Chartered Building Consultancy

Acoustic South East

Planning Condition
Acoustic Assessment

Client:	**Izabela Michna-Altunatmaz**
Site Address:	**Village Taverna, Storrington**
Reported By:	**George Orton BEng(Hons) MIOA**
Date Written:	**16/06/2025**
Job Reffernce:	**J4034**
Revision:	**P01**
Issue Purpose:	**DC/25/0057 Planning condtion**

Constructionline Part of Capita plc

CQMS Safety Scheme

ANC THE ASSOCIATION OF NOISE CONSULTANTS

ATTMA

Contents

1 Summary and Conclusion ..... - 4 -

2 Context and Noise Criteria ..... - 5 -

2.1 Site Description ..... - 5 -

2.2 BS4142(2014+A1:2019): Method for rating and assessing industrial and commercial sound - 5 -

3 Noise Survey Baseline Conditions & Results ..... - 6 -

3.1 Noise Survey Details ..... - 6 -

3.2 Noise Survey Results LT1 ..... - 6 -

3.3 Additional Noise Survey Details ..... - 8 -

4 Noise Model ..... - 9 -

4.1 Details ..... - 9 -

4.2 Cooler Sound Source ..... - 9 -

4.3 Plant Room Sound Source ..... - 9 -

4.4 Noise Model Predictions ..... - 9 -

5 Assessments ..... - 10 -

5.1 BS4142 Assessment ..... - 10 -

6 Appendix ..... - 11 -

This report has been prepared for the private and confidential use of the client only and cannot be reproduced in whole or in part or relied upon by any third party for any use whatsoever without the express written authorisation of Acoustic Associates Sussex Ltd. If any third party whatsoever comes into possession of this report, they rely on it at their own risk and Acoustic Associates Sussex Ltd accepts no duty or responsibility (including in negligence) to any such third party

Report by: George Orton BEng(Hons) MIOA

Issue 1	16/06/2025	

Tables

Table 1: Sound Survey All Days ..... - 6 -
Table 2: Cooler Sound Survey ..... - 8 -

Figures

Figure 1: Site Layout ..... - 5 -
Figure 2: Daytime L90 ..... - 6 -
Figure 3: Daytime L90 (plant off) ..... - 7 -
Figure 4: Night time L90 ..... - 7 -
Figure 5: Plant Room Survey ..... - 8 -
Figure 6: Refrigeration Plant Noise Model ..... - 9 -
Figure 7: Extract Plan on/off graphs ..... - 11 -
Figure 8: Cooler 1/3 Octave Sound Levels ..... - 11 -

1 Summary and Conclusion

Acoustic South East have been appointed to undertake an acoustic assessment of the Village Taverna restaurant plant. The development description can be seen below:

Installation of exterior commercial fridge, and erection of a timber framed store room and open side timber structure with roof to provide a covered walk way. (Retrospective).

The development has gained planning approval albeit with certain conditions. The planning conditions, which relates to noise, can be seen below.

2: Within 3 months of the date of the permission hereby approved, a Noise Assessment shall be submitted to the Local Planning Authority for its approval in writing. which demonstrates that plant noise levels for the operation of the refrigeration unit

and compressors will not exceed background levels as measured at a position on the boundary of the application site closest to neighbouring domestic properties. The assessment shall be undertaken in accordance with BS 4142: 2014 (or subsequent superseding equivalent) and current best practice and shall include full spectrum analysis to confirm that there is no tonality or other acoustically distinctive features present in the noise and detail any mitigation measures required to achieve background sound level.

3: Within 1 month of the Noise Assessment required by condition 2 being approved in writing by the Local Planning Authority, a Post Installation Noise Assessment shall be submitted to the Local Planning Authority for its approval in writing. This shall identify the mitigation measures undertaken to achieve background sound levels, including any additional mitigation measures necessary and a timetable for implementation. These measures shall be permanently retained thereafter.

Existing environmental noise levels have been measured close to the adjacent noise sensitive receptors (NSR). Refrigeration plant noise levels have been assessed using a computer noise model and on site sound survey data.

As the rating level is below the background sound level it is considered that the planning condition criteria has been achieved.

2 Context and Noise Criteria

2.1 Site Description

The refrigeration plant has been installed at the rear of the restaurant. Walk in fridge freezers are below a timber roofed structure. Ther is also an external unit, serving the fridge freezers, on the flat roof. The roof layout and survey location can be seen below:

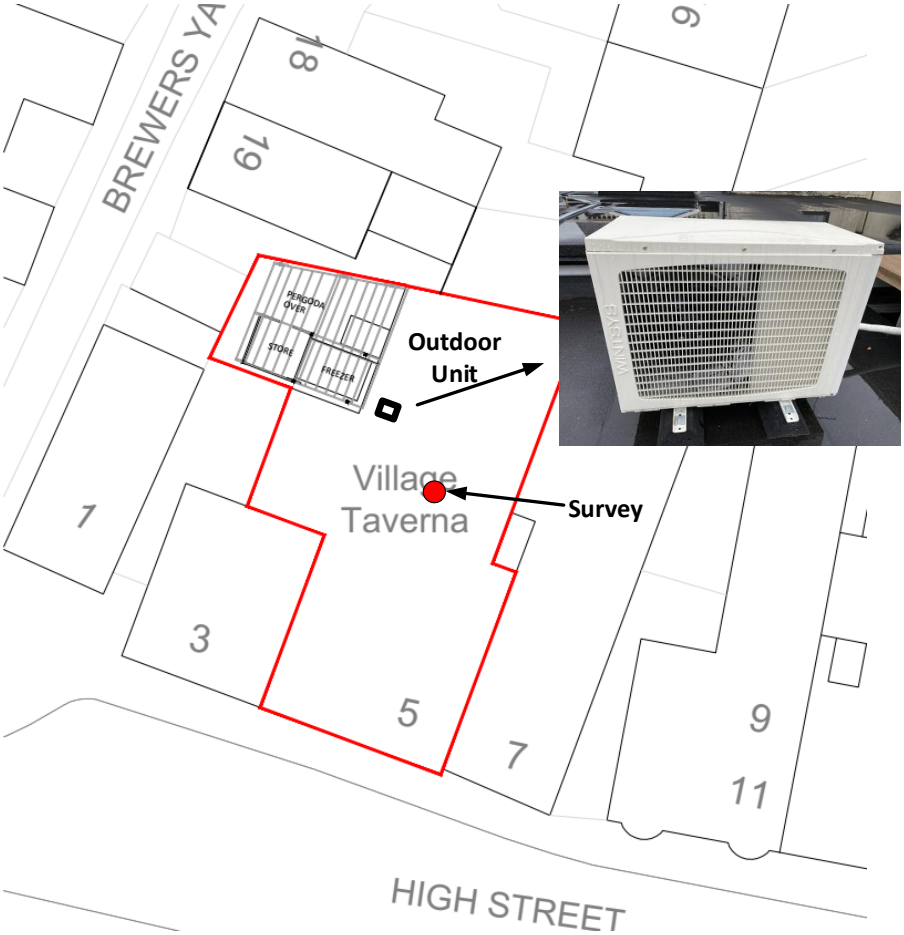

Figure 1: Site Layout

2.2 BS4142(2014+A1:2019): Method for rating and assessing industrial and commercial sound

This document provides a means of assessing the impact of industrial or commercial sound upon nearby noise-sensitive receptors, including residential properties. It does this by comparing the Rating Level of the noise from the industrial or commercial source with the pre-existent L_{90} background noise level affecting the same noise-sensitive premises. The Standard provides guidance that:

a) Typically, the greater the difference, the greater the magnitude of the impact.

b) A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.

c) A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.

d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background noise level, this is an indication of the specific sound source having a low impact, depending on the context.

3 Noise Survey Baseline Conditions & Results

A noise survey was carried out between the 29/05 and the 03/06/2025 to assess the existing noise levels affecting the nearby noise sensitive receptors.

The free-field survey location can be seen in the previous section (2m above flat roof) All noise levels in this report will be free-field noise levels unless stated otherwise (including noise model predictions)

3.1 Noise Survey Details

- Survey carried out by: George Orton BEng (Hons) MIOA
  Josh Robison
- Equipment used: Svantek 971 - Type 1 Sound Level Meter (LT1)
- Weather conditions: Mixed with wind speed average mostly under 5m/s

3.2 Noise Survey Results LT1

3.2.1 Ambient/Residual Sound Levels

A summary of the results can be seen below

		$L_{Aeq,16/8Hr}$	
Day	**Date**	**Day**	**Night**
Thu	29/05		49.8
Fri	30/05	53.4	48.0
Sat	31/05	52.8	47.2
Sun	01/06	53.9	48.6
Mon	02/06	53.4	49.0
AVERAGE:		**53**	**49**

Table 1: Sound Survey All Days

3.2.2 Background Sound $L_{A90,15min}$

The most commonly occurring (modal) background sound levels ($L_{A90,15min}$) can be seen below.

The graph below relates to the full daytime dataset:

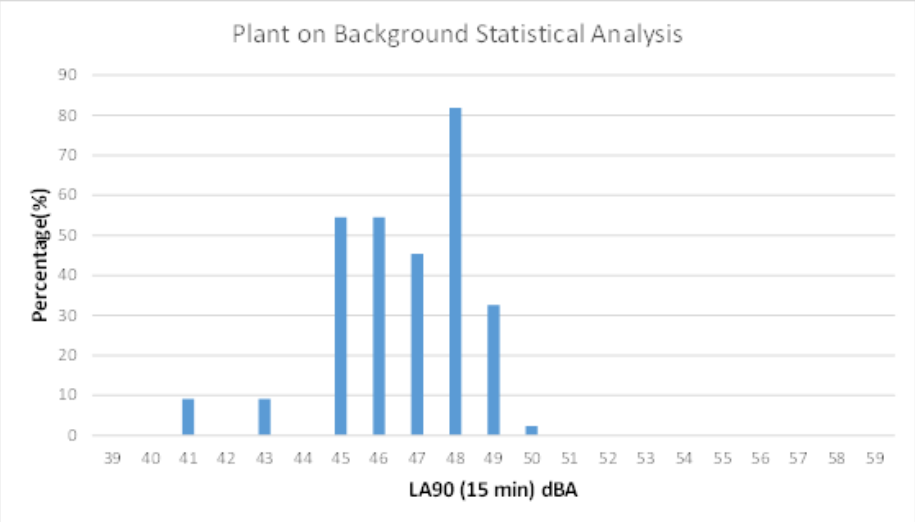

Figure 2: Daytime L90

As the extract system was operating this could have affected the daytime background sound level. The survey data was reviewed to show that the extract plant operates from approximately 11:00-23:00hrs (also confirmed by the restaurant manager). The background survey data, without extract running, were also reviewed to calculate the modal value:

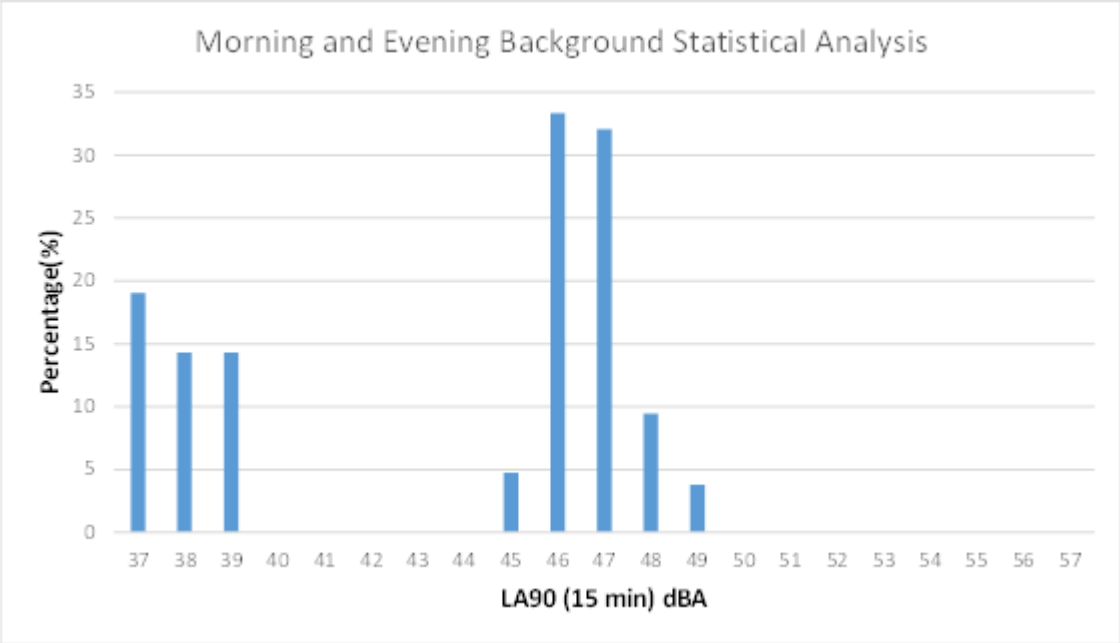

Figure 3: Daytime L90 (plant off)

The graph below relates to the full night time dataset:

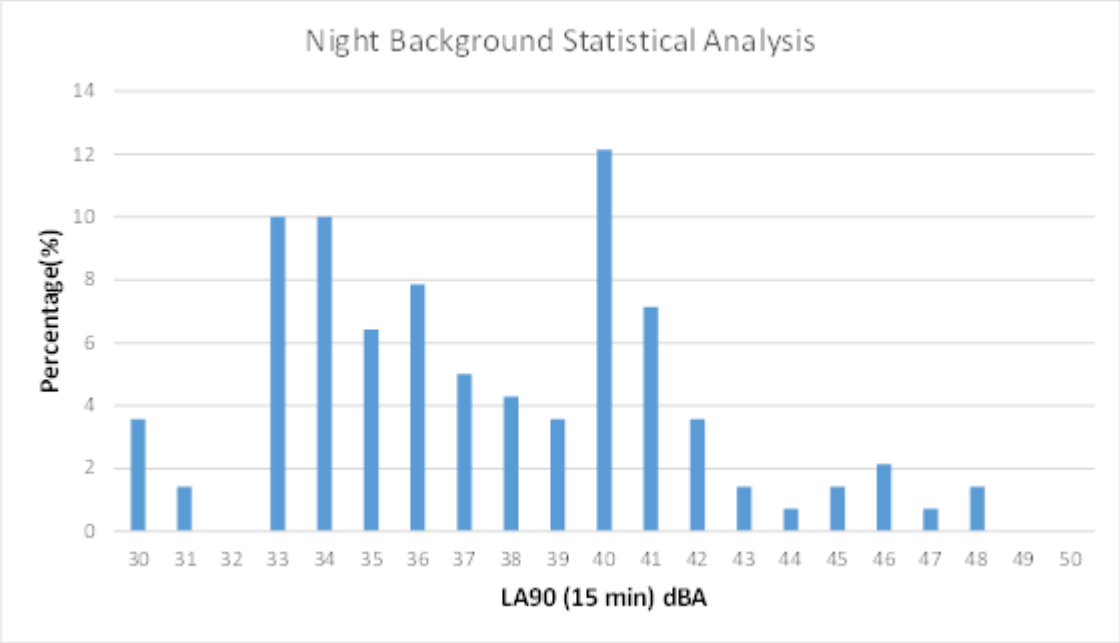

Figure 4: Night time L90

3.3 Additional Noise Survey Details

3.3.1 External Cooler Unit

During the survey setup visit measurements on 29/05/2025 specific noise measurements were also completed. When the rooftop external condenser unit was operating the sound level was measured at 0.5m from the unit. When the unit switched off a further measurement (residual noise) was completed

	L_{Aeq}	L_{A90}
Cooler on (Ambient)	58.2	56.7
Cooler off (Residual)	54	52.7

Table 2: Cooler Sound Survey

It should be noted that if the cooler sound level is corrected (by subtracting the residual sound level) the specific sound level would be 56dBA

3.3.2 Plant Room

An additional survey was completed inside the covered area housing the fridge/freezers. The survey was completed over the night time period (18/06-19/06/2025)

The $L_{Aeq,15min}$ sound levels can be seen below:

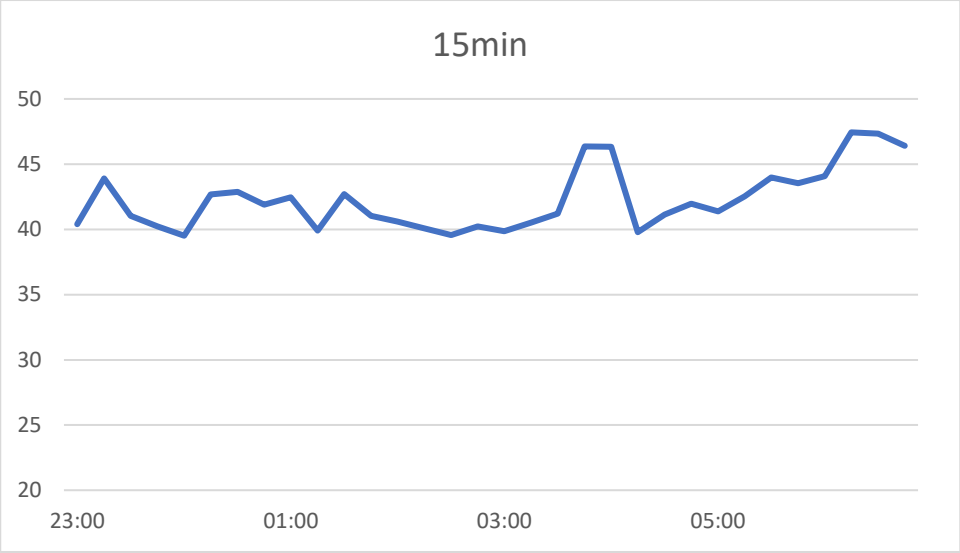

Figure 5: Plant Room Survey

The sound level trace shows that the refrigeration plant may have operated at around 04:00hrs (46dBA at survey location inside the room). The sound level increase, post 05:00hrs, will be related to other environmental sound sources.

4 Noise Model

4.1 Details

In order to see how noise varies at different positions around the proposed development it is possible to produce a noise contour map. A computer noise model has been completed using the computer package IMMI. IMMI faithfully implements the propagation method of ISO-9613:1996; Acoustics – Attenuation of sound during propagation outdoors. The development and surrounding buildings were added to the model along with various reception points (RPs). The RPs predict the noise level (incident free-field noise level) at a discrete position within the noise model

4.2 Cooler Sound Source

The cooler sound source was added just above the flat roof in the model The sound power was adjusted until the level at 0.5m was equal to the specific sound level of 56dBA (as measured)

4.3 Plant Room Sound Source

An area sound source element was added to the noise model in the location of the plant room roof. The internal sound level was set as 46dBA (as measured overnight). The sound insulation provided by the roof was set as 19dB (This was calculated by predicting the sound insulation of OSB and a weatherproofing layer. 19dB was considered worst case as it used the predicted attenuation at 125Hz).

4.4 Noise Model Predictions

The noise model can be seen below:

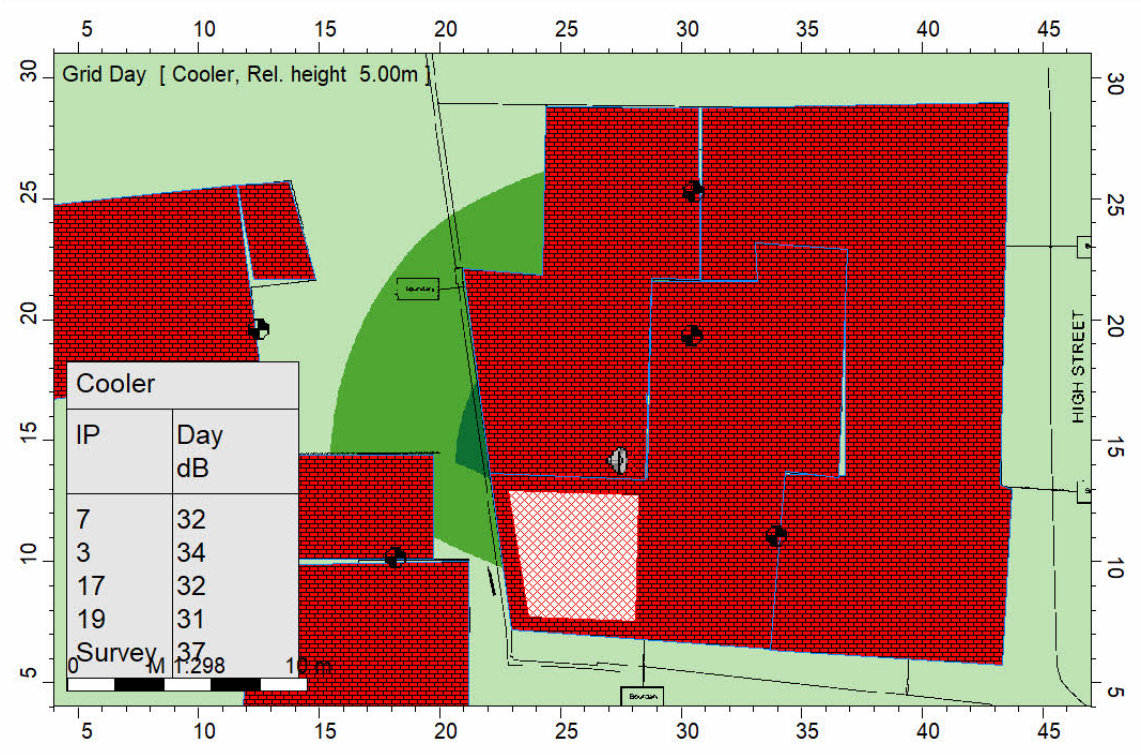

Figure 6: Refrigeration Plant Noise Model

A summary of the predictions can be found below:

- NSR Worst Case Sound Level = 34dBA
  - Cooler External Unit = 34dBA
  - Plant Room Roof = 7dBA

5 Assessments

5.1 BS4142 Assessment

A BS4142 assessment has been completed to predict the significance of impact upon the nearby residential receptors. As the cooler plant could operate during the night time

5.1.1 Background Sound Level

The survey data (modal value that was measured for 40% of the time) was used to express the daytime period background sound level. Based on the predictions the night time modal value should not have been affected by the occasional low level sounds created by the refrigeration plant (the sound level was around 33/34dB for 20% of the time which may have been related to the cooling plant.

- Representative $L_{A90,15min}$ = 40dBA

5.1.2 Rating Level

The worst case predicted level was 34dBA however BS4142 states the following: *"Identify tones using the method given in Annex C, then add a correction of 6 dB if a tone is present."*

The cooler sound levels were measured in 1/3 octaves which did not show any tonal components.

Based on the above and the low levels created in the plant room, It is unlikely that the plant will display tonal characteristics.

To err on the side of cation a 3dB "other sound" correction will be added resulting in a noise rating level of 37dB

5.1.3 Night Time Assessment

The predicted sound level is 3 dB below the background sound level which achieves the condition criteria. The reasoning for the condition criteria is detailed within BS4142:

The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background noise level, this is an indication of the specific sound source having a low impact, depending on the context.

5.1.4 Daytime Summary

During the daytime the cooler plant room may operate at a higher level (not possible to measure in absence of noise created by staff accessing the fridge/freezers) and the outdoor unit may operate for longer periods of time. However during the day the road noise levels and background sound levels would also be higher resulting in the rating level being well below the higher daytime background sound level.

6 Appendix

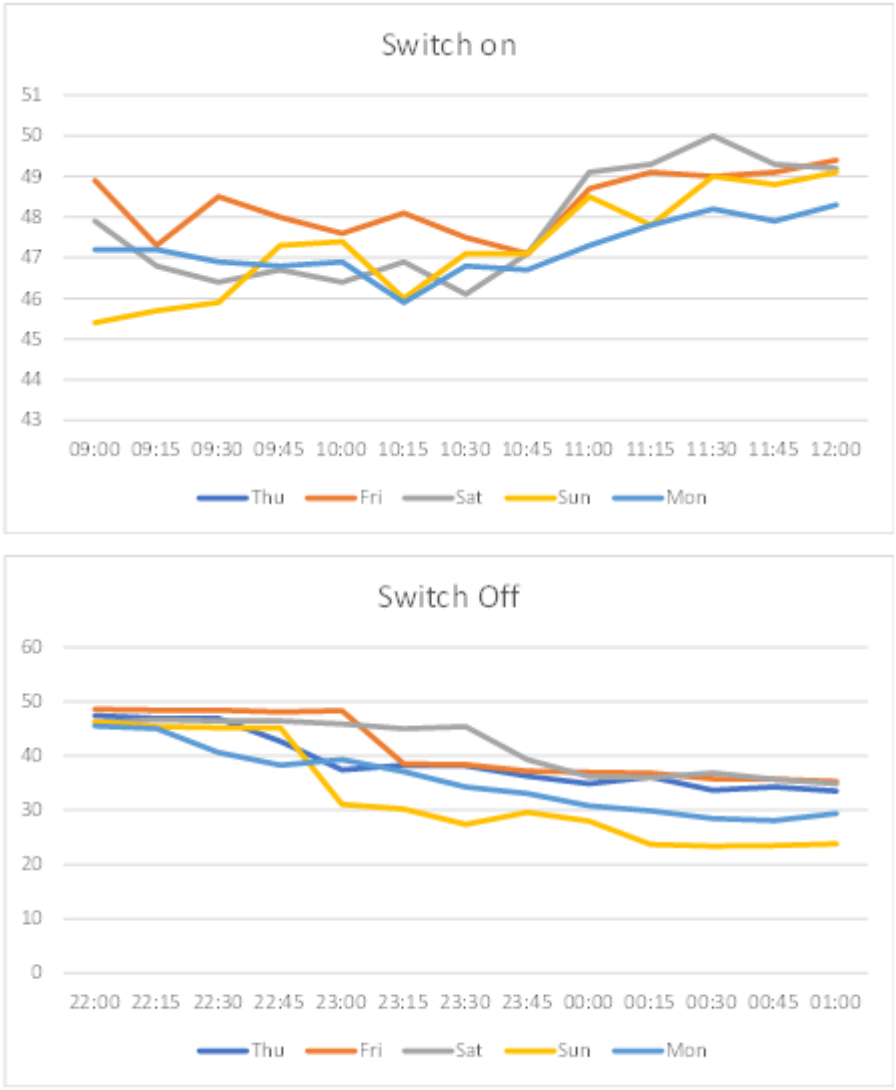

Figure 7: Extract Plan on/off graphs

	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1.0 kHz	1.25 kHz	1.6 kHz	2.0 kHz	2.5 kHz	3.15 kHz	4.0 kHz	5.0 kHz
Cooler	66.5	62.1	61.2	65.3	59.8	56.8	54.8	49.9	48.7	48.4	48.6	48.8	49	45.8	45.3	45.1	44.1	42.4	40.2	42.4	45.6

Figure 8: Cooler 1/3 Octave Sound Levels