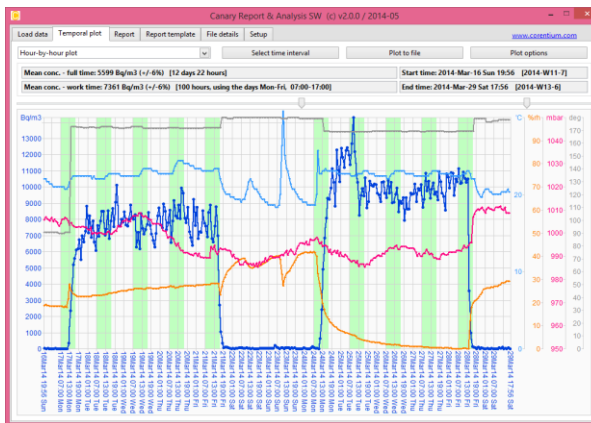


# CORENTIUM<sup>pro</sup> Radon Monitor System



Measuring radon  
has never been easier!

Designed and manufactured in Norway  
Corentium AS, Oslo, Norway

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# CORENTIUM pro

Digital system for continuous monitoring of radon gas in indoor air. Download data to PC for analysis and documentation - with the Corentium Report and Analyze (CRA) software. Battery power gives the flexibility of placing the monitor in any location of the building, in order to get a better overview of the radon level in a home, workplace, school or kindergarten.

**CORENTIUM pro** samples the indoor air through a passive diffusion chamber, and uses alpha spectrometry to precisely calculate the radon level. Detection is done using silicon photo-diodes, both to count and to measure the energy of alpha particles resulting from the decay chain of radon gas. The monitors are calibrated during production, and are not sensitive to changes in temperature, humidity, aerosols and electromagnetic field -, if operated within the recommended operation environment. Battery lifetime under normal operation is more than 18 months.

## SOFTWARE

- Windows Vista - Windows 8
- Fast and reliable data upload with Micro USB cable
- Selecting day or hour to study temporal variations
- Merging results from more monitors to increase sensitivity
- Easy one-click standard reporting
- Customizing own reports
- Plots:
  - Average per day
  - Hour to hour variations
  - Accumulated day and week level
  - Indication in plot for action level
  - Temperature, relative humidity, atmospheric pressure

## LCD display

- Long-term average; last 12 months since RESET
- Short-term averages; last day and last week
- Exposure time
- Anonymous display option

## SPECIFICATION

**Dimensions:** 120mm × 69mm × 25.5mm

**Weight:** 130 grams (incl. batteries)

**Battery powered:** 3 × AAA Alkaline batteries (LR03), battery lifetime >18 months

**Power consumption:** 275µW

**Radon Sampling:** Passive diffusion chamber

**Detection method:** Alpha spectrometry

**Diffusion time constant:** 25 min

**Internal memory capacity:** 10 years radon concentration at 1h resolution

**Accuracy:** ± 5% ± 5Bq/m<sup>3</sup>

**Precision:**

- After 1 week: <12% at 50 - 350 Bq/m<sup>3</sup>  
<8% at >350 Bq/m<sup>3</sup>
- After 1 month: <9% at 90 - 220 Bq/m<sup>3</sup>  
<6% at >220 Bq/m<sup>3</sup>

**Measurement range:**

- Detection range: 0 – 50.000 Bq/m<sup>3</sup>
- Upper display limit: 9.999 Bq/m<sup>3</sup>

**Operation environment:**

- Temperature: 4°C to +40°C
- Relative Humidity: <95%

**Additional sensors:**

- Temperature
- Relative humidity
- Atmospheric pressure
- Tilt (tamper detect)

## TESTS

### National Institute of Radiological Sciences (NIRS), Japan - July 2011

Intercomparison test where most of the other participants – being only alpha track detectors – typically had a result within  $\pm 20\%$  of the reference value. This implies that measuring for 2 months at  $100\text{Bq/m}^3$  with an alpha track detector from a random supplier, the measurements will show values from  $60\text{Bq/m}^3$  up to  $140\text{Bq/m}^3$  with 95% probability. The **CORENTIUM** monitors had a deviation of 3% of the NIRS reference value. For a 2 month measurement period at  $100\text{Bq/m}^3$  one can expect that a random **CORENTIUM** monitor shows between  $90\text{Bq/m}^3$  and  $110\text{Bq/m}^3$ .

### Federal Office for Radiation Protection (Bfs), Germany - September 2012

21 monitors were tested against reference monitors, and all were statistically measured to be within the laboratories own measurement uncertainty – which is 7%.

### Federal Office for Radiation Protection (Bfs), Germany - June 2013

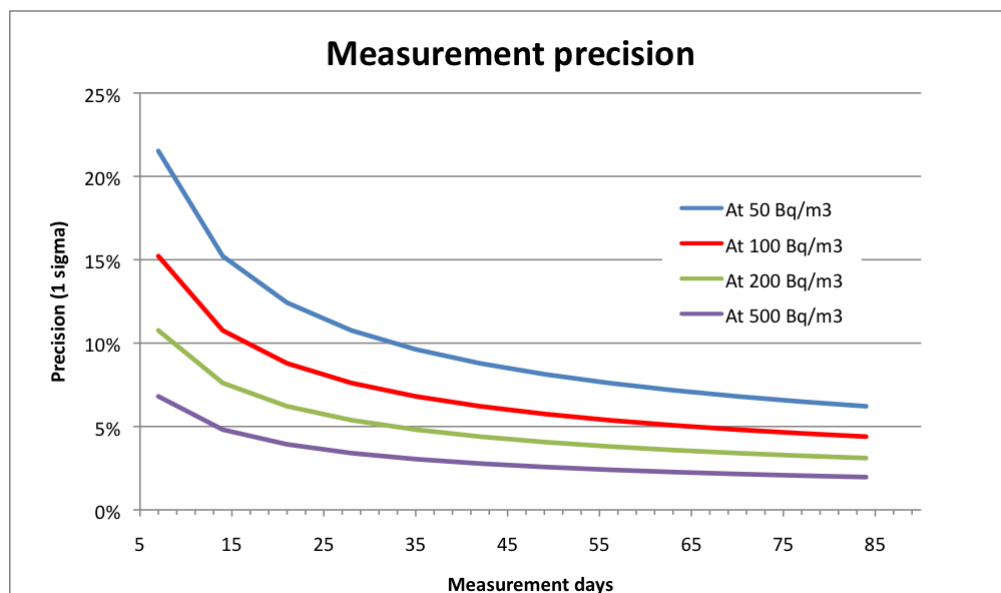
6 monitors were exposed for  $1100\text{h}\cdot\text{kBq/m}^3$  and showed an average of 3.6% below the BfS reference value.

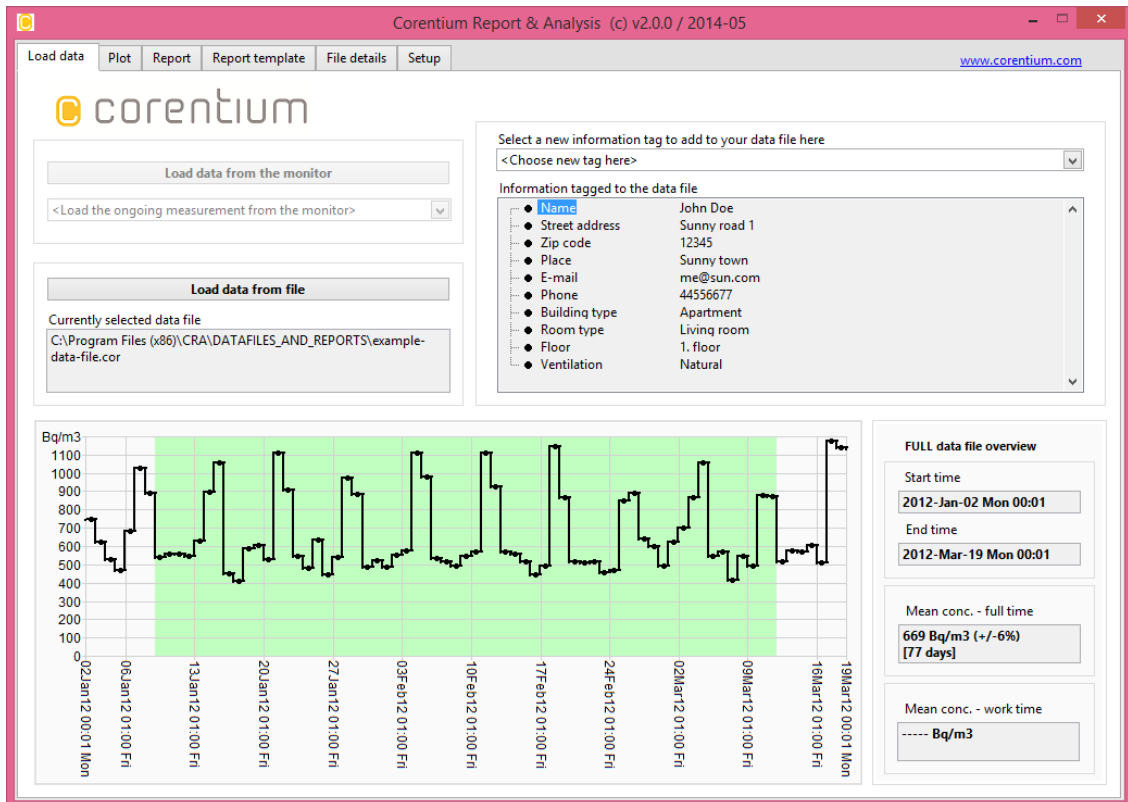
### Institut de Radioprotection et de Sûreté Nucléaire (IRSN), France – fall 2013

20 monitors were tested over 3 months at  $170\text{Bq/m}^3$ . The average for the 20 tested devices was  $167\text{Bq/m}^3$ .

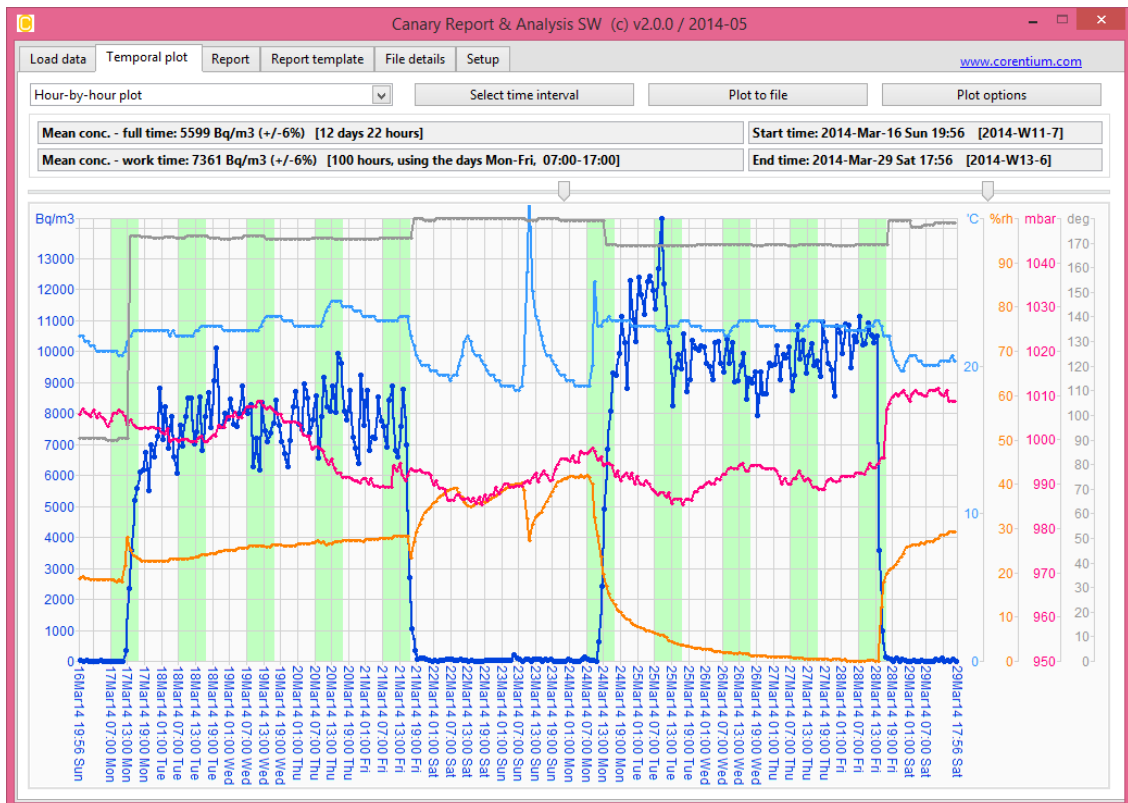
Tests in radon laboratories in the Czech Republic verify that **Corentium** shows the same radon values irrespective of any changes in temperature, humidity, aerosols and electromagnetic fields.

## PRECISION





Screenshot of main menu



Screenshot of a two weeks plot from all sensors