



Ref: MDR/J4128a

24th November 2019

Ekon Equipment
56 Bradmore Way
Lower Earley
Reading
RG6 4DS

For the attention of Mr J Dhalay

Dear Sirs

Re: 93A Wokingham Road, Reading, RG6 1LH – Proposed Kitchen Ventilation Systems External Noise Assessment

Further to the receipt of your ventilation system design information, we are pleased to forward our external noise assessment for the proposed kitchen ventilation systems based on a site background noise measurement as follows:-

We visited site on 16/11/19 and measured the background noise level from 22.00hrs for a period of 60 minutes outside a 1st floor habitable room window on the rear facade of the building, close to the proposed extract ventilation system location and the location of the nearest residential window. The background noise level recorded was of 51.0dB LA90, measured in reasonable weather condition and this represents the background noise level outside the nearest residential windows on the site. The measured noise level was created by the continuous operation of a kitchen ventilation system located a few metres away at the adjacent Domino's Pizza establishment.



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The nearest residential windows are approximately 2.5m distance from the kitchen extract discharge above roof eaves level and 1.0m from the extract fan to be located on the flat roof area. The proposed site operating time is from 17.00hrs until 23.00hrs.

We advise a design criterion for the ventilation fresh air inlet and extract discharge should be approximately 10dBA below the prevailing background noise level at the nearest residential windows.

The instrumentation used for the measurement was a Rion NL-52 precision grade real time analysing sound level meter, serial number 00976221. The instrument was calibration checked before and after the measurement and seen to be calibrated correctly. Please see the attached copy of the current calibration certificate for the instrument.

We have selected a silencer for the extract discharge system, the silencer would be a circular silencer with pod, typically 400mm i/d x 550mm o/d x 1200mm long. The silencer should reduce the radiated discharge noise to 31dBA at 2.5m distance.

For the control of extract fan breakout noise close to the nearby residential window the roof mounted extract fan and discharge silencer located above should be shrouded with an independent acoustic enclosure supported by the flat roof. The acoustic enclosure should typically be constructed with removable panels to allow access to the extract fan. The panels should be a sandwich construction with an outer skin of 1.6mm galvanised mild steel and inner skin of galvanised mild steel perforate/mesh retaining an absorptive lining of 50mm thick mineral wool insulation. The fan break-out noise should be reduced to approximately 40dBA @1.0m.

The combined fan break-out noise and extract discharge noise at the nearest residential window should equate to 41dBA.

We advise fitting a silencer to the inlet side of the kitchen extract fan to reduce noise within the kitchen area; the silencer advised is a cylindrical podded silencer typically 400mm i/d x 550mm o/d x 400mm long.

In addition, the fan and ductwork systems should be supported off the building structure using anti-vibration mounts/hangers to avoid vibration transmission into the building structure.

We have attached our noise level design calculation sheets and supporting information for your reference.



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We trust the noise assessment meets with your approval and we remain.

Yours faithfully

A handwritten signature in black ink, appearing to read 'M D Randall', with a stylized, cursive script.

M D Randall BSc(Eng) CEng MCIBSE MIOA





CERTIFICATE OF CALIBRATION



0653

Date of Issue: 20 September 2019**Certificate Number: UCRT19/2053**

Issued by:

ANV Measurement Systems

Beaufort Court

17 Roebuck Way

Milton Keynes MK5 8HL

Telephone 01908 642846 Fax 01908 642814

E-Mail: info@noise-and-vibration.co.ukWeb: www.noise-and-vibration.co.uk

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages
Approved Signatory
K. Mistry

Customer ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes
MK5 8HL

Order No. ANV MS HIRE
Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator
Identification

Manufacturer	Instrument	Type	Serial No. / Version
Rion	Sound Level Meter	NL-52	00976221
Rion	Firmware		2.0
Rion	Pre Amplifier	NH-25	76338
Rion	Microphone	UC-59	12154
Rion	Calibrator	NC-74	34536109
	Calibrator adaptor type if applicable		NC-74-002

Performance Class 1

Test Procedure TP 2.SLM 61672-3 TPS-49

Procedures from IEC 61672-3:2006 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02

If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003

Date Received 18 September 2019

ANV Job No. UKAS19/09624

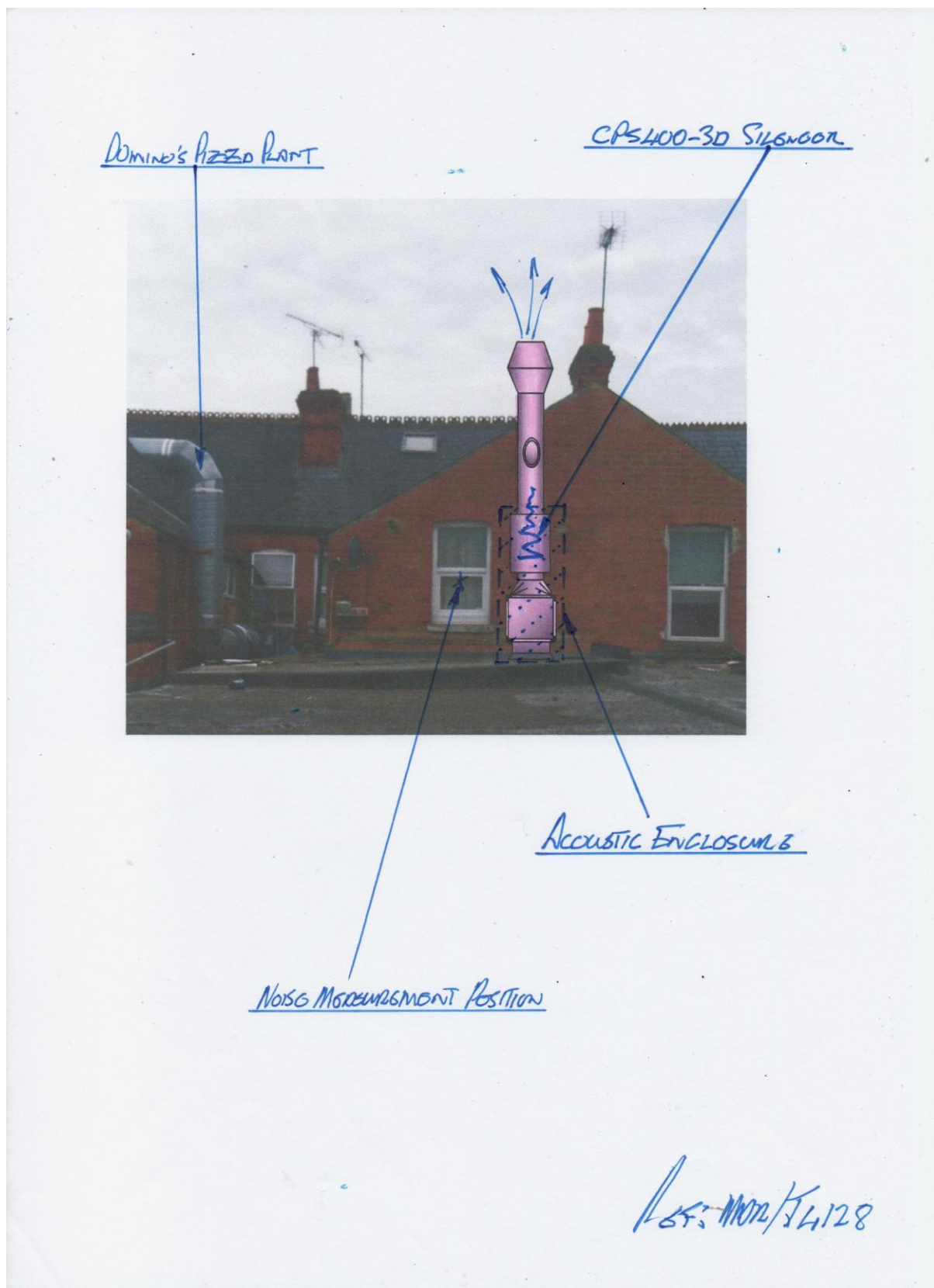
Date Calibrated 20 September 2019

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	Dated	Certificate No.	Laboratory
	26 October 2018	UCRT18/2082	0653

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.





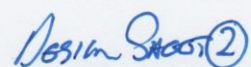


1/6/11m 1/6/11m ①

Q3a WCA4m x 4m Room, Reading - Kitchen Extract Discharge Noise

L/A	63	125	250	500	1k	2k	4k	8k
Extraction SFP CVAB/4-4000/400								
Discharge SWLA	50	65	69	71	73	68	62	54
Lm 4000 Ø Duct	0	0	0	0	0	0	0	0
0.125m ² ER	10	6	2	0	0	0	0	0
SWLA @ Discharge	40	59	67	71	73	68	62	54
SWLA → SPL @ 2.5m	19	19	19	19	19	19	19	19
Spherical Radiation								
SPL @ 2.5m	21	40	48	52	54	49	43	35
		40		53		55		44
			53				55	
SPL @ 2.5m (no silencer)					57dB			
Silencer Required								
CPS 400-30 Circum	4	13	21	33	37	35	37	27
Silencer with 100 400mm/b	17	27	27	19	17	14	6	8
x 550mm o/d x 1200mm l		27		28		19		10
			31				20	
* SPL @ 2.5m (with silencer)					31dB			*

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930 Wokingham Road, Reading - Kitchen Extract Fan Break-out Noise

Lot: WDC/JL128



ACOUSTIC CABINET FANS CVAB-N / CVAT-N Series

 CVAB/4-4000/400 N D 0,56KW
230V 50Hz



On request, explosion proof versions in accordance to ATEX Directive, for three phase models.
Working temperature from -20°C to +40°C.
ATEX Flameproof - Gas
Ex II 2G Exd IIB T4 Ex II 2G Exd IIB+H2 T4 (with motor Exd IIC T4)
ATEX Increased safety - Gas
Ex II 2G Exe IIC T3
To select CVAT-N ATEX refer to performance curves, or Easyvent.
Note electrical data may vary for ATEX motors."



Range of direct drive backward curved centrifugal cabinet fans designed for ventilation of commercial kitchens and industrial applications.
Cabinet fan manufactured from aluminium profiles and double thickness side panels internally lined with 25 mm thickness of fireproof fiberglass acoustic insulation.
Circular duct connection flange on the inlet and outlet. CVAB-N/CVAT-N incorporates direct drive backward curved centrifugal impeller, manufactured from aluminium (CVAB-N) or steel (VAT-N) sheet, with motor fitted inside the air stream.

Motors

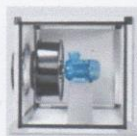
CVAB-N

Single-phase external rotor motors 230V 50Hz, IP55, class F, with thermal protection, speed controllable by tension.
Working temperature from -0°C to 60°C.

CVAT-N

Three-phase 4 and 6 pole motors 230/400V 50Hz, IP55, class F, with thermal protection (PTC), speed controllable by inverter.
Working temperature from -20°C to 40°C.

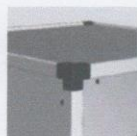
+ Attributes



Backward curved centrifugal impellers
To prevent accumulation of dirtiness. Dynamically balanced.



Low noise level
On request, double thickness side panels lined with 25 thickness of fireproof fiberglass acoustic insulation.



Robustness
Quality finished aluminium profiles and plastic corners providing a great robustness.

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+ Acoustic characteristics

Hz	63	125	250	500	1k	2k	4k	8k	Overall
Inlet (LwA)	46	65	71	73	71	69	66	58	78
Inlet LpA @ 1.5m	31	50	56	58	56	54	51	43	63
X Outlet (LwA)	50	65	69	71	73	68	62	54	77 X
Outlet LpA @ 1.5m	35	50	54	56	58	53	47	39	63
X Breakout (LwA)	42	61	63	64	64	61	57	48	70 X
Breakout LpA @ 1.5m	27	46	48	49	49	46	42	33	56

+ Technical characteristics

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