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Acoustic Survey Report
Reference 134976
The Fitzroy Tavern
16 Charlotte Street
London W1T 2LY

Client: Samuel Smith (Tadcaster)

Performed by: Mark Stagg BSc. (Hons) AMIOA

Date of survey: 5th to 7th November 2013

Contents

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Acoustic Survey Report
Reference 134976
The Fitzroy Tavern
16 Charlotte Street
London W1T 2LY

Summary

A noise level survey has been carried out at The Fitzroy Tavern, 16 Charlotte Street W1T 2LY, to establish the existing background noise levels at the closest locations likely to be affected by noise emissions from a proposed revised air-conditioning plant installation.

Measurements have been made over a typical 48-hour period on the rear façade of the building at a suitable location exposed to representative levels of general background noise with the lowest recorded levels being as follows –

Location	Daytime 07.00hrs - 19.00hrs	Evening 19.00hrs –23.00hrs	Night 23.00hrs – 07.00hrs
Front façade	52.3dB $L_{A90, 10mins}$	55.3dB $L_{A90, 10mins}$	51.0dB $L_{A90, 10mins}$

Using the measured background figures a maximum noise emission criterion has been proposed in accordance with The London Borough of Camden's standard planning restriction for the proposed plant operating hours.

Maximum level of plant noise emission 12.00hrs to 23.00hrs	42dB(A)

A calculations has been performed using manufacturer's data indicating that noise control measures will need to be implemented to ensure compliance with the local authority's standard restrictions relating to noise emissions.

Typical mitigation measures have been proposed subject to detailed design work.

All comments are subject to approval by the local authority.

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Reference 134976
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16 Charlotte Street
London W1T 2LY

1 Introduction

1.1 The Fitzroy Tavern is a licensed premises located at 16 Charlotte Street in central London. It is under the planning jurisdiction of the London Borough of Camden.

1.2 The property is to be extensively refurbished with part of the works being the partial replacement of existing air-conditioning equipment located on a first floor flat roof at the rear of the building.

1.3 In accordance with Camden's standard planning requirements an acoustic survey has been carried out of the existing background noise levels at the site in order to set a maximum level of plant noise emission and thus ensure compliance with the planning conditions likely to be imposed.

1.4 This report is prepared solely for the use of Samuel Smith (Tadcaster). Acoustic Engineering Services (UK) Ltd accepts no responsibility for its use by any third party.

1.5 The report is limited to addressing only the noise aspects specifically identified within the report.

Our Ref: 134976

2 Site Description

2.1 The Fitzroy Tavern is a four storey building (plus a basement) situated at the corner of Charlotte Street and Windmill Street and with entrances from both. See the attached map sheet 134976/map1 for a general aerial view of the site.

2.2 The surrounding buildings are a mixture of commercial and residential.

2.3 There is an existing mechanical plant area at the rear of the building on a flat roof at first floor level. See photographs 134976/photo1 and 2. The existing plant comprises of four horizontal discharge condensers and a single vertical discharge unit on the flat roof with a kitchen extract duct at high level rising to discharge at upper roof level. It is understood that three of the condensers are to be removed and replaced but that the vertical discharge unit and the unit currently standing in the middle of the roof are to remain. All units are to be relocated within a plant enclosure as shown on Samuel Smith Architects' Department drawings P003, P011 and P016.

2.4 There is a variety of similar mechanical plant located on the adjoining properties at various locations. See photograph 134976/photo3

2.5 The closest noise sensitive location which could be affected by noise from the proposed plant changes to the Fitzroy Tavern are windows on the rear façade of 18 Charlotte Street, the closest of which is approximately 8m away. See photograph 134976/photo4 and sketch drawing 013976/sk1. This building is a restaurant at basement and ground floor levels but is understood to be residential above.

2.6 As the survey was unattended we cannot comment on the make up of the background noise throughout the whole survey period. However, at the times of our visits the predominant source of general background noise was the existing mechanical plant serving the Fitzroy Tavern and the neighbouring properties.

Our Ref: 134976

3 Date and Time of Survey

3.1 The survey was carried out between approximately 14.30hrs on Tuesday 5th November 2013 and 14.30hrs on Thursday 7th November 2013.

4 Weather

4.1 Although the survey was unattended it is believed that the weather conditions were changeable but predominantly dry with variable levels of cloud cover and wind speed.

4.2 The measurement location was well shielded from any adverse weather effects and thus it is believed that the prevailing climatic conditions were suitable for the purposes of the measurements.

5 Instrumentation

5.1 RION NL-52 sound level meter serial number 00610205 complete with environmental protection case.

5.2 The instrument was calibrated before and after the survey using a RION NC-74 calibrator with no appreciable drift noted.

5.3 The current annual calibration certificate UCRT13/1161 is attached.

6 Procedure

6.1 Sound pressure levels were measured from a top floor window on the rear façade of the Fitzroy Tavern. The microphone was mounted externally to the building on an extension pole above the flat roof area. This location was chosen as being the most appropriate accessible position at which the microphone could be mounted, being approximately equidistant from the existing plant as the closest neighbouring window.

Our Ref: 134976

6 Procedure cont.

6.2 Measurements were made generally in accordance with British Standard 4142 "Method for rating industrial noise affecting mixed residential and industrial areas", in terms of the L_{A90} percentile and the L_{Aeq}, continuous equivalent noise level. These are defined in the enclosed Glossary of Commonly Used Acoustic Terminology.

6.3 Sample periods of 10 minutes were used.

7 Findings

7.1 Please see the enclosed Acoustic Survey Data Sheets 134976 asds1-3 L_{A90} and 134976 asds1-3 L_{Aeq} for details of the recorded background noise levels.

7.11 These results are also depicted graphically on graphs 134976/g1-g3 L_{A90} and 134976 g1-g3 L_{Aeq}.

7.12 The background L_{A90} noise level was found to be almost constant throughout the survey reflecting the predominance of mechanical plant noise that appeared to be operational during the whole measurement period.

7.13 It is understood that the replacement condenser plant will operate only between 12.00hrs and 23.00hrs seven days a week. The lowest relevant L_{A90} background noise level recorded was thus:

7.131 Lowest $L_{A90, 10mins}$ - 12.00hrs to 23.00hrs 52.3 $dBL_{A90, 10mins}$

7.2 The L_{Aeq} levels were found to exhibit a generally similar pattern to the L_{A90} figures.

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8 Planning Requirements

8.1 The London Borough of Camden's Unitary Development Plan provides noise criteria for mechanical plant within a residential area. It is summarised in Table E as follows –

Noise levels from plant and machinery at which planning permission will not be granted

Noise description & location of measurement	Period	Time	Noise level
Noise at 1m external to a sensitive façade	Day, evening and night	0000-2400	5dB(A)<LA90
Noise that has a distinguishable discrete continuous note (whine, hiss, screech, hum) at 1m external to a sensitive façade	Day, evening and night	0000-2400	10dB(A)<LA90
Noise that has distinct impulses (bangs, clicks, clatters, thumps) at 1m external to a sensitive façade	Day, evening and night	0000-2400	10dB(A)<LA90
Noise at 1m external to sensitive façade where LA90>60dB	Day, evening and night	0000-2400	55dBL_{Aeq}

9 Plant Noise Emission Criterion

9.1 We have been in contact with Gaville Charles from Camden's Environment department who has advised that replacement mechanical plant must comply with the requirements outlined in Table E and that the background noise levels used should include the existing mechanical plant.

9.2 Noise break-in to The Fitzroy Tavern itself is outside the scope of this report and has not been considered.

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9 Plant Noise Emission Criterion cont.

9.3 As the plant operates with noticeable intermittency we have worked on the basis that the specific noise level should be limited to a level at least 10dB(A) below the lowest existing background noise level.

We can summarise the expected maximum allowable level of noise emission for the new plant as follows

Table 9.3

Maximum level of noise emission at closest noise sensitive location due to condenser plant 12.00hrs to 23.00hrs	42dB(A)

10 Plant Noise Data

10.1 It is understood that the three existing air-conditioning units using R22 refrigerant are to be replaced with the following similar specification items -

10.2 Horizontal airflow twin fan condenser – two units

10.21 Manufacturer – Daikin

10.22 Model – RZQSG140LY1

10.23 Noise output – Cooling 53dB(A) @ 1m
Heating 54dB(A) @ 1m

10.24

Frequency	Hz	63	125	250	500	1k	2k	4k	8k
Lp Cooling	dB	53	54	53	51	47	44	41	31
LP Heating	dB	51	56	55	48	49	45	44	34

Our Ref: 134976

10 Plant Noise Data cont.

10.3 Horizontal airflow single fan condenser – one unit

10.31 Manufacturer – Daikin

10.32 Model – RXYSQ6P8Y1

10.33 Noise output – Cooling 53dB(A) @ 1m
Heating 55dB(A) @ 1m

10.34

Frequency	Hz	63	125	250	500	1k	2k	4k	8k
Lp cooling	dB	62	55	54	52	47	43	35	28
LP heating	dB	65	57	56	54	50	45	38	33

10.4 All noise levels are sound pressure levels believed to be measured at 1m as free field hemispherical radiation.

11 Calculation

11.1 Calculation sheet 134976 ACS1 estimates the resultant noise level at the closest windows on the rear façade of 18 Charlotte Street due to operation of the new condensers as being 50dB(A). This exceeds the expected planning restriction by 8dB.

12 Mitigation Measures

12.1 In order to comply with the expected planning restriction it will be necessary to incorporate attenuation measures into the scheme.

12.2 The requirement could be achieved by the installation of an acoustic louvred enclosure providing a minimum insertion loss of 8dB around the replacement condensers. The enclosure would need to be carefully designed to ensure sufficient airflow movement to and from the condensers so that their operating efficiency and longevity is not impaired.

Our Ref: 134976

13 Conclusion

13.1 A background noise level survey has been carried out in order to establish the existing environmental noise climate at relevant locations close to a proposed revised mechanical plant installation at The Fitzroy Tavern 16 Charlotte Street, London W1T 2LY.

13.2 A plant noise emission criterion has been set based on the results of the measurements and taking into account the standard planning requirements of the Local Authority.

13.3 A calculation has been performed based on manufacturer's noise output data and provisional drawings of the proposed installation location indicating that a degree of noise control treatment will need to be implemented to ensure compliance with the expected planning restriction.

13.4 A typical mitigation measure utilising acoustic louvres has been identified subject to further discussions between the design team.

13.5 All findings are subject to local authority approval.

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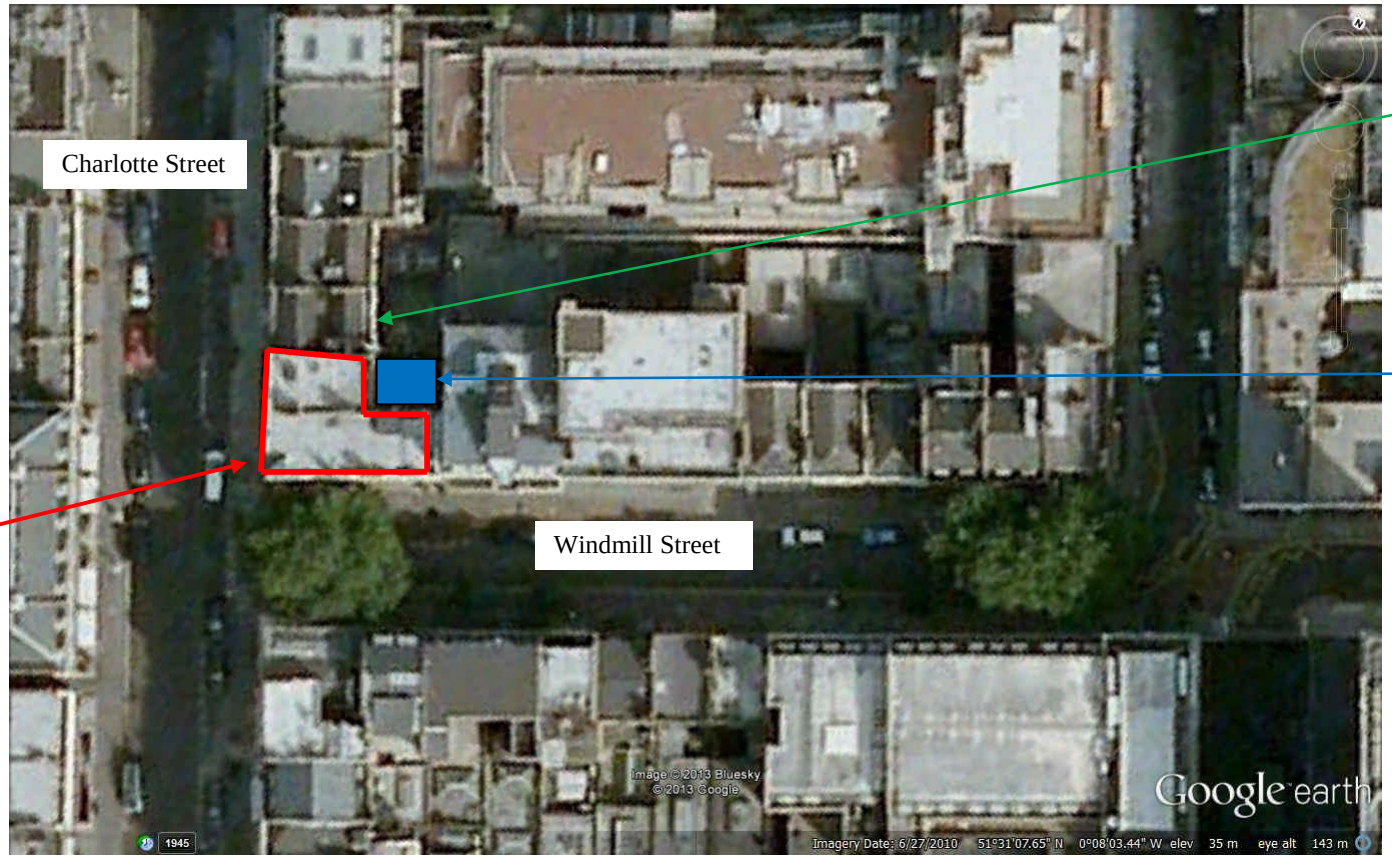
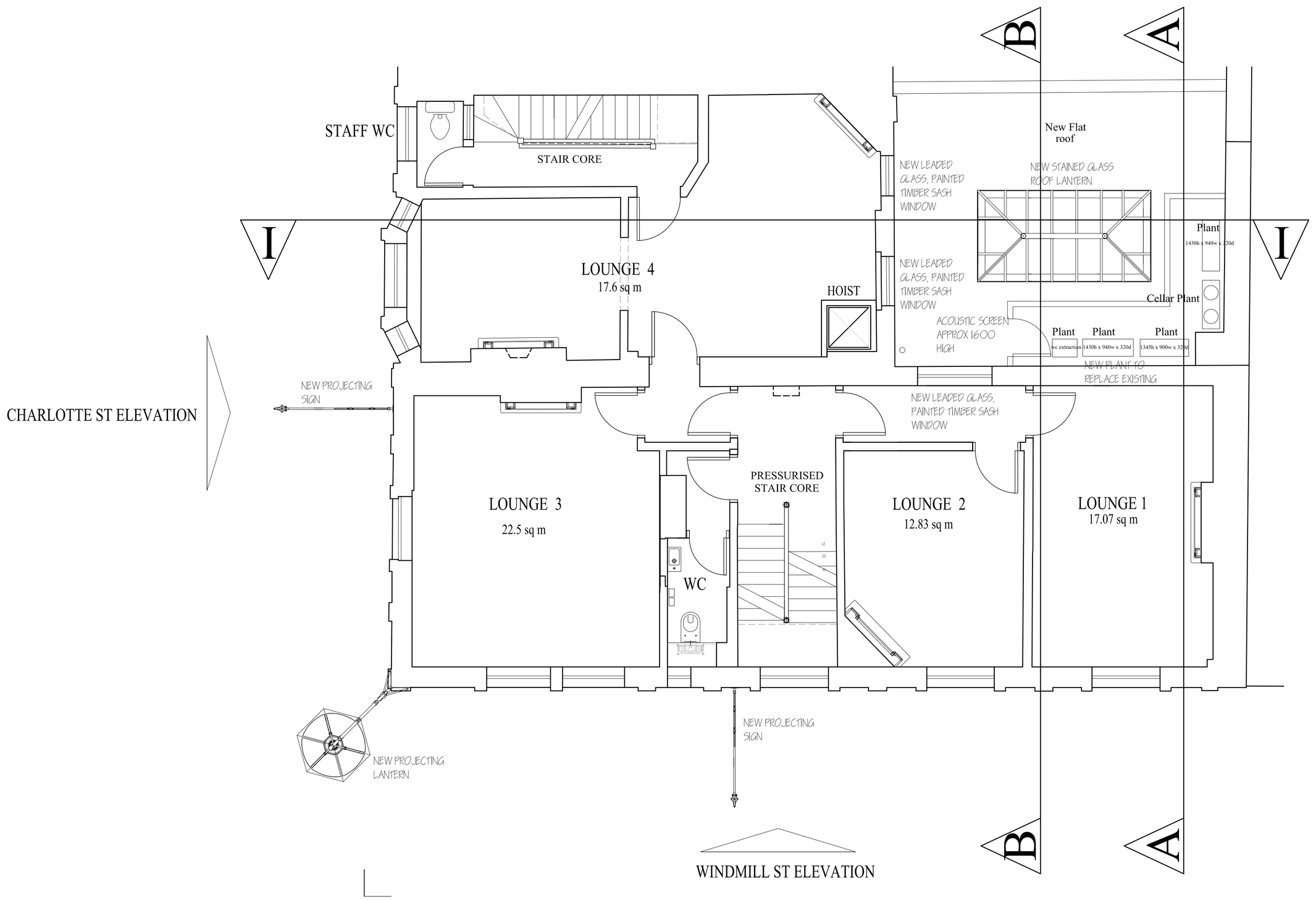
General Site Plan



©Googlemaps.co.uk

proposed



EXAMPLE OF ACOUSTIC LOUVRED PANELS

First floor

0 1 2 3 4 5 10 Metres

North	Client		Project: THE FITZROY TAVERN. 16 Charlotte Street, London,W1T 2NA	
	Scale: 1:50 AT A1	Drawn by	Drawing Title: FIRST FLOOR PLAN OPTION ONE	
Project No.	Date: JUNE 2012	Checked by	Drawing No.: P003	Revision

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proposed

Section I -I

0 1 2 3 4 5 10 Metres

North	Client		Project: THE FITZROY TAVERN. 16 Charlotte Street, London,W1T 2NA	
	Scale: 1:50 AT A1	Drawn by	Drawing Title: PROPOSED SECTION II	
Project No.	Date: AUG 2013	Checked by	Drawing No.: P011	Revision

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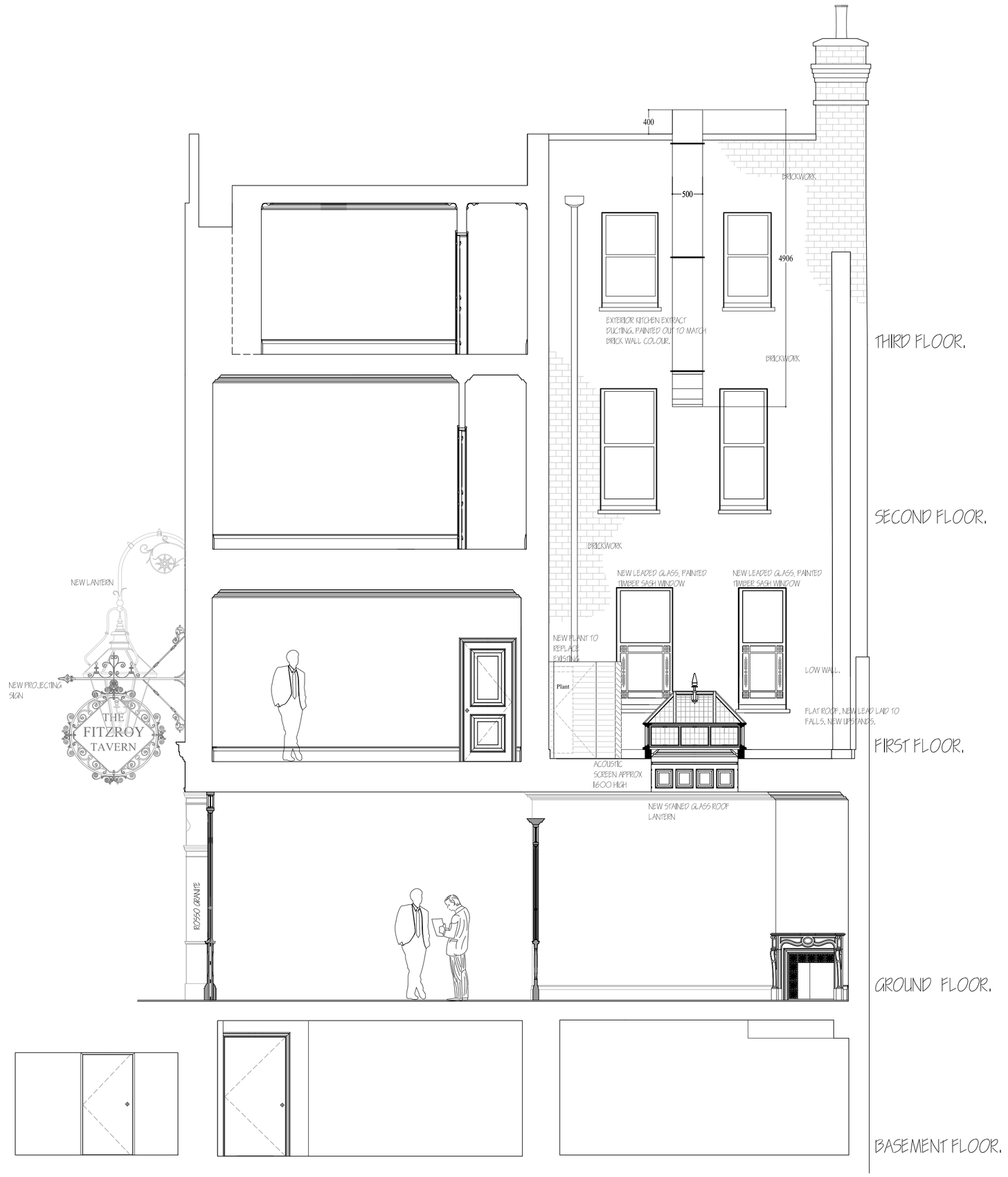
proposed

Section A - A

0 1 2 3 4 5 10 Metres



Section B - B

0 1 2 3 4 5 10 Metres

North

Client

Project
THE FITZROY TAVERN. 16 Charlotte Street, London,W1T 2NA

Scale
1:50 AT A1

Drawn by

Drawing Title
PROPOSED SECTIONS AA AND BB

Project No.

Date
AUG 2013

Checked by

Drawing No.
P016

Revision

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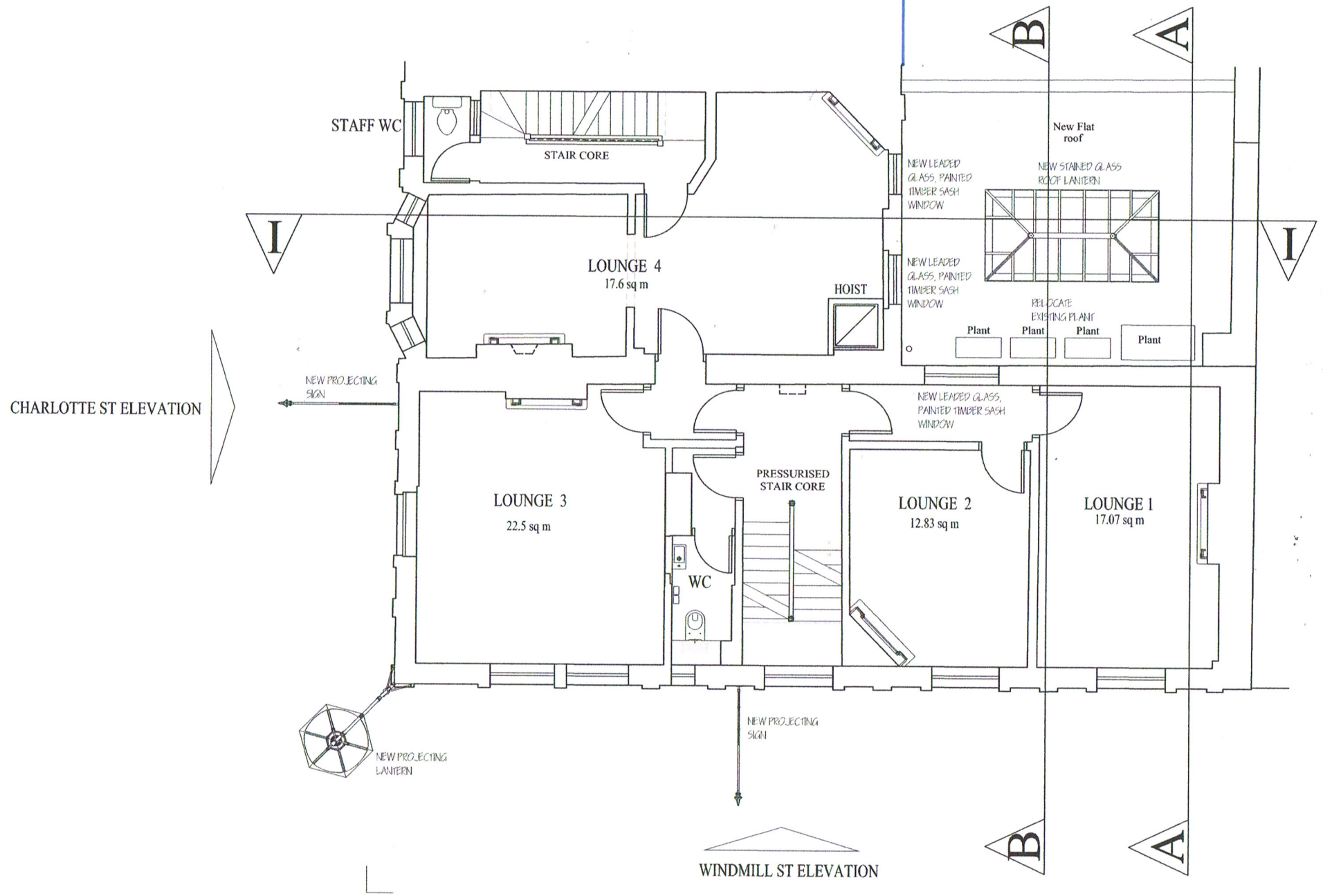
AES	P.O. Box 322 West Byfleet Surrey KT14 6YN Tel: 01932 352733 Fax: 01932 355265	Client: SAMUEL SMITH Client Order No.:	Project: THE FITZROY TAVERN 16 CHARLOTTE ST.	AES (UK) Ltd Ref.: 134976/SK1 Drawn By: MS Date: 7/11/13	**Sketch Sheet**

REAR FACADE OF 18 CHARLOTTE STREET



First floor

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Client:	Project:	AES (UK) Ltd Ref.:	
Samuel Smith	The Fitzroy Tavern 16 Charlotte Street W1T 2LY	134976 / photo1	**Photograph Sheet**
Client Order No.:		Drawn By: MS / Date: 07.11.13	

Existing Mechanical Plant on flat roof

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Aerial view of existing mechanical plant on flat roof

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View of neighbouring roof areas

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View of rear façade of 18 Charlotte Street

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ACOUSTIC SURVEY DATA SHEET 134976 asds1 L_{A90}

Client: Samuel Smith

Date of Survey: 5th, 6th & 7th November 2013

Project: The Fitzroy Tavern 18 Charlotte Street

Description: 14.30hrs 5th November to 12.00hrs 6th November

Time 24-hour	LA90 dB
12.00	
12.10	
12.20	
12.30	
12.40	
12.50	
13.00	
13.10	
13.20	
13.30	
13.40	
13.50	
14.00	
14.10	
14.20	
14.30	56.8
14.40	56.9
14.50	57.1
15.00	56.9
15.10	56.9
15.20	55.8
15.30	55.4
15.40	55.3
15.50	55.9
16.00	54.9
16.10	55.9
16.20	56.9
16.30	56.0
16.40	57.0

Time 24-hour	LA90 dB
16.50	56.4
17.00	56.8
17.10	56.9
17.20	56.7
17.30	56.9
17.40	56.1
17.50	54.3
18.00	56.2
18.10	56.7
18.20	56.1
18.30	56.2
18.40	55.9
18.50	56.5
19.00	56.2
19.10	56.2
19.20	57.2
19.30	56.4
19.40	57.6
19.50	56.5
20.00	57.9
20.10	56.2
20.20	56.6
20.30	57.1
20.40	55.9
20.50	57.7
21.00	56.1
21.10	55.9
21.20	55.3
21.30	55.6

Time 24-hour	LA90 dB
21.40	56.1
21.50	56.2
22.00	55.9
22.10	56.1
22.20	56.0
22.30	55.8
22.40	55.8
22.50	55.8
23.00	55.7
23.10	54.6
23.20	54.1
23.30	54.0
23.40	53.9
23.50	54.0
0.00	54.2
0.10	54.1
0.20	54.3
0.30	54.1
0.40	54.1
0.50	54.0
1.00	53.9
1.10	53.9
1.20	54.2
1.30	53.8
1.40	53.6
1.50	53.7
2.00	53.7
2.10	53.7
2.20	53.7

Time 24-hour	LA90 dB
2.30	53.6
2.40	53.7
2.50	53.9
3.00	53.9
3.10	54.1
3.20	54.1
3.30	53.9
3.40	53.9
3.50	53.8
4.00	53.9
4.10	55.2
4.20	51.0
4.30	51.2
4.40	51.1
4.50	53.7
5.00	55.3
5.10	53.6
5.20	53.7
5.30	54.1
5.40	54.6
5.50	53.8
6.00	53.8
6.10	53.9
6.20	54.0
6.30	53.8
6.40	54.1
6.50	54.2
7.00	53.8
7.10	53.8

Time 24-hour	LA90 dB
7.20	54.1
7.30	53.8
7.40	53.8
7.50	54.0
8.00	54.3
8.10	54.5
8.20	54.5
8.30	54.6
8.40	54.7
8.50	54.8
9.00	54.6
9.10	54.9
9.20	54.7
9.30	54.9
9.40	55.5
9.50	55.1
10.00	55.0
10.10	55.9
10.20	54.4
10.30	53.7
10.40	53.2
10.50	53.5
11.00	53.5
11.10	53.4
11.20	53.7
11.30	53.9
11.40	53.6
11.50	53.7
12.00	54.9

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ACOUSTIC SURVEY DATA SHEET 134976 asds2 L_{A90}

Client: Samuel Smith

Date of Survey: 5th, 6th & 7th November 2013

Project: The Fitzroy Tavern 18 Charlotte Street

Description: 12.00hrs 6th November to 12.00hrs 7th November

Time 24-hour	LA90 dB
12.00	54.9
12.10	53.8
12.20	55.2
12.30	53.6
12.40	54.3
12.50	56.2
13.00	56.0
13.10	56.3
13.20	56.7
13.30	56.4
13.40	56.3
13.50	59.7
14.00	56.2
14.10	54.4
14.20	54.5
14.30	54.5
14.40	54.7
14.50	54.7
15.00	55.2
15.10	55.2
15.20	55.1
15.30	52.7
15.40	55.1
15.50	55.3
16.00	53.4
16.10	55.1
16.20	55.1
16.30	52.3
16.40	55.8

Time 24-hour	LA90 dB
16.50	56.0
17.00	56.0
17.10	55.9
17.20	56.0
17.30	56.0
17.40	55.9
17.50	55.8
18.00	55.4
18.10	56.0
18.20	58.7
18.30	59.0
18.40	56.0
18.50	63.0
19.00	60.8
19.10	58.0
19.20	57.1
19.30	56.4
19.40	57.6
19.50	58.6
20.00	56.7
20.10	57.7
20.20	56.7
20.30	59.8
20.40	56.1
20.50	57.8
21.00	57.4
21.10	56.4
21.20	58.1
21.30	57.8

Time 24-hour	LA90 dB
21.40	58.7
21.50	55.5
22.00	57.0
22.10	55.4
22.20	55.1
22.30	55.4
22.40	55.8
22.50	55.7
23.00	56.1
23.10	55.5
23.20	55.8
23.30	55.2
23.40	54.3
23.50	54.2
0.00	53.9
0.10	54.3
0.20	54.0
0.30	54.2
0.40	53.9
0.50	53.6
1.00	53.8
1.10	54.4
1.20	54.1
1.30	54.0
1.40	54.0
1.50	53.8
2.00	53.7
2.10	53.8
2.20	53.7

Time 24-hour	LA90 dB
2.30	53.8
2.40	53.8
2.50	56.8
3.00	53.9
3.10	53.6
3.20	53.7
3.30	54.1
3.40	53.9
3.50	53.8
4.00	53.6
4.10	53.6
4.20	53.8
4.30	53.8
4.40	54.8
4.50	53.8
5.00	55.8
5.10	52.4
5.20	55.6
5.30	53.7
5.40	51.8
5.50	53.9
6.00	53.7
6.10	53.8
6.20	53.7
6.30	55.2
6.40	54.0
6.50	54.0
7.00	54.4
7.10	54.1

Time 24-hour	LA90 dB
7.20	54.3
7.30	54.0
7.40	54.0
7.50	54.1
8.00	54.6
8.10	55.0
8.20	55.1
8.30	55.0
8.40	55.0
8.50	55.1
9.00	55.6
9.10	55.2
9.20	55.1
9.30	55.1
9.40	54.8
9.50	54.6
10.00	54.5
10.10	54.4
10.20	54.6
10.30	55.0
10.40	54.3
10.50	54.5
11.00	54.3
11.10	54.1
11.20	54.2
11.30	53.6
11.40	54.0
11.50	53.8
12.00	53.3

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ACOUSTIC SURVEY DATA SHEET 134976 asds3 L_{A90}

Client: Date of Survey:

Project: Description: 12.00hrs 7th November to 14.30hrs 7th November

Time 24-hour	LA90 dB
12.00	53.3
12.10	53.8
12.20	54.2
12.30	56.5
12.40	53.8
12.50	53.4
13.00	55.1
13.10	54.1
13.20	54.3
13.30	58.4
13.40	54.6
13.50	55.4
14.00	56.2
14.10	55.7
14.20	
14.30	
14.40	
14.50	
15.00	
15.10	
15.20	
15.30	
15.40	
15.50	
16.00	
16.10	
16.20	
16.30	
16.40	

Time 24-hour	LA90 dB
16.50	
17.00	
17.10	
17.20	
17.30	
17.40	
17.50	
18.00	
18.10	
18.20	
18.30	
18.40	
18.50	
19.00	
19.10	
19.20	
19.30	
19.40	
19.50	
20.00	
20.10	
20.20	
20.30	
20.40	
20.50	
21.00	
21.10	
21.20	
21.30	

Time 24-hour	LA90 dB
21.40	
21.50	
22.00	
22.10	
22.20	
22.30	
22.40	
22.50	
23.00	
23.10	
23.20	
23.30	
23.40	
23.50	
0.00	
0.10	
0.20	
0.30	
0.40	
0.50	
1.00	
1.10	
1.20	
1.30	
1.40	
1.50	
2.00	
2.10	
2.20	

Time 24-hour	LA90 dB
2.30	
2.40	
2.50	
3.00	
3.10	
3.20	
3.30	
3.40	
3.50	
4.00	
4.10	
4.20	
4.30	
4.40	
4.50	
5.00	
5.10	
5.20	
5.30	
5.40	
5.50	
6.00	
6.10	
6.20	
6.30	
6.40	
6.50	
7.00	
7.10	

Time 24-hour	LA90 dB
7.20	
7.30	
7.40	
7.50	
8.00	
8.10	
8.20	
8.30	
8.40	
8.50	
9.00	
9.10	
9.20	
9.30	
9.40	
9.50	
10.00	
10.10	
10.20	
10.30	
10.40	
10.50	
11.00	
11.10	
11.20	
11.30	
11.40	
11.50	
12.00	

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ACOUSTIC SURVEY DATA SHEET 134976 asds1 L_{Aeq}

Client: Samuel Smith

Date of Survey: 5th, 6th & 7th November 2013

Project: The Fitzroy Tavern 18 Charlotte Street

Description: 14.30hrs 5th November to 12.00hrs 6th November

Time 24-hour	LAeq dB
12.00	
12.10	
12.20	
12.30	
12.40	
12.50	
13.00	
13.10	
13.20	
13.30	
13.40	
13.50	
14.00	
14.10	
14.20	
14.30	63.2
14.40	58.7
14.50	58.7
15.00	58.1
15.10	58.2
15.20	57.5
15.30	57.4
15.40	57.6
15.50	57.7
16.00	57.3
16.10	58.0
16.20	58.6
16.30	57.9
16.40	58.6

Time 24-hour	LAeq dB
16.50	63.2
17.00	58.7
17.10	58.7
17.20	58.1
17.30	58.2
17.40	57.5
17.50	57.4
18.00	57.6
18.10	57.7
18.20	57.3
18.30	58.0
18.40	58.6
18.50	57.9
19.00	58.6
19.10	57.3
19.20	58.2
19.30	58.1
19.40	59.7
19.50	58.7
20.00	59.6
20.10	58.3
20.20	57.9
20.30	58.5
20.40	57.3
20.50	62.6
21.00	58.7
21.10	58.1
21.20	57.1
21.30	57.2

Time 24-hour	LAeq dB
21.40	58.8
21.50	58.4
22.00	58.3
22.10	57.5
22.20	57.9
22.30	56.7
22.40	58.1
22.50	58.2
23.00	57.3
23.10	56.5
23.20	56.0
23.30	56.7
23.40	56.2
23.50	56.2
0.00	57.3
0.10	57.4
0.20	57.5
0.30	57.4
0.40	56.7
0.50	56.5
1.00	56.6
1.10	56.8
1.20	57.8
1.30	56.7
1.40	57.0
1.50	56.3
2.00	56.9
2.10	56.8
2.20	56.8

Time 24-hour	LAeq dB
2.30	56.2
2.40	55.3
2.50	55.5
3.00	57.5
3.10	57.5
3.20	57.9
3.30	57.3
3.40	58.0
3.50	58.1
4.00	55.6
4.10	58.0
4.20	57.1
4.30	57.5
4.40	57.8
4.50	55.1
5.00	57.5
5.10	57.0
5.20	55.0
5.30	56.7
5.40	57.1
5.50	57.0
6.00	57.0
6.10	57.1
6.20	56.8
6.30	55.6
6.40	56.5
6.50	56.7
7.00	56.3
7.10	56.1

Time 24-hour	LAeq dB
7.20	57.1
7.30	55.1
7.40	56.2
7.50	57.7
8.00	57.5
8.10	57.0
8.20	57.5
8.30	56.7
8.40	57.1
8.50	57.5
9.00	57.2
9.10	57.9
9.20	57.9
9.30	57.5
9.40	57.3
9.50	59.8
10.00	57.4
10.10	57.6
10.20	56.9
10.30	56.8
10.40	57.3
10.50	56.8
11.00	57.4
11.10	57.1
11.20	58.8
11.30	57.3
11.40	57.4
11.50	57.2
12.00	58.1

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ACOUSTIC SURVEY DATA SHEET 134976 asds2 L_{Aeq}

Client: Samuel Smith

Date of Survey: 5th, 6th & 7th November 2013

Project: The Fitzroy Tavern 18 Charlotte Street

Description: 12.00hrs 6th November to 12.00hrs 7th November

Time 24-hour	LAeq dB
12.00	58.1
12.10	56.6
12.20	58.4
12.30	57.3
12.40	58.4
12.50	59.0
13.00	57.8
13.10	58.2
13.20	58.8
13.30	58.0
13.40	58.4
13.50	60.7
14.00	58.9
14.10	57.5
14.20	60.3
14.30	60.3
14.40	59.3
14.50	58.9
15.00	60.4
15.10	60.4
15.20	59.6
15.30	57.6
15.40	59.5
15.50	59.8
16.00	59.8
16.10	58.9
16.20	59.4
16.30	59.3
16.40	59.5

Time 24-hour	LAeq dB
16.50	59.5
17.00	58.4
17.10	60.2
17.20	59.4
17.30	59.8
17.40	59.9
17.50	60.5
18.00	59.5
18.10	61.1
18.20	63.2
18.30	61.9
18.40	62.1
18.50	63.9
19.00	62.6
19.10	61.4
19.20	61.3
19.30	60.8
19.40	62.2
19.50	61.9
20.00	61.1
20.10	61.0
20.20	61.3
20.30	62.2
20.40	61.9
20.50	61.0
21.00	61.6
21.10	59.7
21.20	61.4
21.30	59.5

Time 24-hour	LAeq dB
21.40	62.4
21.50	58.8
22.00	61.0
22.10	60.0
22.20	59.4
22.30	60.1
22.40	60.2
22.50	61.7
23.00	61.3
23.10	61.2
23.20	61.6
23.30	60.1
23.40	59.7
23.50	58.5
0.00	58.6
0.10	58.1
0.20	58.2
0.30	58.9
0.40	58.3
0.50	58.3
1.00	58.1
1.10	58.3
1.20	56.4
1.30	57.6
1.40	57.5
1.50	57.7
2.00	58.1
2.10	57.9
2.20	57.5

Time 24-hour	LAeq dB
2.30	57.1
2.40	57.6
2.50	57.6
3.00	58.6
3.10	58.0
3.20	57.4
3.30	58.6
3.40	58.9
3.50	56.8
4.00	58.2
4.10	58.6
4.20	58.5
4.30	59.1
4.40	59.0
4.50	57.4
5.00	59.5
5.10	58.0
5.20	58.8
5.30	57.7
5.40	57.7
5.50	57.3
6.00	57.1
6.10	57.4
6.20	57.4
6.30	57.0
6.40	57.3
6.50	56.8
7.00	58.1
7.10	55.6

Time 24-hour	LAeq dB
7.20	57.5
7.30	57.5
7.40	57.5
7.50	57.4
8.00	57.3
8.10	57.2
8.20	57.8
8.30	57.4
8.40	57.4
8.50	58.3
9.00	58.6
9.10	58.3
9.20	58.2
9.30	57.3
9.40	57.0
9.50	57.2
10.00	56.9
10.10	57.1
10.20	57.7
10.30	57.3
10.40	56.7
10.50	56.7
11.00	57.1
11.10	56.9
11.20	56.8
11.30	56.9
11.40	55.7
11.50	57.5
12.00	56.8

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ACOUSTIC SURVEY DATA SHEET 134976 asds3 L_{Aeq}

Client: Samuel Smith

Date of Survey: 5th, 6th & 7th November 2013

Project: The Fitzroy Tavern 18 Charlotte Street

Description: 12.00hrs 7th November to 14.30hrs 7th November

Time 24-hour	LAeq dB
12.00	56.8
12.10	56.8
12.20	57.4
12.30	59.5
12.40	55.9
12.50	57.1
13.00	59.5
13.10	56.2
13.20	58.0
13.30	59.6
13.40	56.6
13.50	58.3
14.00	57.7
14.10	62.3
14.20	
14.30	
14.40	
14.50	
15.00	
15.10	
15.20	
15.30	
15.40	
15.50	
16.00	
16.10	
16.20	
16.30	
16.40	

Time 24-hour	LAeq dB
16.50	
17.00	
17.10	
17.20	
17.30	
17.40	
17.50	
18.00	
18.10	
18.20	
18.30	
18.40	
18.50	
19.00	
19.10	
19.20	
19.30	
19.40	
19.50	
20.00	
20.10	
20.20	
20.30	
20.40	
20.50	
21.00	
21.10	
21.20	
21.30	

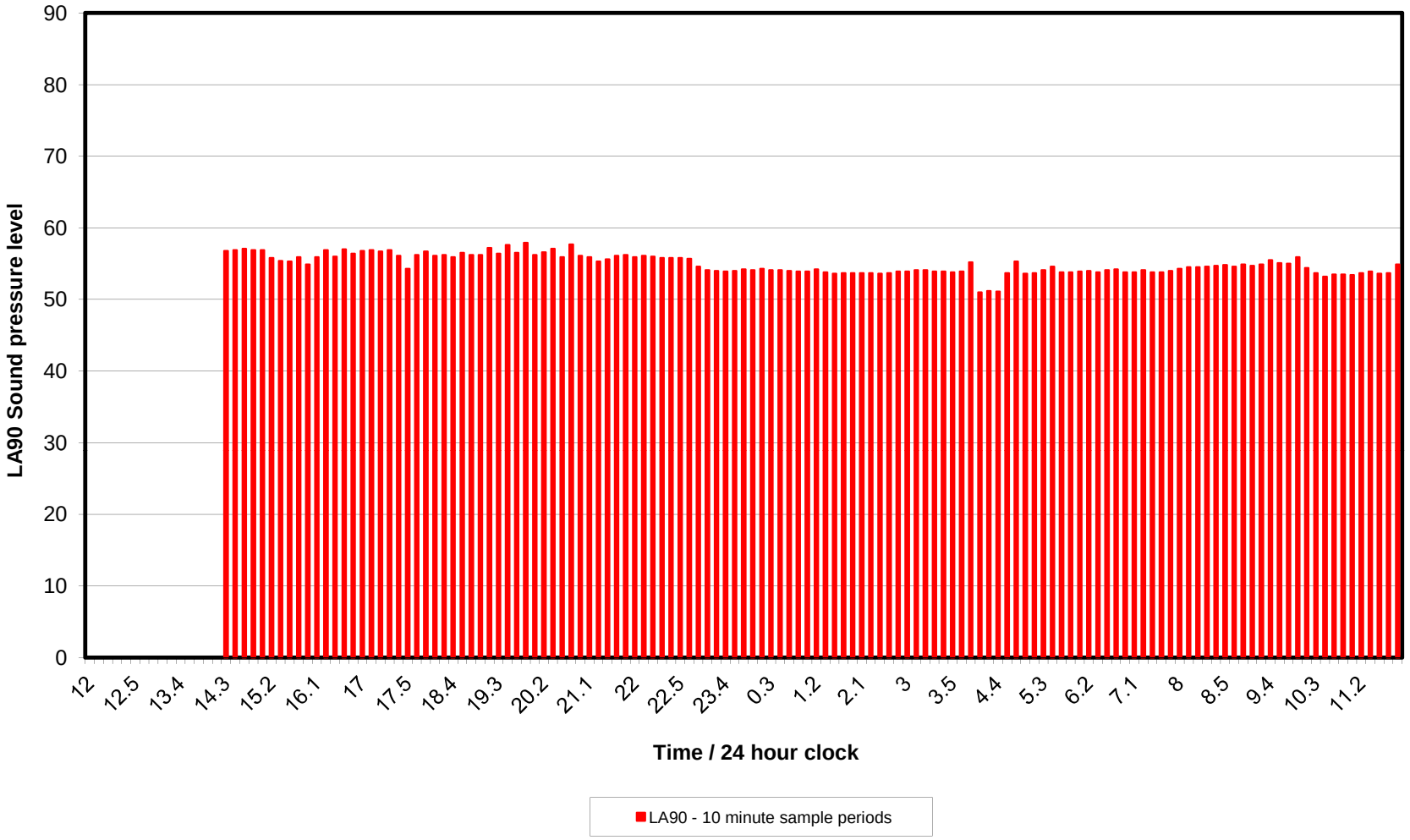
Time 24-hour	LAeq dB
21.40	
21.50	
22.00	
22.10	
22.20	
22.30	
22.40	
22.50	
23.00	
23.10	
23.20	
23.30	
23.40	
23.50	
0.00	
0.10	
0.20	
0.30	
0.40	
0.50	
1.00	
1.10	
1.20	
1.30	
1.40	
1.50	
2.00	
2.10	
2.20	

Time 24-hour	LAeq dB
2.30	
2.40	
2.50	
3.00	
3.10	
3.20	
3.30	
3.40	
3.50	
4.00	
4.10	
4.20	
4.30	
4.40	
4.50	
5.00	
5.10	
5.20	
5.30	
5.40	
5.50	
6.00	
6.10	
6.20	
6.30	
6.40	
6.50	
7.00	
7.10	

Time 24-hour	LAeq dB
7.20	
7.30	
7.40	
7.50	
8.00	
8.10	
8.20	
8.30	
8.40	
8.50	
9.00	
9.10	
9.20	
9.30	
9.40	
9.50	
10.00	
10.10	
10.20	
10.30	
10.40	
10.50	
11.00	
11.10	
11.20	
11.30	
11.40	
11.50	
12.00	

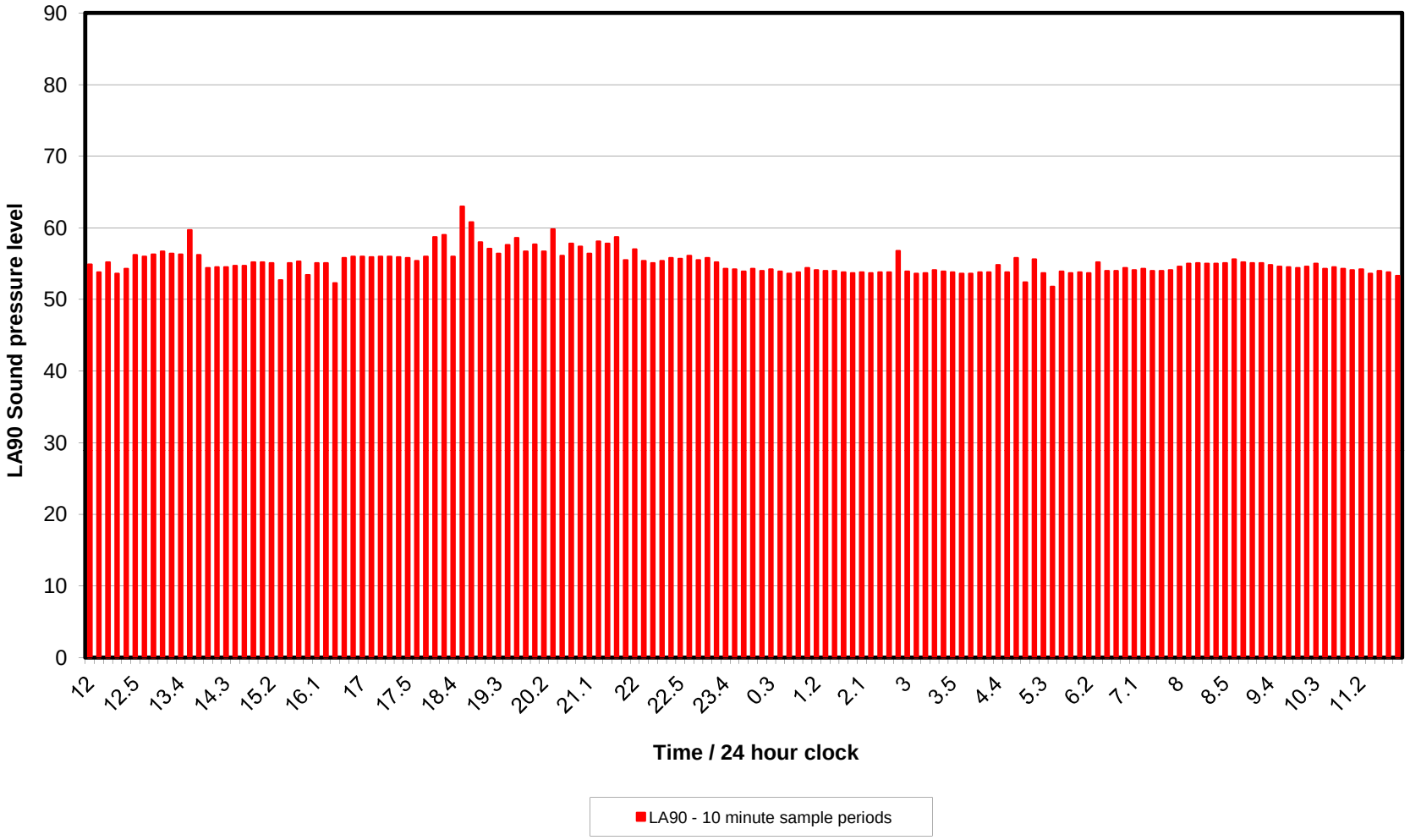
Background Noise Level Survey
The Fitzroy Tavern 18 Charlotte Street
LondonW1T 2LY

134976 /g1 L90



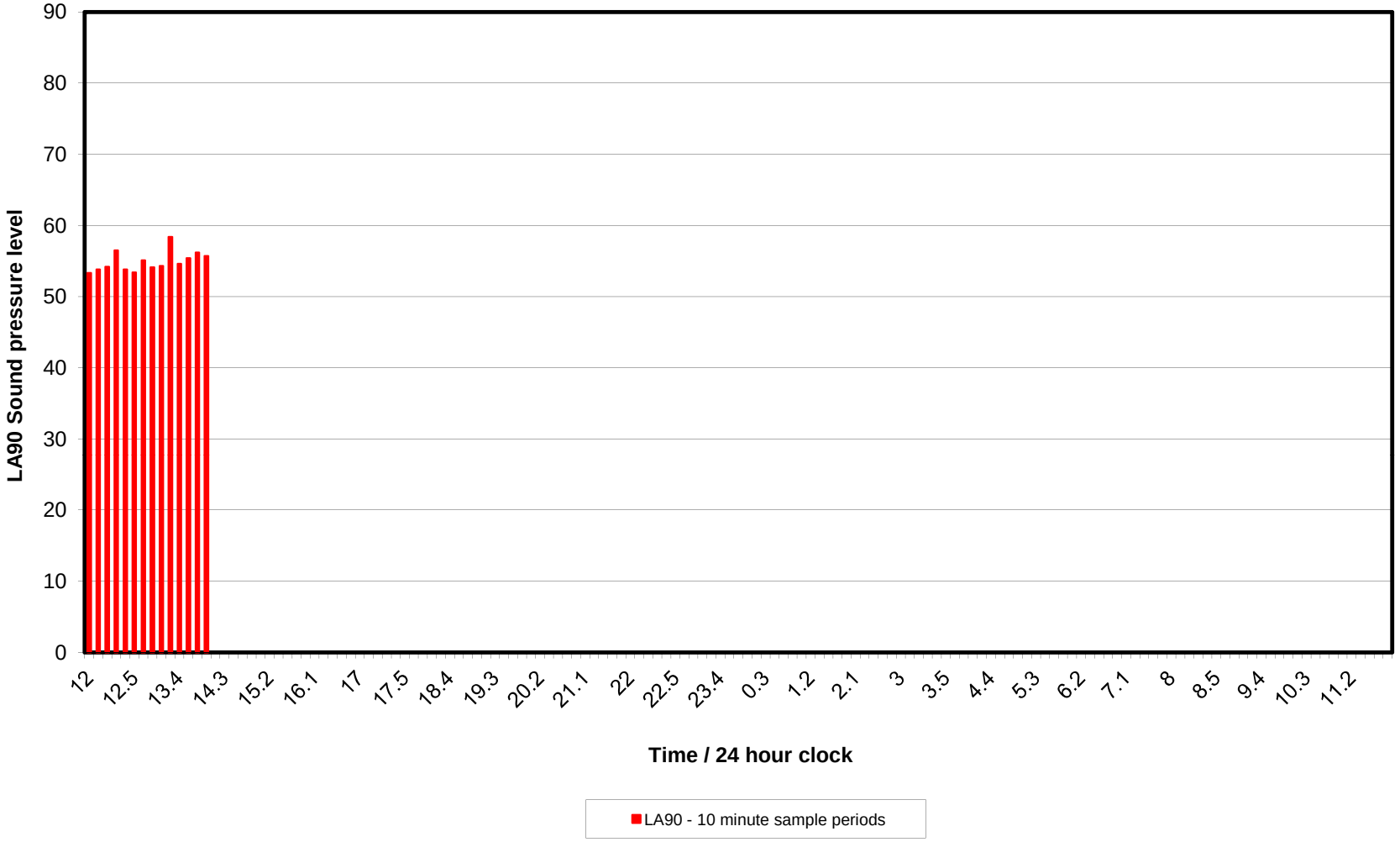
Background Noise Level Survey
The Fitzroy Tavern 18 Charlotte Street
LondonW1T 2LY

134976 /g2 L90



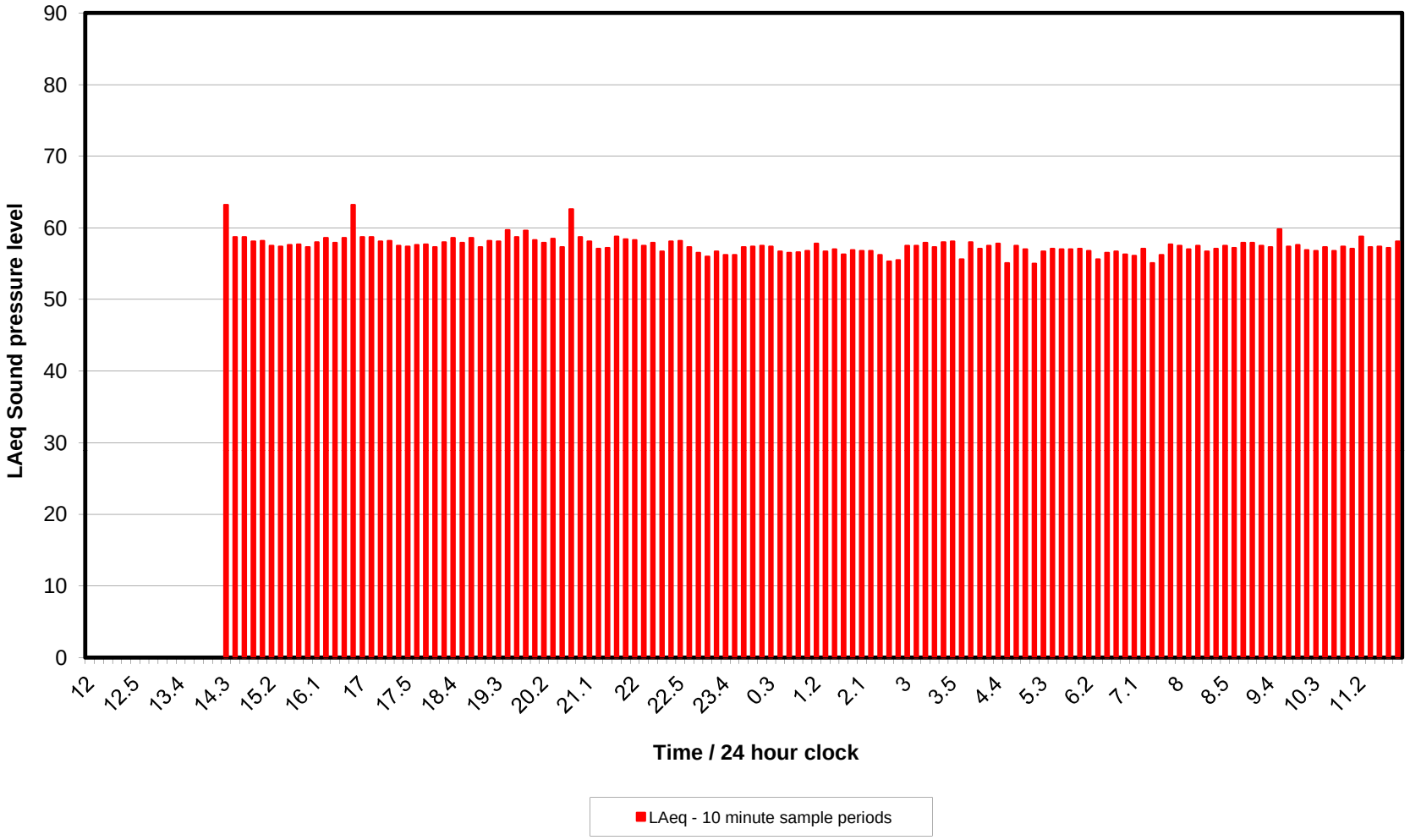
Background Noise Level Survey
The Fitzroy Tavern 18 Charlotte Street
LondonW1T 2LY

134976 /g3 L90



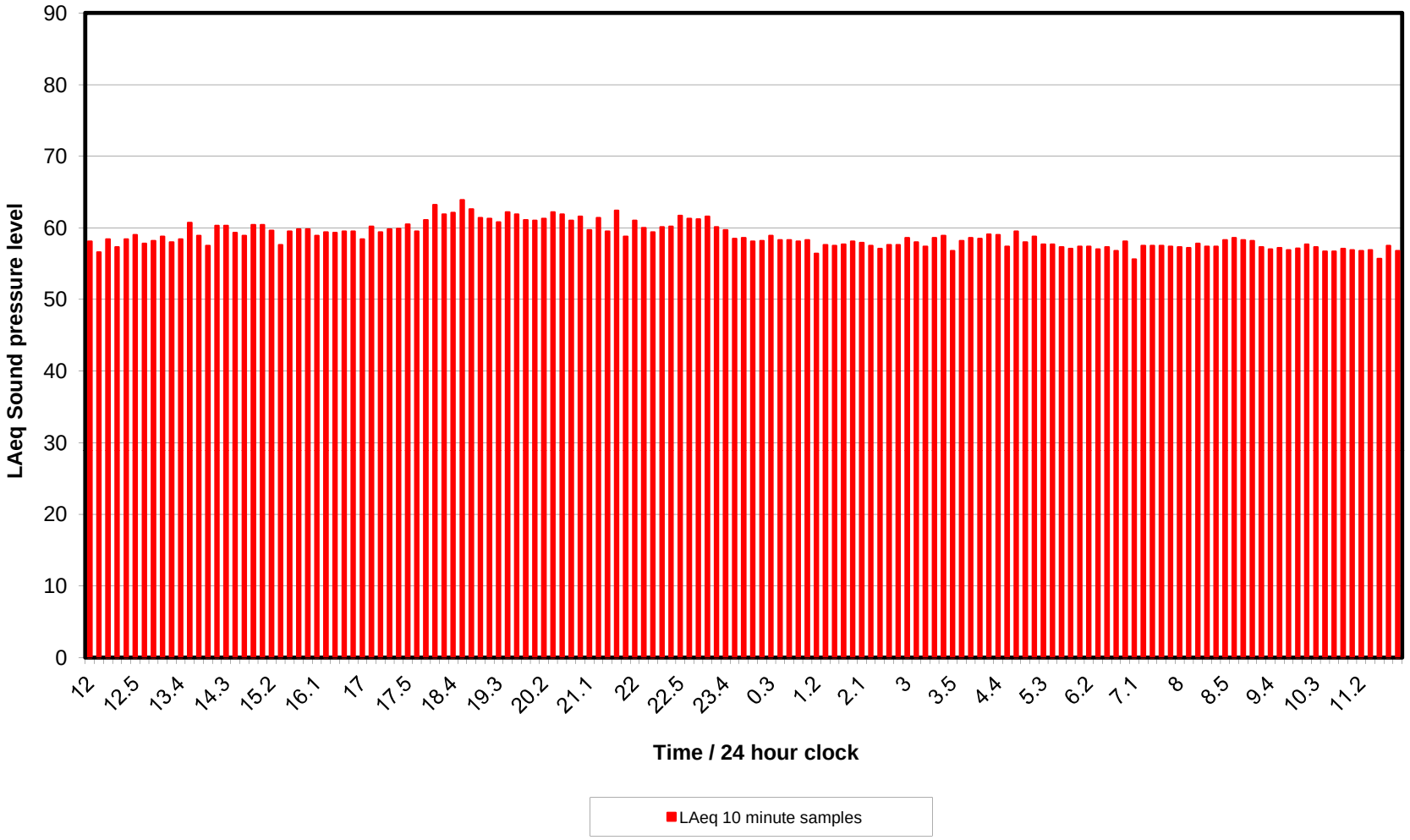
Background Noise Level Survey
The Fitzroy Tavern 18 Charlotte Street
London W1T 2LY

134976 /g1 Leq



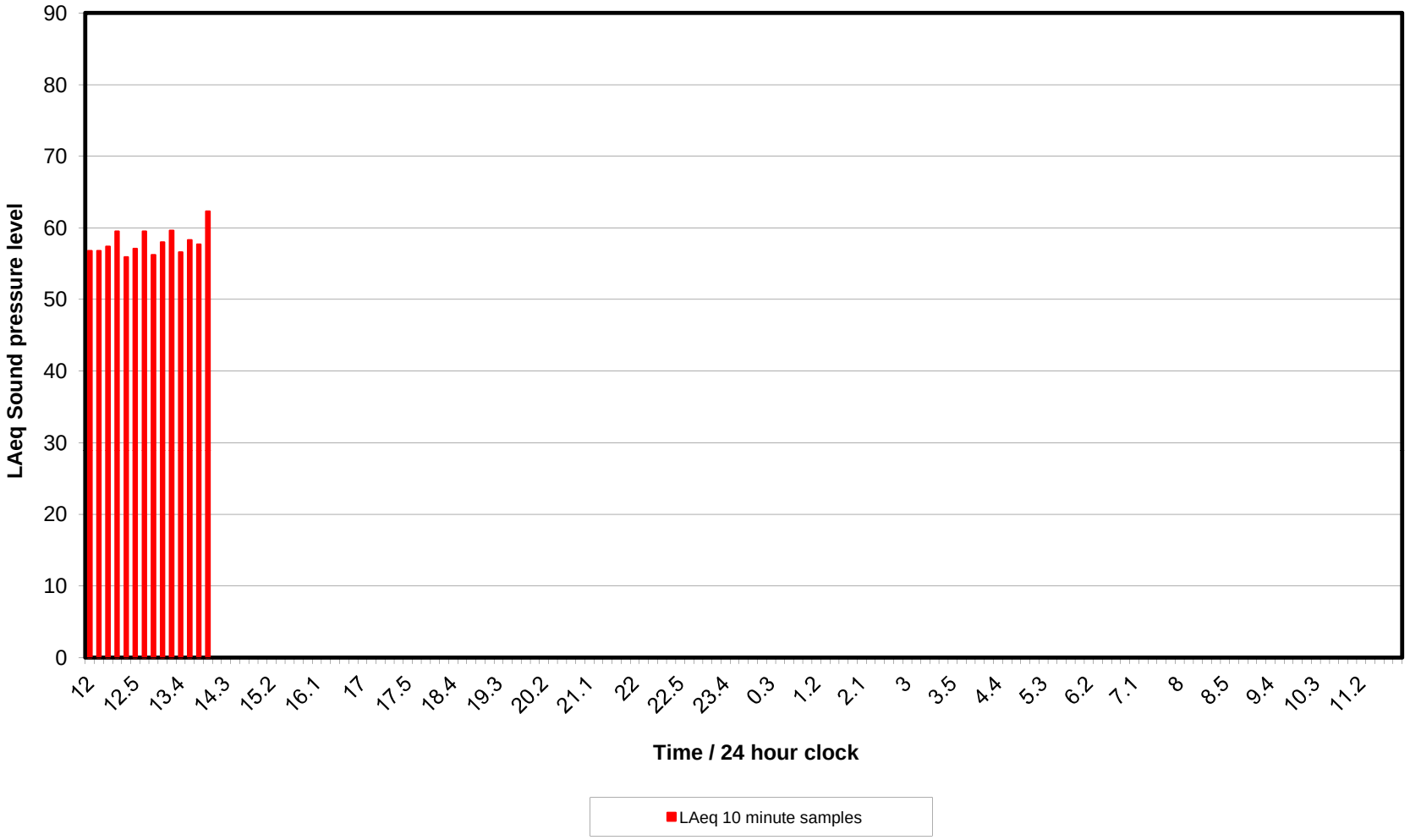
Background Noise Level Survey
The Fitzroy Tavern 18 Charlotte Street
London W1T 2LY

134976 /g2 Leq



Background Noise Level Survey
The Fitzroy Tavern 18 Charlotte Street
London W1T 2LY

134976 /g3 Leq



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ACOUSTIC CALCULATION SHEET 134976 ACS1

Client: Samuel Smith

Date: 07.11.13

Project: The Fitzroy Tavern 16 Charlotte Street W1T 2LY

Description: Calculation of noise level at garden of 2 Campden Hill Place

	Frequency / Hz								
	dB(A)	63	125	250	500	1k	2k	4k	8k
Calculate total sound									
pressure level									
Lp(i)									
Daikin RZQSG140LY1 @ 1m	54								
2No.	+3								
	57								
Lp(ii)									
Daikin RXYSQ6P8Y1 @ 1m	55								
Total sound pressure level Lp_1									
Lp(i) +Lp(ii)	**59**								
Calculate resultant noise									
level at point of interest									
Lp1	59								
Non-hemispherical radiation	+3								
Reveberant effect of space	+3								
Distance loss to 8m	-18								
Façade correction	+3								
Resultant @ 1m									
from closest window	***50***								

CERTIFICATE OF CALIBRATION

UKAS CALIBRATION
7623

Date of Issue: 08 October 2013 **Certificate Number: UCRT13/1161**

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

Approved Signatory

M. Breslin [ ] K. Mistry [ ]

Customer	ANV Measurement Systems Beaufort Court 17 Roebuck Way Milton Keynes MK5 8HL
Order No.	ANV MS Hire
Description	Sound Level Meter / Pre-amp / Microphone / Associated Calibrator

Identification	*Manufacturer*	*Instrument*	*Type*	*Serial No. / Version*
	Rion	Sound Level Meter	NL-52	00610205
	Rion	Firmware		1.5
	Rion	Pre Amplifier	NH-25	10199
	Rion	Microphone	UC-59	02547
	Brüel & Kjær	Calibrator	4231	3002998
		Calibrator adaptor type if applicable		UC 0210

Performance Class 1

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

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

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

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

Date Received 04 October 2013 ANV Job No. UKAS13/10097

Date Calibrated 08 October 2013

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

Previous Certificate	*Dated*	*Certificate No.*	*Laboratory*
	20 November 2012	TCRT12/1298	ANV Measurement Systems

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

CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 7623

Certificate Number
UCRT13/1161

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

SLM instruction manual title	Sound Level Meter	NL-42 / NL-52
SLM instruction manual ref / issue		11-03
SLM instruction manual source		Manufacturer
Internet download date if applicable		N/A
Case corrections available		Yes
Uncertainties of case corrections		Yes
Source of case data		Manufacturer
Wind screen corrections available		Yes
Uncertainties of wind screen corrections		Yes
Source of wind screen data		Manufacturer
Mic pressure to free field corrections		Yes
Uncertainties of Mic to F.F. corrections		Yes
Source of Mic to F.F. corrections		Manufacturer
Total expanded uncertainties within the requirements of IEC 61672-1:2002		Yes
Specified or equivalent Calibrator		Specified
Customer or Lab Calibrator		Lab Calibrator
Calibrator adaptor type if applicable		UC 0210
Calibrator cal. date		07 October 2013
Calibrator cert. number		UCRT13/1160
Calibrator cal cert issued by		ANV Measurement Systems
Calibrator SPL @ STP	94.12 dB	Calibration reference sound pressure level
Calibrator frequency	1000.00 Hz	Calibration check frequency
Reference level range	25 - 130 dB	

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15
Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

Environmental conditions during tests	Start	End	
Temperature	22.47	22.78	± 0.20 °C
Humidity	56.3	54.8	± 3.00 %RH
Ambient Pressure	101.40	101.41	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.

Initial indicated level	93.9 dB		Adjusted indicated level	94.1	dB
The uncertainty of the associated calibrator supplied with the sound level meter ±				0.10	dB

Self Generated Noise — This test is currently not performed by this Lab.

Microphone installed (if requested by customer) = Less Than	N/A	dB	A Weighting
Uncertainty of the microphone installed self generated noise ±	N/A	dB	

Microphone replaced with electrical input device - UR = Under Range indicated

Weighting	A			C			Z		
	11.7	dB	UR	19.6	dB	UR	27.4	dB	UR
Uncertainty of the electrical self generated noise ±							0.12	dB	

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the Actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

..... END .....

Calibrated by: A Albans

Additional Comments

None

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GLOSSARY OF COMMONLY USED ACOUSTIC TERMINOLOGY

Decibel (dB)

Unit of measurement of sound. The human ear has an approximately logarithmic response to sound over a large dynamic range and hence a logarithmic scale is used to describe sound levels.

Sound power level (Lw)

This is an inherent property of the noise source and is independent of its surroundings. It is the decibel measure of the ratio of power output in watts to a reference power of 1ρW.

Sound pressure level (Lp)

This is the level of sound pressure as measured at a particular point in space by a sound level meter. It is the decibel measure of the ratio of the level of pressure generated by the sound compared to a standard reference pressure (20μPa). It is dependent on the acoustic properties of the surroundings.

Octave and Third Octave Bands

The human ear is sensitive to sound over a range of frequencies – approximately 20Hz to 20kHz. To define the frequency content of a sound the spectrum is divided into frequency bands and a sound pressure measurement made at each band. The most commonly used frequency bands are full octave bands in which the mid frequency of each band is twice that of the band below it. For finer analysis each full octave band may be split into three bands thus producing third octaves.

"A" Weighting

In an attempt to replicate the inconsistent response of the human ear to different frequencies the "A" weighting is applied to provide a single figure index of the subjective loudness of a sound.

Noise Rating (NR)
Noise Criteria (NC)

Sets of curves giving a single figure rating by limiting values of sound pressure level in each full octave band

$L_{A90, T}$

The A-weighted sound pressure level exceeded for ninety per cent of the measurement time period, T. It is used in British Standard 4142:1997 as a measure of background noise level.

$L_{A10, T}$

The A-weighted sound pressure level exceeded for ten percent of the measurement time period, T. It is widely used to measure traffic noise.

$L_{Aeq, T}$

The A-weighted equivalent continuous sound level. It is defined as the steady sound level that would contain the same quantity of acoustic energy as the time varying source over the measurement time period, T.