

**SHALSHELES COLLEGE,
4 MIDDLETON ROAD, MANCHESTER, M8 5DS
NOISE ASSESSMENT OF PLANT ON NEW
PORTACABINS**

25th July 2023

REPORT REF: AA/23/7/EA/SC

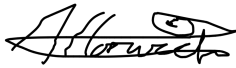
CLIENT: Shalsheles

ENGINEER: Amber Acoustics
34 Bury Old Road
Manchester
M25 0FT

Tel: 0161 820 1112

Email: info@amberacoustics.co.uk

Report Prepared By:



Aharon Horwich, PG Dip MSc CEnv AMIOA MCIEH MIEnvSc MCABE MEI

Report Checked By:



Matthew Gore, BSc MSc MIOA

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1.0 INTRODUCTION

General

- 1.1 Amber Acoustics has been commissioned by Shalsheles, to undertake a Noise Assessment relating to a retrospective planning application for the installation of Portacabins and associated Plant at 4 Middleton Road, Manchester, M8 5DS. A site location plan is included in Appendix A and a noise survey location plan is included in Appendix B.
- 1.2 The purpose of this latest report is to assess the noise impact associated solely with the use of all the Air Conditioning Units on the nearby residential receptors. This report will demonstrate that as a result of the mitigation measures carried out by the developer, and in line with the methodology of BS 4142:2014 there is a resultant indication of low impact at the closest identified affected sensitive receptor depending upon context.
- 1.3 Amber Acoustics has completed this report for the benefit of the individuals referred to in paragraph 1.1 and any relevant statutory authority which may require reference in relation to approvals for the proposed development. Other third parties should not use or rely upon the contents of this report unless explicit written approval has been gained from Amber Acoustics.
- 1.4 Amber Acoustics accepts no responsibility or liability for:
- a) The consequence of this documentation being used for any purpose or project other than that for which it was commissioned;
 - b) The issue of this document to any third party with whom approval for use has not been agreed.
- 1.5 The members of staff who carried out the survey and wrote the report, hold the following qualifications and status:



Aharon Horwich, PG Dip, CEnv MSc AMIOA, MCIEH, MIEEnvSc MCABE MEI

Position Held: Noise Consultant

Qualifications: Certificate of Competence in Environmental Noise Measurements
Certificate of Competence in Building Acoustics Measurement
Institute of Acoustics Diploma in Acoustics and Noise
MSc. Applied Acoustics

Affiliations: Chartered Environmentalist
Associate Member of the Institute of Acoustics,
Member of the Chartered Institute of Environmental Health,
Member of the Institute of Environmental Science,
Member of the Chartered Association of Building Engineers,
Member of the Energy Institute

Acoustic Experience: 6 years

Core Competences: Environmental Acoustics, Building Acoustics

Matthew Gore, BSc (Hons), MSc, MIOA

Position Held: Senior Noise Consultant

Qualifications: BSc. (Hons) Environmental Studies
MSc. Environmental Management
Institute of Acoustics Diploma in Acoustics and Noise Control

Affiliations: Corporate Member of the Institute of Acoustics

Acoustics Experience: 23 years (11 years in Industry – Mechanical Plant & Power Generation Noise Control design and manufacture)

Core Competences: Environmental Acoustics, Mechanical plant acoustics and noise control, Power Generation acoustics and noise control, Building acoustics, Architectural acoustics, BB93 acoustics, HTM-0801 acoustics



2.0 BACKGROUND

- 2.1 The site received planning permission (App Ref: 131022/FO/2021) dated 27th September 2021 for the Change of use of former doctors' surgery Class E(e) to educational college Class F1(a) (Local Community and Learning).
- 2.2 The site now seeks retrospective planning permission for the erection of portacabins and installation of associated plant.
- 2.3 Manufacturers data has been used to predict the cumulative acoustic impact on the nearby residential receptors. The technical specification referenced can be seen in Appendix E below, and the calculations evidencing the impact of the noise with specific reference to the current fence that surrounds the boundary of the site can be seen in Appendix F of this report.



3.0 MONITORING – TUESDAY 25th July 2023

3.0 Amber Acoustics personnel arrived at the site at approximately 9:30am and having collated the details of the plant installed (See Appendix C), identified suitable measurement positions for the background noise measurements. The chosen monitoring positions corresponded with the closest possible position to the potentially impacted properties, and on a line of sight from the relevant plant to the nearest affected residential receptor. A field calibration check was also carried out, as per the requirements of BS4142:2014 +A1:2019 Section 6 paragraph 6.1.

3.1 NOISE SURVEY EQUIPMENT

3.2 All noise surveys were undertaken in accordance with the guidance contained within BS4142:2014 +A1:2019 '*Methods for rating and assessing industrial and commercial sound*'.

3.3 Sound levels were measured on Tuesday 25th July 2023, using two Type 1 Svantek 307 Type 1 Sound level meter, (serial numbers 100907 and 116709). These meters fully conform to BS EN 61672-1, Class 1, for free-field applications (as per BS4142:2014 +A1:2019 Section 5 Paragraph 5.1). All measurements were A-weighted and recorded using a fast time response (F).

Calibration of the noise meter was undertaken using a Svantek SV36 calibrator (serial number 83149) both at the beginning, and the end of the monitoring period, in accordance with BS4142:2014 +A1:2019 Section 6 Paragraph 6.1. No significant calibration drifts, in excess of 0.5 dB, were observed. Therefore, the results from the meter were considered to be accurate, and representative of the actual noise climate. The results of the pre and post survey calibration can be seen in Appendix H.



3.4 The sound level meter was set at a height of approx. 1.5m above local ground level, in a free field position, with a windshield fitted at all times, in accordance with BS4142:2014 +A1:2019 Section 6 Paragraph 6.2.

3.5 NOISE MONITORING PROGRAMME

3.6 BACKGROUND LEVEL MONITORING

3.7 As per the BS4142:2014 +A1:2019 Section 7 Paragraph 7.2, the Background level was monitored over an hour-long period between 10:00-11:00am with the specific unit totally closed to any use.

3.8 As can be seen from the data in Appendix D, as the site borders Middleton Road, Bennet Road (and ergo the nearest residential receptors) are affected by frequent road traffic, including heavy goods vehicles, the resulting background levels were 49.5 L_{A90} dB and 52.2 L_{A90} dB at the measurement locations.

3.9 Meteorological Conditions

3.10 A clear sky was noted during the morning of the survey on Tuesday 25th July 2023. The general wind speed in all directions was less than 5m/s over the duration of the site visit, which is suitable for noise survey. The meteorological conditions can be seen in Appendix G.

Observations

3.11 The observations by Amber Acoustic Personnel on site were that the overwhelming predominant contributory factor to the existing background noise was the frequent road traffic, including heavy goods vehicles.



4.0 METHODOLOGY FOR PREDICTING THE RESULTANT ACOUSTIC IMPACT AT THE NEARBY RESIDENTIAL RECEPTORS

- 4.0** As can be seen from Appendix B, the site is surrounded by a virtually unbroken fence (with the exception of the vehicle access opening) which stands at approx. 1.9 metres high.
- 4.1** There are three nearby residential receptors in close proximity to the site. They are labelled A, B and C in Appendix B.
- 4.2** There are six Air Conditioning units serving the Portacabins. They are labelled 1-6 on the site plan in Appendix B.
- 4.3** The distance from each Air conditioning unit has been measured to the fence and from the fence to the nearest residential receptor.
- 4.4** As a result, there are propagation calculations for the six individual air conditioning units on all three nearby residential receptors that take in to account the barrier mitigation of the boundary fence. A summary of the results of these calculations can be seen in Table 1 below.
- 4.5** Once the cumulative impact of the six noise sources is logarithmically added at each of the three receptors, the results can be seen in Table 1 below.



A - 2 Bennett Road			
A/C unit #	Distance from Source to Receptor	Source to Fence	Resultant Sound level
1	11	8	26.2
2	12.3	8	25.8
3	14.2	9.2	24.9
4	23.6	18.6	21.1
5	14.75	3.75	23.8
6	26.9	21.6	10.1
Total Impact of All Units on Receptor A			31.7

B - 6 Middleton Road			
A/C unit #	Distance from Source to Receptor	Distance from Source to Fence	Resultant Sound level
1	32	10.4	19.2
2	29.8	8.4	19.5
3	25.4	3.4	19.1
4	21.7	3	20.1
5	58.5	39.8	15
6	54	36	5.6
Total Impact of All Units on Receptor B			25.9

C - 1 Bennett Road			
A/C unit #	Distance from Source to Receptor	Distance from Source to Fence	Resultant Sound level
1	30.1	10.7	19.7
2	28.1	7.8	19.8
3	24.6	3.4	19.4
4	29.6	3.0	17.5
5	55.5	*36.6	15.4
6	59.0	*37.6	5
Total Impact of All Units on Receptor C			25.7

Table 1: Cumulative Acoustic Impact on the 3 residential receptors



5.0 ASSESSMENT

5.0 BS4142:2014 + A1:2019 Assessment

5.1 Table 1 below, shows the BS4241: 2014 assessment for the impact of plant noise on the nearby residential receptors from 4 Middleton Road.

Table 1: BS4142:2014 + A1:2019 Assessment of Plant

Results	Receptor			Commentary
	A	B	C	
Background Level	49.5 dB _{LA90,1Hr}	52.2 dB _{LA90,1Hr}	52.2 dB _{LA90,1Hr}	At measurement Location
Reference Period	3600	3600	3600	
Total on-time during reference period	3600	3600	3600	Period of time within reference period that the plant is active
On-time correction	0	0	0	On-time equal to reference period, so no on-time correction applied
Specific Sound Level	31.7 dB	25.9 dB	25.7 dB	See Appendix F
Tonality	6 dB	6 dB	6 dB	Highest Penalty applied due to plant not being active
Impulsivity	9 dB	9 dB	9 dB	Highest Penalty applied due to plant not being active
Other	0 dB	0 dB	0 dB	
Intermittency	3 dB	3 dB	3 dB	Highest Penalty applied due to plant not being active
Distance Attenuation	0	0	0	Already considered in calcs see Appendix F
Rating Level	49.7dB(A)	43.9 dB(A)	43.7 dB(A)	
Background Sound Level	49.5 dB(A)	52.2 dB(A)	52.2 dB(A)	
Excess of Rating Level over Background	0.2dB	-8.3dB	-8.5dB	
Assessment	Indication of the specific sound source having a low impact, depending upon context			

6.0 CONTEXT

- 6.0 As mentioned previously in paragraph 1.2, context is an important factor in determining BS4142:2014 +A1:2019 Section 8 paragraph 8.1.5 states the following “...to fully understand the context in which the sound from an industrial and/or commercial source(s) is being assessed, describe and report the sources of sound which comprise the acoustic environment”.
- 6.1 Section 11 of BS4142:2014 +A1:2019 begins with the following statement “...The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level, and the context in which the sound occurs. An effective assessment cannot be conducted without an understanding of the ...context in which the sound will occurs/will occur. When making assessment and arriving at decisions, therefore, it is essential to place the sound in context”.

7.0 UNCERTAINTY

BS4142:2014 +A1:2019 Section 10, uncertainty has been considered in both the measurements and calculations.

- 7.1 Regarding the specific sound levels, complete repeatability cannot be expected as site and environmental activity vary from day to day. Uncertainty in these measurements can therefore be said to be moderate.

8.1 8.0 PHOTOGRAPHS

Images include in situ photos of all plant are available upon request.



9.0 SUMMARY

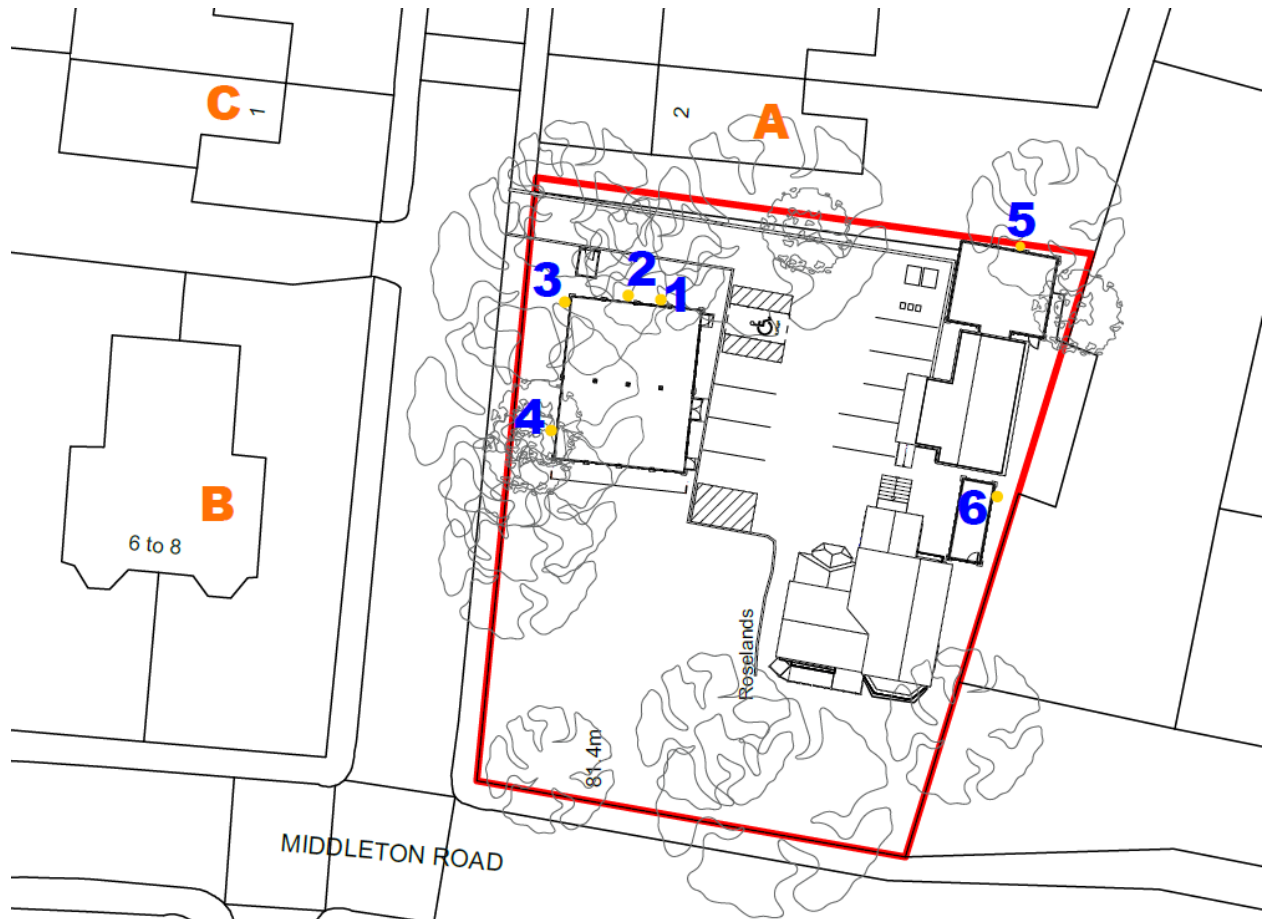
- 9.0 Amber Acoustics has been commissioned by Shalshelles, to undertake a Noise Assessment relating to a retrospective planning application for the installation of Portacabins and associated Plant at 4 Middleton Road, Manchester, M8 5DS.
- 9.1 The Environmental Noise Assessment has sought to establish the resultant noise impact due to nearby commercial premises and activities on nearby residential affected receptors in accordance with 'BS4142:2014 +A1:2019 – *Methods for rating and assessing industrial and commercial sound.*'
- 9.2 As this report demonstrates, in accordance with the methodology of BS4142:2014 +A1:2019, there is an Indication of the specific sound sources having a low impact, depending upon context.



APPENDIX A - SITE LOCATION PLAN



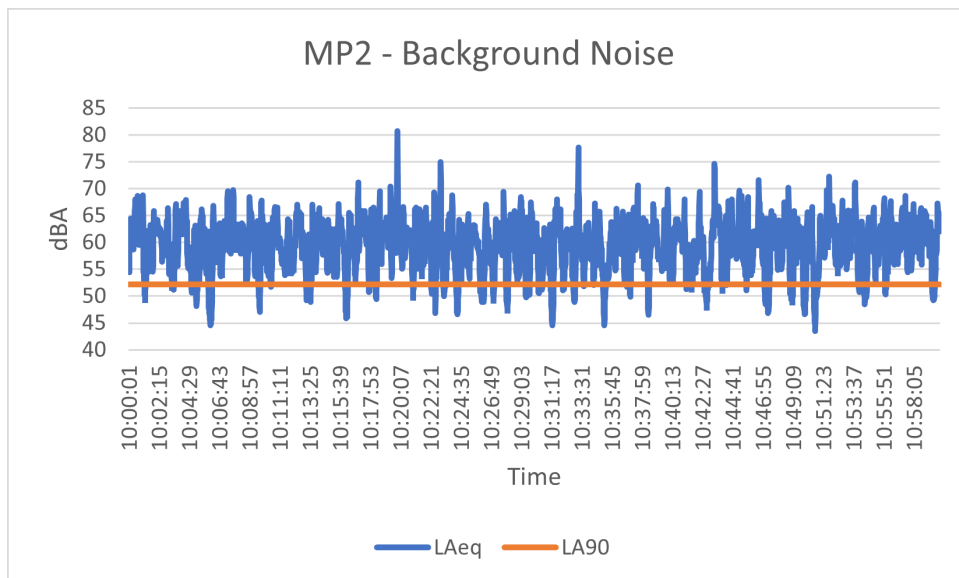
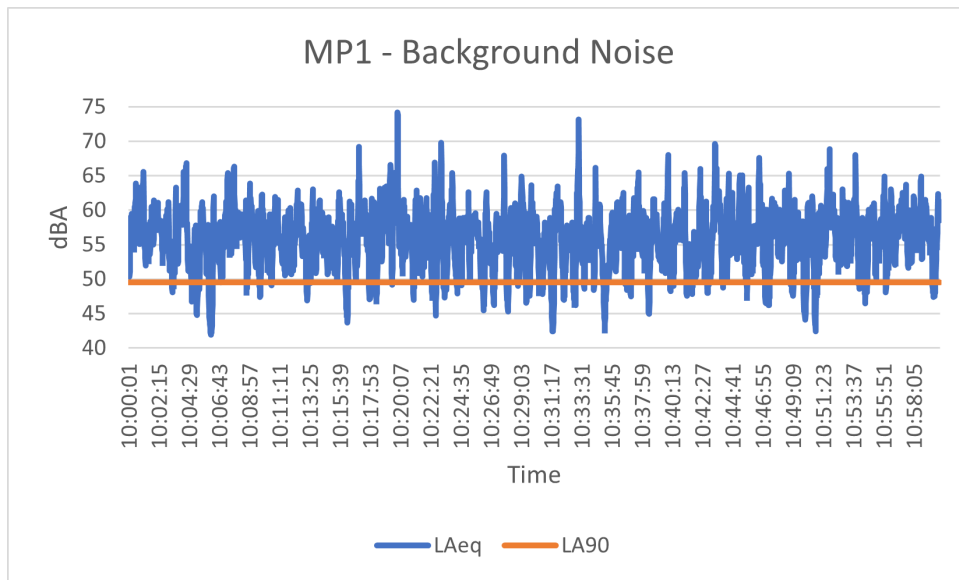
APPENDIX B - NOISE SURVEY LOCATION PLAN



APPENDIX C - AIR CONDITIONING SCHEDULE

A/C unit #	Model
1	SRC80ZR-W
2	SRC80ZR-W
3	SRC80ZR-W
4	SRC80ZR-W
5	SRC80ZR-W
6	SRC25ZSP-W

APPENDIX D - SURVEY DATA GRAPHS





SINGLE-SPLIT WALL MOUNTED TYPE



SRK-ZR-W



SRK63ZR-W, SRK71ZR-W, SRK80ZR-W, SRK100ZR-W



SRK-ZR-W series can be selected for use both R32 and R410A outdoor unit.



SRK71ZR-W can be selected for use as indoor units in the combination with SCM Multi system outdoor unit.

Compact and Reduction of weight
FDC100VNP-W

	Previous	New
Dimension (mm)	H845×W970	➔ H750×W880
Weight(kg)	70	➔ 57



Wireless remote control



SRC63ZR-W



SRC71ZR-W, SRC80ZR-W



FDC100VNP-W

FUNCTIONS

Energy saving

Air flow

Clean operation & Filter



Comfort

Timer

Convenience

Others



SPECIFICATIONS

Indoor unit				SRK63ZR-W	SRK71ZR-W	SRK80ZR-W	SRK100ZR-W
Outdoor unit				SRC63ZR-W	SRC71ZR-W	SRC80ZR-W	FDC100VNP-W
Power source				1 Phase, 220 - 240V, 50Hz			
Nominal cooling capacity (Min~Max)			kW	6.3 (1.2~7.4)	7.1 (2.3~7.8)	8.0 (2.3~9.7)	9.6 (2.1~9.6)
Nominal heating capacity (Min~Max)			kW	7.1 (0.8~9.3)	8.0 (2.0~10.8)	9.0 (2.1~11.2)	10.0 (1.7~10.4)
Power consumption		Cooling/Heating	kW	1.63 / 1.64	1.93 / 1.95	2.09 / 2.27	3.10 / 2.80
EER/COP		Cooling/Heating		3.87 / 4.33	3.68 / 4.10	3.83 / 3.96	3.10 / 3.57
Max. running current			A	14.5	17	17	19
Sound power level	Indoor	Cooling/Heating	dB(A)	56 / 58	57 / 60	60 / 62	59 / 62
	Outdoor	Cooling/Heating		64 / 65	63 / 63	67 / 67	68 / 67
Sound pressure level	Indoor	Cooling (Hi/Me/Lo/Ulo)		44 / 39 / 35 / 25	44 / 41 / 37 / 25	47 / 44 / 39 / 26	48 / 45 / 40 / 27
	Indoor	Heating (Hi/Me/Lo/Ulo)		44 / 38 / 34 / 28	46 / 39 / 35 / 28	47 / 41 / 36 / 29	48 / 43 / 38 / 30
	Outdoor	Cooling/Heating		54 / 54	53 / 51	56 / 55	56 / 54
	Outdoor	Cooling (Hi/Me/Lo/Ulo)		20.5 / 18.1 / 15.7 / 10.4	20.5 / 18.6 / 16.2 / 10.4	23.5 / 20.2 / 17.5 / 10.4	24.5 / 21.3 / 17.6 / 10.4
Air flow	Indoor	Heating (Hi/Me/Lo/Ulo)	m³/min	22.5 / 19.0 / 16.5 / 13.1	25.0 / 19.8 / 17.3 / 13.3	26.5 / 21.3 / 18.4 / 13.5	27.5 / 23.2 / 19.1 / 13.6
	Outdoor	Cooling/Heating		41.5 / 41.5	55 / 43.5	63 / 49.5	63 / 55
Exterior dimensions	Indoor	HeightxWidthxDepth	mm	339 x 1197 x 262			
	Outdoor			640 x 800(+71) x 290	750 x 880(+88) x 340		
Net weight	Indoor / Outdoor		kg	15.5 / 45.0	15.5 / 56.0	16.5 / 57.0	
Refrigerant		Type/GWP		R32 / 675			
		Charge	kg/TCO ₂ Eq	1.25 / 0.844	1.5 / 1.013	1.6 / 1.080	1.7 / 1.148
Refrigerant piping size		Liquid/Gas	ø mm	6.35(1/4") / 12.7(1/2") 6.35(1/4") / 15.88(5/8")			
Refrigerant line (one way) length			m	Max.30			
Vertical height differences		Outdoor is higher/lower	m	Max.20 / Max.20			
Outdoor operating temperature range	Cooling		°C	-15~46			
	Heating			-15~24			
Clean filter				Allergen Clear Filter x 1, Photocatalytic Washable Deodorizing Filter x 1			

* The data are measured under the following conditions (ISO-T1, H1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB.

* Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

* 'tonne(s) of CO₂ equivalent' means a quantity of greenhouse gases - expressed as the product of the weight of the greenhouse gases in metric tonnes and of their global warming potential.



SINGLE-SPLIT WALL MOUNTED TYPE

Standard Series

SRK-ZSP-W

NEW



SRK25ZSP-W, SRK35ZSP-W, SRK45ZSP-W



SRK-ZSP-W series can be selected for use both R32 and R410A outdoor unit.



Wireless remote control



SRC25ZSP-W
SRC35ZSP-W



SRC45ZSP-W



Elegant Timeless Design

ZSP series is elegant design fits into any kind of interior decoration.

Energy Class Improvement

All class

Compact and Light weight

The SRK-ZSP-W series offers great installation flexibility.

FUNCTIONS

Energy saving

Air flow

Clean operation & Filter



Comfort & Convenience

Others



SPECIFICATIONS

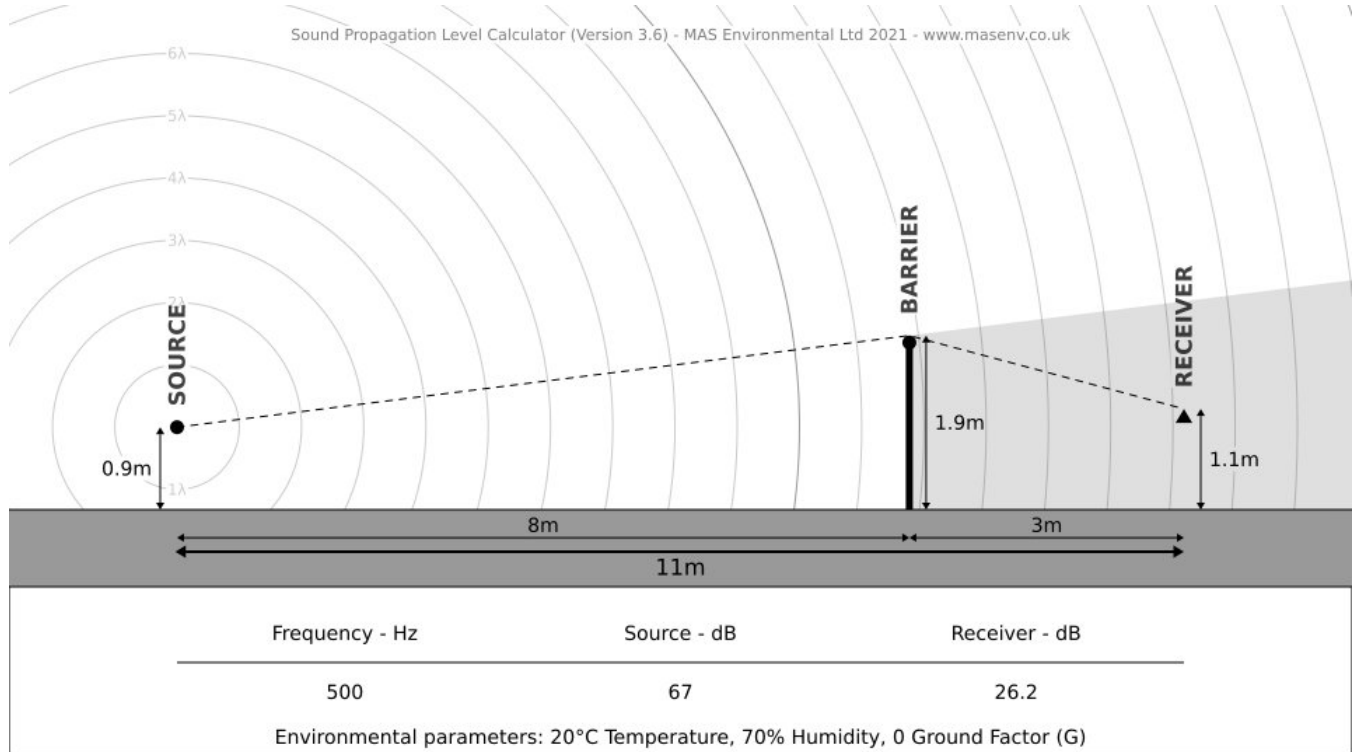
Indoor unit				SRK25ZSP-W	SRK35ZSP-W	SRK45ZSP-W
Outdoor unit				SRC25ZSP-W	SRC35ZSP-W	SRC45ZSP-W
Power source				1 Phase, 220 - 240V, 50Hz		
Nominal cooling capacity (Min~Max)			kW	2.5(0.9~3.1)	3.2(0.9~3.7)	4.5(1.3~4.8)
Nominal heating capacity (Min~Max)			kW	2.8(1.0~4.1)	3.6(1.0~4.6)	5.0(1.2~5.8)
Power consumption		Cooling/Heating	kW	0.710 / 0.690	0.910 / 0.930	1.350 / 1.360
EER/COP		Cooling/Heating		3.52/4.05	3.52 / 3.87	3.33 / 3.68
Max. running current			A	9	9	14.5
Sound power level	Indoor	Cooling/Heating	dB(A)	57 / 57	58 / 58	56 / 62
	Outdoor	Cooling/Heating		57 / 56	59 / 60	63 / 64
Sound pressure level	Indoor	Cooling (Hi/Me/Lo)		45 / 34 / 23	45 / 36 / 23	44 / 39 / 24
		Heating (Hi/Me/Lo)		43 / 34 / 26	44 / 36 / 28	48 / 41 / 30
	Outdoor	Cooling/Heating		47 / 45	48 / 48	51 / 51
Air flow	Indoor	Cooling (Hi/Me/Lo)		10.0 / 7.3 / 4.2	9.5 / 6.8 / 4.2	9.0 / 7.2 / 3.8
		Heating (Hi/Me/Lo)	9.5 / 7.3 / 5.2	9.6 / 7.4 / 5.5	12.0 / 9.2 / 6.2	
	Outdoor	Cooling/Heating	23.7 / 19.7	22.8 / 22.0	35.6 / 33.4	
Exterior dimensions	Indoor	HeightxWidthxDepth	mm	267 x 783 x 210		
	Outdoor			540 x 645(+57) x 275		595 x 780(+62) x 290
Net weight		Indoor / Outdoor	kg	7.0 / 26.5	7.0 / 28.5	7.5 / 36.0
Refrigerant		Type/GWP		R32 / 675		
		Charge	kg/TCO ₂ Eq	0.550 / 0.371	0.68 / 0.459	1.10 / 0.743
Refrigerant piping size		Liquid/Gas	ø mm	6.35(1/4") / 9.52(3/8")		
Refrigerant line (one way) length			m	Max. 15		
Vertical height differences		Outdoor is higher/lower	m	Max. 10 / Max. 10		Max. 15 / Max. 15
Outdoor operating temperature range	Cooling	°C		-15~46		
	Heating		-15~24			
Clean filter				—		

* The data are measured under the following conditions (ISO-T1, H1). Cooling: Indoor temp. of 27°CDB, 19°CWB, and outdoor temp. of 35°CDB. Heating: Indoor temp. of 20°CDB, and outdoor temp. of 7°CDB, 6°CWB.

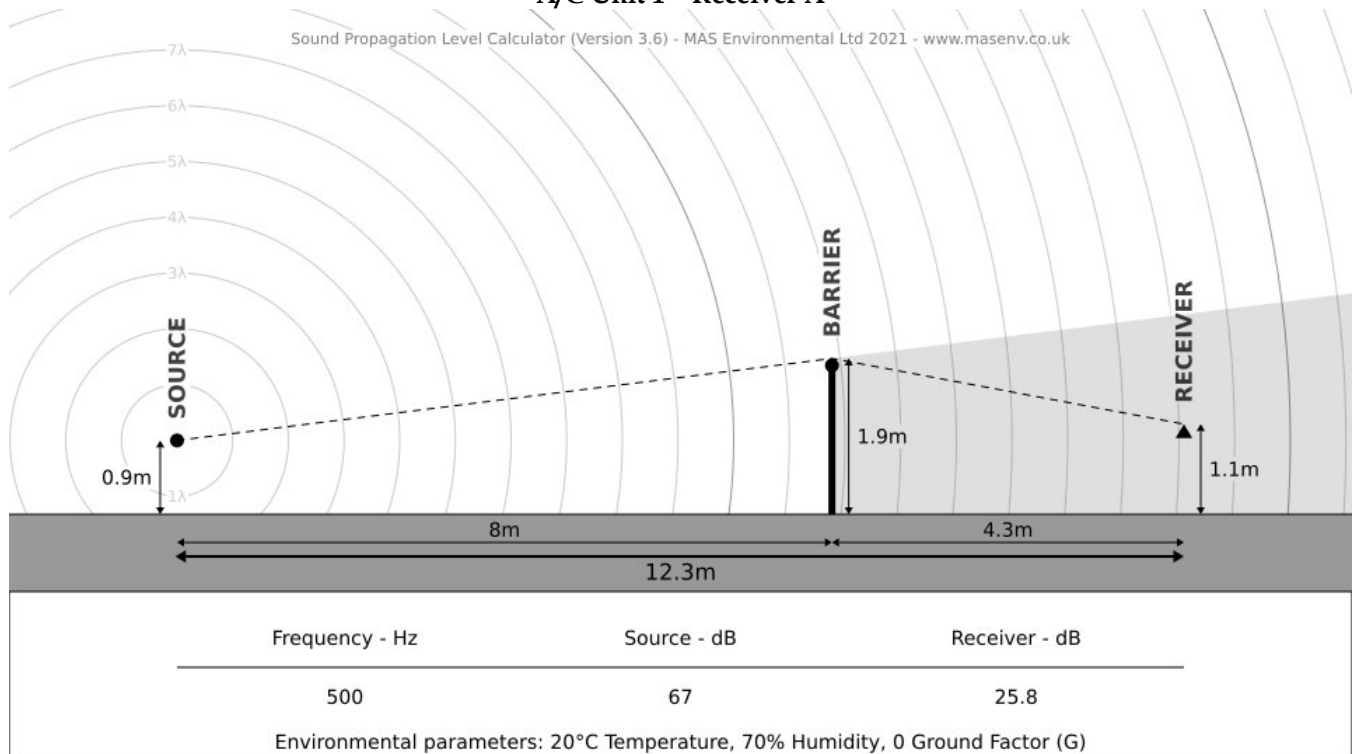
* Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.

* 'tonne(s) of CO₂ equivalent' means a quantity of greenhouse gases- expressed as the product of the weight of the greenhouse gases in metric tonnes and of their global warming potential.

APPENDIX F – BARRIER CALCS

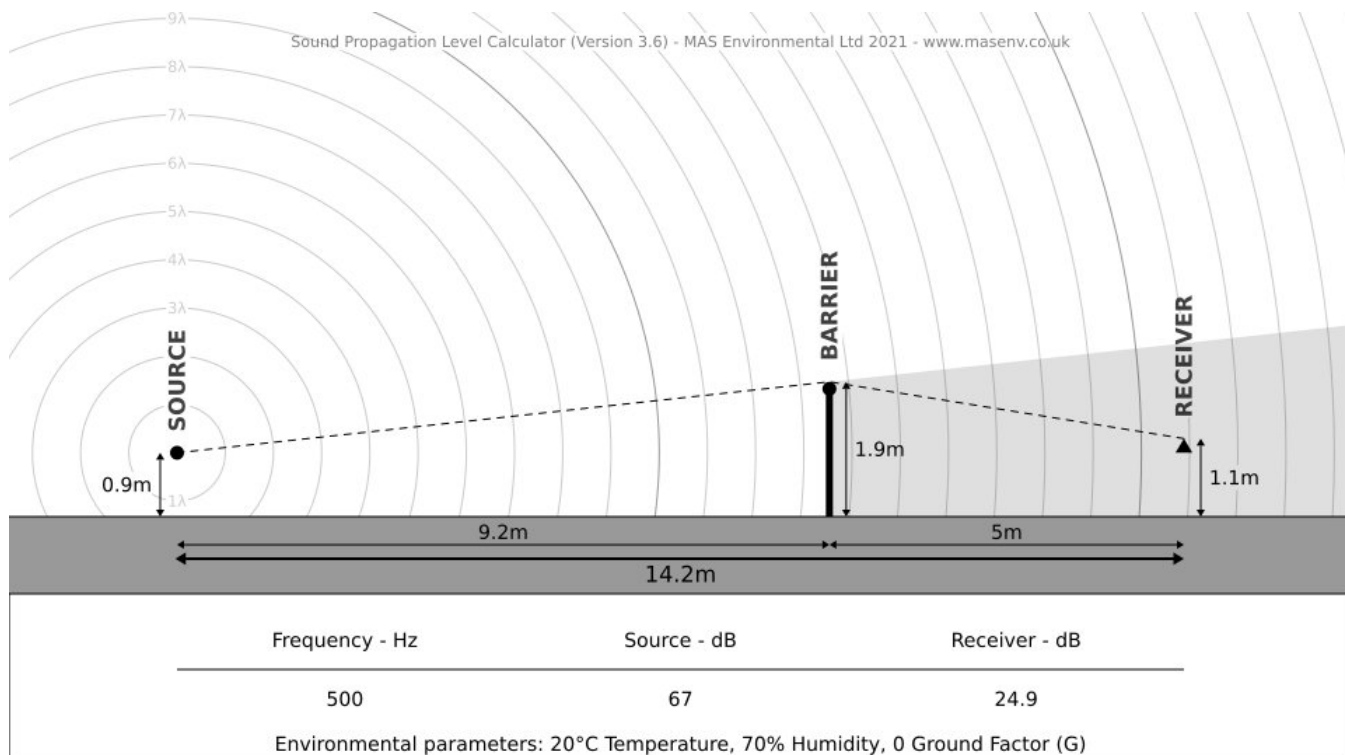


A/C Unit 1 - Receiver A

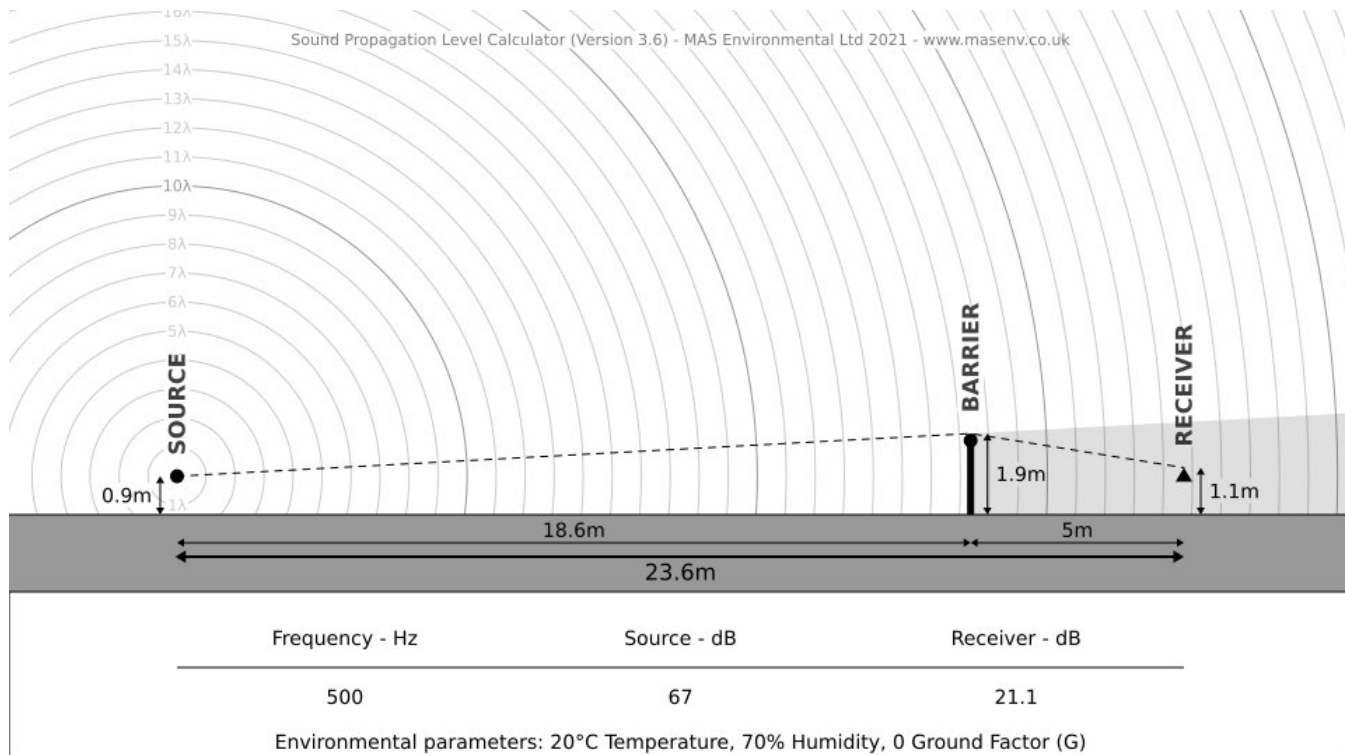


A/C Unit 2 - Receiver A



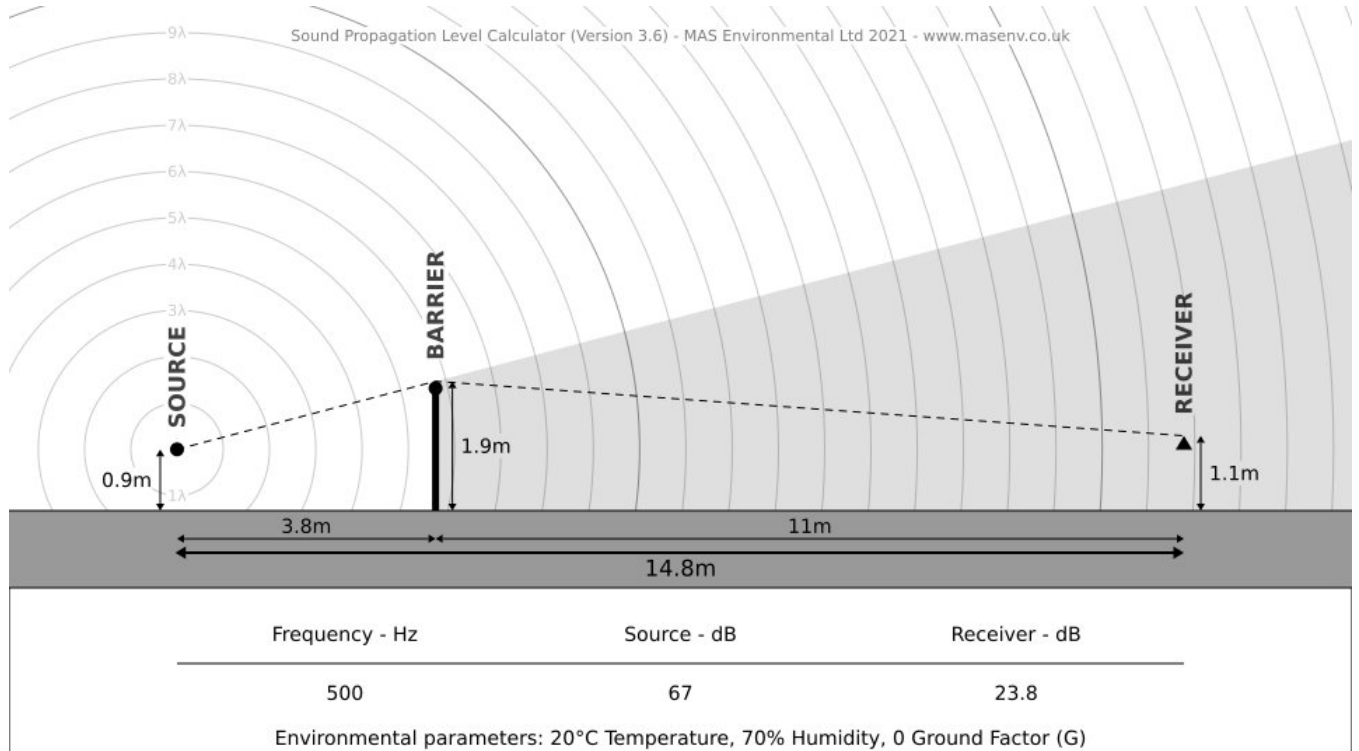


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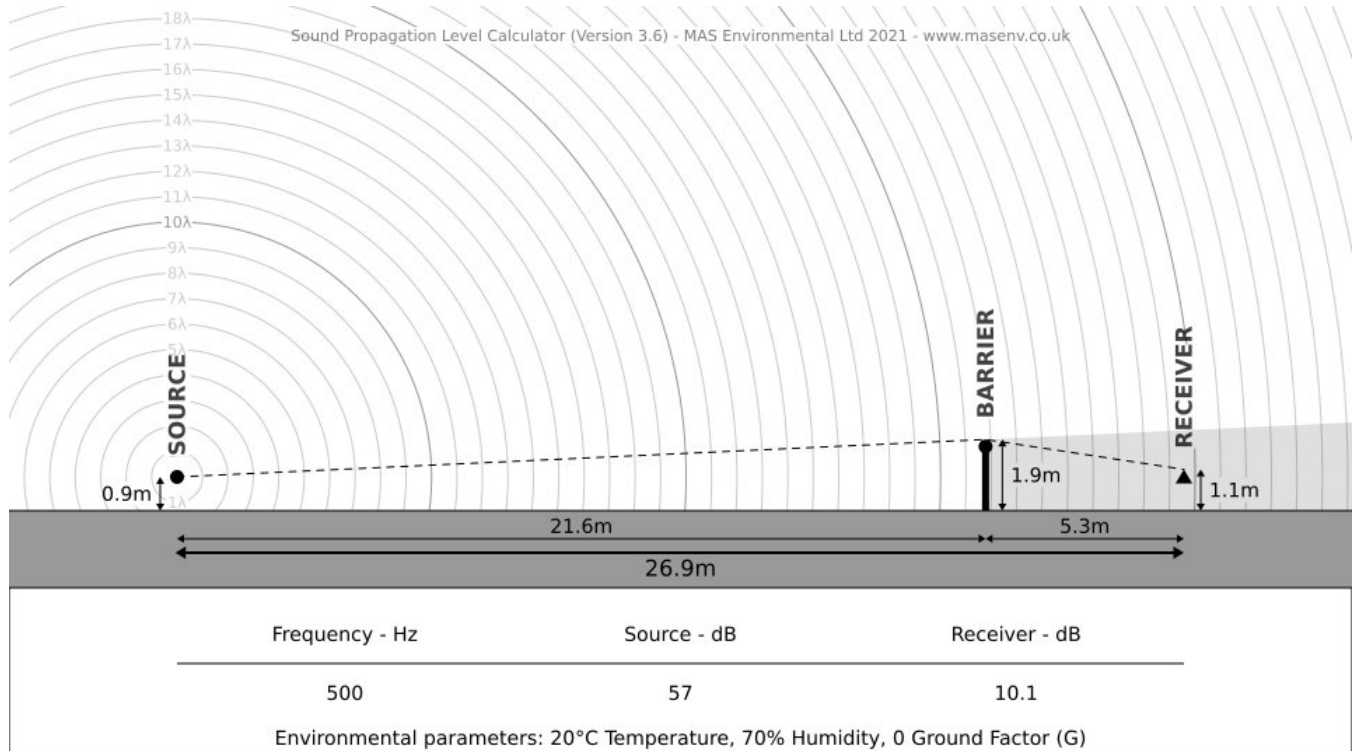


A/C Unit 4 - Receiver A



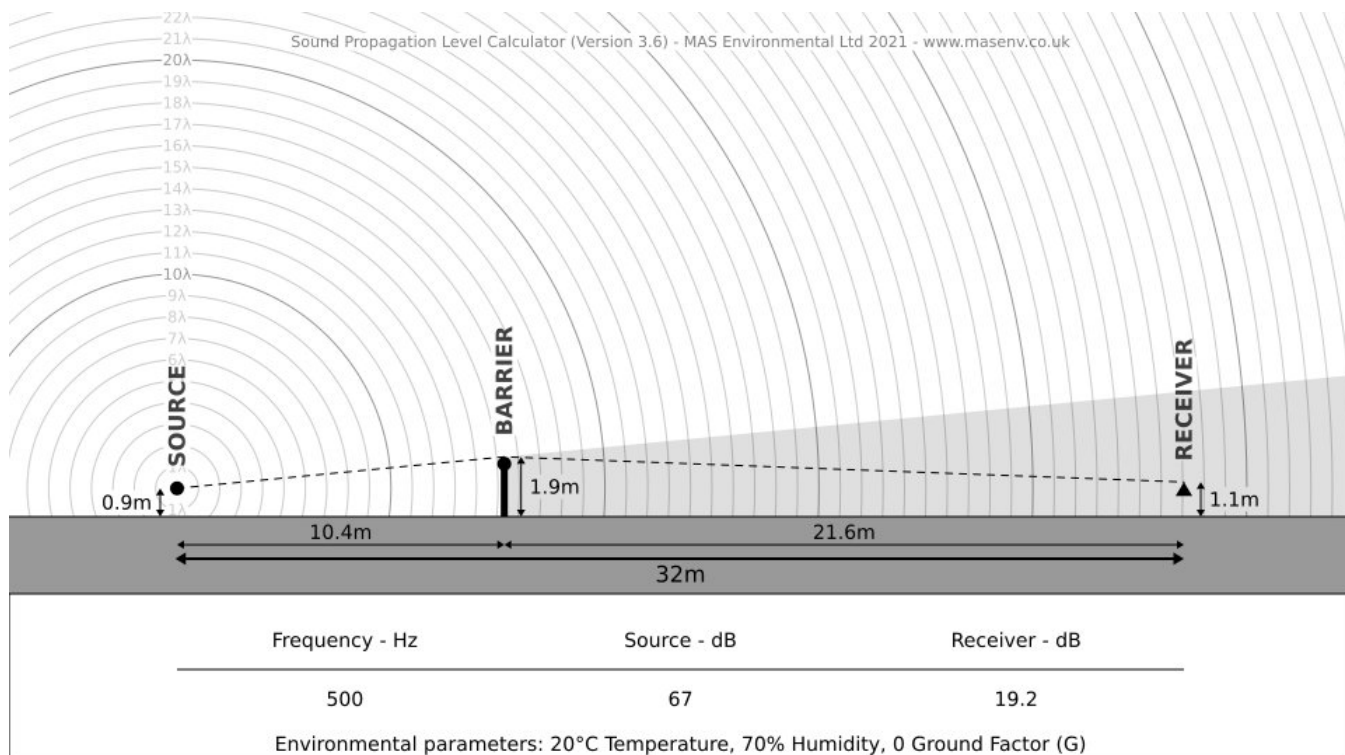


A/C Unit 5 - Receiver A

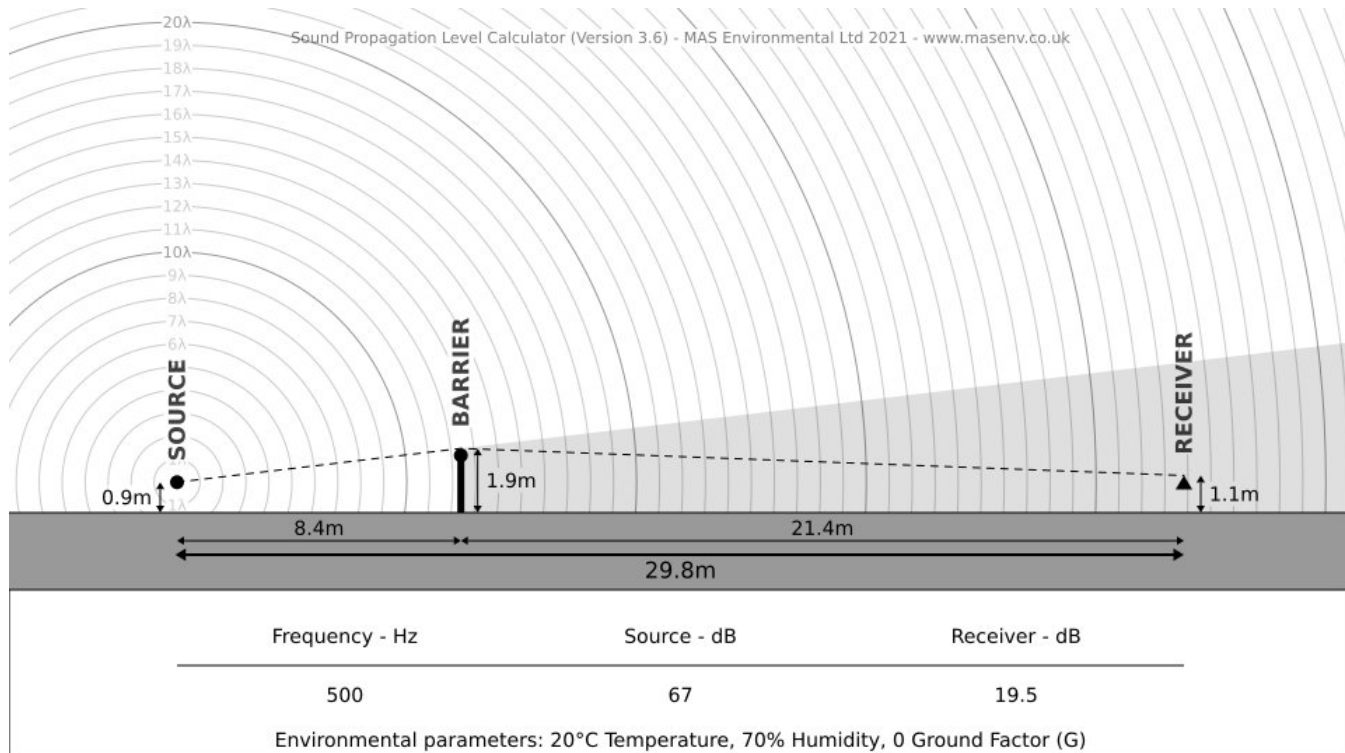


A/C Unit 6 - Receiver A



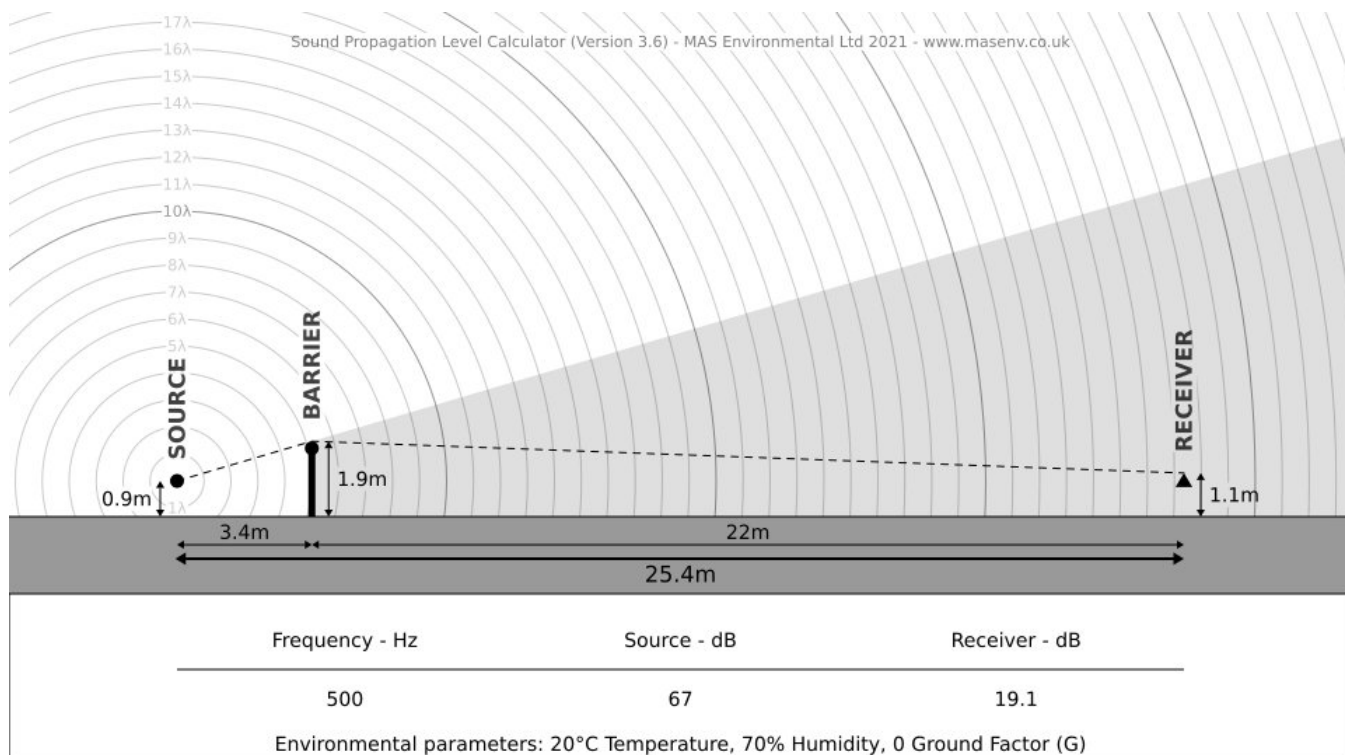


A/C Unit 1 - Receiver B

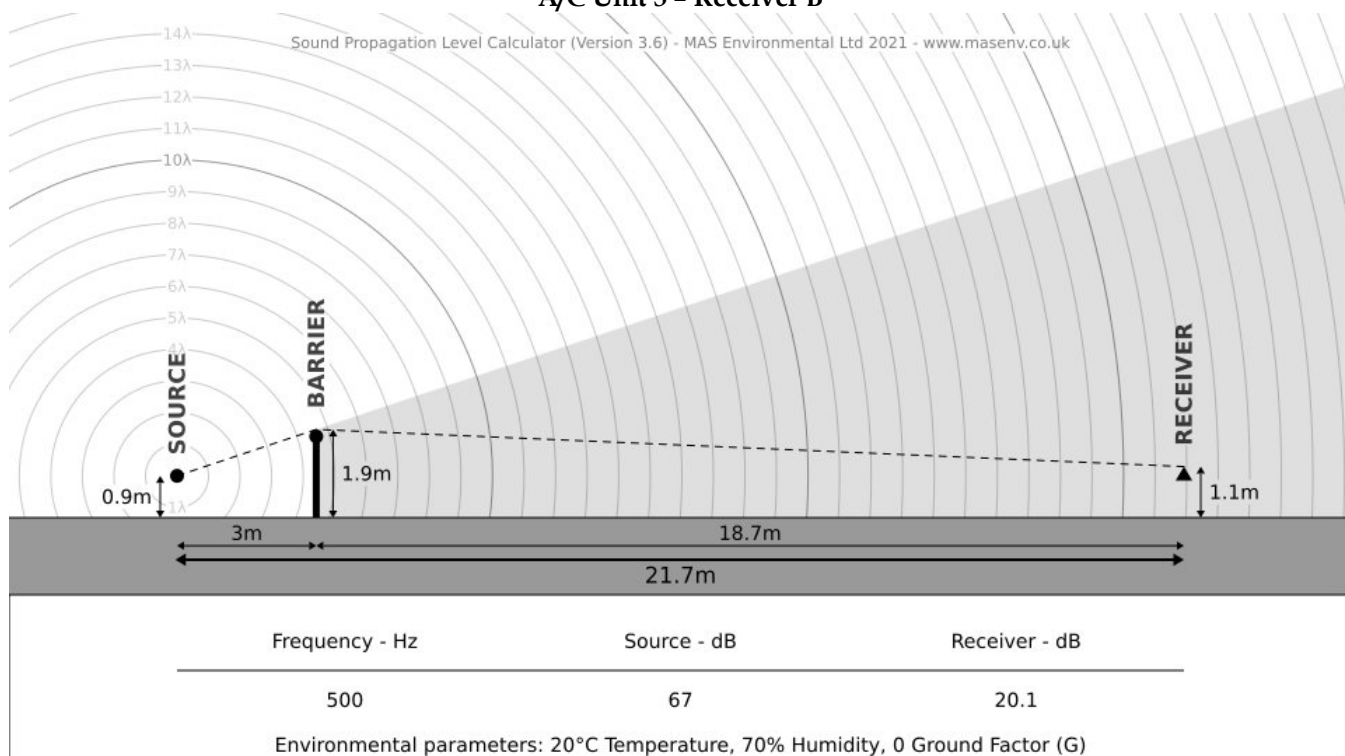


A/C Unit 2 - Receiver B



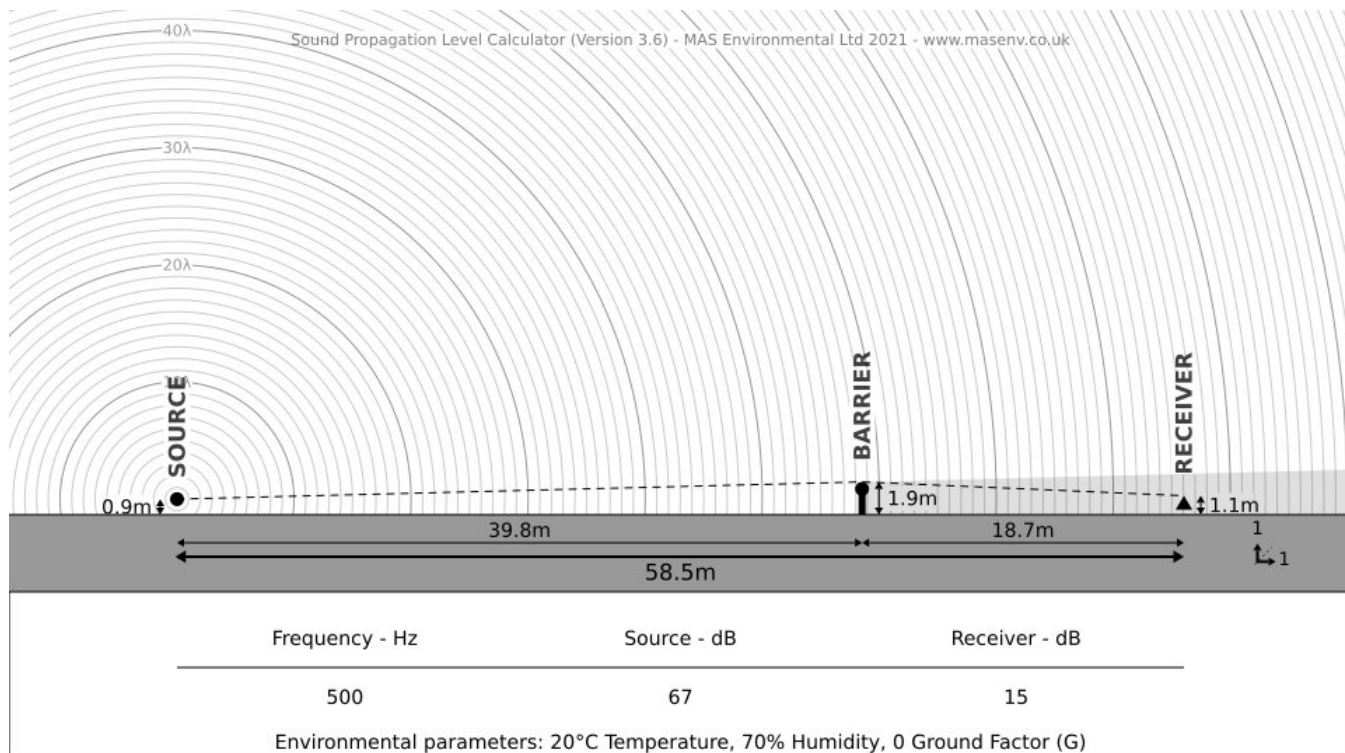


A/C Unit 3 - Receiver B

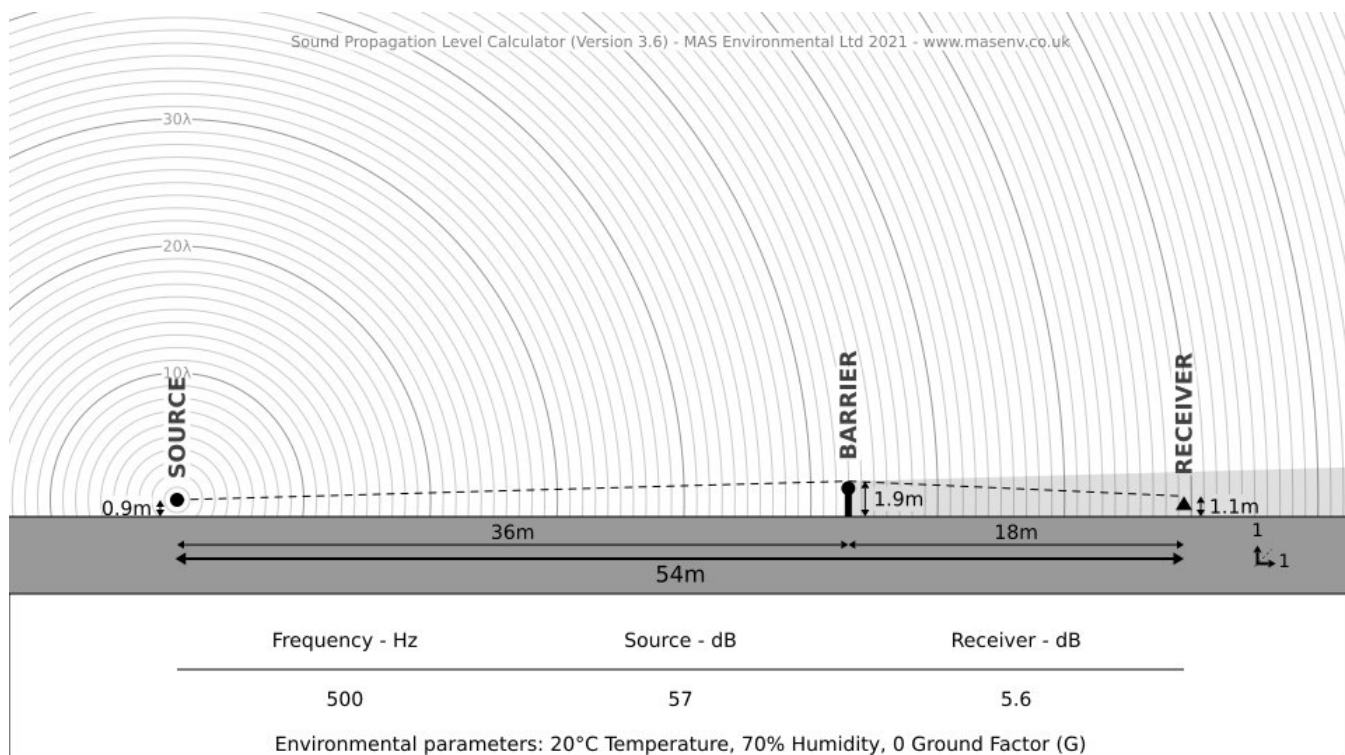


A/C Unit 4 - Receiver B



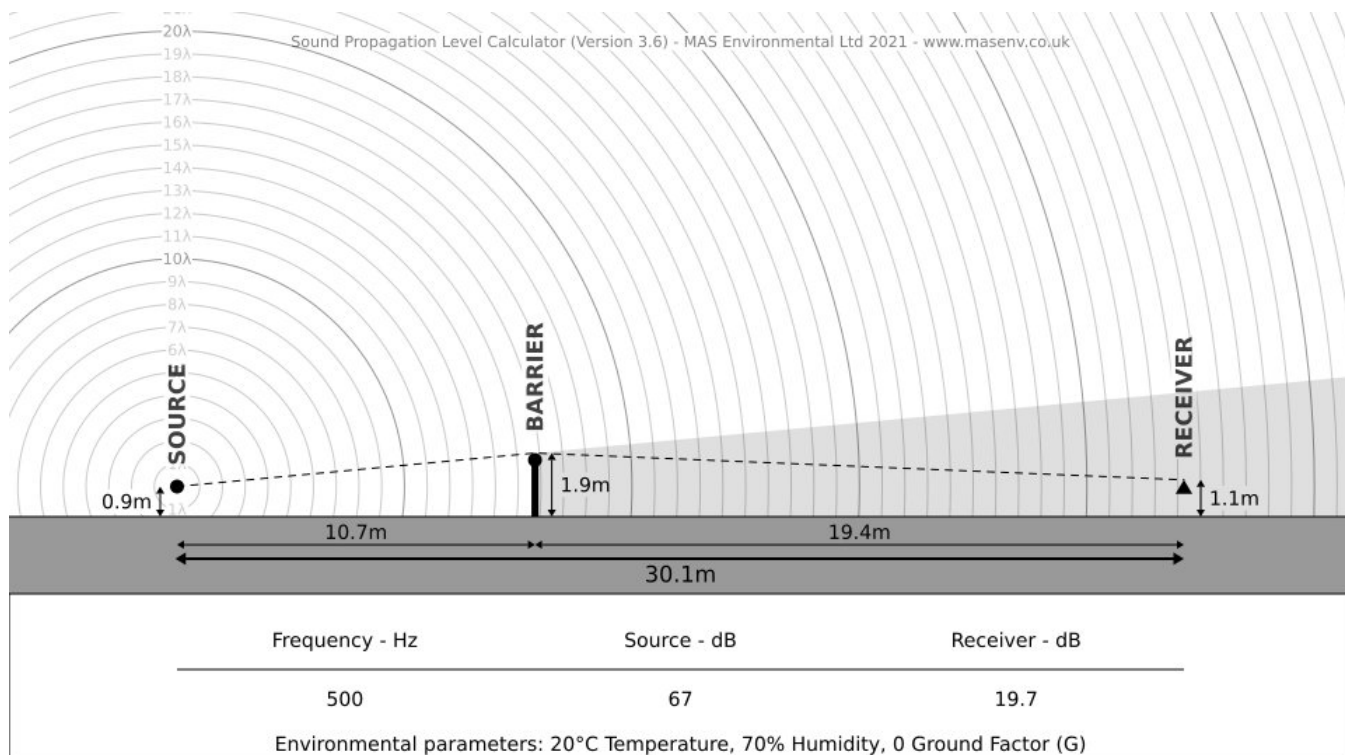


A/C Unit 5 - Receiver B

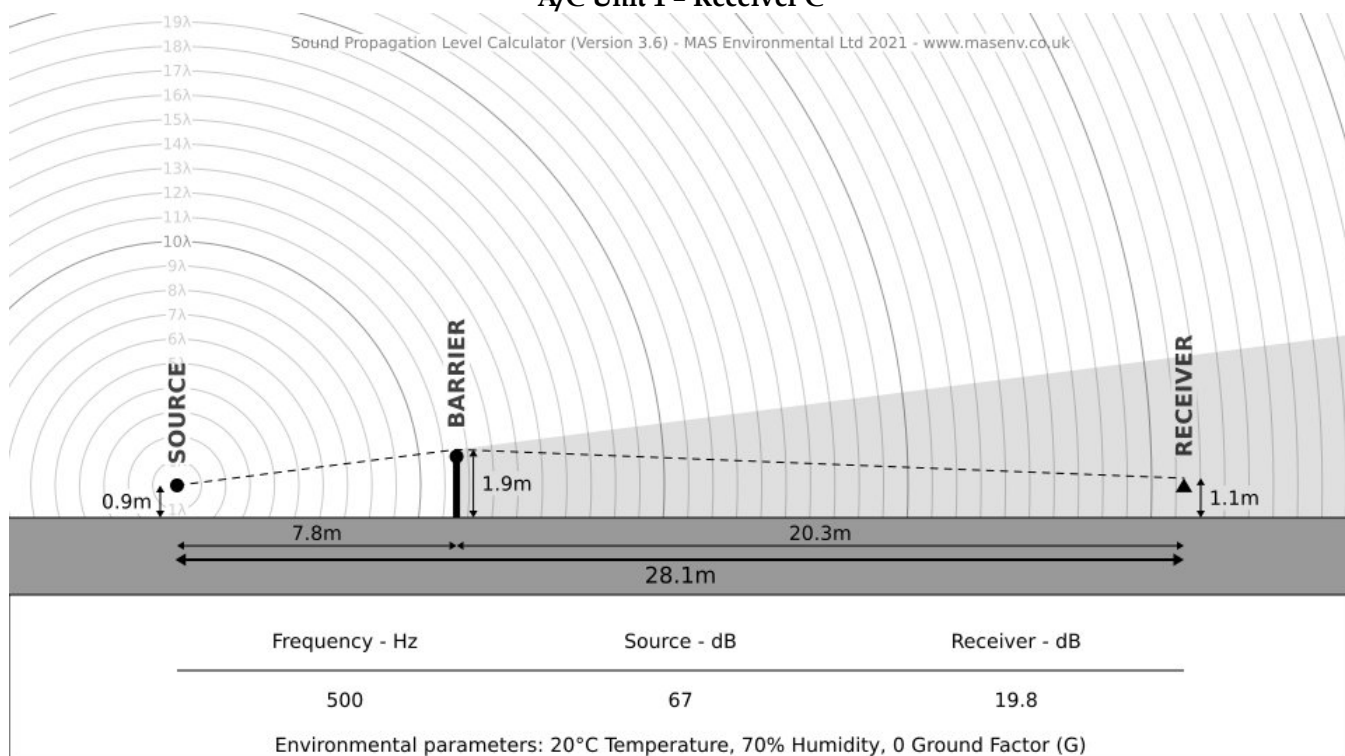


A/C Unit 6 - Receiver B



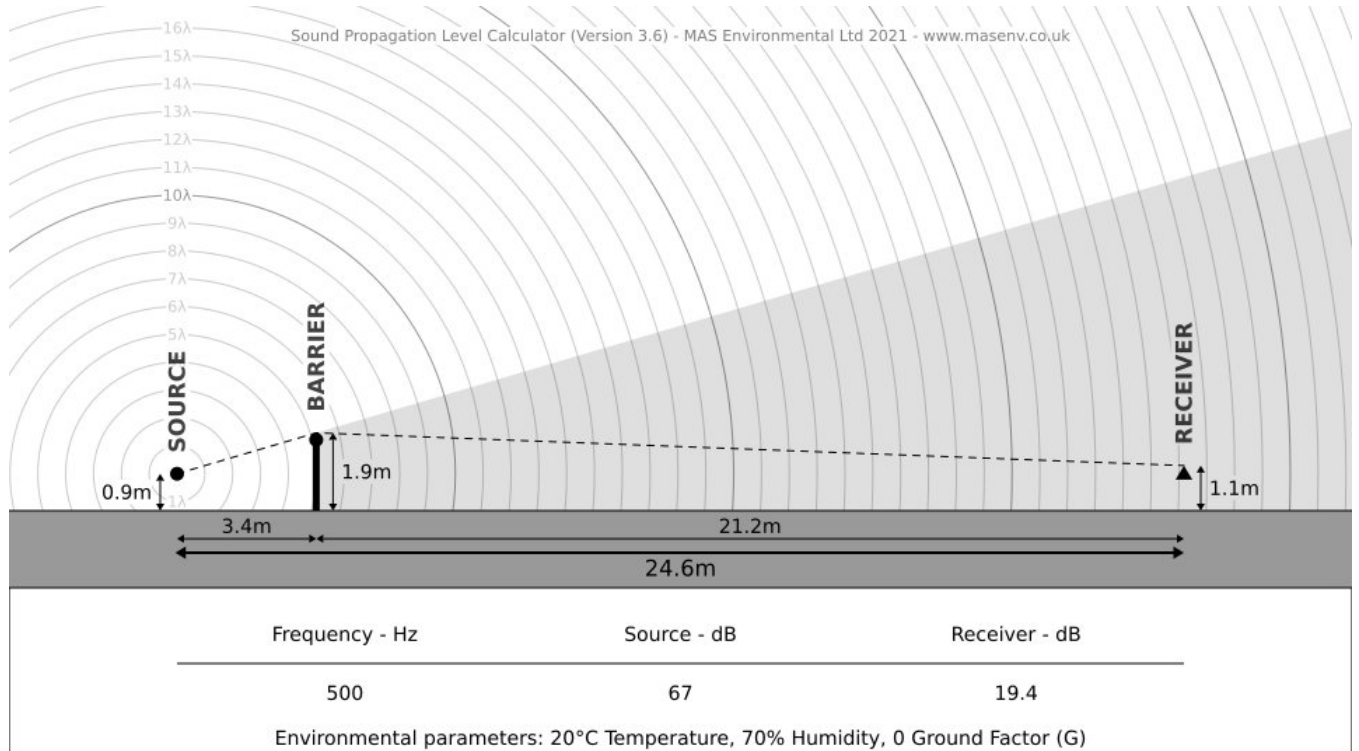


A/C Unit 1 - Receiver C

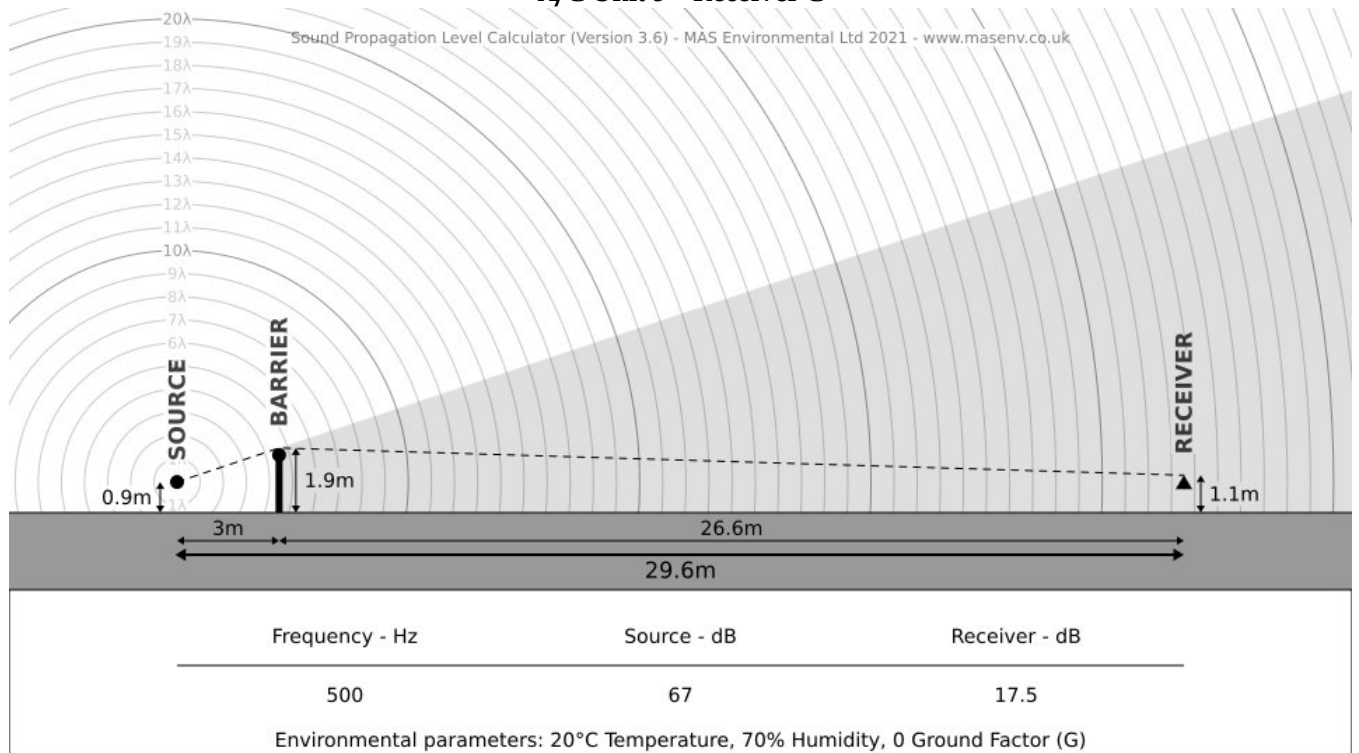


A/C Unit 2 - Receiver C



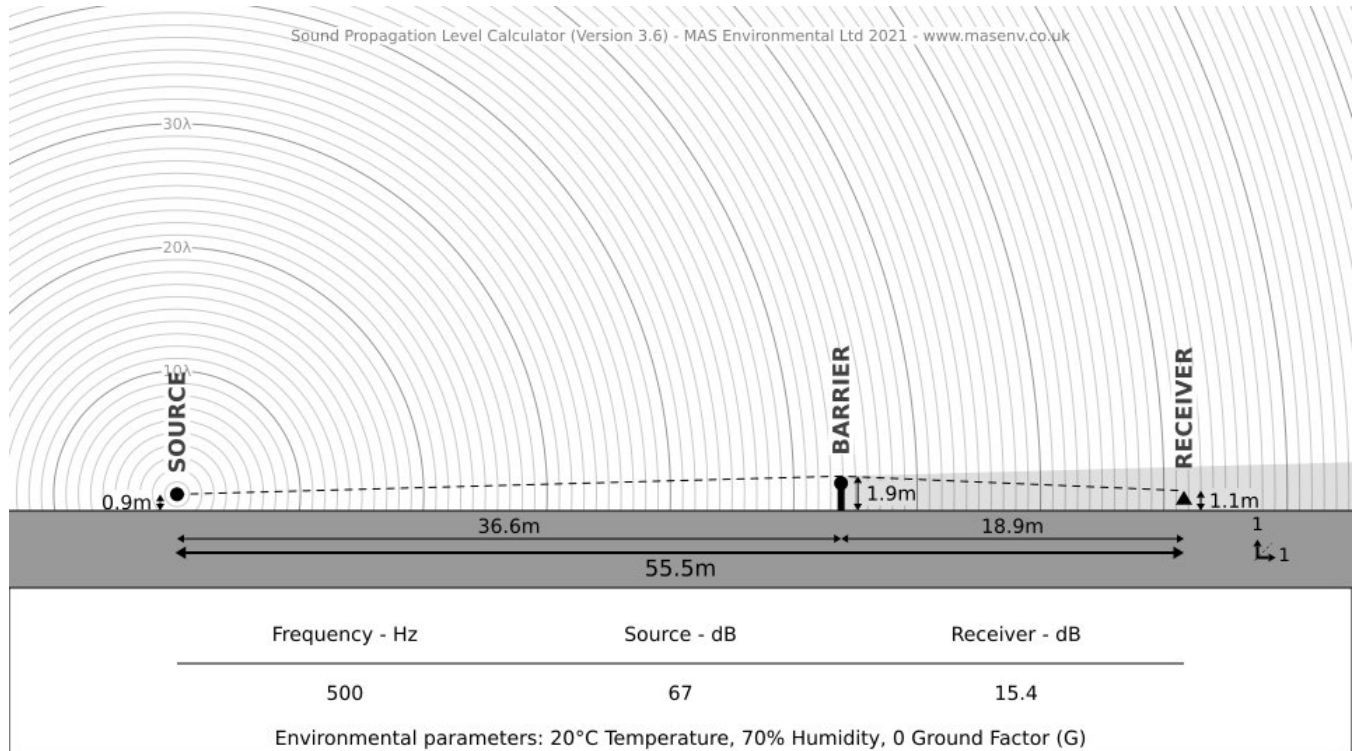


A/C Unit 3 - Receiver C

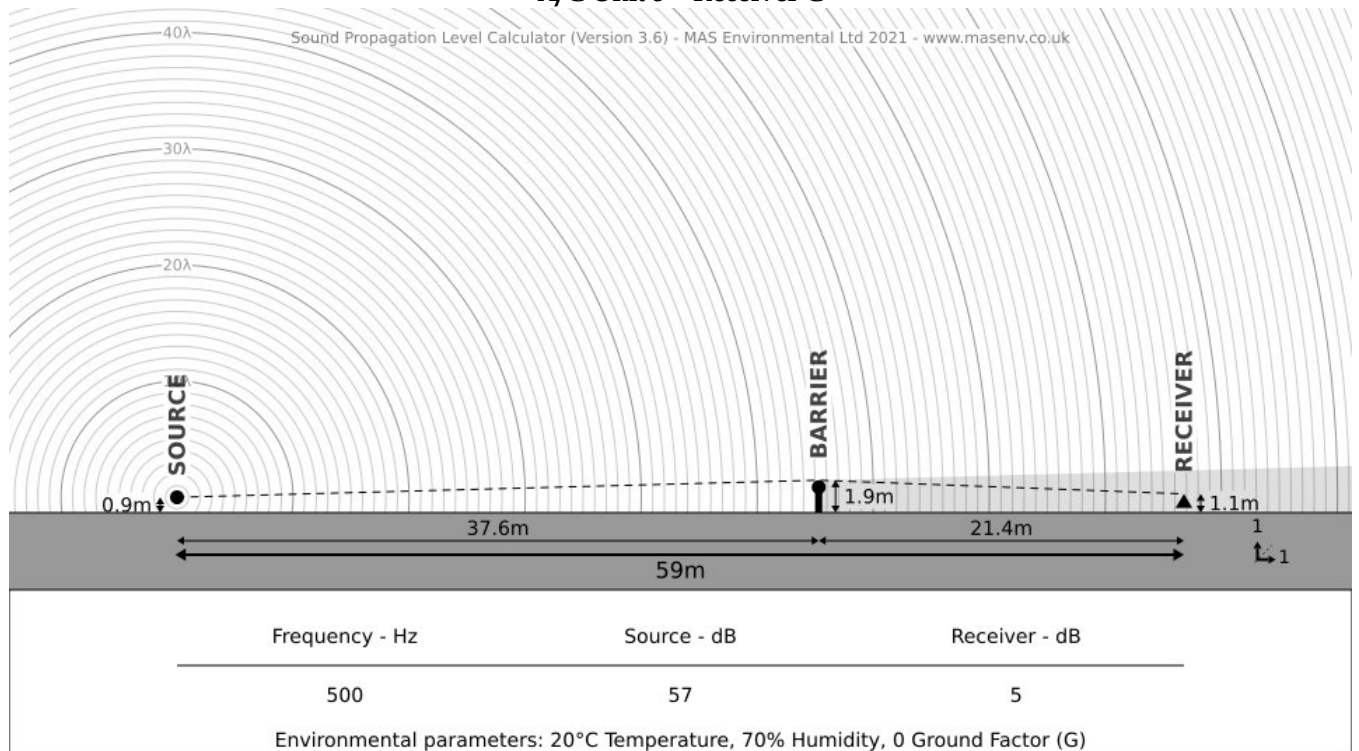


A/C Unit 4 - Receiver C





A/C Unit 5 - Receiver C



A/C Unit 6 - Receiver C



APPENDIX G -METEOROLOGICAL CONDITIONS

Site Conditions			
Measurement	Temp C (Average)	Wind Speed m/s	Humidity %
MP1 + MP2	17	3.9	78

APPENDIX H - CALIBRATION SUMMARY

Pre and Post Survey Calibration Results					
Measurement	Calibrator Ref Level (dB)	Level Before (dB)	Deviation Before (dB)	Level After (dB)	Deviation After (dB)
MP1	114	114.1	-0.1	114.0	0

