

APPENDIX 8

Glossary

Sound Pressure Level, in decibels

Sound pressure level is given by the formula:

 $L_p = 10 \log (p/p_o)^2$

Where:

p is the root mean square sound pressure, in pascals (Pa);

po is the reference sound pressure (20 uPa)

Decibel (dB)

Sound levels from any source can be measured in frequency bands in order to provide detailed information about the spectral content of the noise i.e. whether is it high pitched, low pitched or with no distinct tonal character. These measurements are usually undertaken in octave or 1/3 octave frequency bands. If these values are logarithmically summed a single dB figure is obtained. This is usually not very helpful as it simply describes the total amount of acoustic energy measured and does not take any account of the ear's ability to hear certain frequencies more readily than others.

dB(A)

Instead, the dB(A) figure is used, as this is found to relate better to the loudness of the sound heard. The dB(A) figure is obtained by subtracting an appropriate correction, which represents the variation in the ear's ability to hear different frequencies, from the individual octave or 1/3 octave band values, before logarithmically summing them. As a result, the single dB(A) value provides a good representation of how loud a sound is.

L_{Aeq}

As almost all sounds vary or fluctuate with time it is helpful instead of having an instantaneous value to describe the noise event, to have an average of the total acoustic energy experienced over its duration. The L_{Aeq} , 07:00 - 19:00 for example, describes the equivalent continuous noise level over the 12-hour period between 7am and 7pm. During this time period the LpA at any particular time is likely to have been either greater or lower than the L_{Aeq} , 07:00 - 19:00.

Ln

Another method of describing, with a single value, a noise level which varies over a given time period is to consider the length of time for which a particular noise level is exceeded. If a level of X dB(A) is exceeded for say 6 minutes within one hour, then that level can be described as being exceeded for 10% of the total measurement period. This is denoted as the LA10 = X dB.

The L_{A10} index is often used in the description of road traffic noise, whilst the L_{A90} , the noise level exceeded for 90% of the measurement period, is the usual descriptor for underlying background noise.

LAFmax

The maximum RMS A-weighted sound pressure level, using the Fast time weighting.



Number: 179 Date: 22/01/2019

> Gain: 8x Voltage: 6.4

Time: 12:15 Serial Number: 2681

Seismic Trigger: 0.508 mm/sec Acoustic Trigger: 142 dB

Sample Rate: 1024 Duration: 4.0 Seconds Pre-Trigger: 0.50 Seconds

File Name: 2681201901221201179.dtb

Blasting vibration reports

d01-19
80kg
ind estate
48 holes
exp sup A EVANS
SHOTFIRER S JONES

Amplitudes and Frequencies
Acoustic: 119 dB, 0.18 Mb @ 14.6 Hz

Duration: -0.500 s To: 4

Amplitudes and Frequencies
Acoustic: 119 dB, 0.18 Mb @ 14.6 Hz

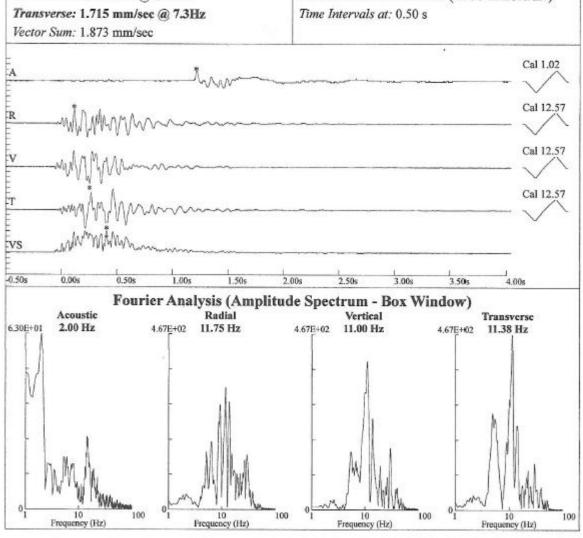
Radial: 1.207 mm/sec @ 18.9Hz

Vertical: 1.365 mm/sec @ 10.2Hz

Graph Information
Duration: -0.500 s To: 4.000 s

Acoustic Scale: 126 dB

Seismic Scale: 1.75 mm/sec (0.438 mm/sec/div)





DENBIGH D02-19 ES C ROBB SF S JONES MIC 80KG 39 HOLES File Name: 6372201904301205008.dtb Number: 008 Date: 30/04/2019 Time: 12:51 Serial Number: 6572 Scismic Trigger: 0.572 mm/sec Acoustic Trigger: 142 dB Sample Rate: 1024 Duration: 4.0 Seconds Pre-Trigger: 0.50 Seconds Voltage: 6.4

Amplitudes and Frequencies

Acoustic: 110 dB, 0.06 Mb @ 3.3 Hz

Radial: 1.334 mm/sec @ 16.0Hz

Vertical: 0.508 mm/sec @ 36.5Hz

Transverse: 1.334 mm/sec @ 15.0Hz

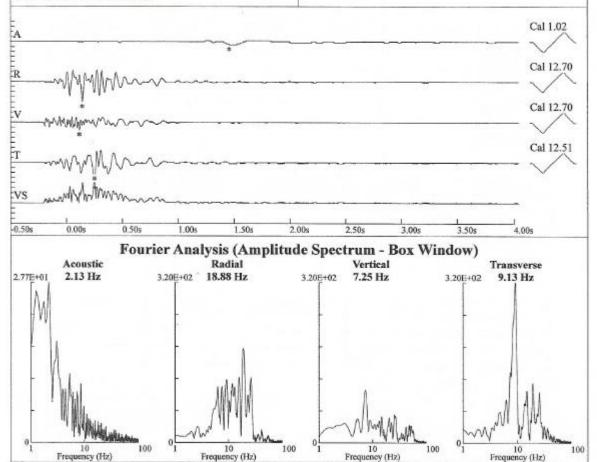
Vector Sum: 1.524 mm/sec

Graph Information

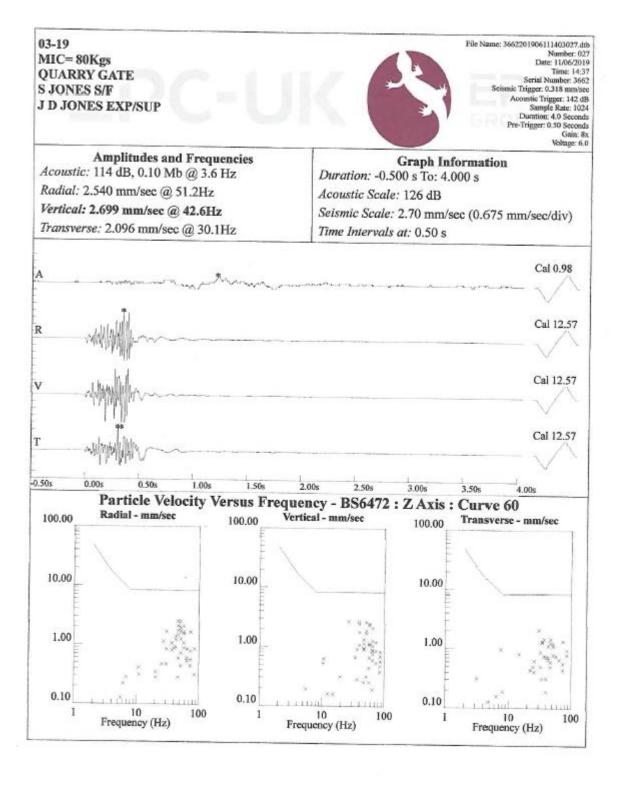
Duration: -0.500 s To: 4.000 s

Acoustic Scale: 126 dB

Seismic Scale: 1.35 mm/sec (0.338 mm/sec/div)









DENBIGH D10 AND TOES AND D11 FIRED SHOTS TOGETHER 80KG IND ESTATE

File Name: 5736201808211203150.dtb Number: 150 Date: 21/08/2018 Serial Number: 5736 Serismic Trigger: 0.508 mm/sec Acoustic Trigger: 142 dB Sample Rate: 1024 Duration: 4.0 Seconds Pre-Trigger: 0.50 Seconds Gain: 8x Voltage: 6.1

Amplitudes and Frequencies

Acoustic: 118 dB, 0.16 Mb @ 6.2 Hz Radial: 1.683 mm/sec @ 9.8Hz Vertical: 2.477 mm/sec @ 11.1Hz

Transverse: 1.778 mm/sec @ 10.8Hz

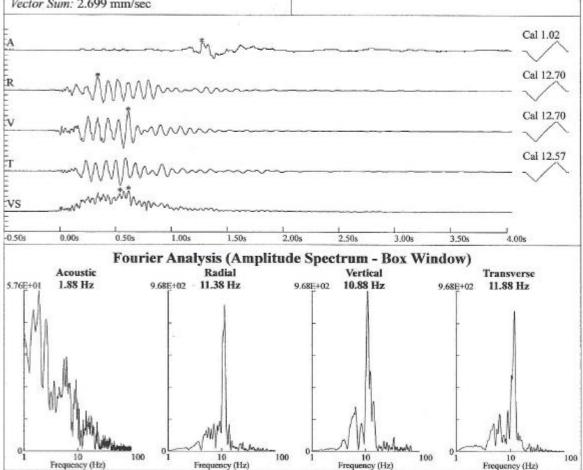
Vector Sum: 2.699 mm/sec

Graph Information

Duration: -0.500 s To: 4.000 s

Acoustic Scale: 126 dB

Seismic Scale: 2.50 mm/sec (0.625 mm/sec/div)





bryn seion d12 MIC 80KG sunney slight wind File Name: 2681201810001301100.drb
Number: 100
Datic 09/10/2018
Time: 13:10
Serial Number: 2681
Seismie Trigger: 0.508 mm/sec
Acoustic Trigger: 142 dB
Sample Rate: 1024
Duration: 4.0 Seconds
Pre-Trigger: 0.50 Seconds
Voltage: 6.4

Amplitudes and Frequencies

Acoustic: 117 dB @ 3.6 Hz

Radial: 3.270 mm/sec @ 9.1Hz

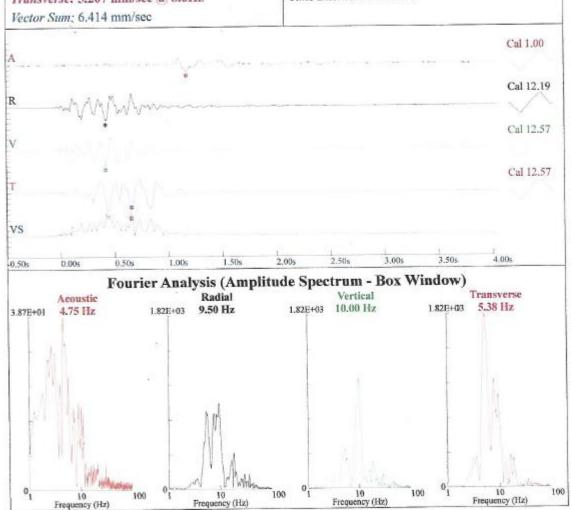
Vertical: 3.810 mm/sec @ 10.8Hz Transverse: 5.207 mm/sec @ 8.6Hz

Graph Information

Duration: -0.500 s To: 4.000 s

Acoustic Scale: 126 dB

Seismic Scale: 5.25 mm/sec (1.313 mm/sec/div)







MONITORED AT ACCAR Y FORWYN BLAST REF - D13-18 DECKED CHARGE MIC- 80KG 54HOLES

FLOOR LEVEL 118.5

Pile Name: 2681201812041300160.dfb Number: 160 Date: 0417220181 Time: 13108 Serial Number: 2681 Seriamic Trigger: 0.508 mm/sec Acoustic Trigger: 142 dB Sample Rate: 1024 Duration: 4.0 Seconds Pre-Trigger: 0.50 Seconds Caine 8x Voltage: 6.5

Amplitudes and Frequencies

Acoustic: 110 dB @ 4.3 Hz Radial: 1.016 mm/sec @ 4.3 Hz Vertical: 0.540 mm/sec @ 7.4 Hz Transverse: 0.984 mm/sec @ 6.1 Hz

Displacement: 0.0328 mm Acceleration: 0.0083 mm/sec/sec

Graph Information

Duration: -0.500 s To: 4.000 s

Acoustic Scale: 126 dB

Seismic Scale: 1.05 mm/sec (0.263 mm/sec/div)

