

# PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

**DM30 Dustsens**

Manufactured by:

**Sonitus Systems Ltd**

Unit 2, Goldenbridge Industrial Estate  
Inchicore  
Dublin 8, D08 YY38  
Ireland

has been assessed by CSA Group  
and for the conditions stated on this certificate complies with:

**MCERTS Performance Standards for Indicative Ambient Particulate Monitors  
Environment Agency, August 2017, version 4**

Certification ranges:

|                   |                          |
|-------------------|--------------------------|
| PM <sub>2.5</sub> | 0 - 200µg/m <sup>3</sup> |
| PM <sub>10</sub>  | 0 - 200µg/m <sup>3</sup> |

|                          |                  |
|--------------------------|------------------|
| Project No.:             | 80121572         |
| Certificate No:          | Sira MC220402/00 |
| Initial Certification:   | 31 May 2022      |
| This Certificate issued: | 31 May 2022      |
| Renewal Date:            | 30 May 2027      |



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Environmental Team Manager

MCERTS is operated on behalf of the Environment Agency by

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## Approved Site Application

*Any potential user should ensure, in consultation with the manufacturer, that the monitoring system is suitable for the intended application. For general guidance on monitoring techniques refer to the Environment Agency Monitoring Technical Guidance Notes available at [www.mcerts.net](http://www.mcerts.net)*

The indicative dust monitoring analyser(s) can be operated in one of two ways:

For qualitative measurements: Providing qualitative measurement data for the analysis of particulate pollution trends, and source identification studies based for example on pollution roses etc. Such application can rely on instrument factory calibration only.

For quantitative measurements: Providing measurement data with the uncertainty defined for indicative instruments (+/- 50%). This can be achieved on condition that each instrument used for measurement has been calibrated on the specific site where monitoring is taking place against a standard reference method for a period of two weeks and the resulting slope and intercept have been used for instrument calibration. Using non-standard filters and procedures for this purpose is not acceptable. To maintain the validity of data this calibration has to be repeated at least every twelve months or when the instrument is moved to a different site.

They cannot be used on national automatic monitoring networks for compliance reporting against the Ambient Air Quality Directives.

The field tests were carried out from the 11<sup>th</sup> September 2021 to the 31<sup>st</sup> January 2022 on two candidate DM30 Dustsens samplers were collocated with a Palas Fidas 200 (the reference method).

## Basis of Certification

This certification is based on the following test report(s) and on CSA Group's assessment and ongoing surveillance of the product and the manufacturing process:

Bureau Veritas, Test report ref. AIR11870828, dated 15 March 2022, "Sonitus Systems, Test of the DM30 Dustsens for use as an Indicative Monitor for PM<sub>10</sub> and PM<sub>2.5</sub>, March 2022"

## Product Certified

The "DM30 Dustsens" measuring system consists of the following parts:

DM30 Dustsens monitor with AS10 particulate sensor and associated firmware.

This certificate applies to all instruments fitted with firmware version 'monitor\_opc' onwards (serial number 194).

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**Certified Performance**

| Test ( <i>Laboratory</i> )              | Results expressed as % of the certification range |    |       |    | Other results            | MCERTS specification                       |
|---|---|----|-------|----|--------------------------|--|
|   | <0.5  | <1 | <2    | <5 |                          |  |
| Constancy of the sample volumetric flow |   |    |       |    | Not applicable<br>Note 1 | To remain constant within $\pm 3\%$        |
| Tightness of the sampling system        |   |    | 1.13% |    |                          | Leakage not to exceed 2% of sampled volume |

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| Test (Field)   | Results expressed as % of the certification range |    |    |    | Other results          | MCERTS specification  |
|--|---|----|----|----|------------------------|---|
|  | <0.5  | <1 | <2 | <5 |                        |   |
| Intra-instrument uncertainty for the reference method  |   |    |    |    |                        |   |
| PM <sub>10</sub>   |   |    |    |    | 0.33 µg/m <sup>3</sup> | ≤2.5µg/m <sup>3</sup>   |
| PM <sub>2.5</sub>  |   |    |    |    | 0.25 µg/m <sup>3</sup> | ≤2.5µg/m <sup>3</sup>   |
| Intra-instrument uncertainty for the candidate method  |   |    |    |    |                        |   |
| PM <sub>10</sub>   |   |    |    |    |                        |   |
| All data (n=138)   |   |    |    |    | 0.45 µg/m <sup>3</sup> | ≤5µg/m <sup>3</sup> for all data as well as for the subsets: < or ≥ 30 µg/m <sup>3</sup>  |
| ≥ 30 µg/m <sup>3</sup> (n=1)   |   |    |    |    | 0.08 µg/m <sup>3</sup> |   |
| < 30 µg/m <sup>3</sup> (n=137)   |   |    |    |    | 0.45 µg/m <sup>3</sup> |   |
| PM <sub>2.5</sub>  |   |    |    |    |                        |   |
| All data (n=143)   |   |    |    |    | 0.21 µg/m <sup>3</sup> | ≤5µg/m <sup>3</sup> for all data as well as for the subsets: < or ≥ 30 µg/m <sup>3</sup>  |
| ≥ 18 µg/m <sup>3</sup> (n=10)  |   |    |    |    | 0.45 µg/m <sup>3</sup> |   |
| < 18 µg/m <sup>3</sup> (n=133)   |   |    |    |    | 0.17 µg/m <sup>3</sup> |   |
| Highest resulting uncertainty estimate comparison against data quality objective (Measurement Uncertainty) |   |    |    |    |                        |   |
| PM <sub>10</sub>   |   |    |    |    |                        | W <sub>CM</sub> ≤ 50%<br>W <sub>CM</sub> ≤ W <sub>dpo</sub><br>(W <sub>dpo</sub> Measurement uncertainty defined as 50% for indicative instruments) |
| All data (n=138)   |   |    |    |    | 24.3%                  |   |
| ≥ 30 µg/m <sup>3</sup> (n=1)   |   |    |    |    | Note 2                 |   |
| PM <sub>2.5</sub>  |   |    |    |    |                        |   |
| All data (n=143)   |   |    |    |    | 71.0%                  |   |
| All data (slope corrected) (n=143)   |   |    |    |    | 20.7% (note 3)         |   |
| ≥ 18 µg/m <sup>3</sup> (slope corrected) (n=12)  |   |    |    |    | 47.8% (note 3)         |   |
| Maintenance Interval   |   |    |    |    | 12 months<br>Note 4    | ≥2 weeks  |

Note 1 - The DM30 Dustsens utilises a fan and not a pump, therefore it was decided that this test was not applicable.

Note 2 - It was not possible to assess the high concentration PM10 greater than 30 µg/m<sup>3</sup> subset as out of 143 days, only one had a concentration greater than 30 µg/m<sup>3</sup>.

Note 3 - This data was slope corrected by dividing by 0.651. All users must slope correct PM2.5 data by dividing by 0.651 – it is recommended that the manufacturer program this value into their algorithm in order to avoid confusion to end users. End users should check with the manufacturer that this has been carried out.

Note 4 - For the maintenance interval the unit should be returned to the manufacturer or local service provider for verification and, if required replacement of the optical particle counter. During the 20 weeks that the instruments were operational no maintenance was required.

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## Description

The Sonitus Systems DM30 Dustsens uses an optical particle counter with a size detection range between 0.35 and 40 microns. The device measures PM<sub>10</sub>, and PM<sub>2.5</sub> simultaneously.

The Dustsens uses a light scattering technique to measure the size and number of individual particles carried through a laser beam in a sample volume. The Dustsens classifies each particle size and counts the number of particles within each of 24 pre-set size ranges. A weighting algorithm is used to calculate particle mass concentrations using the particulate counts, particle size and assumed density for each size category. Particle mass concentrations are logged to device memory at selected measurement intervals from 1 minute to 30 minutes. Measured readings are stored on the device and are transferred to remote servers for analysis.

The Dustsens uses a fan to maintain an air flow of 3.0l/min. A heated inlet with a power rating of up to 20 watts is used to reduce the effects of humidity on particles in the sampled air. The Dustsens does not use any filter on the exhaust air flow.

## General Notes

1. This certificate is based upon the equipment tested. The Manufacturer is responsible for ensuring that on-going production complies with the standard(s) and performance criteria defined in this certificate. The manufacturer is required to maintain an approved quality management system controlling the manufacture of the certified product. Both the product and the quality management system shall be subject to regular surveillance according to 'Regulations Applicable to the Holders of CSA Group Testing UK Ltd Certificates'.
2. The design of the product certified is defined in the CSA Group design schedule V00 for certificate no. Sira MC220402/00.
3. If a certified product is found not to comply, CSA Group should be notified immediately at the address shown on this certificate.
4. The certification marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of CSA Group Testing UK Ltd Certificates'.
5. This document remains the property of CSA Group and shall be returned when requested by CSA Group.

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