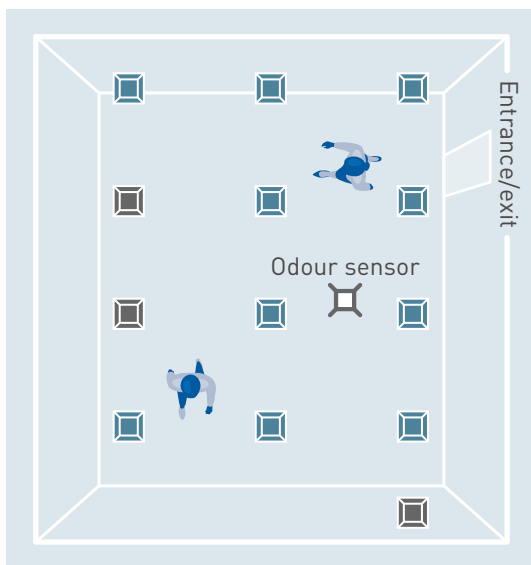
Room size: approx. 1,362 m³ (479.45 m² × H 2.84 m)


Result: When nanoe™ X was on, the value indicated by the odour sensor decreased.



Test ambient

1,362 m³

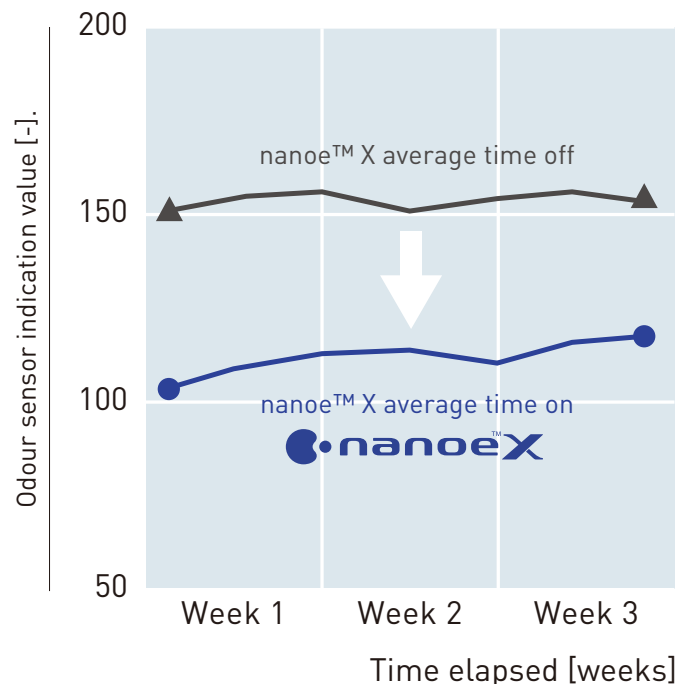


 4-way cassette air conditioner equipped with nanoe™ X

 4-way cassette air conditioner without nanoe™ X

Test result

Air (odour) in an office
Odour sensor indication values



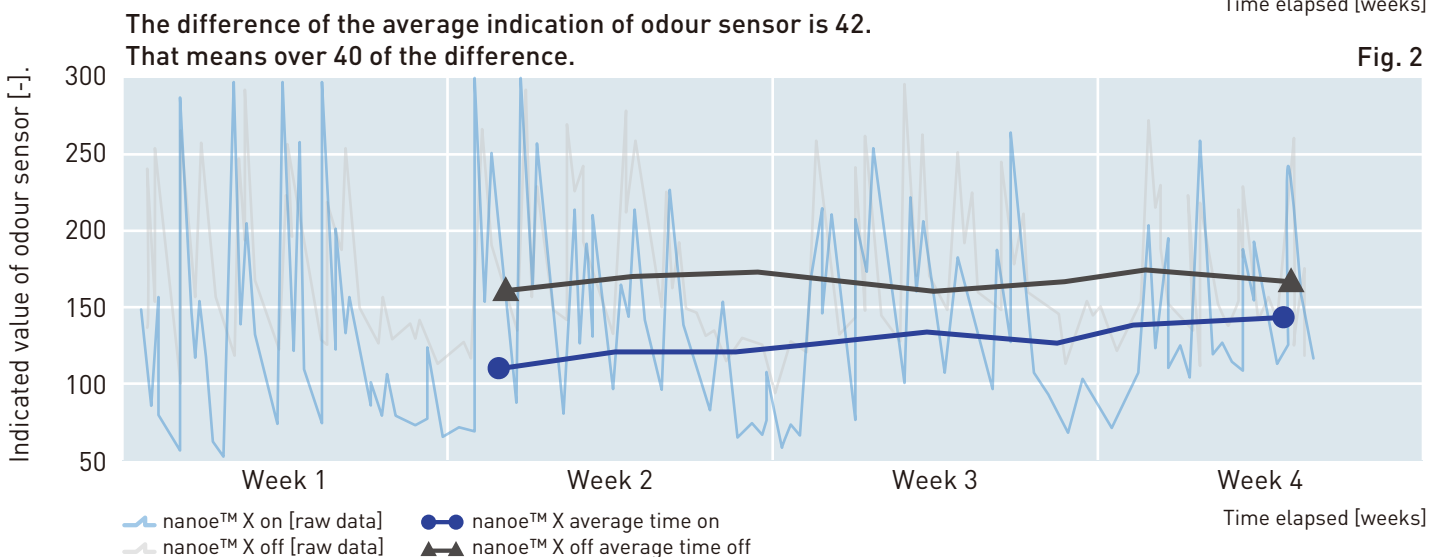
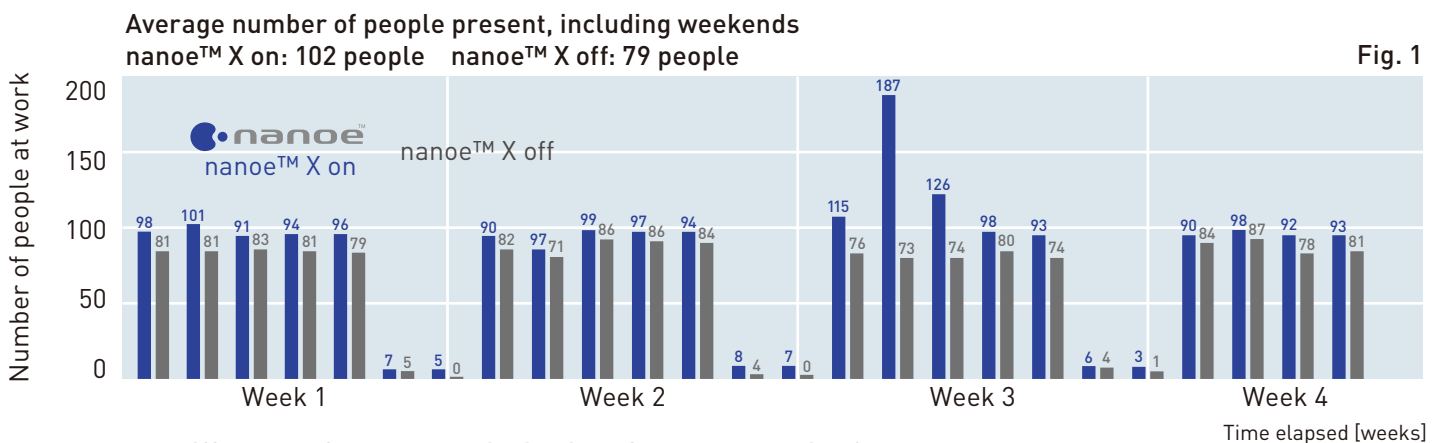
Test results and analysis methods

Test results and data analysis

- (1) According to the number of people who were present in the office every day during the test as shown in Fig. 1, the number of people present when nanoe™ X was slightly higher.
- (2) To understand the fluctuation of odours, the simple moving average of the seven days was used and analyzed as shown in Fig. 2. The results showed that the odour in the office was weaker when nanoe™ X was on.

Conclusion: Even though the number of people present in the office, which is considered to be the main source of odour in the office, was higher when nanoe™ X was on than when nanoe™ X OFF, the value was lower with nanoe™ X on. The use of nanoe™ X decreased the odour sensor value and inhibited odours in the office.

Test outline



Odour sensor indication values

In the case of isovaleric acid derived from body odour (a mix of sweat, feet and age-related odour), the odour sensor (made by NEW COSMOS ELECTRIC CO., LTD. XP-329m) shows a difference of 40 when the concentration changes from 0.01 ppm to 0.5 ppm in the low concentration range. This is equivalent to a difference of 1.76 in odour sensory intensity*, which indicates differences in odour that humans can perceive.

*Reference Japan Association on Odor Environment, "Introduction to Olfaction, Basics of Odour Evaluation"

6-level odour intensity scale



Simple moving average calculation method

Simple moving averages are a method of showing averages in time series data (series data, not just time-series data).

Calculations used to process this test data:

$$\text{Average SMA}_M = \frac{P_M + P_{M-1} + \dots + P_{M-7 \times 24 \times 60}}{7d \times 24h \times 60min}$$

P_M : indicated value of odour sensor at point M

SMA_M : Average value

The average was calculated as a 7-day average, so the simple moving average result was one week less than the 4-week test period.