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palmer acoustics Australia Pty Ltd

13 January 2011 Project No: 3272

Gilligans Backpackers Hotel & Resort
57-59 Grafton Street
CAIRNS QLD 4870

ATTENTION: MR ANTHONY BROOKS

RE: GILLIGANS BACKPACKERS HOTEL AND RESORT CAIRNS LIQUOR LICENSE ACOUSTIC ASSESSMENTS

Dear Anthony,

You are now in receipt of our 2 reports for the above:

- Assessment 9 December 2010 with report 12 January 2011
- Assessment 29 December 2010 with report 13 January 2011.

These reports establish Liquor License entertainment noise limits as follows:

Report 12 January:

	JBN	DJ / Band
Day to 10pm	121 dB(C)	117 dB(C)
10pm to 1am	118 dB(C)	105 dB(C)
1am to 5am	109 dB(C)	97 dB(C)

Report 13 January:

	Beer Hall	Surround Sound
Day to 10pm	127 dB(C)	112 dB(C)
10pm to 1am	122 dB(C)	102 dB(C)
1am to 5am	118 dB(C)	98 dB(C)

These levels are the average maximum fast response dB(C) levels as measured 3m from the respective sound system speakers. In applying these limits it should be noted that the JBN ceiling limits apply to measurements taken under the centre of each panel at 1.2m above the floor, where as the DJ, Band and Surround Sound sources apply to measurements 3m from the respective speakers.

From these assessment we note the following:

1. **Dj's and Bands.** Our tests showed that there is essentially no difference between the operation of a DJ or band on the outdoor deck. We advise that the condition *"The provision of live bands in the external deck area is prohibited after 10pm"* is not appropriate and should be removed from your licence conditions. It is our experience, and was confirmed by these test, that a band and DJ operate in much the same manner and generate most of their noise from a similar sound system. Hence they will have much the same limits.

2. **Surround Sound compared to DJ and Band.** The surround sound system installed at Gilligan's appeared to show generally lower noise limits than for the DJ/Band sources. This we attribute to the fact that surround sound is a larger noise source with more speakers contributing to the more sound impacting onto adjacent areas.

The above limits are reasonable for the operation of your Club and also serve to protect the acoustic amenity for adjacent residential areas. We understand that you will be setting these limits into the recently installed limiters and will also be checking the noise levels routinely during the various events using your hand held Type 2 Digitech Pro sound level meter. This sound level meter has an external calibrator which we recommend you use weekly to check the sound level meter and have it NATA calibrated each 2 years (Aqu-vib Sydney www.acu-vib.com.au , is one option).

Please do not hesitate to contact us should you wish to discuss this matter further.

Yours faithfully
PALMER ACOUSTICS (Australia) Pty Ltd

ROSS H. PALMER CPEng RPEQ
Principal

Gmail by Google

Simon Gilligans <simonconsultancy@gmail.com>

Application to vary noise levels

Ross Palmer <ross@palmeracoustics.com> **Wed, Jan 12, 2011 at 10:25 AM**
To: Simon Consultancy <simonconsultancy@gmail.com>
Cc: Joanne Lillywhite <JLillywhite@macdonnells.com.au>, Anthony Brooks <abrooks@gilligans.com.au>

Simon

Please find enclosed our updated report from the tests carried out on 9 December. This includes the results of the Band tests not included in the earlier report. We are now working on the test report for the tests of 29 December for the Beer Hall and Surround Sound system.

Regards

ROSS PALMER CPEng RPEQ
Principal

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From: Simon Consultancy [mailto:simonconsultancy@gmail.com]
Sent: Saturday, 8 January 2011 12:16 PM
To: Ross Palmer
Cc: Joanne Lillywhite; Anthony Brooks
Subject: Re: Application to vary noise levels

Thanks Ross

Sent from my iPhone

[Quoted text hidden]

Gillighans LLD report 12-1-11full.pdf
2071K

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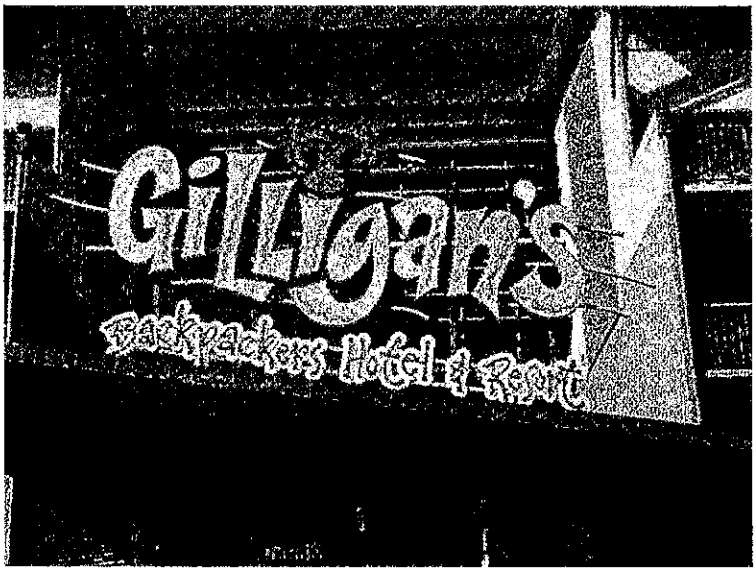
GILLIGANS BACKPACKERS HOTEL & RESORT

LICENSED PREMISES

AMPLIFIED ENTERTAINMENT NOISE ASSESSMENT



REPORT FOR	Gilligan's Backpackers Hotel and Resort - Cairns
CONTACT	Anthony Brooks
DATE OF TEST	Thursday night 9 December 2010 (9.30pm to 2:45am)
LOCATION	57 - 89 Grafton Street Cairns
ASSESSMENT BY	Ross Palmer CPEng RPEQ
REPORT DATE	12 January 2011
REPORT NUMBER	3272

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1.0 OBJECT

Palmer Acoustics have been commissioned to conduct an entertainment noise assessment on the potential levels of amplified entertainment noise from Gilligan's onto adjacent residential areas in the Cairns CBD.

Tests were conducted to determine the maximum noise levels that can be generated while ensuring that the Liquor Licensing Division noise limit criteria are not exceeded at the nearest noise sensitive areas (see enclosed Sketch No 1):

1. Panama Apartments level 8 Unit No 24 - 175m away - Measuring Location ML 1
2. Marques Apartments Level 13 deck - 260m away - Measuring Location ML 2
3. Central Plaza Apartments Level 4 unit 1109 - 330m away - Measuring Location ML 3

All measuring locations had direct line of site view back to Gilligan's.

Gilligan's has both outdoor and indoor entertainment. The object of the test was to determine the allowable levels of noise from:

1. The JBN sound system as measured in the centre of the ceiling 1.2m above ground level (ML4 see enclosed Sketch No 2);
2. The DJ stage area as measured 3m from the speakers ML 4 (see enclosed Sketch No 2).
3. A band playing in the vicinity of DJ area as measured 3m from the speakers.

Note:

- Noise to the adjacent Rydges Hotel (140m away) is not considered in this report as it was found during field work that the test sounds from Gilligan's were not audible or measurable on the facade of the hotel.

2.0 EQUIPMENT AND PROCEDURES

Equipment The following equipment was used in this assessment:

- RION NA27 1:1 Real Time Octave Band Analyser (serial number 00311535) c/w Rion UC 53 Microphone (serial number 101103) calibration due 24/7/12
- RION NC 73 Calibrator (serial number 10265743) calibration due 24/7/11
- Gilligan's JBN ceiling and DJ in house sound system.

Calibration Before and after calibration levels were as follows: (before/after) 94.0 / 94.1dB

Procedures Noise levels were measured under and in the centre of each JBN sound ceiling (1.2m above the floor), and at 3m from the DJ speakers and 3m from the band speakers in accordance with Liquor Licensing Division guidelines. The resulting breakout levels were measured at the nearest potentially affected noise sensitive areas:

Weather Conditions Fine, calm, temperature of 29° C with relative humidity of 88%.

The sound system was set to run at near to maximum volume in the entertainment area (measured as L_{c10} levels). The resulting L_{c10} breakout noise levels were measured from outside the nearest residential areas (ML1, ML 2 and ML 3) - see enclosed Sketch No 1. Ambient noise levels were also measured both during and after the tests as below. At the time of our assessment the ambient noises in the area were from road traffic in the CBD.

During the tests the following background noise levels were measured:

Location / Frequency Hz	63	125	250	500	1000	2000	dB(A)
Panama Apartment 9.30pm L90	61.7	64	58.8	54.5	51.7	48.8	57.9
Marquis Apartments 11.30pm L90	57.8	58.1	52.4	49.9	48.3	43.1	53.4
Central Plaza Apartments 2.30am L90	50.4	49.6	49.1	49.1	44.8	38.8	50.3

Our tests also indicated that the background levels did not drop of significantly until after 1am. Further it is considered that the background levels after 3am will actually rise nearer to 5am.

In this assessment ambient noise levels were specifically measured at 9.30pm, 11.30pm and 2.30am to enable limits to be established for operation to 10pm, 1am and 5am.

4.0 ENTERTAINMENT NOISE IMPACTS

4.1 Amplified Music Noise Criteria

The Liquor Licensing Division requires that the following limits not be exceed at any adjacent premises:

Regulation 40 Liquor Regulation 2002

For the definition "unreasonable noise" in section 187(5) of the act, the limits are as follows –

Between 6 a.m. and 10 p.m.—the adjusted maximum sound pressure level LA10, plus adjustments for tonal and impulse components, must not exceed the background level LA90 by more than 10dB when measured at any affected premises.

Between 10 p.m. and 6 a.m.—the sound pressure level LOCT10, in a full octave band with centre frequencies from 63 HZ to 2000 HZ, must not exceed the background level LOCT90 by more than 8dB in any octave band when measured at any affected premises.

4.2 Amplified Music noise emissions

The tests from the 3 sound sources over the 3 receptor locations showed the following:

A. TO PANAMA (ML1)

1. JBN Panama

Before 10pm

For day time operation (ie before 10pm) the following was found:

- Noise impact with source at 121 dB(C) 60.7 dB(A)
- Noise limit (Background + 5 allowing for an impulsive correction) 62.9 dB(A)

Thus the allowable limit is 121 dB(C) + 2.8 dB 123.8 dB(C)

With a noise level of 121 dB(C) for the 2 tests measured under the centre of the JBN speakers (ML4), 1.2m above the floor, breakout noise levels were measured as follows:

10pm to 1am

Table 1: Club noise impacts per LLD night time requirements (10pm to 1am) at ML 1, with the source at ML 4.

Hz	63	125	250	500	1000	2000	dB lin	dB(C).	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10 (JBN)	114.5	123.9	111.8	105.2	104	107.3	121	121	110
(A-B)	-9.5	-14.9	-11.8	-6.2	-8	-12.3			
Intrusive levels at worst affected site L10 - ML 3	69	66.8	58.8	57.1	57.1	52.4			60.7
(C+D)	59.5	51.9	47	50.9	49.1	40.1			
Background at worst affected site L90	57.8	58.1	52.4	49.9	48.3	43.1			53.4
(E-F)	1.7	-6.2	-5.4	1	0.8	-3			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	-6.3	-14.2	-13.4	-7	-7.2	-11			
Increase/ decrease	-6.3								
LLD limit	118								

1am to 5am

Table 2: Club noise impacts per LLD night time requirements (1am to 5am) at ML 1, with the source at ML 4.

Hz	63	125	250	500	1000	2000	dB lin	dB(C)	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10 (JBN)	114.5	123.9	111.8	105.2	104	107.3	121	121	110
(A-B)	-9.5	-14.9	-11.8	-6.2	-8	-12.3			
Intrusive levels at worst affected site L10 - ML 1	69	66.8	58.8	57.1	57.1	52.4			
(C+D)	59.5	51.9	47	50.9	49.1	40.1			
Background at worst affected site L90	50.4	49.6	49.1	49.1	44.8	38.8			50.3
(E-F)	9.1	2.3	-2.1	1.8	4.3	1.3			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	1.1	-5.7	-10.1	-6.2	-3.7	-6.7			
Increase/ decrease	1.1								
LLD limit	109.9								

Allowable limits JBN on Panama Apartments

- Day (before 10pm) 124 dB(C) under the JBN ceiling
- Night (10pm to 1am) 118 dB(C) under the JBN ceiling
- Night (1am to 5am) 110 dB(C) under the JBN ceiling

2. DJ Panama

With a noise level of 121 dB(C) measured at 3m from the speakers (ML5), 1.2m above the floor, breakout noise levels were measured as follows:

Before 10pm

For day time operation (ie before 10pm) the following was found:

- Noise impact with source at 121 dB(C) 67.1 dB(A)
- Noise limit (Background + 5 allowing for an impulsive correction) 62.9 dB(A)

Thus the allowable limit is 121 dB(C) - 4.2 dB 116.8 dB(C)

10pm to 1am

Table 3: Club noise impacts per LLD night time requirements (10pm to 1am) at ML 1, with the source at ML 5.

Hz	63	125	250	500	1000	2000	dB lin	dB(C)	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	115.1	120.1	115.4	102.4	104.6	102.9	121	121	110
(A-B)	-10.1	-11.1	-15.4	-3.4	-8.6	-7.9			
Intrusive levels at worst affected site L10 - ML 3	73.1	77.7	66.8	64	61.8	59.9			67.1
(C+D)	63	66.6	51.4	60.6	53.2	52			
Background at worst affected site L90	57.8	58.1	52.4	49.9	48.3	43.1			53.4
(E-F)	5.2	8.5	-1	10.7	4.9	8.9			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	-2.8	0.5	-9	2.7	-3.1	0.9			
Increase/ decrease	2.7								
LLD limit	108.3								

1am to 5am

Table 4: Club noise impacts per LLD night time requirements (1am to 5am) at ML 1, with the source at ML 5.

Hz	63	125	250	500	1000	2000	dB lin	dB(C)	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	114.8	115.4	105.5	108	107.4	97.9	118	118	109
(A-B)	-10.1	-11.1	-15.4	-3.4	-8.6	-7.9			
Intrusive levels at worst affected site L10 - ML 3	73.8	74.9	63.5	63.4	56.6	53.1			64
(C+D)	63	66.6	51.4	60.6	53.2	52			
Background at worst affected site L90	50.4	49.6	49.1	49.1	44.8	38.8			50.3
(E-F)	12.6	17	2.3	11.5	8.4	13.2			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	4.6	9	-5.7	3.5	0.4	5.2			
Increase/ decrease	9								
LLD limit	102								

Allowable limits DJ Panama

- Day (before 10pm) 117 dB(C) at 3m from the speakers
- Night (10pm to 1am) 108 dB(C) at 3m from the speakers
- Night (1am to 5am) 102 dB(C) at 3m from the speakers

3. BAND TO PANAMA

With a noise level of 118 dB(C) measured at 3m from the speakers (ML5), 1.2m above the floor, breakout noise levels were measured as follows:

Before 10pm

For day time operation (ie before 10pm) the following was found:

- Noise impact with source at 118 dB(C) 67.1 dB(A)
- Noise limit (Background + 5 allowing for an impulsive correction) 58 dB(A)

Thus the allowable limit is 118 dB(C) + 1 dB 119 dB(C)

10pm to 1am

Table 3: Club noise impacts per LLD night time requirements (10pm to 1am) at ML 1, with the source at ML 5.

Hz	63	125	250	500	1000	2000	dB lin	dB(C)	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	114.8	115.4	105.5	108	107.4	97.9	118		110
(A-B)	-9.8	-6.4	-5.5	-9	-11.4	-2.9			
Intrusive levels at worst affected site L10 - ML 3	73.1	77.7	66.8	64	61.8	59.9			
(C+D)	63.3	71.3	61.3	55	50.4	57			
Background at worst affected site L90	57.8	58.1	52.4	49.9	48.3	43.1			53.4
(E-F)	5.5	13.2	8.9	5.1	2.1	13.9			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	-2.5	5.2	0.9	-2.9	-5.9	5.9			
Increase/ decrease	5.9								
LLD limit	105.1								

1am to 5am

Table 4: Club noise impacts per LLD night time requirements (1am to 5am) at ML 1, with the source at ML 5.

Hz	63	125	250	500	1000	2000	dB lin	dB(C)	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	114.8	115.4	105.5	108	107.4	97.9	118		110
(A-B)	-9.8	-6.4	-5.5	-9	-11.4	-2.9			
Intrusive levels at worst affected site L10 - ML 3	73.1	77.7	66.8	64	61.8	59.9			
(C+D)	63.3	71.3	61.3	55	50.4	57			
Background at worst affected site L90	50.4	49.6	49.1	49.1	44.8	38.8			50.3
(E-F)	12.9	21.7	12.2	5.9	5.6	18.2			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	4.9	13.7	4.2	-2.1	-2.4	10.2			
Increase/ decrease	13.7								
LLD limit	97.3								

Allowable limits Band noise at Panama

- Day (before 10pm) 118 dB(C) at 3m from the speakers
- Night (10pm to 1am) 105 dB(C) at 3m from the speakers
- Night (1am to 5am) 97 dB(C) at 3m from the speakers

B. TO MARQUES (ML2)

1. IBN Marques

With a noise level of 118 dB(C) measured under the centre of the speakers (ML 4), 1.2m above the floor, breakout noise levels were measured as follows:

Before 10pm

For day time operation (ie before 10pm) the following was found:

- Noise impact with source at 118 dB(C) 59.2 dB(A)
- Noise limit (Background + 5 allowing for an impulsive correction) 62.8 dB(A)

Thus the allowable limit is 118 dB(C) + 3.6 dB 121.6 dB(C)

10pm to 1am

Table 5: Club noise impacts per LLD night time requirements (10pm to 1am) at ML 2, with the source at ML 4.

Hz	63	125	250	500	1000	2000	dB lin	dB(C).	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	114.9	116.1	105.7	103.1	103.9	97.6	118	118	106
(A-B)	-9.9	-7.1	-5.7	-4.1	-7.9	-2.6			
Intrusive levels at worst affected site L10 - ML 2	73.1	66.6	59.8	56	52.9	49.6			59.2
(C+D)	63.2	59.5	54.1	51.9	45	47			
Background at worst affected site L90	61.9	63.5	57.2	54.6	51.7	48.4			57.8
(E-F)	1.3	-4	-3.1	-2.7	-6.7	-1.4			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	-6.7	-12	-11.1	-10.7	-14.7	-9.4			
Increase/ decrease	-6.7								
LLD limit	117.7								

1am to 5am

Table 6: Club noise impacts per LLD night time requirements (1am to 5am) at ML 2, with the source at ML 4.

Hz	63	125	250	500	1000	2000	dB lin	dB(C).	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (under source) L10	114.9	116.1	105.7	103.1	103.9	97.6	118	118	106
(A-B)	-9.9	-7.1	-5.7	-4.1	-7.9	-2.6			
Intrusive levels at worst affected site L10 - ML 3	65.9	66.5	59.3	56.4	53.4	51.3			
(C+D)	56	59.4	53.6	52.3	45.5	48.7			
Background at worst affected site L90	50.4	49.6	49.1	49.1	44.8	38.8			50.3
(E-F)	5.6	9.8	4.5	3.2	0.7	9.9			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	-2.4	1.8	-3.5	-4.8	-7.3	1.9			
Increase/ decrease	1.9								
LLD limit	109.1								

Allowable limits JBN Marquis

- Day (before 10pm) 121 dB(C) under the JBN ceiling
- Night (10pm to 1am) 118 dB(C) under the JBN ceiling
- Night (1am to 5am) 109 dB(C) under the JBN ceiling

2. DJ Marques

With a noise level of 115 dB(C) measured at 3m from the DJ speakers (ML 4), 1.2m above the floor, breakout noise levels were measured as follows:

Before 10pm

For day time operation (ie before 10pm) the following was found:

- Noise impact with source at 115 dB(C) 59.2 dB(A)
- Noise limit (Background + 5 allowing for an impulsive correction) 62.8 dB(A)

Thus the allowable limit is 115 dB(C) + 3.6 dB 118.6 dB(C)

10pm to 1am

Table 7: Club noise impacts per LLD night time requirements (10pm to 1am) at ML 2, with the source at ML 4.

Hz	63	125	250	500	1000	2000	dB lin	dB(C).	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	106.2	113.1	105	108.9	103.8	107.6	115	115	112
(A-B)	-1.2	-4.1	-5	-9.9	-7.8	-12.6			
Intrusive levels at worst affected site L10 - ML 3	73.7	67.1	60.8	62.7	54.4	49.8			62
(C+D)	72.5	63	55.8	52.8	46.6	37.2			
Background at worst affected site L90	57.8	58.1	52.4	49.9	48.3	43.1			53.4
(E-F)	14.7	4.9	3.4	2.9	-1.7	-5.9			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	6.7	-3.1	-4.6	-5.1	-9.7	-13.9			
Increase/ decrease	6.7								
LLD limit	104.3								

1am to 5am

Table 8: Club noise impacts per LLD night time requirements (1am to 5am) at ML 2, with the source at ML 4.

Hz	63	125	250	500	1000	2000	dB lin	dB(C).	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	106.2	113.1	105	108.9	103.8	107.6	115	115	112
(A-B)	-1.2	-4.1	-5	-9.9	-7.8	-12.6			
Intrusive levels at worst affected site L10 - ML 3	73.7	67.1	60.8	62.7	54.4	49.8			62
(C+D)	72.5	63	55.8	52.8	46.6	37.2			
Background at worst affected site L90	50.4	49.6	49.1	49.1	44.8	38.8			50.3
(E-F)	22.1	13.4	6.7	3.7	1.8	-1.6			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	14.1	5.4	-1.3	-4.3	-6.2	-9.6			
Increase/ decrease	14.1								
LLD limit	96.9								

Allowable limits DJ to Marquis

- Day (before 10pm) 118 dB(C) at 3m from the speakers
- Night (10pm to 1am) 104 dB(C) at 3m from the speakers
- Night (1am to 5am) 97 dB(C) at 3m from the speakers

3 BAND Marques

With a noise level of 118 dB(C) measured at 3m from the DJ speakers (ML 4), 1.2m above the floor, breakout noise levels were measured as follows:

Before 10pm

For day time operation (ie before 10pm) the following was found:

- Noise impact with source at 114 dB(C) 56 dB(A)
- Noise limit (Background + 5 allowing for an impulsive correction) 55 dB(A)

Thus the allowable limit is 115 dB(C) + 1 dB 116 dB(C)

10pm to 1am

Table 7: Club noise impacts per LLD night time requirements (10pm to 1am) at ML 2, with the source at ML 4.

Hz	63	125	250	500	1000	2000	dB lin	dB(C).	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	114.8	115.4	105.5	108	107.4	97.9	118	118	110
(A-B)	-9.8	-6.4	-5.5	-9	-11.4	-2.9			
Intrusive levels at worst affected site L10 - ML 3	73.1	77.7	66.8	64	61.8	59.9			56
(C+D)	63.3	71.3	61.3	55	50.4	57			
Background at worst affected site L90	57.8	58.1	52.4	49.9	48.3	43.1			50.3
(E-F)	5.5	13.2	8.9	5.1	2.1	13.9			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	-2.5	5.2	0.9	-2.9	-5.9	5.9			
Increase/ decrease	5.9								
LLD limit	105.1								

1am to 5am

Table 8: Club noise impacts per LLD night time requirements (1am to 5am) at ML 2, with the source at ML 4.

Hz	63	125	250	500	1000	2000	dB lin	dB(C).	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	114.8	115.4	105.5	108	107.4	97.9	118	118	110
(A-B)	-9.8	-6.4	-5.5	-9	-11.4	-2.9			
Intrusive levels at worst affected site L10 - ML 3	73.1	77.7	66.8	64	61.8	59.9			56
(C+D)	63.3	71.3	61.3	55	50.4	57			
Background at worst affected site L90	50.4	49.6	49.1	49.1	44.8	38.8			
(E-F)	12.9	21.7	12.2	5.9	5.6	18.2			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	4.9	13.7	4.2	-2.1	-2.4	10.2			
Increase/ decrease	13.7								
LLD limit	97.3								

Allowable limits BAND to Marquis

- Day (before 10pm) 116 dB(C) at 3m from the speakers
- Night (10pm to 1am) 105 dB(C) at 3m from the speakers
- Night (1am to 5am) 97 dB(C) at 3m from the speakers

C. TO CENTRAL PLAZA (ML3)

1. JBN Central Plaza

With a noise level of 124 dB(C) measured under the centre of the speakers (ML 4), 1.2m above the floor, breakout noise levels were measured as follows:

Before 10pm

For day time operation (ie before 10pm) the following was found:

- Noise impact with source at 124 dB(C) 58.9 dB(A)
- Noise limit (Background + 5 allowing for an impulsive correction) 57.8 dB(A)

Thus the allowable limit is 124 dB(C) + 1.1 dB 125.1 dB(C)

10pm to 1am

Table 5: Club noise impacts per LLD night time requirements (10pm to 1am) at ML 3, with the source at ML 4.

Hz	63	125	250	500	1000	2000	dB lin	dB(C).	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	120.3	116.2	115.9	120.3	113.9	105.7	124	124	118
(A-B)	-15.3	-7.2	-15.9	-21.3	-17.9	-10.7			
Intrusive levels at worst affected site L10 - ML 3	65.5	66.9	60.3	55.8	53.8	49			58.9
(C+D)	50.2	59.7	44.4	34.5	35.9	38.3			
Background at worst affected site L90	57.8	58.1	52.4	49.9	48.3	43.1			53
(E-F)	-7.6	1.6	-8	-15.4	-12.4	-4.8			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	-15.6	-6.4	-16	-23.4	-20.4	-12.8			
Increase/ decrease	-6.4								
LLD limit	117.4								

1am to 5am

Table 6: Club noise impacts per LLD night time requirements (1am to 5am) at ML 3, with the source at ML 4.

Hz	63	125	250	500	1000	2000	dB lin	dB(C).	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	120.3	116.2	115.9	120.3	113.9	105.7	124	124	118
(A-B)	-15.3	-7.2	-15.9	-21.3	-17.9	-10.7			
Intrusive levels at worst affected site L10 - ML 3	65.5	66.9	60.3	55.8	53.8	49			58.9
(C+D)	50.2	59.7	44.4	34.5	35.9	38.3			
Background at worst affected site L90	50.4	49.6	49.1	49.1	44.8	38.8			50
(E-F)	-0.2	10.1	-4.7	-14.6	-8.9	-0.5			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	-8.2	2.1	-12.7	-22.6	-16.9	-8.5			
Increase/ decrease	2.1								
LLD limit	108.9								

Allowable limits JBN Central Plaza

- Day (before 10pm) 125 dB(C) under the JBN ceiling
- Night (10pm to 1am) 117 dB(C) under the JBN ceiling
- Night (1am to 5am) 109 dB(C) under the JBN ceiling

2. DJ Central Plaza

With a noise level of 115 dB(C) measured 3m from the speakers (ML 5), 1.2m above the floor, breakout noise levels were measured as follows:

Before 10pm

For day time operation (ie before 10pm) the following was found:

- Noise impact with source at 115 dB(C) 59.2 dB(A)
- Noise limit (Background + 5 allowing for an impulsive correction) 62.8 dB(A)

Thus the allowable limit is 115 dB(C) + 3.6 dB 118.6 dB(C)

10pm to 1am

Table 7: Club noise impacts per LLD night time requirements (10pm to 1am) at ML 3, with the source at ML 4.

Hz	63	125	250	500	1000	2000	dB lin	dB(C).	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	106	113	105	109	104	108	115	115	112
(A-B)	-1.2	-4.1	-5	-9.9	-7.8	-12.6			
Intrusive levels at worst affected site L10 - ML 3	64.4	64.3	71.7	63.1	59.1	51.9			55.5
(C+D)	63.2	60.2	66.7	53.2	51.3	39.3			
Background at worst affected site L90	57.8	58.1	52.4	49.9	48.3	43.1			53
(E-F)	5.4	2.1	14.3	3.3	3	-3.8			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	-2.6	-5.9	6.3	-4.7	-5	-11.8			
Increase/ decrease	6.3								
LLD limit	104.7								

1am to 5am

Table 8: Club noise impacts per LLD night time requirements (1am to 5am) at ML 3, with the source at ML 5.

Hz	63	125	250	500	1000	2000	dB lin	dB(C).	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	106	113	105	109	104	108	111	111	104
(A-B)	-1.2	-4.1	-5	-9.9	-7.8	-12.6			
Intrusive levels at worst affected site L10 - ML 3	64.4	64.3	71.7	63.1	59.1	51.9			55.5
(C+D)	63.2	60.2	66.7	53.2	51.3	39.3			
Background at worst affected site L90	50.4	49.6	49.1	49.1	44.8	38.8			
(E-F)	12.8	10.6	17.6	4.1	6.5	0.5			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	4.8	2.6	9.6	-3.9	-1.5	-7.5			
Increase/ decrease	9.6								
LLD limit	101.4								

Allowable limits DJ Central Plaza dB(C)

- Day (before 10pm) 118 dB(C) at 3m from the speakers
- Night (10pm to 1am) 105 dB(C) at 3m from the speakers
- Night (1am to 5am) 101 dB(C) at 3m from the speakers

3 BAND Central Plaza

With a noise level of 114 dB(C) measured 3m from the speakers (ML 5), 1.2m above the floor, breakout noise levels were measured as follows:

Before 10pm

For day time operation (ie before 10pm) the following was found:

- Noise impact with source at 114 dB(C) 59.2 dB(A)
- Noise limit (Background + 5 allowing for an impulsive correction) 62.8 dB(A)

Thus the allowable limit is 114dB(C) + 3.6 dB 117.6 dB(C)

10pm to 1am

Table 7: Club noise impacts per LLD night time requirements (10pm to 1am) at ML 3, with the source at ML 4.

Hz	63	125	250	500	1000	2000	dB lin	dB(C).	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	105	110.5	103.5	106.6	100.2	105.3	114	115	110
(A-B)	0	-1.5	-3.5	-7.6	-4.2	-10.3			
Intrusive levels at worst affected site L10 - ML 3	73.8	74.9	63.5	63.4	56.6	53.1			64
(C+D)	73.8	73.4	60	55.8	52.4	42.8			
Background at worst affected site L90	57.8	58.1	52.4	49.9	48.3	43.1			53
(E-F)	16	15.3	7.6	5.9	4.1	-0.3			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	8	7.3	-0.4	-2.1	-3.9	-8.3			
Increase/ decrease	8								
LLD limit	104								

1am to 5am

Table 8: Club noise impacts per LLD night time requirements (1am to 5am) at ML 3, with the source at ML 5.

Hz	63	125	250	500	1000	2000	dB lin	dB(C).	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Site L10 (3m from source) L10	105	110.5	103.5	106.6	100.2	105.3	114	115	110
(A-B)	0	-1.5	-3.5	-7.6	-4.2	-10.3			
Intrusive levels at worst affected site L10 - ML 3	73.8	74.9	63.5	63.4	56.6	53.1			64
(C+D)	73.8	73.4	60	55.8	52.4	42.8			
Background at worst affected site L90	50.4	49.6	49.1	49.1	44.8	38.8			
(E-F)	23.4	23.8	10.9	6.7	7.6	4			
Maximum allowable Exceedance (after 10 pm)	8	8	8	8	8	8			
Unreasonable / not unreasonable level	15.4	15.8	2.9	-1.3	-0.4	-4			
Increase/ decrease	15.8								
LLD limit	101								

Allowable limits Band to Central Plaza dB(C)

- Day (before 10pm) 117 dB(C) at 3m from the speakers
- Night (10pm to 1am) 104 dB(C) at 3m from the speakers
- Night (1am to 5am) 101 dB(C) at 3m from the speakers

SUMMARISED LIMITS - dB(C)

Day	Panama	Marquis	Central Plaza
JBN	124	121	125
DJ	117	119	118
BAND	119	116	117

10pm to 1AM	Panama	Marquis	Central Plaza
JBN	118	118	117
DJ	108	104	104
BAND	105	105	104

1AM TO 5AM	Panama	Marquis	Central Plaza
JBN	110	109	109
DJ	102	97	101
BAND	97	97	101

- JBN - dB(C) as measured in the centre of the ceiling grid, 1.2m above the floor.
- DJ and Band - dB(C) as measured 3m from the sound system speakers 1.2m above the floor

CONCLUSIONS & RECOMMENDATIONS

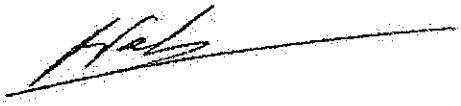
Our assessment shows similar noise limits to those applied under the current licence for the operation of a DJ in the open entertainment area. However the JBN system is effective in limiting breakout sound with much higher entertainment levels allowable (by close to 10 dB). As an outcome of our assessment we recommend the following revised limits:

	JBN	DJ / BAND
Day to 10pm	121 dB(C)	117 dB(C)
10pm to 1am	118 dB(C)	105 dB(C)
1am to 5am	109 dB(C)	97 dB(C)

- JBN - dB(C) as measured in the centre of the ceiling grid, 1.2m above the floor.
- DJ and Band - dB(C) as measured 3m from the sound system speakers 1.2m above the floor

These sound levels are the typical maximum levels shown on a hand held sound level meter set on dB(C) fast response.

Author:



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ENCL Sketches 1 and 2 - Site Layout and Measurement Locations

palmer acoustics Australia Pty Ltd	Title: Site Layout and Measurement Locations	Sketch No. 1	Project No. 3272
	Project: Gilligans Club Cairns – Acoustic Assessment	Date 12-1-11	Scale NTS

www.palmeracoustics.com 24 Mexicanus Drive Park Ridge, QLD 4125 Australia p. (07) 3802 2155 ross@palmeracoustics.com

ML 5
3m from DJ speakers

ML4
Under JBN Sound Ceiling

palmer acoustics Australia Pty Ltd

Title	Site Layout and Measurement Locations	Sketch No. 2	Project No. 3272
Project	Gilligans Club Cairns – Acoustic Assessment	Date 12-1-11	Scale NTS

www.palmeracoustics.com 24 Mexicanus Drive Park Ridge, QLD 4125 Australia p. (07) 3802 2155 ross@palmeracoustics.com