

1.1 Appendix 1: Glossary of acoustic terminology

AMBIENT NOISE

Totally encompassing sound in a given situation at a given time usually composed of sounds from many sources near and far. [BS4142]

ATTENUATION, SOUND

A reduction in the intensity of a sound signal.

A - WEIGHTING dB(A)

The sound pressure level determined when using the frequency-weighting network A. The A-weighting network modifies the electrical response of a sound level meter so that the sensitivity of the meter varies with frequency in approximately the same way that the sensitivity of the human hearing system varies with frequency.

The human ear has a non-linear frequency response; it is less sensitive at low and high frequencies and most sensitive in the range 1 to 4 kHz. The A-weighting is applied to measured or calculated sound pressure levels so that these levels correspond more closely to the response of the human ear. A-weighted sound levels are often denoted as dB(A).

BACKGROUND NOISE LEVEL, L_{A90} , T

The A-weighted sound pressure level of non-specific noise in decibels exceeded for 90% of the given time, T. [BS4142]

DECIBEL (dB)

1. A linear numbering scale used to define a logarithmic amplitude scale, thereby compressing a wide range of amplitude values to a small set of numbers.
2. A unit which indicates that a quantity has a certain LEVEL above some pre-defined reference value.
3. The unit of measurement used for sound pressure levels. The scale is logarithmic rather than linear. The threshold of hearing is 0dB and the threshold of pain is 120dB. In practical terms these limits are seldom experienced and typical levels lie within the range 30dB (a quiet night time level in a bedroom) to 90dB (at the kerbside of a busy city street).

EQUIVALENT CONTINUOUS A-WEIGHTED SOUND PRESSURE LEVEL (L_{Aeq})

Value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval T starting at t_1 and ending at t_2 and measured in decibels, has the same mean square sound pressure as the sound under consideration whose level varies with time.

FREE FIELD

1. A free sound field is a field in a homogeneous, isotropic medium free from boundaries. In practice it is a field in which the effects of the boundaries are negligible over the region of interest. The actual pressure impinging on an object (e.g., a microphone) placed in an

otherwise free sound field will differ from the pressure which would exist at the point with the object removed, unless the acoustic impedance of the object matches the acoustic impedance of the medium.

2. An environment in which there are no reflective surfaces within the frequency region of interest.

3. A region in which no significant reflections of sound occur.

4. [BS4142] suggests that free-field environmental noise measurements need to be made at least 3.5m from any reflecting structure.

SITE NOISE

That component of the ambient noise in the neighbourhood of a site that originates from the site. [BS5228]

SOUND LEVEL

Sound level, in decibels, is the weighted sound pressure level obtained by use of a sound-level meter. The reference pressure is 20 μ Pa, unless otherwise stated.

STEADY NOISE

Noise that gives fluctuations over a range of not more than 5 dB on a sound level meter set to frequency weighting A and time weighting S. [BS4142]

1.2 Appendix 2: Full measurement survey results

Date	Time	Measurement duration (hh:mm:ss)	Measured noise level (dB)					Ship in County Wharf?	Comments
			L _{Aeq}	L _{A10}	L _{A90}	L _{Amax}	L _{Amin}		
King Charles Quay									
DAY									
06/09/2007	12:35:46	00:30:00	52.3	53.5	50.5	71.8	48.0	Y	
09/09/2007	11:25:10	00:15:00	49.7	51.0	48.4	66.4	47.1	Y	Sunday - lots of small recreational boats - noisy outboards
09/09/2007	11:46:54	00:15:00	49.7	50.8	48.6	58.9	47.2	Y	-"-
09/09/2007	14:21:51	00:15:00	50.7	52.8	47.2	67.0	44.9	N	-"-
09/09/2007	14:51:25	00:15:00	48.5	51.1	45.4	58.1	43.3	N	-"-
10/09/2007	06:18:31	00:10:00	47.7	49.2	42.4	66.1	39.2	N	Very loud dawn chorus, seagulls
10/09/2007	06:28:34	00:10:00	49.5	52.0	39.3	70.4	35.4	N	-"-
10/09/2007	08:07:30	00:10:00	44.0	45.6	41.7	59.8	39.0	N	Quiet Monday morning
10/09/2007	08:22:31	00:10:00	45.3	46.7	42.4	70.1	40.5	N	-"-
NIGHT									
07/09/2007	01:49:00	00:10:00	46.1	46.8	45.3	55.4	43.6	N	Ship in Empire / Kings wharf - Generator noise apparent
07/09/2007	02:02:28	00:10:00	46.2	47.0	45.3	53.3	43.7	N	-"-
09/09/2007	03:25:02	00:10:00	39.4	39.9	37.7	56.9	36.4	N	
09/09/2007	03:36:22	00:10:00	38.6	39.4	37.6	46.0	36.3	N	

Date	Time	Measurement duration (hh:mm:ss)	Measured noise level (dB)					Ship in County Wharf?	Comments
			L _{Aeq}	L _{A10}	L _{A90}	L _{Amax}	L _{Amin}		
NIGHT									
07/09/2007	01:15:50	00:10:00	43.1	43.7	42.5	50.2	41.2	N	Ship in Empire / Kings wharf - Generator noise apparent
07/09/2007	01:26:23	00:10:00	43.2	43.8	42.6	46.9	41.4	N	-"
09/09/2007	02:54:49	00:10:00	39.3	40.0	38.5	50.7	37.4	N	
09/09/2007	03:06:20	00:10:00	38.9	39.7	38.2	44.3	37.1	N	
<i>Pendennis Rise</i>									
DAY									
06/09/2007	15:28:16	00:30:00	50.2	52	45.5	71.1	42.4	Y	
06/09/2007	16:12:09	00:30:00	48.5	50.8	43.7	67.2	41.3	Y	
07/09/2007		00:30:00	48.0	50.1	46.2	68.0	40.3	N	
07/09/2007		00:30:00	49.1	48.6	43.1	72.4	41.9	N	
09/09/2007	16:32:04	00:15:00	48.7	50.6	45.8	61.1	43.4	N	
09/09/2007	16:52:10	00:15:00	49.1	50.5	45.5	65.2	42.7	N	
10/09/2007	10:31:14	00:15:00	56.7	58.7	53.6	70.6	50.0	N	Extremely loud blasting (i.e. sand) noise coming from dry dock area of port.
NIGHT									
07/09/2007	00:44:41	00:10:00	38.6	39.8	37.1	51.9	35.6	N	Ship in Empire / Kings wharf - Generator noise not audible, but could be responsible for higher level
07/09/2007	00:55:18	00:10:00	38.5	39.5	37.2	52.6	36	N	-"
09/09/2007	01:41:41	00:10:00	37.5	38.2	36.8	43.6	35.6	N	
09/09/2007	01:52:10	00:10:00	36.5	37.6	35.3	52.6	34.0	N	
09/09/2007	02:03:57	00:10:00	37.6	38.5	36.5	41.8	35.5	N	

Date	Time	Measurement duration (hh:mm:ss)	Measured noise level (dB)					Ship in County Wharf?	Comments
			L _{Aeq}	L _{A10}	L _{A90}	L _{Amax}	L _{Amin}		
Tredynas Road									
DAY									
06/09/2007	17:04:20	00:30:00	56.5	60.8	38.6	75.5	33.6	N	TRAFFIC: approx 6 cars per min - generator noise from dry-dock audible
07/09/2007	15:57:54	00:15:00	56.5	59.6	41.2	77.8	38.9	Y	-"
07/09/2007	16:36:47	00:15:00	56.6	60.4	42.4	80.4	40.1	Y	-"
09/09/2007	17:36:47	00:15:00	55.2	58.4	43.5	74.2	41.0	N	-"
09/09/2007	17:52:08	00:15:00	58.2	56.9	42.0	84.5	40.1	N	-"
NIGHT									
07/09/2007	00:13:08	00:10:00	38.5	39.4	37.4	51.6	36.2	N	Generator noise from dry-dock audible
07/09/2007	00:25:38	00:10:00	38.1	39.0	37.2	53.7	35.8	N	-"
09/09/2007	01:13:53	00:10:00	41.8	42.6	41.0	49.0	40.1	N	-"
09/09/2007	01:25:06	00:10:00	41.5	42.3	40.7	51.8	39.6	N	-"
Top of Tredynas Road									
DAY									
08/09/2007	09:38:06	00:10:00	41.6	42.4	40.3	60.4	38.8	Y	
09/09/2007	17:16:26	00:15:00	40.8	42.7	38.5	62.0	36.5	N	
10/09/2007	11:01:11	00:15:00	52.5	54.3	49.7	66.8	47.3	N	Extremely loud blasting (i.e. Sand) noise coming from drydock area of port.

Date	Time	Measurement duration (hh:mm:ss)	Measured noise level (dB)					Ship in County Wharf?	Comments
			L _{Aeq}	L _{A10}	L _{A90}	L _{Amax}	L _{Amin}		
Station car park									
DAY									
08/09/2007	08:34:17	00:10:00	47.2	48.2	45.6	63.9	43.6	Y	Ship coming in
08/09/2007	08:49:00	00:10:00	47.5	49.0	45.0	63.9	43.5	Y	
NIGHT									
09/09/2007	02:21:34	00:10:00	42.8	43.5	42.1	58.4	40.9	N	
09/09/2007	02:32:02	00:10:00	42.8	43.4	42.1	51.9	41.1	N	

