



Goodhand
Acoustics

HVAC Noise Report

Magnolia House Dental Practice

On Behalf of

AB and V Limited

December 2024

Document Control

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1 Introduction

Goodhand Acoustics Ltd has been commissioned by AB and V Limited to undertake a noise assessment to accompany a planning application to operate a heating, ventilation and air-conditioning system (HVAC) at Magnolia House Dental Practice, 27 East Street, Havant, Hampshire (APP/24/00743), which involve 5 external condenser units to be installed at the rear of the building.

The local authority's Environmental Health Officer raised concerns that two of the wall-hung units were 7 to 10 metres from the nearest residential windows and the other 3 units were 25 metres from the other residential receptors and initially recommended the planning permission to be refused due to the lack information but also suggested a condition should planning permission be granted. Since then, a decision has been made, partially on noise grounds, to move the two wall hung units to the rear of the property in line with the other 3 units.

This report summarises the results of the desktop assessment undertaken, including attended baseline monitoring, with reference to the Chartered Institute of Environmental Health and Institute of Acoustics Heath Pumps Professional Advice Note (1) and BS 4142 (2).

This report was prepared by Daniel Goodhand. With over 20 years of experience in noise and vibration management, Mr. Goodhand advises on projects across the UK, ranging from commercial and residential developments to major infrastructure. Goodhand Acoustics is a member of the Association of Noise Consultants. Mr Goodhand also serves as a director and trustee of the Institute of Acoustics.

2 Planning Condition

2.1 Havant Borough Local Plan (Core Strategy) 2011

The Local Plan (3) sets out the Havant Borough Council's (HBC) strategy and policies that are used to set out a strategy for the area and determine applications for planning permission. Policy DM10 addresses noise.

DM10 Pollution

Development that may cause pollution of water, air or soil or pollution through noise, smell, smoke, fumes, gases, steam, dust, vibration, light, heat, electromagnetic radiation and other pollutants will only be permitted where all of the following relevant criteria can be met:

1. The health and safety of existing and future users of the site, or nearby occupiers and residents is not put at risk.

[...]

2.2 National Planning Policy Framework

The Local Plan has been developed to be consistent with the National Planning Policy Framework (NPPF) (4). The NPPF is also supported by Noise Policy Statement for England (NPSE) as well as online guidance (5). Whilst the Local Plan and the NPPF set out objectives, they do not prescribe specific numerical acoustic standards or approach to addressing noise.

2.3 Environmental Health Advice

The following advice was given by the environmental health officer on 15 October 2024:

Observations / Comments:

I refer to the above application under the Town & Country Planning Acts passed to this Service for comment.

I have some concern with respect to the potential for noise issues associated with the new air conditioning units proposed to be installed at the above premises. The nearest neighbouring residential windows are approximately 7 to 10 metres from the two wall hung units. Other residential receptors are within 25 metres of the other 3 units intended to be installed elsewhere on the property.

I would recommend refusal of this application at this time, as insufficient information has been provided about the proposed air conditioning / condensing units, for this office to make an informed decision as to the potential for noise nuisance.

If you were minded to consent, I would ask that the following condition be attached to any consent granted:

Condition 1:

The applicant shall provide an acoustic assessment to show that the rating level of any air conditioning plant will be at least 5 dB below the existing background levels, which must be submitted to and approved in writing by the Local Planning Authority. The assessment must be carried out by a suitably qualified acoustic consultant / engineer and be in accordance with BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound.

Background levels shall be established at nearest residential receptors.

Reason: In order to safeguard the amenities of adjoining residential occupiers and having due regard to policy DM10 of the Havant Borough Local Plan (Core Strategy) 2011 and the National Planning Policy Framework.

Bearing in mind the type of commercial business that will likely be operating from this site, it would also be helpful if some indications were given as to the proposed times of usage of the airconditioning units e.g. 08:00 to 17:00 Monday to Friday and 08:00 to 13:00 on a Saturday, which would indicate that the units would probably not be in use overnight.

The Environmental Health Officer was consulted as part of this assessment on 12 November 2024. It was confirmed that there was less concern now the 2 of the units had been moved from the wall to the rear of the property but that there was still a risk of cumulative noise effects. The methodology of this report was agreed. The email summary of the consultation in Appendix A.

3 Sound Level Survey Details

3.1 Equipment and Location

Sound levels were measured using NTi Audio XL2-TA precision integrating Class 1 sound level meters.

Table 3.1 summarises details of the equipment used, and calibration certificates are included in Appendix B.

Table 3.1: Equipment Details

Sound Level Meter	NTi Audio XL2-TA			
Microphone	NTi Audio M2211			
Serial Numbers	Meter	A2A-09328-E0	Microphone	5231
Date Calibrated	18 January 2023			
Field Calibrator	Larson Davis CAL200			
Serial Number	A2A-09328-E0			
Date Calibrated	10 June 2024			
Sound Level Meter Field Calibration Check	All calibration checks were within acceptable drift of the reference level.			

A background sound level survey was mounted on a tripod to the rear of Magnolia House Dental Practice at a height of 1.5 m. The measurement location was at the freefield. The survey was attended and conducted for around 2 hours from 11:14 hrs until 13:15 hrs on Thursday 28 November 2024. The location of the survey is shown in Figure 3.1 and Figure 3.2 below.



Figure 3.1: Location of the background sound level survey



Figure 3.2: Photo of Background sound level survey – Empire Court (North East)

3.2 Sound Level Results

The measurement was primarily to establish background sound levels for the BS 4142 assessment of the HVAC units.

Table 3.2: Noise survey results

Location	Date	Start Time	End Time	L _{Aeq,T} (dB)	L _{Amax} (dB)	L _{A90} (dB)
Adjacent to Empire Court	28/11/2024	11:14 hrs	13:15 hrs	50	75	42

4 Noise Calculation and Assessment

4.1 Proposed Development

It is proposed to install 5no Samsung air source heat pump (HVAC)

- **Unit 1 and 2** - 2no. Daikin 5MXM90A9
- **Unit 3** - 1no. Daikin RXP25N9
- **Unit 4** - 1no. Daikin 4MXM80N
- **Unit 5** - 1no. Daikin 4MXM80A9

The location of the units and their respective distance to the closest receptors are shown in Figure 4.1 below. Specification excerpts can be found in Appendix C.

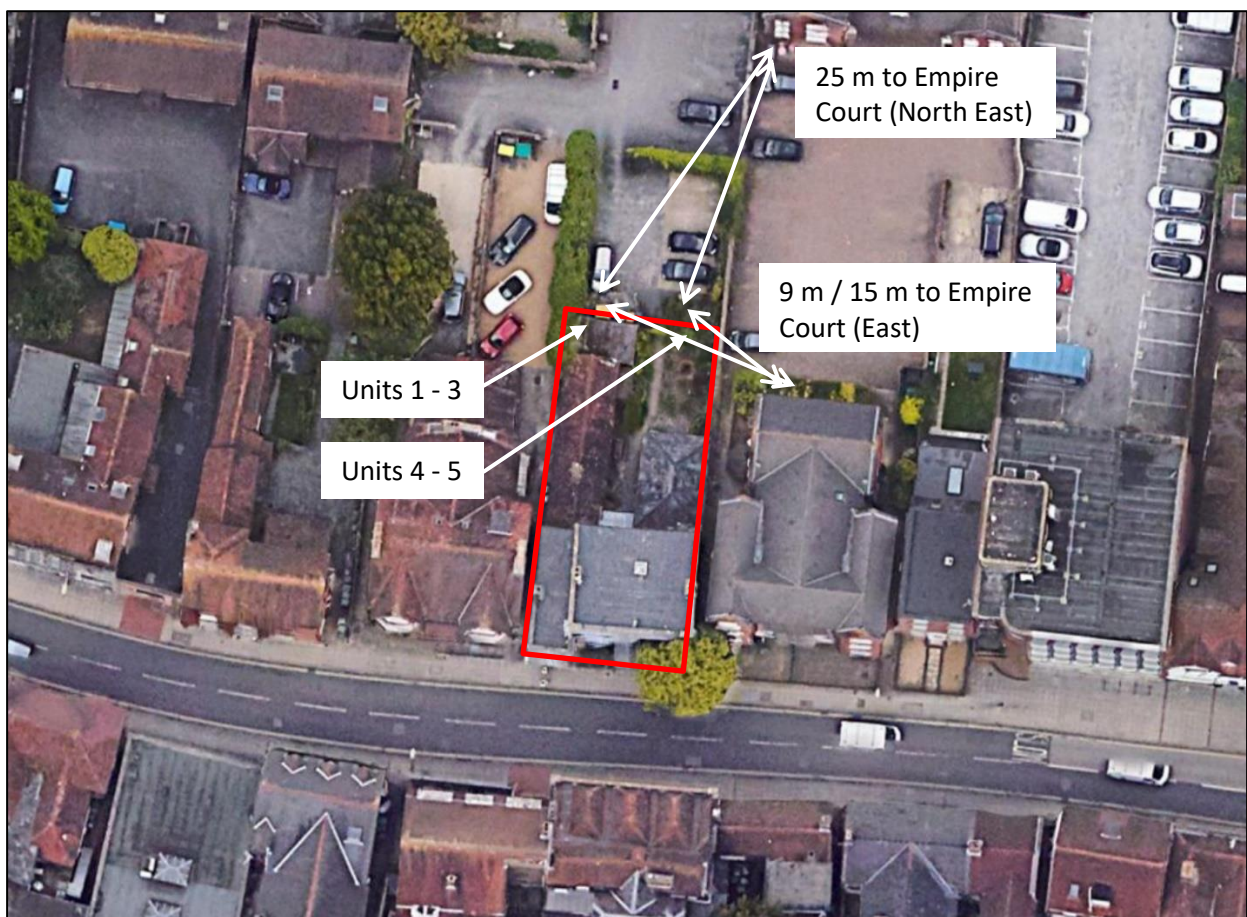


Figure 4.1: HVAC Location Plan

4.2 Noise Predictions

The sound power level used for predictions was sourced from the Daikin technical manuals. The manufacturer's data does not indicate any tonal or impulsive elements to the sound, so no acoustic feature corrections are required.

Noise modelling was conducted using distance and barrier attenuation calculations in a spreadsheet, following the method of calculation provided in ISO 9613-2 (6). For the purposes of this assessment, the two receptors considered to be the worst affected by noise impact were identified as:

- Empire Court (north east) – approximately 25 m to the north east for all HVAC units
- Empire Court (east) – located 15 m from units 1 – 3 and 8 m from units 4 – 5.

The residential receptors to the east do not have direct line of sight to the units because of the walls that the units will be mounted on face away from these receptors. An estimate of 10 dB attenuation was assumed due to this. However, it is expected that the attenuation would be more and so this was taken as a conservative estimate.

For ease of modelling, the sound pressure levels were converted to sound power levels and sound levels of Units 1 – 3 were summed and modelled together and Units 4 – 5 were also summed and modelled together. The total sound level from all units is then assessed in the Section 4.3.

Table 4.1 and Table 4.2 show the predicted noise levels from the HVAC, calculated at Empire Court (east). The sum sound level of these units would result in a sound level of 33 dB.

Table 4.1: HVAC Units 1 - 3 to Empire Court (East) (Distance 15 m, Q=4)

	L_{Aeq} (dB)
SWL	68
SWL to SPL	-28
Barrier attenuation	-10
SPL at receptor	30

Table 4.2: HVAC Units 4 - 5 to Empire Court (East) (Distance 9 m, Q=4)

	L_{Aeq} (dB)
SWL	64
SWL to SPL	-24
Barrier attenuation	-10
SPL at receptor	31

Table 4.3 and Table 4.4 show the predictions of noise from the HVAC at the nearest habitable windows of Empire Court (north east). The sum sound level of these units would result in a sound level of 37 dB.

Table 4.3: HVAC Units 1 - 3 to Empire Court (North East) (Distance 25 m, Q=4)

	L_{Aeq} (dB)
SWL	68
SWL to SPL	-33
SPL at receptor	35

Table 4.4: HVAC Units 3 - 5 to Empire Court (North East) (Distance 25 m, Q=4)

	L_{Aeq} (dB)
SWL	64
SWL to SPL	-33
SPL at receptor	32

4.3 BS 4142 Assessment

Table 4.5 show a BS 4142 assessment using the predictions summarised in Section 4.2.

Table 4.5: Assessment of Noise from HVAC Units

Parameter	Empire Court (East)	Empire Court (North East)	Commentary
Specific noise level at assessment location (total from all units)	33 dB	37 dB	From Section 4.2
Acoustic feature correction	+0		No acoustic feature correction.
Rating level	L _{Ar,hr} = 33 dB	L _{Ar,hr} = 37 dB	
Background sound level	L _{A90,1hr} = 42 dB		Measured at a position representative of the nearest receptor. See Table 3.2.
Excess of rating over background sound level	(33 – 42) dB = -9 dB	(37 – 42) dB = -5 dB	
After taking context into account, assessment indicates that the noise levels measured are not likely to be an adverse impact	The HVAC units operate during normal working hours and so would not have an impact on sleep or relaxation in the evening hours. Additionally, the noise is not expected to be particularly noticeable.		

The BS 4142:2014+A1:2019 (2) assessment concludes that there is a low probability for a significant impact at Empire Court and meets the suggested condition advised by the Environmental Health Officer.

5 Uncertainty

This chapter discusses the uncertainty associated with noise predictions undertaken for this report, based on calculations using ISO 9613 and BS 4142. A short background sound level survey was conducted on-site; however, the prediction process relied on manufacturer-provided data and conservative assumptions where necessary.

5.1 Sources of Data

Acoustic performance data for the HVAC were provided directly by the manufacturer. These data are assumed to be measured under controlled laboratory conditions, which may differ from real-world performance due to environmental and operational factors. Ultimately, the units will not be running a full power continuously and it is expected that the sound levels are likely to be lower on average.

5.2 Prediction Methodology

ISO 9613 – Outdoor Propagation

Noise propagation was predicted using ISO 9613-2, which provides a general method for calculating sound pressure levels in the far field. Key assumptions include:

- Atmospheric conditions are favourable for sound propagation, including a mild temperature inversion or a following wind.
- Ground attenuation was considered negligible.
- The sound sources were assumed to be a point source.

These assumptions are considered appropriate represent a conservative approach to ensure predictions err on the side of caution.

5.3 Measurement Uncertainty

Uncertainty introduced during measurement can be due to the following factors:

- barrier effects and reflections due to the placement of the sound level meter;
- variations in the sound environment; and
- inaccuracies introduced by the sound level meter.

Barriers and Reflections

The effects of barriers and reflections were minimised by careful placement of the sound level meter. The sound level meter was positioned in freefield conditions. The location was chosen as representative of the nearest noise sensitive receptors.

Sound Environment

The sound level survey was undertaken in typical daytime conditions and nothing unusual was noted during the monitoring period. A 2-hour attended survey was considered appropriate due to the relatively low risk of where the external HVAC condenser units are now located.

Sound Level Meter

The sound level meters are Class One and laboratory calibrated every two years. Additionally, a field calibration check was made of the sound level meter before and after the sound level survey and no significant drift was measured. Therefore, it is considered that the equipment did not introduce a significant amount of uncertainty.

5.4 Mitigation of Uncertainty

To manage uncertainty, conservative assumptions were deliberately used throughout the prediction process. This ensures that the noise levels presented represent a worst-case scenario, providing a safety margin for compliance with applicable standards and guidelines.

6 Summary and Conclusion

Goodhand Acoustics Ltd has been commissioned by AB and V Limited to undertake a noise assessment to accompany a planning application to operate a heating, ventilation and air-conditioning system (HVAC) at Magnolia House Dental Practice 27 East Street, Havant, Hampshire (APP/24/00743), which involve 5 external condenser units to be installed at the rear of the building.

The local authority's Environmental Health Officer raised concerns that two of the wall-hung units were 7 to 10 metres from the nearest residential windows and the other 3 units were 25 metres from the other residential receptors and initially recommended the planning permission to be refused due to the lack information but also suggested a condition should planning permission be granted. Since then, a decision has been made, partially on noise grounds, to move the two wall hung units to the rear of the property in line with the other 3 units.

This report summarises the results of the desktop assessment undertaken, including attended baseline monitoring, with reference to the Chartered Institute of Environmental Health and Institute of Acoustics Heath Pumps Professional Advice Note (1) and BS 4142 (2).

The assessment shows that the HVAC should meet the criteria set out in the advised noise condition by the Environmental Health Officer for the planning application APP/24/00743 for the worst affected properties. On that basis, the planning permission should not be refused on grounds of noise.

Appendix A – Email with Environmental Health Officer

19/12/2024, 14:22

Goodhand Acoustics Mail - RE: Magnolia House, 27 East Street - APP/24/00743



Daniel Goodhand <daniel@goodhandacoustics.co.uk>

RE: Magnolia House, 27 East Street - APP/24/00743

1 message

Moss, Mark <Mark.Moss@havant.gov.uk>
To: Daniel Goodhand <daniel@goodhandacoustics.co.uk>

13 November 2024 at 10:25

Good day Daniel

I think we managed to cover all the aspects once I was aware that all 5 of the units are now to be grouped together at the rear of the property. As stated the nearest residential receptors to the north are approximately 25 m NE from the N façade of the outbuilding at 27 & approx. 15 m to the E but in the shadow of the AC positions (both the above being part of Empire Court). To the NW at rear of 21 East St, residential flats which form part of Elmore Court are approx. 19 m from the AC point. Directly to the rear of 27 is a Council car park and to the W of that is the Bear Hotel Car park.

Should you need to query anything else in relation not application, please feel free to call me.

Regards

Mark Moss

Regulatory Officer

Environmental Health Pollution team

Havant Borough Council

Direct Tel: 02392 – 446666

E-mail: mark.moss@havant.gov.uk

www.havant.gov.uk

www.facebook.com/havantboroughcouncil

www.twitter.com/havantborough

Your privacy matters, go to www.havant.gov.uk/privacy-policy

Information in this message is confidential and may be privileged. It is intended solely for the person to whom it is addressed. If you are not the intended recipient please notify the sender and delete the message from your system immediately.

From: Daniel Goodhand <daniel@goodhandacoustics.co.uk>**Sent:** Tuesday, November 12, 2024 4:30 PM

<https://mail.google.com/mail/u/0/?ik=e9cf3207cc&view=pt&search=all&permthid=thread-a:r1677873918033682274%7Cmsg-f:1815602585063348...> 1/2

19/12/2024, 14:22

Goodhand Acoustics Mail - RE: Magnolia House, 27 East Street - APP/24/00743

To: Moss, Mark <Mark.Moss@havant.gov.uk>

Subject: Magnolia House, 27 East Street - APP/24/00743

CAUTION: This email came from outside of the council - only open links and attachments that you're expecting.

Dear Mark,

Thank you for taking the time to discuss the Magnolia House project with me a moment ago. I wanted to summarise our conversation to ensure we have a shared understanding moving forward.

During our call, we discussed the location of the air conditioning units. I mentioned that, in the latest draft drawings, the two units initially proposed to be attached to the rear façade of the main building are now planned to be moved to ground floor level at the request of the conservation officer. I also confirmed that these units would be operating during daytime hours only. Upon learning this, I noted that you felt less concerned about noise impact than you initially were, given the original proposal's proximity to neighbouring properties (approximately 7 m from the two units). Nevertheless, you highlighted the risk of a cumulative impact given that there were 5 units potentially running in parallel.

You mentioned that the main noise source in the area is road traffic from East Street, with some additional noise contributed by the car park at the rear.

We agreed that, for this project, we will conduct attended daytime monitoring to establish background sound levels at the rear over a period of approximately one to two hours. The baseline survey will be carried out during the day outside of rush hour to obtain representative measurements.

Please let me know if there's anything I missed or if any other concerns come to mind. I appreciate your insights on this project.

Regards

Daniel Goodhand
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<https://mail.google.com/mail/u/0/?ik=e9cf3207cc&view=pt&search=all&permthid=thread-a:r1677873918033682274%7Cmsg-f:1815602585063348...> 2/2

Appendix B – Calibration Certificates



CERTIFICATE OF CALIBRATION

Date of Issue: 12 June 2024

Certificate Number: TCRT24/1428

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.uk
Web: www.noise-and-vibration.co.uk

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Approved Signatory

K. Mistry



Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

CUSTOMER Karen Elsey
99 Wilson Avenue
Brighton
East Sussex
BN2 5PB

ORDER No Karen Elsey **Job No** TRAC24/06240

DATE OF RECEIPT 10 June 2024

PROCEDURE Procedure TP 1 Calibration of Sound Calibrators

IDENTIFICATION Sound Calibrator Larson Davis type CAL200 serial number 13872 with half-inch housing

CALIBRATED ON 12 June 2024

PREVIOUS CALIBRATION Calibrated on 06 June 2023, Certificate No. TCRT23/1417 issued by this laboratory.

This certificate provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

CERTIFICATE OF CALIBRATION



Certificate Number

TCRT24/1428

Page 2 of 2 Pages

MEASUREMENTS

The sound pressure level generated by the Sound Calibrator in its half-inch configuration was measured using a B&K type 4134 microphone with the protective grid in position. The microphone sensitivity was traceable to National Standards.

RESULTS

The mean level of the calibrator output and its fundamental frequency and total distortion were:

Nominal

Setting dB	Mean Level	Frequency	Distortion
94	93.98 ± 0.10 dB rel 20 µPa	1000.2 ± 0.12 Hz	(0.31 ± 0.04) %
114	113.99 ± 0.10 dB rel 20 µPa	1000.2 ± 0.12 Hz	(0.39 ± 0.04) %

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with the Guide to the Expression of Uncertainty in Measurement published by ISO.

During the measurements the laboratory environmental conditions were:

Setting dB	Temperature	Atmospheric pressure	Relative Humidity
94	22 to 23 °C	101.0 to 101.2 kPa	40 to 51 %
114	22 to 23 °C	101.0 to 101.1 kPa	41 to 53 %

The tests carried out were as specified in Annex B of BS EN 60942:2003, but with five determinations of sound pressure level, and limited to the above level(s) & freq(s). As public evidence was available from a testing organisation responsible for approving the results of pattern evaluation tests, to demonstrate that the model of sound calibrator fully conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2003, the sound calibrator tested is considered to conform to all the class 1 requirements of IEC 60942:2003.

Calibrator adjusted

No

R 1

END



CERTIFICATE OF CALIBRATION

Date of Issue: 18 January 2023

Certificate Number: TCRT23/1049

Issued by:

ANV Measurement Systems

Beaufort Court

17 Roebuck Way

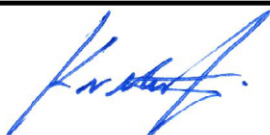
Milton Keynes MK5 8HL

Telephone 01908 642846 Fax 01908 642814

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

Web: 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
Karen Elsey
99 Wilson Avenue
Brighton
BN2 5PB

Order No. Karen Elsey
Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator
Identification

Manufacturer	Instrument	Type	Serial No. / Version
NTi	Sound Level Meter	XL2-TA	A2A-09328-E0
NTi	Firmware		3.11
NTi	Pre Amplifier	MA220	5231
NTi	Microphone	MC230A	A18753
Brüel & Kjær	Calibrator	4231	C001
	Calibrator adaptor type if applicable		UC 0210

Performance Class 1

Test Procedure TP 10. SLM 61672-3:2013

Procedures from IEC 61672-3:2013 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2013 Yes

If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2013

Date Received 17 January 2023

ANV Job No. TRAC23/01026

Date Calibrated 18 January 2023

The sound level meter submitted for testing has successfully completed the periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed. As evidence was publicly available, from an independent testing organisation responsible for approving the results of pattern-evaluation tests performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 specifications of IEC 61672-1:2013.

Previous Certificate	Dated	Certificate No.	Laboratory
	20 October 2020	TCRT20/1619	ANV Measurement Systems

This certificate provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

CERTIFICATE OF CALIBRATION


Certificate Number
TCRT23/1049

Page 2 of 2 Pages

Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title				XL2-TA Handheld Audio and Acoustic Analyser	
SLM instruction manual ref / issue		4.21.02/23 July 2019		Source	NTi
Date provided or internet download date		05 December 2019			
	Case Corrections	Wind Shield Corrections	Mic Pressure to Free Field Corrections		
Uncertainties provided	Yes	Yes	Yes		
Total expanded uncertainties within the requirements of IEC 61672-1:2013				YES	
Specified or equivalent Calibrator		Specified			
Customer or Lab Calibrator		Lab Calibrator			
Calibrator adaptor type if applicable		UC 0210			
Calibrator cal. date		16 January 2023			
Calibrator cert. number		UCRT23/1069			
Calibrator cal cert issued by Lab		0653			
Calibrator SPL @ STP		114.12	dB	Calibration reference sound pressure level	
Calibrator frequency		999.84	Hz	Calibration check frequency	
Reference level range		Mid 20 - 120 dB			
Accessories used or corrected for during calibration -			Extension Cable (No Wind Shield)		
Note - The Extension Cable was used between the SLM and the pre-amp for this calibration.					

Environmental conditions during tests	Start	End	
Temperature	24.49	24.42	± 0.30 °C
Humidity	36.6	36.2	± 3.00 %RH
Ambient Pressure	98.85	98.95	± 0.03 kPa

Indication at the Calibration Check Frequency			
Initial indicated level	114.1	dB	Adjusted indicated level 113.9 dB
Uncertainty of calibrator used for Indication at the Calibration Check Frequency ±			0.10 dB

Self Generated Noise			
Microphone installed -	Less Than	20.9	dB A Weighting
Microphone replaced with electrical input device - UR = Under Range indicated			
Weighting	A	C	Z
	10.2	13.6	20.1
	dB	dB	dB
	UR	UR	UR

Self Generated Noise reported for information only and not used to assess conformance to a requirement

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with the Guide to the Expression of Uncertainty in Measurement published by ISO.

Additional Comments

Electrical test completed with a nominal microphone sensitivity of 42 mV/Pa as specified in the manual.

..... END
 Calibrated by: C. Hirlav R 3

Appendix C – Specifications

Daikin 5MXM90A9

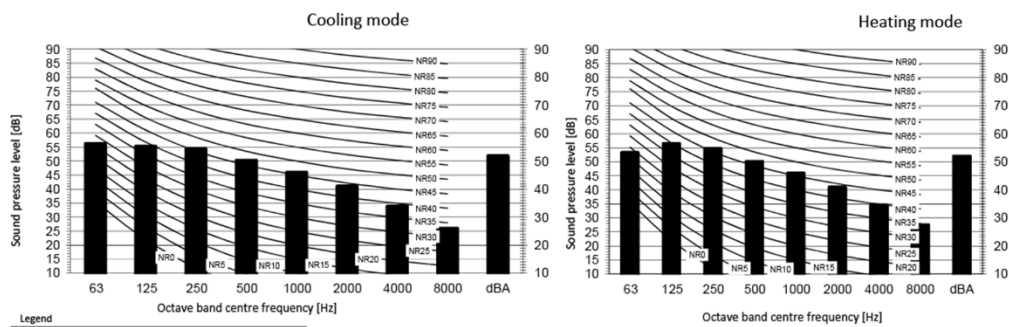


Multi model application • 5MXM-A9

9 Sound data

9 - 1 Sound Pressure Spectrum

5MXM-A9

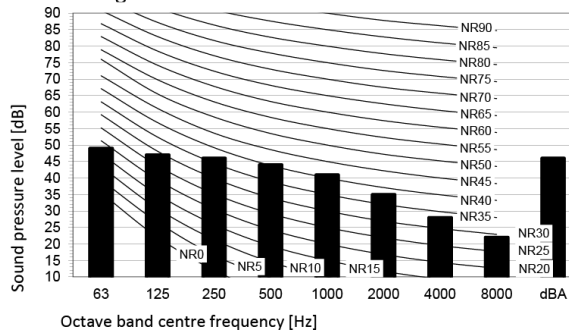


3D106226B

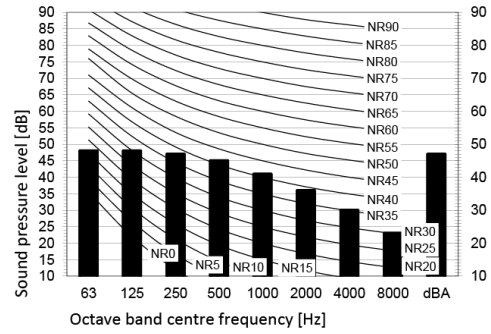
Daikin RXP25N9

ARXP25N9

RXP25N9 Cooling mode



Heating mode



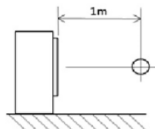
Legend

dBA = A-weighted sound pressure level (A scale according to IEC).

A Scale

B High Fan speed

Location of microphone



Cooling Total dB

A	B
dBA	46

Heating Total dB

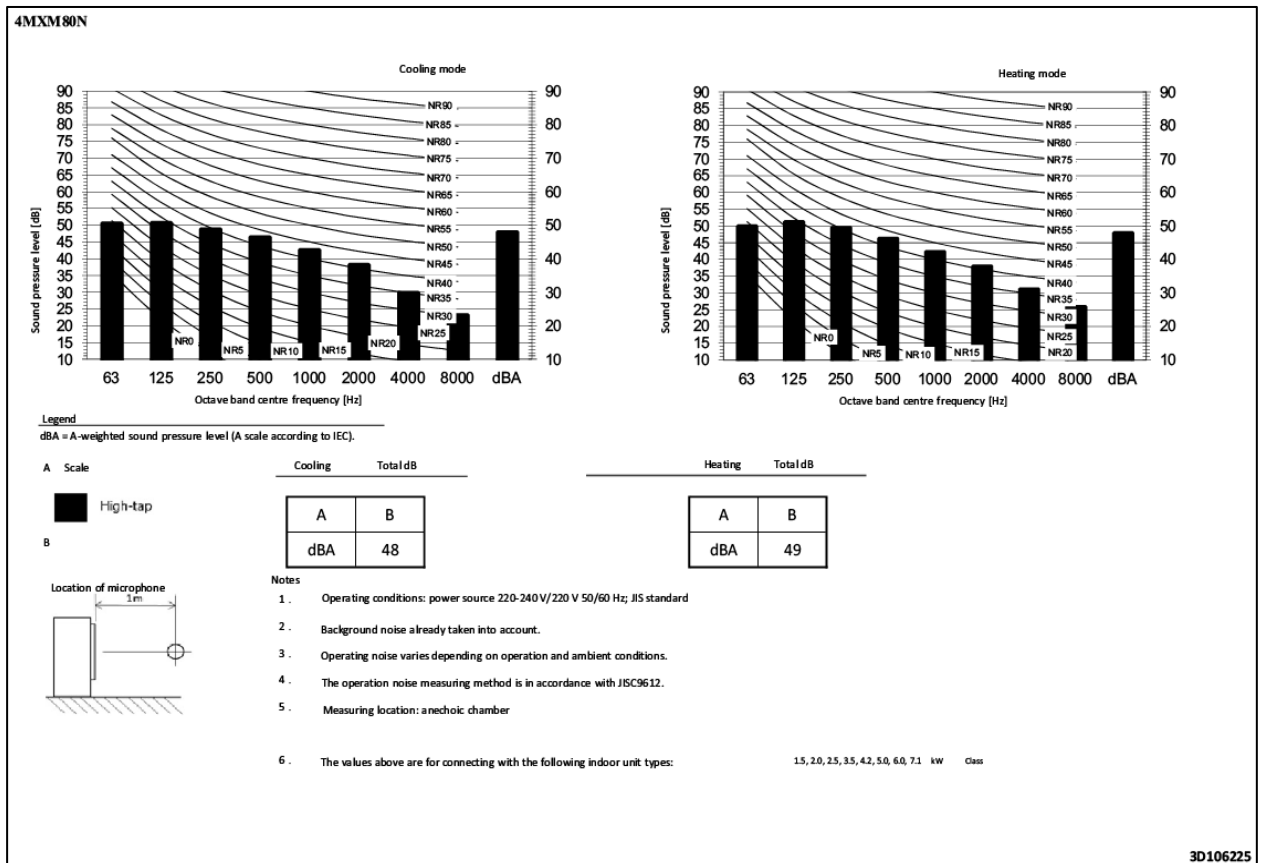
A	B
dBA	47

Notes

- 1 . Operating conditions: power source 220-240 V/220 V 50/60 Hz; JIS standard
- 2 . Background noise already taken into account.
- 3 . Operating noise varies depending on operation and ambient conditions.
- 4 . The operation noise measuring method is in accordance with JISC9612.
- 5 . Measuring location: anechoic chamber

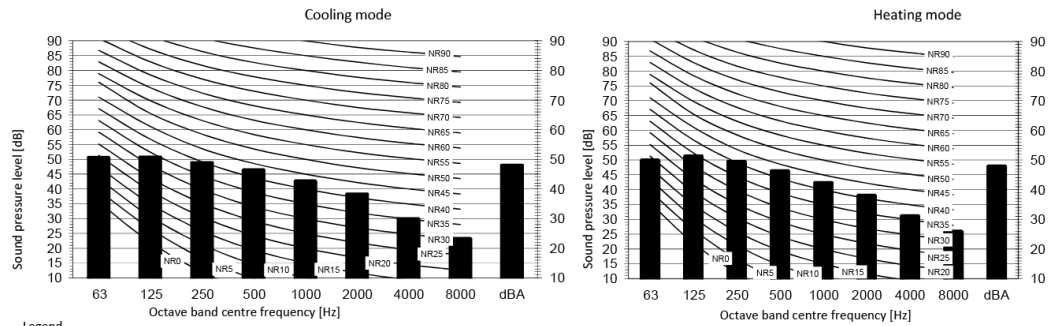
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Daikin 4MXM80A



Daikin 4MXM80A

4MXM80A9



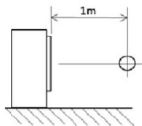
Legend

dBA = A-weighted sound pressure level (A scale according to IEC).

A Scale

B Fan speed: High

Location of microphone



Cooling Total dB

A	B
dBA	48

Notes

- Operating conditions: power source 220-240 V/220 V 50/60 Hz; JIS standard
- Background noise already taken into account.
- Operating noise varies depending on operation and ambient conditions.
- The operation noise measuring method is in accordance with JISC9612.
- Measuring location: anechoic chamber
- The values above are for connecting with the following indoor unit types:
1.5, 2.0, 2.5, 3.5, 4.2, 5.0, 6.0, 7.1 kW Class

Heating Total dB

A	B
dBA	49

3D106225B

References

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