Report VA2956.200827.NIA

Dusk, Ongar Road, Brentwood

Noise Impact Assessment

01 September 2020

Dusk
Ongar Road
Brentwood
CM15 9SS

Venta Acoustics

01962 461016
0203 8650332
mail@ventaacoustics.com

registered company no. 10139494

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Attachments

1. Introduction

Dusk, Ongar Road, Brentwood are undertaking a license application for the premises, and noise has been highlighted as a concern by Brentwood Borough Council's Environmental Health Department which needs addressing as part of application.

Venta Acoustics has been commissioned by Dusk to undertake an assessment of the noise impact of the use as part of the licensing application.

An environmental noise survey has been undertaken to determine the background noise levels at the most affected noise sensitive receptors, as well as noise breakout and on site noise propagation investigations. These levels are used to undertake an assessment of the likely impact with reference to the planning of Brentwood Borough Council.

2. Premises Description

As illustrated on attached site plan VA2956/SP1, the premises is located to the west of Bentley Golf Club. The premises consists of an internal lounge area, restaurant, and weather covered external seating area to the west of the building. Customers enter and leave the site through a doorway on the north of the external area, directly on to the car park.

The external seating area is open to the dry bar area by means of two large openings, and has hit and miss fencing enclosing it from approximately 1m above ground. As the area is used as a Shisha bar, it is by design well ventilated and has many gaps to the extents.

The surrounding area is relatively flat, with Kumra Lodge approximately 100m to the south-west, and other residences to the north off Frog Street approximately 160m away.

The most affected noise sensitive receiver is expected to be Kumra Lodge, which has a direct line of sight to the external seating area.

The premises currently operates between 4pm and midnight on weekdays, and 4pm until 1am on Fridays and Saturdays. There is a DJ on Friday and Saturday evenings in the bar area, which is open to the external Shisha area.

3. Design Criterion and Assessment Methodology

3.1 Brentwood Borough Council Requirements

Prior to undertaking the survey Venta Acoustics discussed the premises and requirements with David Carter, Environmental Health Officer at Brentwood Borough Council. Although it was not possible to set a definitive noise limit at that point, as the noise climate in the area had not been evaluated, the discussion highlighted that the main area of concern was music and patron noise from the external area, and open sided bar.

3.2 BS8233:2014

BS8233 *Guidance on sound insulation and noise reduction for buildings* provides guidance as to suitable internal noise levels for different areas within residential buildings, although it should be noted that this is mainly considering 'anonymous' noise, such as a distant road. However, it has been included here for comparative purposes.

The relevant section of the standard is shown below in Table 3.1.

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living Room	35 dB $L_{Aeq,\ 16\ hour}$	-
Dining	Dining Room	40 dB $L_{Aeq,\ 16\ hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,\ 16\ hour}$	30 dB $L_{Aeq,\ 8\ hour}$

Table 3.1 - Excerpt from BS8233: 2014 **[dB ref. 20µPa]**

4. Noise Survey and Music Investigations

4.1 Survey Procedure

In order to establish the existing background noise levels at the site, a noise survey was carried out between Friday 31st July and Monday 3rd August 2020 at the location shown in site plan VA2956/SP1. This location was chosen to be representative of the ambient and background noise level at the most affected noise sensitive receivers.

Continuous 5-minute samples of the L_{Aeq}, L_{Amax}, L_{A10} and L_{A90} sound pressure levels were undertaken at the measurement location.

The weather during the survey period was hot and dry with light winds. The background noise data is not considered to have been compromised by these conditions.

Measurements were made generally in accordance with ISO 1996 2:2017 *Acoustics - Description, measurement and assessment of environmental noise – Part 2: Determination of sound pressure levels*.

4.2 Sound Insulation/Propagation Tests

During the site visit, the house music system was demonstrated, which plays through ceiling mounted speakers in the bar area, and two monitor speakers in the external Shisha area. It is understood that when the DJ plays, they also have a monitor speaker on the DJ booth. It is understood that the DJ plays all music through the house system.

A noise limiter has been fitted to the system, although at the time of the site visit, the system had not been set up with the feedback microphone.

4.3 Equipment

The following equipment was used in the course of the survey:

Manufacturer	Model Type	Serial No	Calibration	
			Certificate No.	Date
NTi Class 1 Integrating SLM	XL2	A2A-15993-E0	FL-19-122	14/3/19
Larson Davis calibrator	CAL200	13069	UCRT20/1562	26/6/20

Table 4.1 – Equipment used for the tests

The calibration of the sound level meter was verified before and after use with no significant calibration drift observed.

5. Results

5.1 Environmental Noise Survey

The measured sound levels are shown as time-history plots on the attached charts VA2956/TH1-3.

The background noise level is determined by local traffic.

Noise levels in the area become very quiet, with the noise levels at 1am on the Friday and Saturday, just after the premises closed being summarised in Table 5.1, along with the normal day and night-time noise levels.

Monitoring Period	Typical[1] $L_{A90,5min}$	$L_{Aeq,T}$
07:00 – 23:00 hours	40 dB	69 dB
23:00 – 07:00 hours	26 dB	62 dB
01:00	27 dB	58 dB

Table 5.1 – Ambient and typical background noise levels **[dB ref. 20 µPa]**

[1] The typical L_{A90} value is taken as the 10th percentile of all L_{A90} values measured during the relevant period.

5.2 Sound Propagation

Music investigations were undertaken to ascertain the sound insulation/breakout from the bar and shisha area.

The music was set at around L_{Aeq} 78dB (L_{Amax} 82dB) in the bar, the music in the external area was approximately 5dB lower, which was reported by site to be the upper level at which music is played on the premises.

An exercise was then undertaken at a range of distances from the seating area towards Kumra Lodge, with the music not being audible at a distance of around 50m, although this was due to masking from the daytime road traffic, which would be at a much lower level late at night.

6. Discussion

Inspection of the time history data and the associated audio files suggests that noise from patrons and, generally at a lower level, music, is audible opposite the nearest receiver.

Although no limiter was in place during the survey, the music did not sound especially bass heavy, and the patron noise was generally a quiet babble, rather than raised voices and shouting.

However, due to the late closing time on the weekend, it is likely that the Council will want to see the noise limiter set up, likely in a joint exercise, with the Council and either acoustician or limiter technician available to agree a suitable level at which to set the unit, and then lock it off so it cannot be changed.

The music noise level experienced at the premises during the site test was slightly louder than ambient, but not especially loud, and so would be fitting with the reported use as a restaurant and lounge venue, rather than a nightclub.

Due to the very low background noise levels in the area, it is considered unlikely that even with a noise limiter in place, the venue would be able to remain inaudible at all times, but it should be possible to control noise to a degree which would be unlikely to cause negative impact on nearby residents.

Even considering this, good management of the such premises is always important in controlling impacts on the surrounding dwellings.

7. Mitigation Measures

7.1 Music Noise Limiter

It is recommended that a joint exercise is undertaken with the Council's Environmental Health team, where noise levels can be set with a listener at the nearby receiver. This can be used to set an agreed noise limit, and also fine tune the spectral adaptation of the limit to ensure that bass noise, or other frequencies are suitably controlled at source.

7.2 Other Measures

It is also recommended that a noise management plan is implemented to create a collaborative process through which the operator, the Local Authority and residents can liaise to control noise impact to acceptable levels.

8. Noise Management Plan

The following noise management plan includes many measures that would be recommended for adoption by management of the premises. This plan address both music noise and noise from patrons. These measures are intended to minimise the noise impact on the neighbours.

8.1 Potential Noise Sources

The management understand that the identification and recognition of potential causes of disturbance assists greatly in planning to avoid disturbances to the surroundings.

The following noise sources have been identified in relation to the proposed operation of the premises:

- Music noise;
- Noise from Patrons inside and outside the building (shouting, laughing, etc.);
- Patrons leaving the bar throughout and at the end of the night, including taxis

8.2 Management Controls

The responsibility for the management controls will be assumed by the manager. Other members of staff may assume the role in the future following suitable training. Where the venue is hired out, this responsibility will be shared with the event organisers as will be included in the contract for the hire of the venue.

A culture of neighbourly consideration will be encouraged amongst patrons through the use of signs and polite reminders from staff.

Patrons are expected to access and leave the premises via the carpark. Signs will be installed reminding patrons not to have loud music in cars and keep engine noise low, and smokers of the amenity of neighbours.

Taxis will be encouraged to turn off their engines while waiting and not sound their horns, with a member of staff liaising with the driver to fetch the patron if necessary.

8.2.1 Noise Limiter

As previously highlighted, it is recommended that a sound limiter system be installed to control the upper limits for noise emissions from site. Any music played in the venue would have to be through this system.

It is recommended that, although a guide figure has been identified, the limit for noise levels would be set through a joint exercise with the Council and the neighbouring dwellings where music in the

premises is adjusted until an agreeable level is achieved at, or preferably in, the neighbouring dwellings. The limiter would then be set with this level as the maximum permitted level.

8.2.2 External Noise Management

A culture of neighbourly consideration will be encouraged amongst guests through the use of signs prominently displayed by the door and polite reminders from staff.

Signs should be in place reminding guests of the proximity of neighbours and encouraging them to keep their voices down.

8.3 Neighbour Relations

The management will endeavour to maintain a friendly, open and informative relationship with the nearby residents to allow concerns to be raised and addressed without hostility. Residents will be made aware of planned events with a reasonable notice period and concerns regarding these will be noted and acted upon.

8.3.1 Complaints Procedure

A phone number and email address will be provided to nearby residents to allow efficient notification of the premises if noise levels are causing a disturbance. Clear instructions would be given to those likely to answer on these procedures for handling complaints.

A complaint action procedure will be produced and made available to staff who will be instructed to follow it on receiving a complaint. This procedure would include checking and adjusting the music volume and supervising patrons outside the premises.

A timed and dated log will be kept in the office of all complaints, including actions taken and responses given. Other information recorded in the complaints log will include the approximate number of guests and staff present at the time of the complaint, and any specific activities or conditions which were noteworthy at the time. A sample complaint log sheet is attached at Appendix B. Any other notes or email communications should be copied and a record kept in the complaint log folder.

All complaints will be addressed promptly, with a response/explanation as well as any future actions or improvements that can be implemented.

9. Conclusion

A baseline noise survey has been undertaken by Venta Acoustics to establish the background noise climate in the locality of Dusk, Ongar Road, Brentwood, as well as an assessment of music noise propagation to the nearest receiver.

Additional recommendations to minimise operational noise have also been provided, including a joint exercise to set the noise limiter.

A noise management plan has been proposed to minimise the impact of operation on the surrounding residents and a procedure for efficiently dealing with complaints has been suggested.

Jamie Duncan MIOA


Most Affected Receiver
Approximate extent of Dusk
Noise monitoring location
© 2020 Google
Google Earth

Dusk, Ongar Road, Brentwood

Environmental Noise Time History: 1

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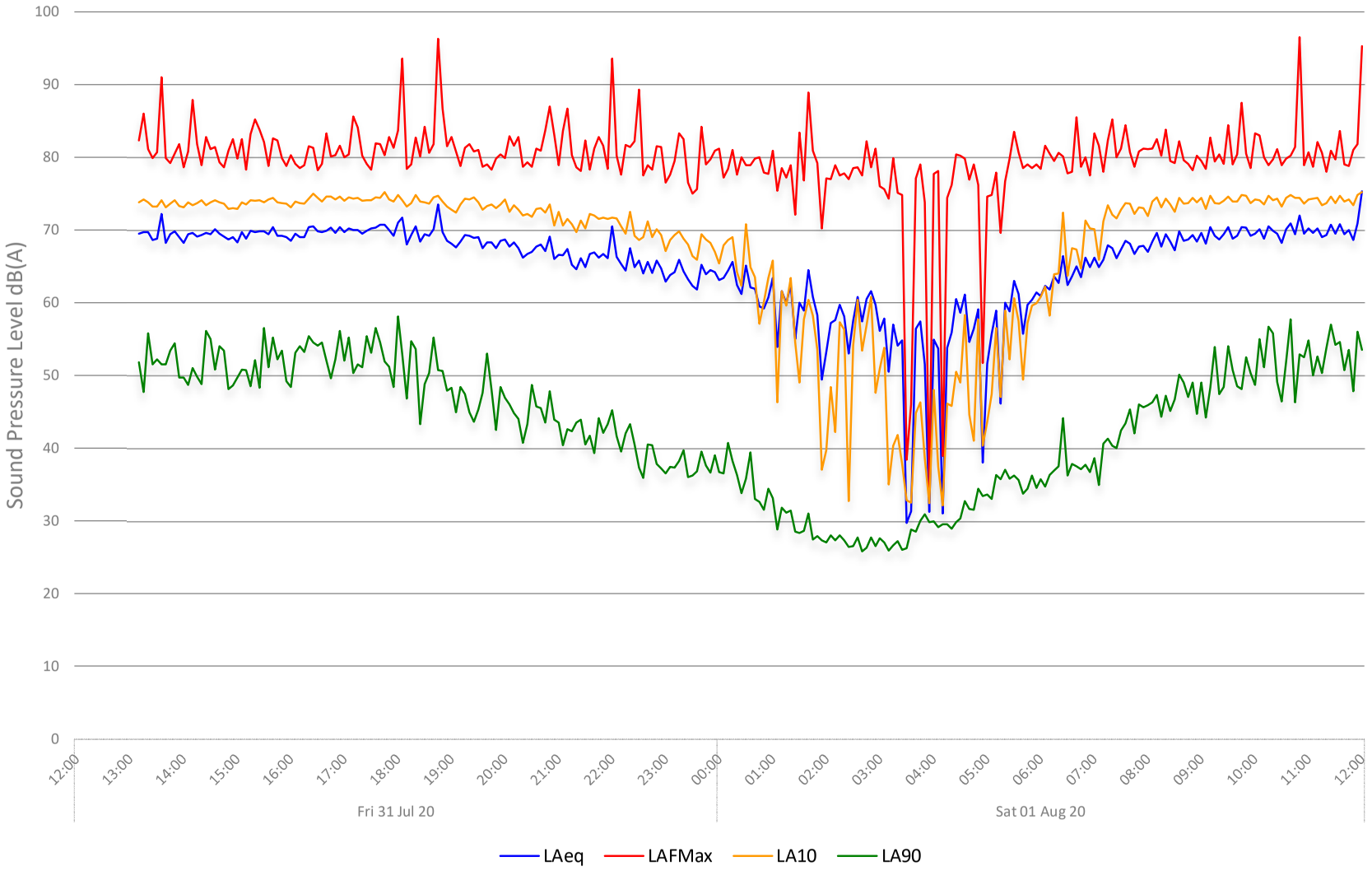
Figure VA2956/TH1



Dusk, Ongar Road, Brentwood

Environmental Noise Time History: 2

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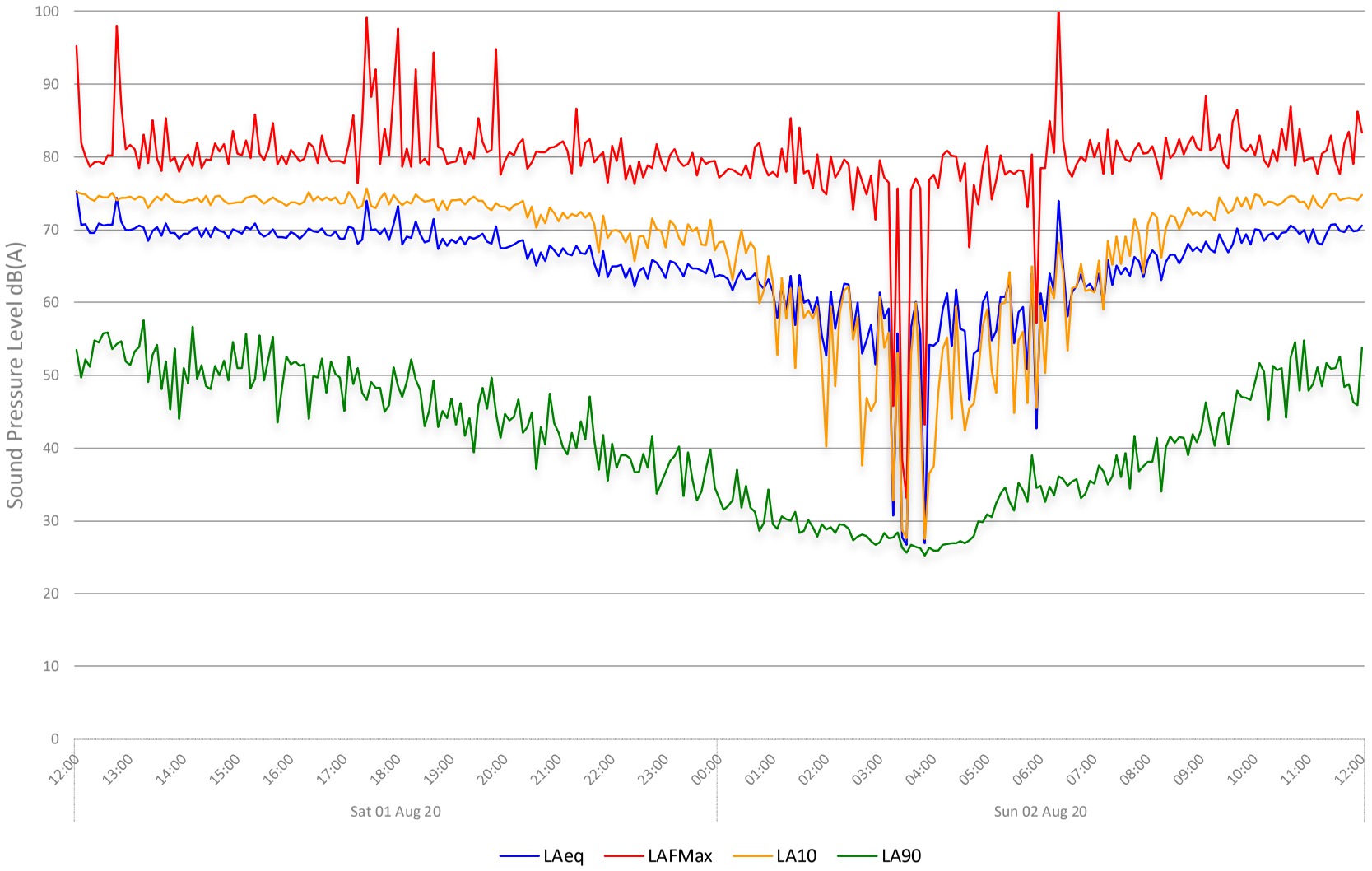
Figure VA2956/TH2



Dusk, Ongar Road, Brentwood

Environmental Noise Time History: 3

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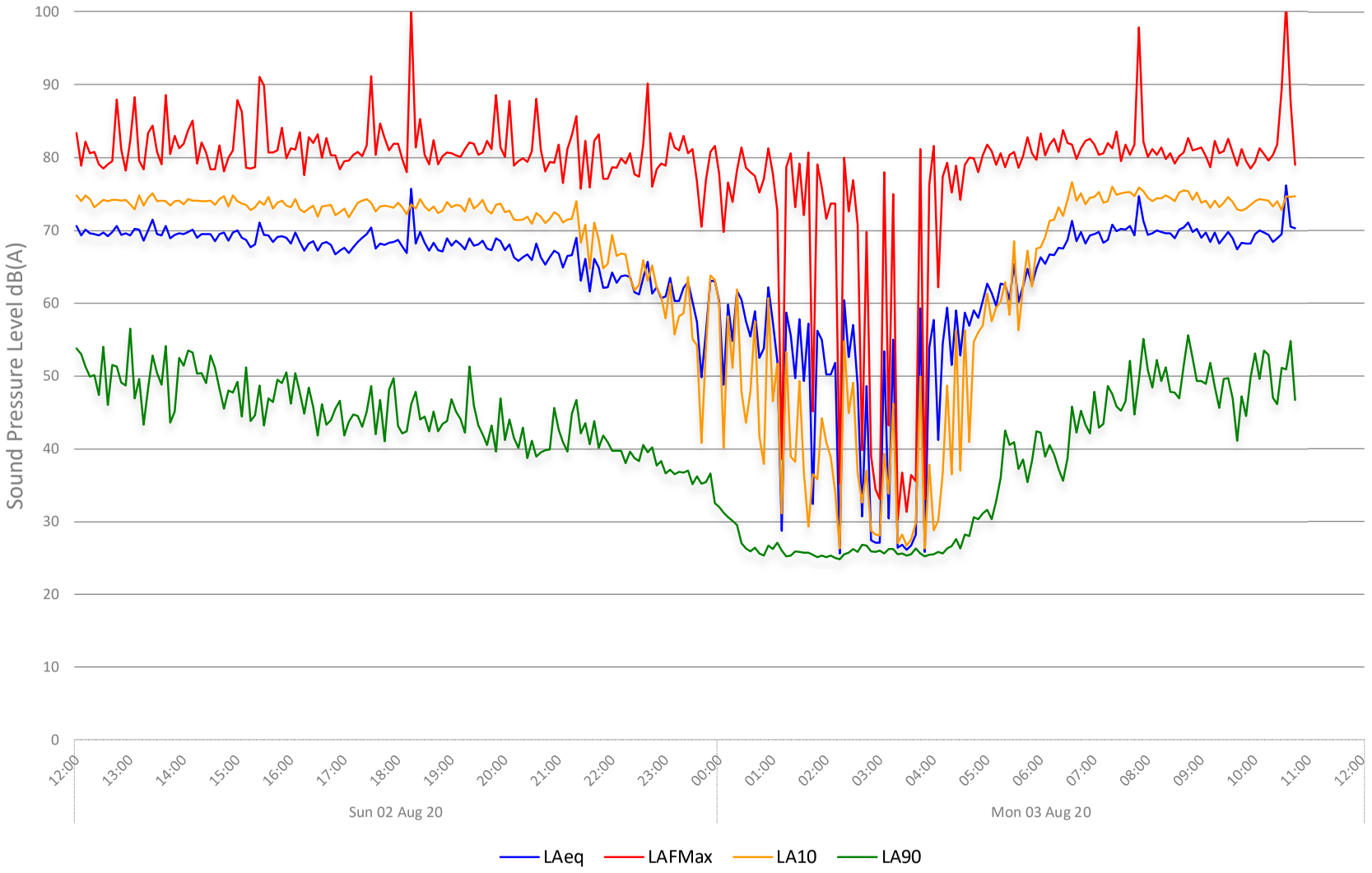
Figure VA2956/TH3



APPENDIX A

Acoustic Terminology & Human Response to Broadband Sound

1.1 Acoustic Terminology

The human impact of sounds is dependent upon many complex interrelated factors such as 'loudness', its frequency (or pitch) and variation in level. In order to have some objective measure of the annoyance, scales have been derived to allow for these subjective factors.

Sound	Vibrations propagating through a medium (air, water, etc.) that are detectable by the auditory system.
Noise	Sound that is unwanted by or disturbing to the perceiver.
Frequency	The rate per second of vibration constituting a wave, measured in Hertz (Hz), where 1Hz = 1 vibration cycle per second. The human hearing can generally detect sound having frequencies in the range 20Hz to 20kHz. Frequency corresponds to the perception of 'pitch', with low frequencies producing low 'notes' and higher frequencies producing high 'notes'.
dB(A):	Human hearing is more susceptible to mid-frequency sounds than those at high and low frequencies. To take account of this in measurements and predictions, the 'A' weighting scale is used so that the level of sound corresponds roughly to the level as it is typically discerned by humans. The measured or calculated 'A' weighted sound level is designated as dB(A) or L_A.
L_{eq} :	A notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 8 hour, 1 hour, etc). The concept of L_{eq} (equivalent continuous sound level) has primarily been used in assessing noise from industry, although its use is becoming more widespread in defining many other types of sounds, such as from amplified music and environmental sources such as aircraft and construction. Because L_{eq} is effectively a summation of a number of events, it does not in itself limit the magnitude of any individual event, and this is frequently used in conjunction with an absolute sound limit.
L_{10} & L_{90} :	Statistical L_n indices are used to describe the level and the degree of fluctuation of non-steady sound. The term refers to the level exceeded for n% of the time. Hence, L_{10} is the level exceeded for 10% of the time and as such can be regarded as a typical maximum level. Similarly, L_{90} is the typical minimum level and is often used to describe background noise. It is common practice to use the L_{10} index to describe noise from traffic as, being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic flow.
L_{max} :	The maximum sound pressure level recorded over a given period. L_{max} is sometimes used in assessing environmental noise, where occasional loud events occur which might not be adequately represented by a time-averaged L_{eq} value.

1.2 Octave Band Frequencies

In order to determine the way in which the energy of sound is distributed across the frequency range, the International Standards Organisation has agreed on "preferred" bands of frequency for sound measurement and analysis. The widest and most commonly used band for frequency measurement and analysis is the Octave Band. In these bands, the upper frequency limit is twice the lower frequency limit, with the band being described by its "centre frequency" which is the average (geometric mean) of the upper and lower limits, e.g. 250 Hz octave band extends from 176 Hz to 353 Hz. The most commonly used octave bands are:

Octave Band Centre Frequency Hz	63	125	250	500	1000	2000	4000	8000

APPENDIX A

1.3 Human Perception of Broadband Noise

Because of the logarithmic nature of the decibel scale, it should be borne in mind that sound levels in dB(A) do not have a simple linear relationship. For example, 100dB(A) sound level is not twice as loud as 50dB(A). It has been found experimentally that changes in the average level of fluctuating sound, such as from traffic, need to be of the order of 3dB before becoming definitely perceptible to the human ear. Data from other experiments have indicated that a change in sound level of 10dB is perceived by the average listener as a doubling or halving of loudness. Using this information, a guide to the subjective interpretation of changes in environmental sound level can be given.

Change in Sound Level dB	Subjective Impression	Human Response
0 to 2	Imperceptible change in loudness	Marginal
3 to 5	Perceptible change in loudness	Noticeable
6 to 10	Up to a doubling or halving of loudness	Significant
11 to 15	More than a doubling or halving of loudness	Substantial
16 to 20	Up to a quadrupling or quartering of loudness	Substantial
21 or more	More than a quadrupling or quartering of loudness	Very Substantial

Appendix B

Sample Noise Complaint Log Sheet

Date	Time	Staff Name	No. of Staff & Patrons	Complainant			Details			Response Details[1]
				Name	Address	Phone/email	Description[1]	Duration	Solution?	

[1] Attach noted and email correspondence as appropriate