

Measuring the next generation of life-saving pollution sensors

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New research from the UK's National Physical Laboratory (NPL) is helping Duvas Technologies Ltd (Duvas) to develop improved air quality monitoring instrumentation. Currently over 1bn people a year suffer from respiratory disease associated with pollution, and according to the World Health Organisation, over 3m a year die from its effects. Duvas is planning to help provide technology to understand and address this problem.

The effect of air pollution on [human health](#) is concerning legislators; particularly in Europe where pollution-related deaths now outstrip [traffic deaths](#) by 3:1. Duvas' work is ideally positioned to provide the data needed for decision-makers to tackle these issues by deploying mobile and portable advanced air pollution [monitoring systems](#) across specific areas.

Duvas is short for Differential Ultra Violet [Absorption Spectroscopy](#). It uses UV light rapidly to detect a range of pollutants simultaneously – replacing the need for a whole set of instruments. Duvas quickly provides both mapping of wide areas as well as a local snapshot of the chemical composition of the atmosphere that can show how pollution varies over time and space. These data can be correlated with weather patterns and traffic flows. The Duvas system can thereby map gases that will ensure better decision making and minimise the impact on human health.

Duvas provides this through a family of intelligent, portable, mobile and

fixed sensors. It uses closed path spectroscopy, capable of detecting at levels of parts per billion.

In order to effectively market the technology, Duvas needed to demonstrate instrument validity, measurement traceability and performance.

To help the company address this, NPL performed a range of experiments on the Duvas prototype instrument to determine its ability to meet a performance specification. Novel, state of the art gas dilution facilities developed at NPL were used to generate traceable standards of emission gases at ambient concentrations.

Paul Brewer, a Senior Research Scientist at NPL, said:

"NPL uses highly accurate measurement science to help businesses in the UK to achieve a competitive advantage from new materials, techniques and technologies. Our work enabled Duvas to successfully demonstrate the validity of the technology it uses and provide traceability making a significant impact on product development at Duvas. We hope that this will lead to better-informed legislation for improved quality of life."

John Hassard, Founder and Chairman of Duvas Technologies added:

"Without NPL's unique abilities and world-class reputation, the acceptance of the Duvas approach by decision-makers would be significantly more difficult. Additionally, their scientific excellence has helped Duvas refine the technology and its use as well as validate its findings."

Provided by National Physical Laboratory

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