# FLAT B,
# 45 MARESFIELD GARDENS,
# LONDON,
# NW3 5TE

## 72 HOUR ENVIRONMENTAL NOISE ASSESSMENT

Our Ref: CPT/291020/001/Rev02

By:

Eurovib Acoustic Products Ltd
Goodwood House
86 Holmethorpe Avenue
Redhill
Surrey
RH1 2NL

For:

Premier Cooling Services Ltd
New Premier House
Nork Way
Banstead
Surrey
SM7 1PB

Written By:

Cliff Tucker AMIOA

Date: 25th January 2021

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## 1.0 Brief

1.1 To carry out an Environmental Noise Assessment & Report in order to establish the prevailing environmental noise levels enjoyed by the site.

1.2 From these measurements and through liaison with the Local Authority we establish an acoustic design criterion (the Rating Level) 1.0 meters from the nearest acoustically critical location (the Assessment Position).

1.3 To analyse the measured specific noise levels 1 m from the flue discharge & plant room air inlet points in relation to the Rating Level in order to establish compliance or otherwise.

1.4 To offer suggested methods of mitigation if necessary.

1.5 We have excluded the following from our brief:

- Construction noise
- Any Building Regulations noise considerations
- Traffic noise/traffic count per se, though we have recorded LA10 percentiles.
- Health and safety acoustics.

## 2.0 Executive Summary

2.1 An Environmental Noise Assessment has been carried out at Flat B, 45 Maresfield Gardens, London, NW3 5TE.

2.2 A minimum background noise level of 36 (36.3) dB $LA_{90,\ 15mins}$ has been measured for use of the equipment 24 hours per day.

2.3 The London Borough of Camden's normal conditions are for the specific noise of the equipment to be not less than 10 dB-A below the minimum background noise level for the hours of use of the equipment at the closest potential point of complaint.

2.4 The Rating Level for equipment in use 24 hours per day will therefore be 26 dB $LA_{eq,\ 15\ mins}$.

2.5 For option 1 of the proposed equipment location (PL1) the equipment should be enclosed in a purpose designed acoustic enclosure with air inlet and discharge via 45% free area attenuators not less than 900 mm long.

2.6 The theoretical specific noise level of the equipment at the Assessment Position (AP1) is then 25 dB-A $LA_{eq,\ 15mins}$ which is 1 dB-A below the Rating Level and the Local Authority's requirements in terms of noise will therefore be met.

2.7 For optio 2 of the proposed equipment location (PL2) the equipment should be enclosed in a purpose designed acoustic enclosure with air inlet and discharge via 300 mm deep acoustic louvres.

2.8 The theoretical specific noise level of the equipment at the Assessment Position (AP2) is then 26 dB-A $LA_{eq,\ 15mins}$ which is equal to the Rating Level and the Local Authority's requirements in terms of noise will therefore be met.

2.9 For option 3 of the the proposed equipment location (PL3) no additional noise mitigation measures are required.

2.10 The theoretical specific noise level of the equipment at the Assessment Position (AP3) is then 17 dB-A $LA_{eq,\ 15mins}$ which is 9 dB-A below the Rating Level and the Local Authority's requirements in terms of noise will therefore be met.

## 3.0 Location

3.1 45 Maresfield Gardens is a large four storey property divided into individual apartments within the London Borough of Camden.

3.2 It is bounded by 47 Maresfield Gardens to the North; Maresfield Gardens to the East with further residential property beyond; 43 Maresfield Gardens to the South; and the rear of the properties alilgning Netherhall Gardens to the West.

3.3 Flat B is located at second & third floor level at the Southern end of the property.

## 4.0 Instrumentation

4.1 The instrumentation employed was:

- Rion NL-32/NX-22RT Class 1 Environmental Noise Analyser
- Rion NC74 Class1 Acoustic Calibrator
- Rion 12 mm Condenser Microphone & Foam Windshield on 1,5 meter Extension Pole.
- Rion Weatherproof Security Box

4.2 The instruments carry current calibration certificates copies of which are available from our offices upon request.

## 5.0 Time, Date & Environmental Conditions

5.1 The survey was conducted between 10.35 on the 7th August 2020 through until 08.35 on the 10th August 2020.

5.2 The weather throughout the survey was warm with clear skies, no rainfall and only light winds.

5.3 The site engineer was Colin Buckley and the results were analysed & reported by Cliff Tucker.

6.0 Methodology.

6.1 The survey and report generally follow the procedures, method and assessments as described in BS 4142: 2014 ‘Methods for rating and assessing industrial and commercial sound’.

6.2 The standard requires a comparison between the typical measured background noise level and the equivalent continuous A-weighted sound pressure level of the equipment at the Assessment Position.

6.3 BS4142: 2014 also requires uncertainty to be considered as part of the assessment.

- We have undertaken a 24 hour background noise survey and the data gathered has been analysed to ensure that any influences from the weather conditions have been accounted for in the assessment.
- The calibration of the sound level meter was checked before and after the survey period and no significant drift found.
- Standard acoustic theory has been applied in the noise propagation calculations.

It is therefore considered that the uncertainty associated with the assessment is minimal and the results, as stated, are therefore valid.

6.4 The Reference Time Interval used for the 24 hour survey period was 15 minutes.

6.5 The microphone position (the Measurement Position) was in the rear garen of the property not less than 3 m from the rear facade.

6.6 The background level as measured at the microphone position is considered to be representative of the levels enjoyed at the Assessment Positions.

6.7 There are three potential locations for the equipment as follows:

- The second floor flat roof to the South of the property. We refer onward to this location as PL1.
- The Southern end of the second floor rear terrace to the West of the property. We refer onward to this location as PL2.
- The Northern end of the second floor rear terrace to the West of the property. We refer onward to this location as PL3.

6.8 The Asssessment Position in relation to the second floor flat roof is the second floor windows of 43 Mansfield Gardens, a distance of not less than 4 m from the proposed equipment location. We refer onward to this position as AP1.

6.9 The Assessment Position in relation to the Southern end of the second floor rear terrace is the second floor rear terrace of the neighbouring apartment located immediately to the North, a distance of not less than 6 m from the proposed equipment location. We refer onward to this position as AP2.

6.10 The Assessment Position in relation to the Northern end of the second floor rear terrace is the second floor rear windows of 43 Maresfield Gardens, a distance of not less than 11 m from the proposed equipment location and acoustically screened by the building facade. AP2 is also acoustically screened by the terrace balustrade. We refer onward to this position as AP3.

6.11 The Measurement Position; Assessment Positions; and the other relevant points of interest are shown on the plan within Appendix 'A'.

6.12 The measured levels were the principle LA percentiles as prescribed in BS 4142.

6.13 The most significant of the measured percentiles for our purposes are as follows:

- LAeq, (the mean sound pressure level corresponding to a fluctuation level across time period 't'). Used for the measurement and assessment of the Ambient Noise Level; The Specific Noise Level; The Residual Level and the Rating Level
- LA10 ('A' weighted level exceeded for 10% of the time) is used for traffic noise assessment.
- LA90, ('A' weighted level exceeded for 90% of the time). Represents the Background Level and is often used as the target threshold against which the acoustic design criteria are set.

We also measured the maximum and minimum levels.

6.14 You will note the basic objective is to establish a Rating Level at the Assessment Point for the specific noise level from any new plant in order to predict the likelihood of noise complaint.

6.15 Camden Borough Councils requirements are for the specific noise from the equipment not to exceed a level 10 dB below the minimum external background noise level for the hours of operation for the plant.

6.16 The equipment has the propensity to operate 24 hours per day, 7 days per week.

## 7.0 Results Summary

7.1 The full set of measured levels are presented in Appendix ‘B’ of this report.

7.2 The minimum background noise level measured through a 24 hour period was 36.3 dB $LA_{90,\ 15\ mins}$ and was measured at 04.35 on the 8th August 2020.

7.3 The Local Authority’s requirement for equipment in use 24 hours per day is therefore for the maximum specific noise level (the Rating Level) not to exceed 26 dB $LA_{eq,\ 15\ mins}$ at the Assessment Position.

## 8.0 Analysis

### 8.1 Proposed Plant & Location

The proposed item of plant is:

- 1 no. Daikin RXM35N9

There are three potential locations for the equipment.

The first (PL1) is the second floor flat roof to the south of the property.

The second (PL2) is the Southern end of the second floor rear terrace to the west of the property.

The third (PL3) is the Southern end of the second floor rear terrace to the west of the property.

The RMX35N9 unit has the propensity to operate 24 hours per day 7 days per week.

The manufacturers published Sound Pressure Level spectrum at 1 m for the units under full load in the loudest mode is as follows:

| | **Octave Band Mid Frequency Hz** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **63** | **125** | **250** | **500** | **1K** | **2K** | **4K** | **8K** |
| RXM35N9 | 53 | 54 | 52 | 49 | 45 | 40 | 36 | 28 |

The plant noise has no tonal properties. Being inverter driven, there is no intermittency.

### 8.2 Plant Analysis

#### 8.2.1 From PL1 to AP1

For the equipment to be installed in this location it will be necessary to enclose the units in a purpose designed acoustic enclosure with air inlet and discharge via 45% free area attenuators not less than 900 mm long.

| | **Octave Band Mid Frequency Hz** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **63** | **125** | **250** | **500** | **1K** | **2K** | **4K** | **8K** |
| RXM35N9 | 53 | 54 | 52 | 49 | 45 | 40 | 36 | 28 |
| Add Façade Reflection | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Dist Loss | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |

| | Octave Band Mid Frequency Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **63** | **125** | **250** | **500** | **1K** | **2K** | **4K** | **8K** |
| Att. D.I.L. | 4 | 8 | 15 | 22 | 25 | 22 | 18 | 12 |
| Lp @ Asses | 40 | 37 | 28 | 18 | 11 | 9 | 9 | 7 |
| A-Weight | 26 | 16 | 9 | 3 | 0 | -1 | -1 | 1 |
| Lp-A Ass | 14 | 21 | 19 | 15 | 11 | 10 | 10 | 6 |

This is equivalent to 25 dB-A, which is 1 dB below the Rating Level and the Local Authority's requirements in terms of noise will therefore be met.

8.2.2 From PL2 to AP2

For the equipment to be installed in this location it will be necessary to enclose the units in a purpose designed acoustic enclosure with air inlet and discharge via 300 mm deep acoustic louvres.

| | Octave Band Mid Frequency Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **63** | **125** | **250** | **500** | **1K** | **2K** | **4K** | **8K** |
| RXM35N9 | 53 | 54 | 52 | 49 | 45 | 40 | 36 | 28 |
| Add Façade Reflection | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Dist Loss | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Louvre Loss | 6 | 7 | 10 | 13 | 17 | 19 | 13 | 11 |
| Lp @ Asses | 34 | 34 | 29 | 23 | 15 | 8 | 10 | 4 |
| A-Weight | 26 | 16 | 9 | 3 | 0 | -1 | -1 | 1 |
| Lp-A Ass | 8 | 18 | 20 | 20 | 15 | 9 | 11 | 3 |

This is equivalent to 26 dB-A, which is equal to the Rating Level and the Local Authority's requirements in terms of noise will therefore be met.

8.2.3 From PL3 to AP3

If the equipment to be installed in this location it will not be necessary to mitigate the equipment noise further due to the acoustic screening provided by the buidling façade.

| | Octave Band Mid Frequency Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **63** | **125** | **250** | **500** | **1K** | **2K** | **4K** | **8K** |
| RXM35N9 | 53 | 54 | 52 | 49 | 45 | 40 | 36 | 28 |
| Dist Loss | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| Screening | 7 | 9 | 11 | 136 | 16 | 19 | 22 | 25 |
| Lp @ Ass | 25 | 24 | 20 | 15 | 8 | 0 | -7 | -18 |
| A-Weight | 26 | 16 | 9 | 3 | 0 | -1 | -1 | 1 |
| Lp-A Ass | -1 | 8 | 11 | 12 | 8 | 1 | -6 | -19 |

This is equivalent to 17 dB-A, which is 9 dB-A below the Rating Level and the Local Authority's requirements in terms of noise will therefore be met.

8.3 Vibration

For either location the proposed plant should be resiliently mounted such that a minimum vibration isolation efficeincy of 92% is achieved with the units operating at full duty.

Additionally, the associated gas and liquid lines should be secured using fixings over the top of the thermal insultation to prevent direct metal to metal support.

## 9.0 Conclusion

The new plant that is to be installed should be designed, selected, and located to ensure compliance with the above objectives.

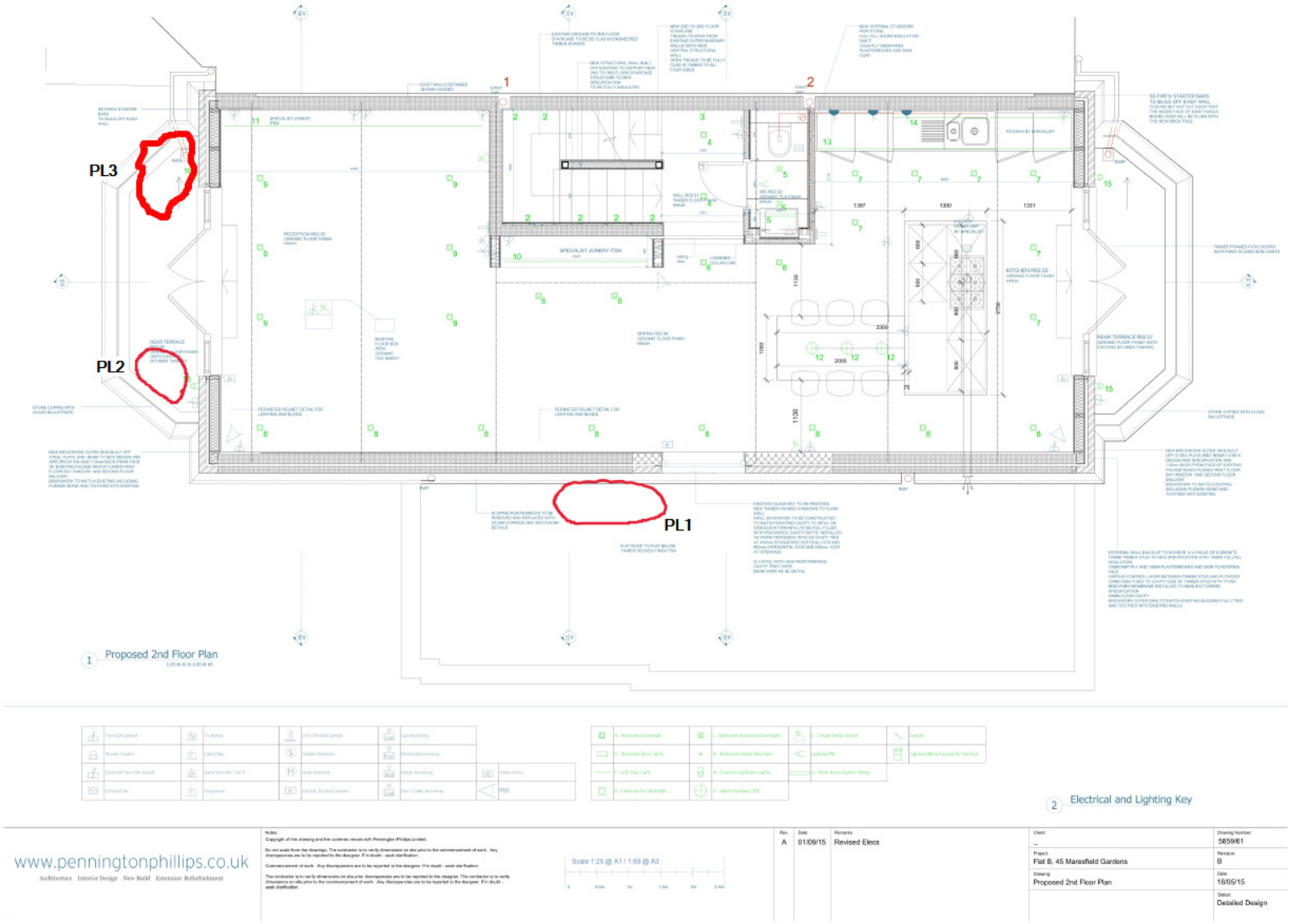
Assuming this is achieved as outlined above then the Local Authority's requirements in terms of noise will be met.

Report ends

Cliff Tucker AMIOA
Eurovib (Acoustic Products) Ltd

## Appendix A – Positions, Distances, & Locations


45 Maresfield Gardens
AP2
MEASUREMENT POSITION
PL3
PL2
PL1
AP1
AP3


PL3
PL2
PL1
1 Proposed 2nd Floor Plan
2 Electrical and Lighting Key
www.penningtonphillips.co.uk
Architecture Interior Design New Build Extension Refurbishment
Scale 1:25 @ A1 / 1:50 @ A3
Rev A
Date 01/09/15
Remarks Revised Elecs
Client: –
Project: Flat B, 45 Maresfield Gardens
Drawing: Proposed 2nd Floor Plan
Drawing Number: 5859/61
Revision: B
Date: 18/05/15
Status: Detailed Design

## Appendix B – Full Measured Levels

| Ref | Time | Measurment Time | LAmax | LAmin | LA10 | LA90 | LAeq |
|---|---|---|---|---|---|---|---|
| 1 | 07/08/2020 10:35 | 0:15:00 | 86.9 | 42.7 | 56.5 | 47.6 | 58.6 |
| 2 | 07/08/2020 10:50 | 0:15:00 | 67.1 | 42.3 | 53.2 | 46.3 | 50.8 |
| 3 | 07/08/2020 11:05 | 0:15:00 | 63.2 | 43.5 | 55.4 | 48.2 | 52.6 |
| 4 | 07/08/2020 11:20 | 0:15:00 | 68.2 | 43.3 | 56.3 | 46.4 | 53.3 |
| 5 | 07/08/2020 11:35 | 0:15:00 | 64.5 | 43.3 | 53.8 | 46.4 | 51.0 |
| 6 | 07/08/2020 11:50 | 0:15:00 | 72.8 | 41.5 | 51.1 | 44.4 | 49.3 |
| 7 | 07/08/2020 12:05 | 0:15:00 | 66.9 | 41.3 | 47.5 | 43.3 | 46.1 |
| 8 | 07/08/2020 12:20 | 0:15:00 | 61.1 | 41.2 | 52.8 | 43.3 | 48.8 |
| 9 | 07/08/2020 12:35 | 0:15:00 | 61.6 | 42.2 | 49.3 | 44.2 | 47.4 |
| 10 | 07/08/2020 12:50 | 0:15:00 | 61.3 | 42.9 | 50.5 | 45.1 | 48.3 |
| 11 | 07/08/2020 13:05 | 0:15:00 | 66.5 | 40.9 | 51.3 | 44.0 | 48.1 |
| 12 | 07/08/2020 13:20 | 0:15:00 | 63.2 | 41.9 | 48.5 | 43.9 | 46.8 |
| 13 | 07/08/2020 13:35 | 0:15:00 | 64.6 | 40.2 | 49.5 | 43.3 | 47.1 |
| 14 | 07/08/2020 13:50 | 0:15:00 | 59.4 | 40.3 | 49.8 | 42.8 | 46.9 |
| 15 | 07/08/2020 14:05 | 0:15:00 | 65.6 | 40.8 | 50.8 | 43.8 | 48.4 |
| 16 | 07/08/2020 14:20 | 0:15:00 | 73.0 | 42.2 | 52.7 | 45.7 | 52.6 |
| 17 | 07/08/2020 14:35 | 0:15:00 | 66.5 | 44.7 | 52.4 | 47.2 | 50.4 |
| 18 | 07/08/2020 14:50 | 0:15:00 | 69.6 | 43.2 | 54.6 | 46.1 | 51.7 |
| 19 | 07/08/2020 15:05 | 0:15:00 | 73.5 | 44.6 | 57.9 | 52.3 | 56.1 |
| 20 | 07/08/2020 15:20 | 0:15:00 | 65.7 | 44.7 | 54.7 | 48.7 | 52.5 |
| 21 | 07/08/2020 15:35 | 0:15:00 | 68.1 | 44.5 | 54.2 | 48.2 | 51.7 |
| 22 | 07/08/2020 15:50 | 0:15:00 | 68.5 | 46.0 | 55.5 | 48.7 | 53.1 |
| 23 | 07/08/2020 16:05 | 0:15:00 | 66.1 | 45.9 | 55.2 | 48.7 | 52.4 |
| 24 | 07/08/2020 16:20 | 0:15:00 | 67.6 | 46.1 | 54.4 | 48.3 | 52.1 |
| 25 | 07/08/2020 16:35 | 0:15:00 | 62.1 | 47.0 | 55.5 | 49.5 | 52.8 |
| 26 | 07/08/2020 16:50 | 0:15:00 | 69.1 | 45.6 | 53.5 | 48.1 | 52.2 |
| 27 | 07/08/2020 17:05 | 0:15:00 | 64.4 | 45.6 | 54.8 | 48.4 | 52.5 |
| 28 | 07/08/2020 17:20 | 0:15:00 | 71.3 | 45.0 | 55.6 | 48.5 | 52.8 |
| 29 | 07/08/2020 17:35 | 0:15:00 | 62.7 | 45.2 | 54.1 | 48.0 | 51.8 |
| 30 | 07/08/2020 17:50 | 0:15:00 | 69.1 | 44.9 | 53.3 | 47.0 | 50.9 |
| 31 | 07/08/2020 18:05 | 0:15:00 | 66.9 | 43.4 | 53.6 | 47.4 | 51.2 |
| 32 | 07/08/2020 18:20 | 0:15:00 | 62.8 | 43.6 | 50.4 | 46.1 | 48.5 |
| 33 | 07/08/2020 18:35 | 0:15:00 | 60.6 | 44.2 | 50.9 | 46.0 | 48.9 |
| 34 | 07/08/2020 18:50 | 0:15:00 | 58.0 | 41.5 | 49.8 | 45.4 | 47.9 |
| 35 | 07/08/2020 19:05 | 0:15:00 | 58.8 | 41.8 | 49.4 | 44.7 | 47.5 |
| 36 | 07/08/2020 19:20 | 0:15:00 | 68.0 | 43.7 | 50.0 | 45.5 | 48.5 |
| 37 | 07/08/2020 19:35 | 0:15:00 | 62.0 | 44.1 | 49.6 | 45.8 | 47.9 |
| 38 | 07/08/2020 19:50 | 0:15:00 | 78.2 | 43.3 | 51.7 | 45.2 | 51.3 |
| 39 | 07/08/2020 20:05 | 0:15:00 | 78.4 | 43.2 | 54.9 | 46.0 | 53.6 |
| 40 | 07/08/2020 20:20 | 0:15:00 | 86.5 | 43.3 | 56.5 | 46.1 | 56.8 |
| 41 | 07/08/2020 20:35 | 0:15:00 | 74.3 | 43.6 | 51.9 | 46.0 | 50.3 |
| 42 | 07/08/2020 20:50 | 0:15:00 | 73.1 | 43.4 | 51.1 | 45.4 | 49.4 |
| 43 | 07/08/2020 21:05 | 0:15:00 | 62.7 | 43.6 | 51.6 | 45.6 | 49.3 |
| 44 | 07/08/2020 21:20 | 0:15:00 | 59.2 | 42.7 | 50.5 | 45.1 | 48.2 |
| 45 | 07/08/2020 21:35 | 0:15:00 | 62.5 | 40.9 | 49.5 | 43.5 | 47.1 |

| Ref | Time | Measurment Time | LAmax | LAmin | LA10 | LA90 | LAeq |
|---|---|---|---|---|---|---|---|
| 46 | 07/08/2020 21:50 | 0:15:00 | 57.1 | 42.2 | 49.2 | 44.4 | 47.0 |
| 47 | 07/08/2020 22:05 | 0:15:00 | 60.7 | 42.5 | 50.1 | 44.8 | 47.9 |
| 48 | 07/08/2020 22:20 | 0:15:00 | 59.2 | 42.5 | 48.8 | 44.8 | 47.0 |
| 49 | 07/08/2020 22:35 | 0:15:00 | 73.3 | 41.7 | 49.6 | 44.0 | 48.1 |
| 50 | 07/08/2020 22:50 | 0:15:00 | 60.8 | 42.0 | 49.1 | 44.0 | 46.9 |
| 51 | 07/08/2020 23:05 | 0:15:00 | 61.1 | 41.3 | 48.1 | 43.2 | 46.2 |
| 52 | 07/08/2020 23:20 | 0:15:00 | 56.6 | 37.8 | 45.1 | 40.3 | 43.2 |
| 53 | 07/08/2020 23:35 | 0:15:00 | 66.7 | 37.3 | 44.4 | 39.1 | 48.2 |
| 54 | 07/08/2020 23:50 | 0:15:00 | 59.5 | 37.5 | 45.4 | 39.0 | 42.9 |
| 55 | 08/08/2020 00:05 | 0:15:00 | 54.8 | 37.2 | 43.2 | 39.3 | 41.3 |
| 56 | 08/08/2020 00:20 | 0:15:00 | 56.0 | 37.1 | 44.3 | 38.9 | 41.9 |
| 57 | 08/08/2020 00:35 | 0:15:00 | 58.3 | 36.2 | 44.1 | 38.0 | 41.9 |
| 58 | 08/08/2020 00:50 | 0:15:00 | 53.8 | 35.7 | 42.0 | 37.5 | 40.4 |
| 59 | 08/08/2020 01:05 | 0:15:00 | 52.7 | 36.1 | 41.8 | 37.6 | 40.3 |
| 60 | 08/08/2020 01:20 | 0:15:00 | 56.3 | 36.7 | 44.0 | 38.0 | 41.6 |
| 61 | 08/08/2020 01:35 | 0:15:00 | 58.6 | 36.7 | 41.9 | 38.3 | 40.5 |
| 62 | 08/08/2020 01:50 | 0:15:00 | 59.6 | 37.6 | 47.1 | 39.2 | 44.2 |
| 63 | 08/08/2020 02:05 | 0:15:00 | 61.9 | 36.0 | 44.4 | 38.0 | 42.5 |
| 64 | 08/08/2020 02:20 | 0:15:00 | 53.7 | 36.7 | 42.1 | 38.5 | 40.5 |
| 65 | 08/08/2020 02:35 | 0:15:00 | 56.8 | 37.5 | 44.1 | 39.5 | 41.9 |
| 66 | 08/08/2020 02:50 | 0:15:00 | 54.3 | 37.6 | 43.3 | 39.4 | 41.8 |
| 67 | 08/08/2020 03:05 | 0:15:00 | 54.6 | 36.3 | 42.2 | 38.0 | 40.4 |
| 68 | 08/08/2020 03:20 | 0:15:00 | 54.3 | 35.6 | 42.4 | 37.5 | 40.6 |
| 69 | 08/08/2020 03:35 | 0:15:00 | 58.6 | 35.9 | 43.4 | 37.3 | 40.8 |
| 70 | 08/08/2020 03:50 | 0:15:00 | 55.0 | 35.3 | 43.2 | 37.1 | 40.2 |
| 71 | 08/08/2020 04:05 | 0:15:00 | 59.3 | 35.7 | 40.8 | 37.0 | 39.3 |
| 72 | 08/08/2020 04:20 | 0:15:00 | 58.4 | 34.8 | 41.7 | 37.1 | 40.2 |
| 73 | 08/08/2020 04:35 | 0:15:00 | 56.6 | 34.9 | 40.4 | 36.3 | 39.0 |
| 74 | 08/08/2020 04:50 | 0:15:00 | 56.6 | 35.5 | 40.7 | 36.8 | 39.0 |
| 75 | 08/08/2020 05:05 | 0:15:00 | 52.6 | 36.1 | 40.7 | 37.5 | 39.1 |
| 76 | 08/08/2020 05:20 | 0:15:00 | 58.0 | 36.4 | 41.7 | 37.7 | 40.7 |
| 77 | 08/08/2020 05:35 | 0:15:00 | 57.3 | 36.5 | 42.1 | 38.3 | 41.1 |
| 78 | 08/08/2020 05:50 | 0:15:00 | 65.0 | 36.6 | 42.9 | 38.4 | 43.2 |
| 79 | 08/08/2020 06:05 | 0:15:00 | 54.0 | 37.5 | 44.1 | 39.4 | 41.9 |
| 80 | 08/08/2020 06:20 | 0:15:00 | 60.8 | 38.3 | 44.1 | 39.6 | 42.2 |
| 81 | 08/08/2020 06:35 | 0:15:00 | 59.5 | 39.1 | 46.0 | 40.8 | 44.1 |
| 82 | 08/08/2020 06:50 | 0:15:00 | 70.0 | 42.4 | 50.7 | 44.1 | 50.5 |
| 83 | 08/08/2020 07:05 | 0:15:00 | 59.2 | 41.9 | 49.1 | 44.5 | 47.4 |
| 84 | 08/08/2020 07:20 | 0:15:00 | 73.5 | 43.4 | 50.5 | 45.3 | 48.9 |
| 85 | 08/08/2020 07:35 | 0:15:00 | 68.0 | 42.3 | 49.2 | 43.8 | 47.9 |
| 86 | 08/08/2020 07:50 | 0:15:00 | 64.2 | 42.7 | 50.3 | 43.9 | 47.9 |
| 87 | 08/08/2020 08:05 | 0:15:00 | 63.0 | 42.5 | 54.3 | 45.5 | 50.5 |
| 88 | 08/08/2020 08:20 | 0:15:00 | 64.8 | 42.0 | 50.9 | 44.2 | 48.6 |
| 89 | 08/08/2020 08:35 | 0:15:00 | 71.5 | 42.4 | 52.8 | 44.8 | 50.4 |
| 90 | 08/08/2020 08:50 | 0:15:00 | 67.6 | 43.6 | 52.8 | 45.2 | 49.8 |

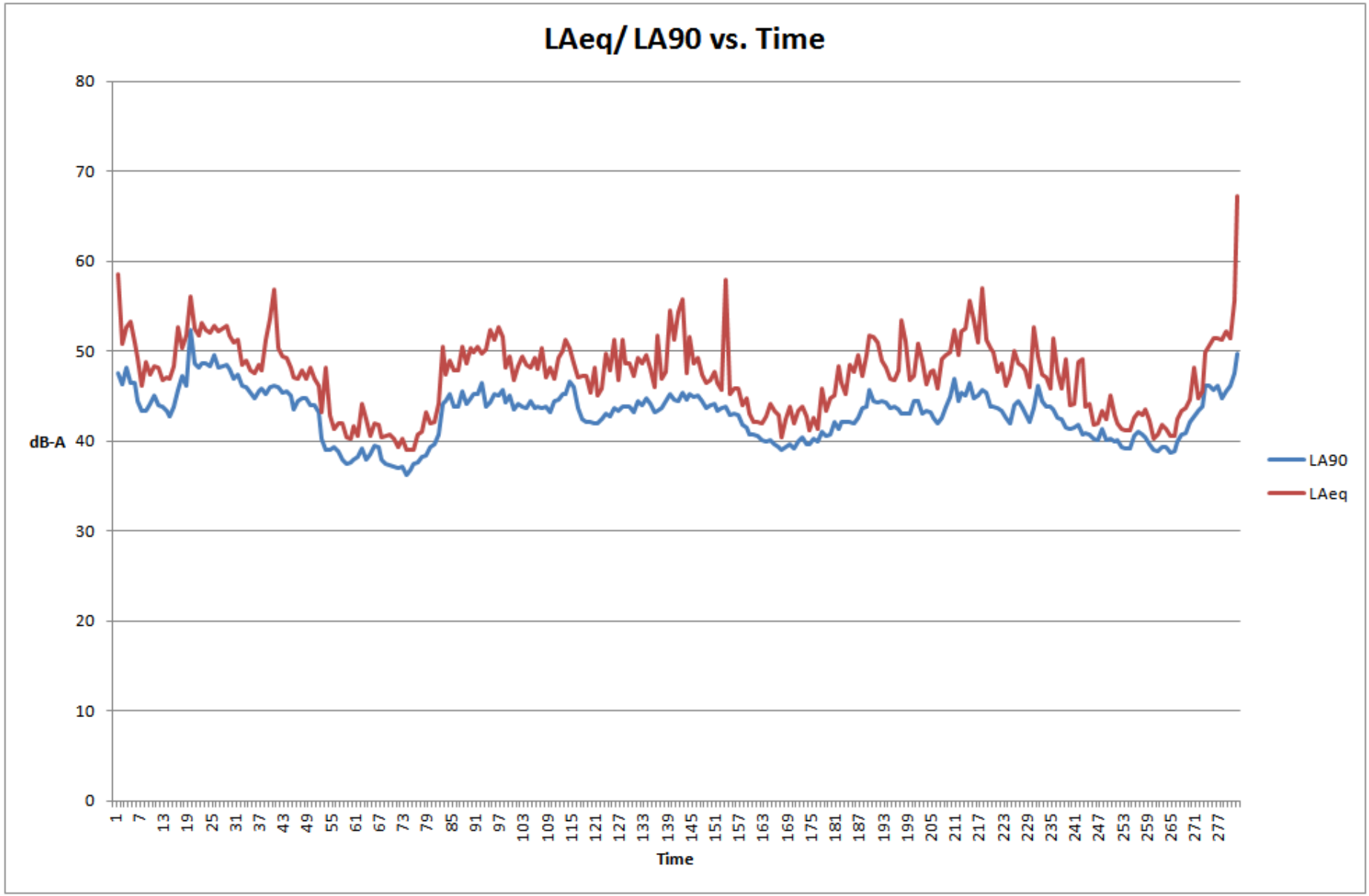
| Ref | Time | Measurment Time | LAmax | LAmin | LA10 | LA90 | LAeq |
|---|---|---|---|---|---|---|---|
| 91 | 08/08/2020 09:05 | 0:15:00 | 64.9 | 43.0 | 52.5 | 45.2 | 50.5 |
| 92 | 08/08/2020 09:20 | 0:15:00 | 61.1 | 43.7 | 52.1 | 46.5 | 49.7 |
| 93 | 08/08/2020 09:35 | 0:15:00 | 64.5 | 41.9 | 53.6 | 43.9 | 50.2 |
| 94 | 08/08/2020 09:50 | 0:15:00 | 64.2 | 42.0 | 55.3 | 44.3 | 52.3 |
| 95 | 08/08/2020 10:05 | 0:15:00 | 68.4 | 43.2 | 53.4 | 45.2 | 51.3 |
| 96 | 08/08/2020 10:20 | 0:15:00 | 70.7 | 42.7 | 54.2 | 45.1 | 52.6 |
| 97 | 08/08/2020 10:35 | 0:15:00 | 67.3 | 43.0 | 53.8 | 45.7 | 51.6 |
| 98 | 08/08/2020 10:50 | 0:15:00 | 62.2 | 42.4 | 50.7 | 44.3 | 48.1 |
| 99 | 08/08/2020 11:05 | 0:15:00 | 63.2 | 42.7 | 50.9 | 45.0 | 49.4 |
| 100 | 08/08/2020 11:20 | 0:15:00 | 59.8 | 41.8 | 49.1 | 43.5 | 46.8 |
| 101 | 08/08/2020 11:35 | 0:15:00 | 64.1 | 42.3 | 49.4 | 44.2 | 48.4 |
| 102 | 08/08/2020 11:50 | 0:15:00 | 68.6 | 41.7 | 49.4 | 43.8 | 49.4 |
| 103 | 08/08/2020 12:05 | 0:15:00 | 67.0 | 41.5 | 51.4 | 43.7 | 48.5 |
| 104 | 08/08/2020 12:20 | 0:15:00 | 62.6 | 41.8 | 50.5 | 44.5 | 48.1 |
| 105 | 08/08/2020 12:35 | 0:15:00 | 70.5 | 41.5 | 51.4 | 43.6 | 49.3 |
| 106 | 08/08/2020 12:50 | 0:15:00 | 66.8 | 42.0 | 49.3 | 43.8 | 48.0 |
| 107 | 08/08/2020 13:05 | 0:15:00 | 66.4 | 41.7 | 51.6 | 43.7 | 50.3 |
| 108 | 08/08/2020 13:20 | 0:15:00 | 58.9 | 42.2 | 49.3 | 43.8 | 47.1 |
| 109 | 08/08/2020 13:35 | 0:15:00 | 67.3 | 41.2 | 49.7 | 43.2 | 48.2 |
| 110 | 08/08/2020 13:50 | 0:15:00 | 65.3 | 42.6 | 48.9 | 44.5 | 46.9 |
| 111 | 08/08/2020 14:05 | 0:15:00 | 64.5 | 43.1 | 51.6 | 44.6 | 49.2 |
| 112 | 08/08/2020 14:20 | 0:15:00 | 65.7 | 43.3 | 52.6 | 45.3 | 50.1 |
| 113 | 08/08/2020 14:35 | 0:15:00 | 71.5 | 43.3 | 51.2 | 45.2 | 51.2 |
| 114 | 08/08/2020 14:50 | 0:15:00 | 68.8 | 44.7 | 52.5 | 46.6 | 50.3 |
| 115 | 08/08/2020 15:05 | 0:15:00 | 64.1 | 44.5 | 50.4 | 46.0 | 48.6 |
| 116 | 08/08/2020 15:20 | 0:15:00 | 64.2 | 41.6 | 48.6 | 43.6 | 47.1 |
| 117 | 08/08/2020 15:35 | 0:15:00 | 62.4 | 39.2 | 49.6 | 42.4 | 47.2 |
| 118 | 08/08/2020 15:50 | 0:15:00 | 65.9 | 39.6 | 49.2 | 42.1 | 47.3 |
| 119 | 08/08/2020 16:05 | 0:15:00 | 61.4 | 40.2 | 47.6 | 42.2 | 45.4 |
| 120 | 08/08/2020 16:20 | 0:15:00 | 66.5 | 39.9 | 50.0 | 41.9 | 48.1 |
| 121 | 08/08/2020 16:35 | 0:15:00 | 59.0 | 39.4 | 46.8 | 42.0 | 45.0 |
| 122 | 08/08/2020 16:50 | 0:15:00 | 56.6 | 39.7 | 48.4 | 42.5 | 45.8 |
| 123 | 08/08/2020 17:05 | 0:15:00 | 67.9 | 40.7 | 51.8 | 43.0 | 49.7 |
| 124 | 08/08/2020 17:20 | 0:15:00 | 67.2 | 40.5 | 49.1 | 42.7 | 47.8 |
| 125 | 08/08/2020 17:35 | 0:15:00 | 72.3 | 41.4 | 51.2 | 43.6 | 51.2 |
| 126 | 08/08/2020 17:50 | 0:15:00 | 63.9 | 40.8 | 49.7 | 43.4 | 46.8 |
| 127 | 08/08/2020 18:05 | 0:15:00 | 69.5 | 41.8 | 53.4 | 43.8 | 51.3 |
| 128 | 08/08/2020 18:20 | 0:15:00 | 63.4 | 42.2 | 51.6 | 43.9 | 48.6 |
| 129 | 08/08/2020 18:35 | 0:15:00 | 71.0 | 42.0 | 49.8 | 43.9 | 48.7 |
| 130 | 08/08/2020 18:50 | 0:15:00 | 64.1 | 41.3 | 50.0 | 43.2 | 47.3 |
| 131 | 08/08/2020 19:05 | 0:15:00 | 64.9 | 42.4 | 51.1 | 44.4 | 49.2 |
| 132 | 08/08/2020 19:20 | 0:15:00 | 69.3 | 41.7 | 49.7 | 44.0 | 48.7 |
| 133 | 08/08/2020 19:35 | 0:15:00 | 69.5 | 42.5 | 51.6 | 44.7 | 49.5 |
| 134 | 08/08/2020 19:50 | 0:15:00 | 63.3 | 41.2 | 49.9 | 44.2 | 48.0 |
| 135 | 08/08/2020 20:05 | 0:15:00 | 59.0 | 41.0 | 48.0 | 43.2 | 46.0 |

| Ref | Time | Measurment Time | LAmax | LAmin | LA10 | LA90 | LAeq |
|---|---|---|---|---|---|---|---|
| 136 | 08/08/2020 20:20 | 0:15:00 | 70.9 | 41.1 | 52.2 | 43.4 | 51.7 |
| 137 | 08/08/2020 20:35 | 0:15:00 | 63.5 | 41.2 | 49.0 | 43.6 | 47.0 |
| 138 | 08/08/2020 20:50 | 0:15:00 | 60.3 | 42.5 | 49.5 | 44.5 | 47.7 |
| 139 | 08/08/2020 21:05 | 0:15:00 | 72.6 | 42.7 | 56.5 | 45.3 | 54.5 |
| 140 | 08/08/2020 21:20 | 0:15:00 | 68.1 | 42.5 | 53.6 | 44.6 | 51.3 |
| 141 | 08/08/2020 21:35 | 0:15:00 | 71.9 | 42.1 | 54.1 | 44.4 | 54.3 |
| 142 | 08/08/2020 21:50 | 0:15:00 | 71.5 | 43.1 | 57.7 | 45.4 | 55.8 |
| 143 | 08/08/2020 22:05 | 0:15:00 | 64.7 | 42.6 | 49.8 | 44.6 | 47.6 |
| 144 | 08/08/2020 22:20 | 0:15:00 | 70.6 | 43.0 | 51.8 | 45.3 | 51.6 |
| 145 | 08/08/2020 22:35 | 0:15:00 | 59.4 | 43.0 | 51.2 | 44.9 | 48.6 |
| 146 | 08/08/2020 22:50 | 0:15:00 | 72.0 | 43.1 | 50.1 | 45.0 | 49.2 |
| 147 | 08/08/2020 23:05 | 0:15:00 | 67.5 | 42.5 | 49.7 | 44.4 | 47.4 |
| 148 | 08/08/2020 23:20 | 0:15:00 | 58.6 | 41.2 | 48.4 | 43.7 | 46.4 |
| 149 | 08/08/2020 23:35 | 0:15:00 | 57.7 | 42.2 | 49.0 | 44.0 | 46.8 |
| 150 | 08/08/2020 23:50 | 0:15:00 | 67.2 | 41.8 | 50.7 | 44.2 | 47.7 |
| 151 | 09/08/2020 00:05 | 0:15:00 | 58.6 | 41.8 | 47.6 | 43.4 | 46.4 |
| 152 | 09/08/2020 00:20 | 0:15:00 | 67.1 | 41.8 | 47.5 | 43.6 | 45.7 |
| 153 | 09/08/2020 00:35 | 0:15:00 | 79.4 | 42.4 | 54.2 | 43.8 | 58.0 |
| 154 | 09/08/2020 00:50 | 0:15:00 | 62.7 | 41.0 | 46.6 | 42.9 | 45.2 |
| 155 | 09/08/2020 01:05 | 0:15:00 | 56.2 | 41.3 | 48.0 | 43.1 | 45.9 |
| 156 | 09/08/2020 01:20 | 0:15:00 | 55.5 | 41.4 | 48.6 | 42.9 | 45.9 |
| 157 | 09/08/2020 01:35 | 0:15:00 | 59.2 | 40.1 | 45.4 | 41.8 | 44.0 |
| 158 | 09/08/2020 01:50 | 0:15:00 | 57.5 | 39.6 | 47.1 | 41.5 | 44.7 |
| 159 | 09/08/2020 02:05 | 0:15:00 | 54.9 | 39.1 | 44.6 | 40.8 | 43.1 |
| 160 | 09/08/2020 02:20 | 0:15:00 | 49.9 | 39.3 | 43.4 | 40.8 | 42.1 |
| 161 | 09/08/2020 02:35 | 0:15:00 | 53.2 | 39.2 | 43.4 | 40.5 | 42.2 |
| 162 | 09/08/2020 02:50 | 0:15:00 | 49.0 | 38.2 | 43.5 | 40.1 | 42.0 |
| 163 | 09/08/2020 03:05 | 0:15:00 | 55.8 | 38.5 | 44.8 | 39.9 | 42.7 |
| 164 | 09/08/2020 03:20 | 0:15:00 | 59.9 | 38.6 | 45.3 | 40.1 | 44.1 |
| 165 | 09/08/2020 03:35 | 0:15:00 | 58.6 | 37.8 | 46.3 | 39.6 | 43.3 |
| 166 | 09/08/2020 03:50 | 0:15:00 | 59.4 | 37.2 | 44.7 | 39.3 | 42.9 |
| 167 | 09/08/2020 04:05 | 0:15:00 | 46.2 | 37.8 | 41.8 | 39.0 | 40.4 |
| 168 | 09/08/2020 04:20 | 0:15:00 | 52.5 | 37.8 | 44.0 | 39.3 | 42.4 |
| 169 | 09/08/2020 04:35 | 0:15:00 | 59.4 | 37.6 | 45.7 | 39.6 | 43.8 |
| 170 | 09/08/2020 04:50 | 0:15:00 | 54.1 | 37.9 | 43.7 | 39.2 | 42.0 |
| 171 | 09/08/2020 05:05 | 0:15:00 | 59.5 | 38.8 | 44.8 | 40.0 | 43.3 |
| 172 | 09/08/2020 05:20 | 0:15:00 | 58.2 | 38.6 | 45.7 | 40.4 | 43.9 |
| 173 | 09/08/2020 05:35 | 0:15:00 | 59.3 | 37.7 | 44.5 | 39.7 | 42.8 |
| 174 | 09/08/2020 05:50 | 0:15:00 | 56.6 | 38.1 | 42.3 | 39.6 | 41.2 |
| 175 | 09/08/2020 06:05 | 0:15:00 | 60.8 | 39.0 | 44.5 | 40.2 | 42.6 |
| 176 | 09/08/2020 06:20 | 0:15:00 | 48.8 | 38.6 | 42.7 | 40.0 | 41.3 |
| 177 | 09/08/2020 06:35 | 0:15:00 | 64.2 | 39.4 | 46.5 | 41.1 | 45.9 |
| 178 | 09/08/2020 06:50 | 0:15:00 | 61.3 | 38.9 | 45.2 | 40.6 | 43.4 |
| 179 | 09/08/2020 07:05 | 0:15:00 | 57.1 | 39.1 | 47.2 | 40.7 | 44.7 |
| 180 | 09/08/2020 07:20 | 0:15:00 | 56.1 | 40.5 | 47.4 | 42.2 | 45.0 |

| Ref | Time | Measurment Time | LAmax | LAmin | LA10 | LA90 | LAeq |
|---|---|---|---|---|---|---|---|
| 181 | 09/08/2020 07:35 | 0:15:00 | 68.6 | 39.9 | 45.9 | 41.4 | 48.3 |
| 182 | 09/08/2020 07:50 | 0:15:00 | 63.7 | 40.6 | 49.6 | 42.1 | 46.4 |
| 183 | 09/08/2020 08:05 | 0:15:00 | 69.8 | 40.2 | 46.4 | 42.2 | 45.3 |
| 184 | 09/08/2020 08:20 | 0:15:00 | 70.3 | 40.2 | 47.4 | 42.1 | 48.5 |
| 185 | 09/08/2020 08:35 | 0:15:00 | 64.7 | 40.2 | 48.2 | 42.0 | 47.7 |
| 186 | 09/08/2020 08:50 | 0:15:00 | 62.8 | 41.0 | 54.0 | 42.6 | 49.6 |
| 187 | 09/08/2020 09:05 | 0:15:00 | 65.1 | 42.1 | 47.6 | 43.7 | 47.3 |
| 188 | 09/08/2020 09:20 | 0:15:00 | 67.4 | 41.5 | 51.2 | 43.9 | 49.6 |
| 189 | 09/08/2020 09:35 | 0:15:00 | 64.5 | 43.2 | 55.2 | 45.7 | 51.7 |
| 190 | 09/08/2020 09:50 | 0:15:00 | 73.0 | 42.5 | 52.8 | 44.4 | 51.6 |
| 191 | 09/08/2020 10:05 | 0:15:00 | 66.0 | 42.8 | 52.3 | 44.3 | 51.0 |
| 192 | 09/08/2020 10:20 | 0:15:00 | 62.1 | 42.0 | 52.1 | 44.4 | 48.9 |
| 193 | 09/08/2020 10:35 | 0:15:00 | 61.9 | 42.0 | 50.4 | 44.3 | 48.2 |
| 194 | 09/08/2020 10:50 | 0:15:00 | 69.3 | 41.3 | 49.0 | 43.6 | 46.9 |
| 195 | 09/08/2020 11:05 | 0:15:00 | 62.9 | 41.9 | 48.8 | 43.8 | 46.7 |
| 196 | 09/08/2020 11:20 | 0:15:00 | 69.9 | 41.1 | 49.8 | 43.5 | 47.9 |
| 197 | 09/08/2020 11:35 | 0:15:00 | 70.9 | 40.8 | 56.3 | 43.0 | 53.5 |
| 198 | 09/08/2020 11:50 | 0:15:00 | 66.5 | 40.1 | 53.6 | 43.0 | 51.1 |
| 199 | 09/08/2020 12:05 | 0:15:00 | 67.1 | 40.7 | 48.1 | 43.0 | 46.7 |
| 200 | 09/08/2020 12:20 | 0:15:00 | 60.9 | 42.2 | 49.3 | 44.5 | 47.3 |
| 201 | 09/08/2020 12:35 | 0:15:00 | 69.8 | 42.3 | 51.5 | 44.5 | 50.8 |
| 202 | 09/08/2020 12:50 | 0:15:00 | 67.1 | 40.7 | 50.9 | 43.0 | 48.9 |
| 203 | 09/08/2020 13:05 | 0:15:00 | 61.1 | 40.6 | 48.4 | 43.3 | 46.3 |
| 204 | 09/08/2020 13:20 | 0:15:00 | 70.8 | 41.2 | 50.4 | 43.2 | 47.7 |
| 205 | 09/08/2020 13:35 | 0:15:00 | 67.5 | 39.9 | 50.2 | 42.6 | 47.9 |
| 206 | 09/08/2020 13:50 | 0:15:00 | 65.7 | 39.1 | 47.9 | 42.0 | 45.8 |
| 207 | 09/08/2020 14:05 | 0:15:00 | 68.1 | 40.3 | 51.5 | 42.6 | 49.1 |
| 208 | 09/08/2020 14:20 | 0:15:00 | 66.1 | 41.4 | 52.2 | 43.8 | 49.5 |
| 209 | 09/08/2020 14:35 | 0:15:00 | 65.6 | 43.3 | 53.2 | 44.9 | 49.9 |
| 210 | 09/08/2020 14:50 | 0:15:00 | 64.8 | 43.5 | 55.9 | 46.9 | 52.4 |
| 211 | 09/08/2020 15:05 | 0:15:00 | 62.5 | 42.3 | 52.8 | 44.4 | 49.5 |
| 212 | 09/08/2020 15:20 | 0:15:00 | 70.1 | 42.0 | 55.1 | 45.4 | 52.2 |
| 213 | 09/08/2020 15:35 | 0:15:00 | 72.4 | 42.1 | 55.1 | 45.1 | 52.5 |
| 214 | 09/08/2020 15:50 | 0:15:00 | 85.0 | 42.6 | 56.6 | 46.5 | 55.6 |
| 215 | 09/08/2020 16:05 | 0:15:00 | 76.5 | 42.4 | 54.6 | 44.8 | 53.5 |

| Ref | Time | Measurment Time | LAmax | LAmin | LA10 | LA90 | LAeq |
|---|---|---|---|---|---|---|---|
| 216 | 09/08/2020 16:20 | 0:15:00 | 67.6 | 42.1 | 54.2 | 45.0 | 50.9 |
| 217 | 09/08/2020 16:35 | 0:15:00 | 79.7 | 43.1 | 56.4 | 45.7 | 57.0 |
| 218 | 09/08/2020 16:50 | 0:15:00 | 70.2 | 42.2 | 54.2 | 45.4 | 51.2 |
| 219 | 09/08/2020 17:05 | 0:15:00 | 66.6 | 42.2 | 52.6 | 43.9 | 50.4 |
| 220 | 09/08/2020 17:20 | 0:15:00 | 69.8 | 41.3 | 52.4 | 43.8 | 49.9 |
| 221 | 09/08/2020 17:35 | 0:15:00 | 65.7 | 41.5 | 50.0 | 43.6 | 47.7 |
| 222 | 09/08/2020 17:50 | 0:15:00 | 67.0 | 41.2 | 50.9 | 43.3 | 48.6 |
| 223 | 09/08/2020 18:05 | 0:15:00 | 63.8 | 40.7 | 48.3 | 42.6 | 46.1 |
| 224 | 09/08/2020 18:20 | 0:15:00 | 63.9 | 39.6 | 49.5 | 41.9 | 47.4 |
| 225 | 09/08/2020 18:35 | 0:15:00 | 67.0 | 41.6 | 51.2 | 44.0 | 50.0 |
| 226 | 09/08/2020 18:50 | 0:15:00 | 64.5 | 42.4 | 49.6 | 44.5 | 48.7 |
| 227 | 09/08/2020 19:05 | 0:15:00 | 74.9 | 41.4 | 48.2 | 43.6 | 48.4 |
| 228 | 09/08/2020 19:20 | 0:15:00 | 66.5 | 40.8 | 48.5 | 43.1 | 47.9 |
| 229 | 09/08/2020 19:35 | 0:15:00 | 62.4 | 40.2 | 47.6 | 42.2 | 46.0 |
| 230 | 09/08/2020 19:50 | 0:15:00 | 74.1 | 40.5 | 53.5 | 43.6 | 52.6 |
| 231 | 09/08/2020 20:05 | 0:15:00 | 62.1 | 44.4 | 51.6 | 46.2 | 49.4 |
| 232 | 09/08/2020 20:20 | 0:15:00 | 59.4 | 42.0 | 49.6 | 44.5 | 47.4 |
| 233 | 09/08/2020 20:35 | 0:15:00 | 58.5 | 41.1 | 49.2 | 43.9 | 47.1 |
| 234 | 09/08/2020 20:50 | 0:15:00 | 61.8 | 41.5 | 47.4 | 43.8 | 45.8 |
| 235 | 09/08/2020 21:05 | 0:15:00 | 69.9 | 41.4 | 50.2 | 43.5 | 51.4 |
| 236 | 09/08/2020 21:20 | 0:15:00 | 73.3 | 40.3 | 46.1 | 42.6 | 47.7 |
| 237 | 09/08/2020 21:35 | 0:15:00 | 62.3 | 40.5 | 47.1 | 42.5 | 45.9 |
| 238 | 09/08/2020 21:50 | 0:15:00 | 66.2 | 39.7 | 46.8 | 41.5 | 49.1 |
| 239 | 09/08/2020 22:05 | 0:15:00 | 56.6 | 39.5 | 45.5 | 41.4 | 44.0 |
| 240 | 09/08/2020 22:20 | 0:15:00 | 56.2 | 39.4 | 45.9 | 41.5 | 44.1 |
| 241 | 09/08/2020 22:35 | 0:15:00 | 65.8 | 39.7 | 46.7 | 41.8 | 48.8 |
| 242 | 09/08/2020 22:50 | 0:15:00 | 85.3 | 39.3 | 45.1 | 40.7 | 49.1 |
| 243 | 09/08/2020 23:05 | 0:15:00 | 65.2 | 38.7 | 45.7 | 40.9 | 43.8 |
| 244 | 09/08/2020 23:20 | 0:15:00 | 61.2 | 38.7 | 45.7 | 40.8 | 44.1 |
| 245 | 09/08/2020 23:35 | 0:15:00 | 55.6 | 38.6 | 43.2 | 40.3 | 41.8 |
| 246 | 09/08/2020 23:50 | 0:15:00 | 54.7 | 38.7 | 43.5 | 40.1 | 42.0 |
| 247 | 10/08/2020 00:05 | 0:15:00 | 54.2 | 40.0 | 45.5 | 41.3 | 43.4 |
| 248 | 10/08/2020 00:20 | 0:15:00 | 60.7 | 38.5 | 43.7 | 40.1 | 42.5 |
| 249 | 10/08/2020 00:35 | 0:15:00 | 67.9 | 39.0 | 46.0 | 40.2 | 45.1 |
| 250 | 10/08/2020 00:50 | 0:15:00 | 70.2 | 38.4 | 43.7 | 39.9 | 42.9 |
| 251 | 10/08/2020 01:05 | 0:15:00 | 51.7 | 38.8 | 44.0 | 40.1 | 42.0 |
| 252 | 10/08/2020 01:20 | 0:15:00 | 59.7 | 37.7 | 42.5 | 39.3 | 41.4 |
| 253 | 10/08/2020 01:35 | 0:15:00 | 59.6 | 37.5 | 41.9 | 39.2 | 41.2 |
| 254 | 10/08/2020 01:50 | 0:15:00 | 53.7 | 37.7 | 42.7 | 39.2 | 41.2 |
| 255 | 10/08/2020 02:05 | 0:15:00 | 53.9 | 38.7 | 44.1 | 40.5 | 42.6 |
| 256 | 10/08/2020 02:20 | 0:15:00 | 60.9 | 39.2 | 45.0 | 41.0 | 43.2 |
| 257 | 10/08/2020 02:35 | 0:15:00 | 54.1 | 39.2 | 44.4 | 40.7 | 42.9 |
| 258 | 10/08/2020 02:50 | 0:15:00 | 58.9 | 38.7 | 45.7 | 40.4 | 43.5 |
| 259 | 10/08/2020 03:05 | 0:15:00 | 53.5 | 37.9 | 44.6 | 39.6 | 42.3 |
| 260 | 10/08/2020 03:20 | 0:15:00 | 48.4 | 37.8 | 41.6 | 39.0 | 40.3 |

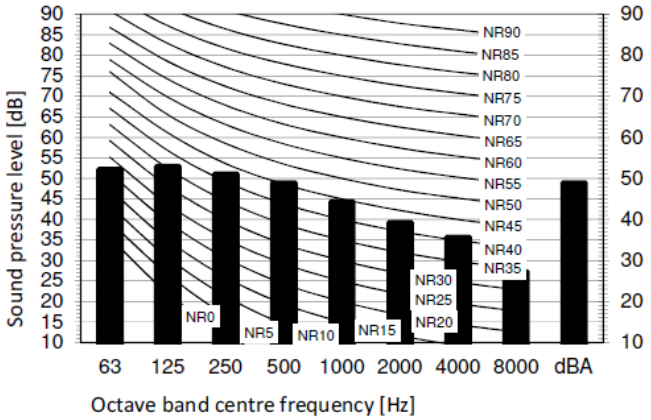
| Ref | Time | Measurment Time | LAmax | LAmin | LA10 | LA90 | LAeq |
|---|---|---|---|---|---|---|---|
| 261 | 10/08/2020 03:35 | 0:15:00 | 50.2 | 37.2 | 42.2 | 38.9 | 40.8 |
| 262 | 10/08/2020 03:50 | 0:15:00 | 54.3 | 38.0 | 43.7 | 39.4 | 41.8 |
| 263 | 10/08/2020 04:05 | 0:15:00 | 61.8 | 38.0 | 42.9 | 39.4 | 41.4 |
| 264 | 10/08/2020 04:20 | 0:15:00 | 51.5 | 37.2 | 42.0 | 38.7 | 40.6 |
| 265 | 10/08/2020 04:35 | 0:15:00 | 58.6 | 37.7 | 42.1 | 38.9 | 40.5 |
| 266 | 10/08/2020 04:50 | 0:15:00 | 62.5 | 38.5 | 43.7 | 40.0 | 42.5 |
| 267 | 10/08/2020 05:05 | 0:15:00 | 59.2 | 39.2 | 44.6 | 40.7 | 43.4 |
| 268 | 10/08/2020 05:20 | 0:15:00 | 58.2 | 39.4 | 45.5 | 40.9 | 43.6 |
| 269 | 10/08/2020 05:35 | 0:15:00 | 58.4 | 40.7 | 46.5 | 42.1 | 44.6 |
| 270 | 10/08/2020 05:50 | 0:15:00 | 63.6 | 41.0 | 51.3 | 42.7 | 48.1 |
| 271 | 10/08/2020 06:05 | 0:15:00 | 56.3 | 41.9 | 46.1 | 43.3 | 44.8 |
| 272 | 10/08/2020 06:20 | 0:15:00 | 64.6 | 42.2 | 47.1 | 43.8 | 45.5 |
| 273 | 10/08/2020 06:35 | 0:15:00 | 66.6 | 44.8 | 50.8 | 46.2 | 49.9 |
| 274 | 10/08/2020 06:50 | 0:15:00 | 64.2 | 44.1 | 54.0 | 46.2 | 50.6 |
| 275 | 10/08/2020 07:05 | 0:15:00 | 72.7 | 44.1 | 54.3 | 45.7 | 51.5 |
| 276 | 10/08/2020 07:20 | 0:15:00 | 72.7 | 44.4 | 55.5 | 46.2 | 51.5 |
| 277 | 10/08/2020 07:35 | 0:15:00 | 84.3 | 42.6 | 49.8 | 44.7 | 51.2 |
| 278 | 10/08/2020 07:50 | 0:15:00 | 74.1 | 43.6 | 55.1 | 45.5 | 52.2 |
| 279 | 10/08/2020 08:05 | 0:15:00 | 67.2 | 43.8 | 54.0 | 46.1 | 51.5 |
| 280 | 10/08/2020 08:20 | 0:15:00 | 84.6 | 44.2 | 53.8 | 47.6 | 55.6 |
| 281 | 10/08/2020 08:35 | 0:00:58 | 82.4 | 47.2 | 72.0 | 49.7 | 67.3 |


LAeq/ LA90 vs. Time
80
70
60
50
40
30
20
10
0
dB-A
1
7
13
19
25
31
37
43
49
55
61
67
73
79
85
91
97
103
109
115
121
127
133
139
145
151
157
163
169
175
181
187
193
199
205
211
217
223
229
235
241
247
253
259
265
271
277
Time
LA90
LAeq

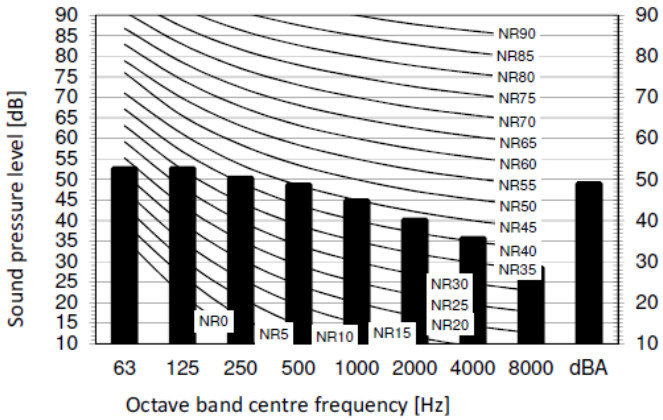
## Appendix C – Equipment Noise Data

## RXM35N9

Cooling mode




Heating mode




Legend

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

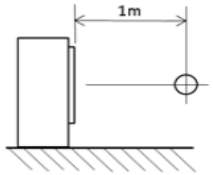
A Scale

B Fan speed: High

Notes

1 Background noise already taken into account.
2 Operating conditions: power source 220-240 V/220 V 50/60 Hz; JIS standard
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

Location of microphone




| Cooling | Total dB |
|---|---|
| A | B |
| dBA | 49 |

| Heating | Total dB |
|---|---|
| A | B |
| dBA | 49 |

3D110123A

## RXM42N9

## Appendix D – Attenuator & Louvre Data Sheets

Technical Data Sheet
# RECTANGULAR DUCT SILENCER SERIES 45

**EUROVIB ACOUSTIC PRODUCTS LIMITED**
Goodwood House,86 Holmethorpe Avenue, Redhill, Surrey, RH1 2NL
Telephone: 01737 779577 Fax: 01737 779537

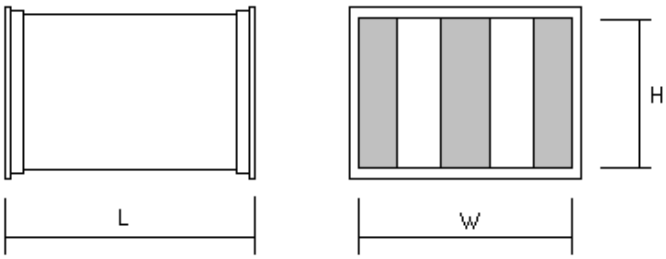
RD.2/281

45 Series rectangular duct silencers are manufacture red in three basic forms to meet different pressure applications and in five standard lengths to give differing acoustic performance.

## PRESSURE DESIGNATIONS

| MODEL | APPLICATIONS |
|---|---|
| 45 LP | Up to 500N/m$^2$ system pressure |
| 45 MP | Up to 1500N/m$^2$ system pressure |
| 45 HP | Up to 9000N/m$^2$ system pressure |

Higher Pressure applications available upon request See pg4 for precise pressure test data




## STANDARD DIMENSIONS

(For flange dimensions & drillings see page 2)

| MODEL DESIGNATION | | 45/900 | 45/1200 | 45/1500 | 45/1800 | 45/2100 |
|---|---|---|---|---|---|---|
| Length (L) | mm | 900 | 1200 | 1500 | 800 | 2100 |
| Width (W) | mm | Increments of half modules of 300 form basic module of 600 | | | | |
| Height (H) | mm | To suit Customer Requirements<br>But preferred in 150 increments from basic height of 300 | | | | |

All the above length dimensions _+3 mm

## DESIGNATION EXAMPLE

The operating temperature and pressure should always be provided as this can affect construction & performance. To completely designate a 45 Series low pressure silencer 1500 mm long having a cross section of 600 mm wide x 600 mm high, the following should be stated.

**Series 45/LP/1500: 600x 600 x 1500**

Aerodynamic & acoustic data are guaranteed however actual performance may vary depending upon installation

# DYNAMIC INSERTION LOSS (dB)

BS4718

SERIES 45 ACOUSTIC DATA UP TO 50 C.

| Model | Face Velocity M/Sec | OCTAVE BAND MID-FREQUENCY (Hz) 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|---|---|---|---|---|---|---|---|---|---|
| 45/600 | +2 | 2 | 6 | 12 | 18 | 17 | 17 | 16 | 10 |
| 45/900 | | 4 | 8 | 15 | 22 | 25 | 22 | 18 | 12 |
| 45/1200 | +2 | 4 | 10 | 18 | 26 | 33 | 27 | 20 | 14 |
| 45/1500 | +2 | 6 | 13 | 21 | 32 | 42 | 32 | 23 | 16 |
| 45/1800 | +2 | 8 | 15 | 24 | 35 | 45 | 37 | 27 | 18 |
| 45/2100 | +2 | 10 | 18 | 27 | 38 | 48 | 43 | 31 | 20 |

| | | use correction factors below for silencers operating at face velocites other than +2m/sec. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| All models Airflow and Noise in opposite directions | -7 | +2 | +2 | +2 | +2 | +2 | +1 | 0 | -1 |
| | -5 | +1 | +1 | +1 | +1 | +1 | 0 | 0 | 0 |
| | +5 | | | | | | | | |
| All Models Airflow and Noise in the same direction | +7 | 0 | -1 | -2 | -2 | -2 | -1 | -2 | -4 |
| | | -1 | -2 | -4 | -4 | -4 | -2 | -4 | -5 |

**TEMPERATURE SHIFT**

In high temperature applications the silencer performance will alter due to increase in speed of sound with temperature. This causes an attenuation shift to the right as follows:

$T = 340^0C$ - Shift of one half band. $T = 845^0C$ - Shift of one band.

**SELF NOISE LEVEL(dB)**Sound Power Level re $10^{-12}$ Watts

| All Models | FACE VELOCITY M/Sec | OCTAVEBAND (Hz) 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|---|---|---|---|---|---|---|---|---|---|
| All models Airflow and Noise in opposite directions | -7 | 63 | 61 | 58 | 57 | 54 | 55 | 56 | 51 |
| | -5 | 47 | 51 | 46 | 44 | 45 | 48 | 38 | 32 |
| | -2 | 27 | 33 | 28 | 29 | 30 | 32 | 24 | 18 |
| Airflow and Noise in same direction | +2 | 25 | 29 | 20 | 20 | 22 | 23 | 21 | 15 |
| | +5 | 43 | 49 | 42 | 43 | 43 | 45 | 33 | 24 |
| | +7 | 59 | 60 | 56 | 53 | 51 | 53 | 52 | 50 |

NOTE: The face area corrections shown below shown below should be applied to the above self noise levels to correct for silencer size.

| $m^2$ | 0.05 | 0.10 | 0.25 | 0.5 | 1 | 2 | 4 | 8 | 16 |
|---|---|---|---|---|---|---|---|---|---|
| dB | -10 | -7 | -3 | 0 | +3 | +6 | +9 | +12 | +15 |

Additional corrections for self noise at high temperatures are not normally required.

**Construction**

Casings in GSS to DW144 with “Mez” flanges

Splitters in semi-rigid Mineral Fibre Slab under Melinex & Perforated GSS

# Technical Data Sheet
## ML Series Louvres

**EUROVIB ACOUSTIC PRODUCTS LTD**
Goodwood House, 86 Holmethorpe Avenue,
Redhill, Surrey, RH1 2NL
Tel: 01737 779577 Fax: 01737 779537 e-Mail: sales@eurovib.co.uk

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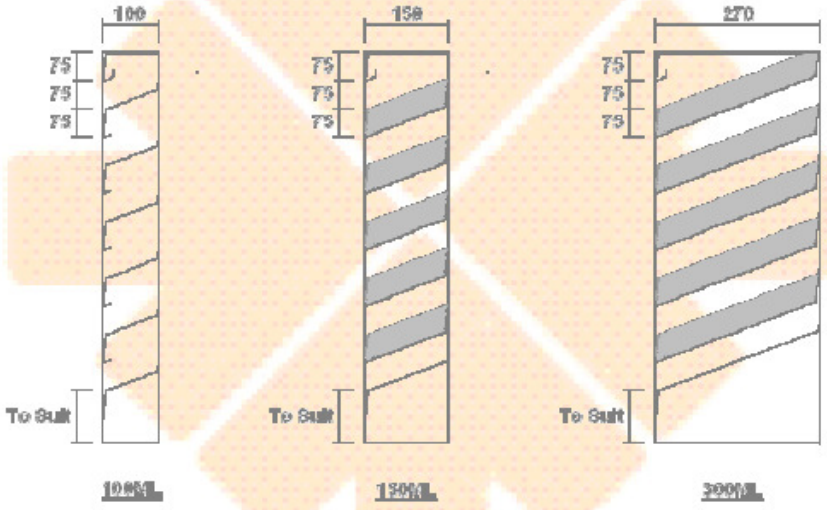
**ML Series louvres are manufactured in three basic formats to meet different applications and requirements:**

100ML – Weather Louvre
150ML – Acoustic Louvre
300ML – Acoustic Louvre

**Whilst acoustic louvres are used in the control of noise, they are also designed to prevent the ingress of rain. The 100 ML Series of weather louvres are used in applications where noise control is not necessary, but efficient weathering is still required. The 100ML is designed to profile match the 150ML and 300ML series to ensure visual continuity of the fascias.**




| Model | Depth (mm) | Min Height (mm) | Min Width (mm) | Weight (Kg/m²) |
|---|---|---|---|---|
| 100ML | 100 | 375 | 300 | 10 |
| 150ML | 150 | 375 | 300 | 40 |
| 300ML | 270 | 375 | 300 | 60 |

Standard manufacturing tolerance +/- 3 mm

**Designation Example**

**The operating temperature and pressure should always be provided as this can affect construction & performance. To completely designate a 150ML Series acoustic louvre having a cross section of 600 mm wide x 600 mm high, the following should be stated.**

150ML: 600 x 600 x 150

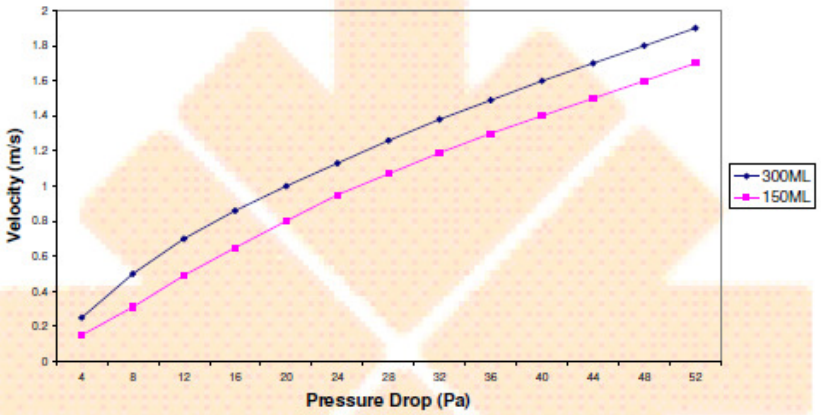
TDS/1007/ML4

## Sound Reduction Index

| | Octave Band Centre Frequency (Hz) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 150ML | 4 | 4 | 6 | 9 | 12 | 17 | 11 | 10 |
| 300ML | 6 | 7 | 10 | 13 | 17 | 19 | 13 | 11 |

Aerodynamic & acoustic data are guaranteed however actual performance may vary depending upon installation

## Aerodynamic Performance




## SPECIFICATION

### CASING AND BLADES

Eurovib 300 ML and 150 ML acoustic louvres are manufactured, as standard, from high grade pre-galvanised sheet metal. The outer casing of the louvre are constructed from a minimum of 1 mm thick sheet steel and the trapezoidal shaped blades from 0.6 mm thick plain sheet on the outer surface and 0.6 mm thick perforated sheet on the inner surface.

### INFILL

The acoustic infill contained within the blade section has a minimum density of 48 kg/m$^3$ and is packed into the blade section under a 5% compression.

### BIRDSCREENS

Where wire mesh bird screens are fitted, these are manufactured from 1.5 mm diameter galvanised wire formed into a mesh at 12 mm centres. Standard guards are fixed to the rear of the louvers by means of an edge retaining strip.

### SPECIAL MATERIALS

If special materials are required such as plastic coated steel, aluminium, stainless steel etc, the thickness of material stated above may change which will be reflected in the price.

NOTE: The above specifications show the minimum gauge of materials.

TDS/1007/ML4

## Appendix E - Definitions

DECIBEL - The ratio of sound pressures that we can hear is a ratio of 106. A logarithmic measurement scale is therefore used for convenience. The resulting parameter is called the 'sound pressure level' (Lp) and the associated measurement unit is the decibel (dB). As the decibel is a logarithmic ratio, the laws of logarithmic addition and subtraction apply.

The threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain.

A change of 1 dB is only perceptible under controlled conditions.

dB(A) - The unit generally used for measuring environmental, traffic or industrial noise is the A-weighted sound pressure level in decibels, denoted dB(A). An 'A'-weighting network can be built into a sound level measuring instrument such that sound levels in dB(A) can be read directly from a meter. The weighting is based on the frequency response of the human ear and has been found to correlate well with human subjective reactions to various sounds. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds to a subjective halving or doubling of the loudness of a sound.

EQUIVALENT CONTINUOUS SOUND LEVEL (LEQ) - An index often used for the assessment of overall noise exposure is the equivalent continuous sound level, (LEQ). This is a notional steady level which would, over a given period of time, deliver the same sound energy as the actual time-varying sound over the same period. Hence fluctuating levels can be described in terms of a single figure level.

The 'A' weighted statistical sound level over a time period, T, is denoted LAEQ,T.

AMBIENT NOISE - The total encompassing sound in a given situation at a given time. Most often described in terms of the index LAEQ,.T.

SPECIFIC NOISE (LAEQ,T) - The equivalent continuous A-Weighted sound pressure level at the assessment position produced by the specific noise source over a time interval T.

STATISTICAL NOISE LEVELS - For levels of noise that vary widely with time, for example road traffic noise, it is necessary to employ an index which allows for this variation.

- The L10, the level exceeded for ten per cent of the time period under consideration, has been adopted in this country for the assessment of road traffic noise.
- The L90, the level exceeded for ninety per cent of the time, has been adopted to represent the background noise level.

'A' weighted statistical noise levels are generally used and are denoted LA10, LA90 etc. The reference time period (T) is normally included, e.g. LA10, 15 mins