

Environmental Noise Monitoring Report

Date 19.10.2018

Reference N°

Page 1

LD Celulose S.A.

Dissolving Pulp Mill, in Indianópolis and Araguari - Minas Gerais State

Contents	1	INTRODUCTION
	2	DOCUMENTS
	3	DEFINITIONS
	4	MATERIALS AND MEHTODS
	5	RESULTS
	6	CONCLUSION
	7	TECHNICAL TEAM
	8	REFERENCES

Annex	I	Calibration certificate
	II	Calculation Memory of LAeq

Distribution	
LD CELULOSE	E
PÖYRY	-

Orig.	19/10/18 – msh	19/10/18 – bvv	19/10/18 – hfw	19/10/18 – hfw	Para informação
Rev.	Data/Autor	Data/Verificado	Data/Aprovado	Data/Autorizado	Observações

SUMMARY

1	INTRODUCTION.....	4
2	DOCUMENTS.....	4
3	DEFINITIONS.....	4
4	MATERIALS AND MEHTODS.....	5
4.1	Measurement locations.....	5
4.2	Methodology.....	9
4.3	Equipment.....	10
5	RESULTS.....	11
6	CONCLUSION.....	13
7	TECHNICAL TEAM.....	13
8	REFERENCES.....	13

LIST OF FIGURES

Figure 1 – Location map of the 8 measurement points of ambient sound pressure level. Source: Adapted of <i>Google Earth</i> (2018).	6
Figure 2 – P01 (18°49'55,87"S 47°55'32,29"O). Source: Pöyry Tecnologia (2018).	7
Figure 3 – P02 (18°50'18,98"S 47°55'38,49"O). Source: Pöyry Tecnologia (2018).	7
Figure 4 – P03 (18°49'50,84"S 47°54'59,59"O). Source: Pöyry Tecnologia (2018).	7
Figure 5 – P04 (18°49'45,52"S 47°54'28,22"O). Source: Pöyry Tecnologia (2018).	8
Figure 6 – P05 (18°49'46,34"S 47°53'55,08"O). Source: Pöyry Tecnologia (2018).	8
Figure 7 – P06 (18°50'25,16"S 47°54'56,75"O). Source: Pöyry Tecnologia (2018).	8
Figure 8 – P07 (18°50'24,34"S 47°53'56,76"O). Source: Pöyry Tecnologia (2018).	9
Figure 9 – P08 (18°50'23,19"S 47°54'27,02"O). Source: Pöyry Tecnologia (2018).	9
Figure 10 – Location of measurement points and their results for day (D) and night (N) period. Source: Adapted de <i>Google Earth</i> (2018).	12

LIST OF TABLES

Table 1 – Description of the ambient sound pressure level measurement sites	5
Table 2 – Results of ambient sound pressure level measurements	11

1 INTRODUCTION

This document consists of the Environmental Noise Monitoring Report of the area around of the dissolving pulp mill of LD CELULOSE S.A. in Indianópolis (mill site), as well as Araguari (water intake and treated effluent disposal pipelines) in Minas Gerais, Brazil, and aims to verify the ambient sound pressure level present in the area prior to the operation of the project (background).

The field work to measure ambient sound pressure levels was performed by the Pöyry Tecnologia team on April 3rd of 2018.

Ambient sound pressure levels were measured at 8 different points in the day and night period, totaling 16 measurements.

2 DOCUMENTS

The documents related to this studied are presented below.

- Standard NBR 10.151/2000 – Noise Assessment in Inhabited Areas, Aiming at Community Comfort - Procedure.
- State Law No. 7302/1978 – Provides for protection against noise pollution in the state of Minas Gerais.

State Law No. 10100/1990 – Provisions on protection against noise pollution in the State of Minas Gerais.

- CONAMA Resolution No. 01/1990 – Provides criteria for noise emission standards arising from any industrial activities.

3 DEFINITIONS

- Sound pressure level: difference between the total pressure when passing the sound wave (P) and the normal or reference atmospheric pressure (Po). Since audible sounds reach a range of 10^6 Pa, a logarithmic scale, the decibel, is used to measure the sound pressure level.
- Equivalent sound pressure level (LAeq) in "A" weighted decibels [dB (A)]: The level obtained from the mean square root of the sound pressure (with A weighting) for each measuring range.
- Ambient noise level (LA): A-weighted equivalent sound pressure level at the place and time considered in the absence of the noise generated by the sound Source in question.
- Sonometer: sound level integrator meter or sound pressure level measurement system.

4 MATERIALS AND MEHTODS

4.1 Measurement locations

For the definition of measurement sites, the environment of the area planned for implantation of the soluble pulp mill was considered, prior to its operation (background).

In total, 8 different points were defined for measuring the ambient sound pressure level in the day and night periods, totaling 16 measurements, as described in the Table below.

Table 1 – Description of the ambient sound pressure level measurement sites

ID	Local	Coordinates	
		Latitude	Longitude
P01	Near the fence of the eucalyptus farm	18°49'55.87"S	47°55'32.29"O
P02	Near the fence of the eucalyptus farm	18°50'18.98"S	47°55'38.49"O
P03	Near the railway line	18°49'50.84"S	47°54'59.59"O
P04	Near the railway line	18°49'45.52"S	47°54'28.22"O
P05	Near the railway line	18°49'45.99"S	47°54'8.98"O
P06	In the middle of the eucalyptus plantation	18°50'24.89"S	47°54'54.95"O
P07	In the middle of the eucalyptus plantation	18°50'19.79"S	47°54'9.36"O
P08	Near to native vegetation	18°50'20.23"S	47°54'25.69"O

The following Figure shows the map with the location of the 8 measurement points, while in the other Figures, pictures of each measurement location are displayed.

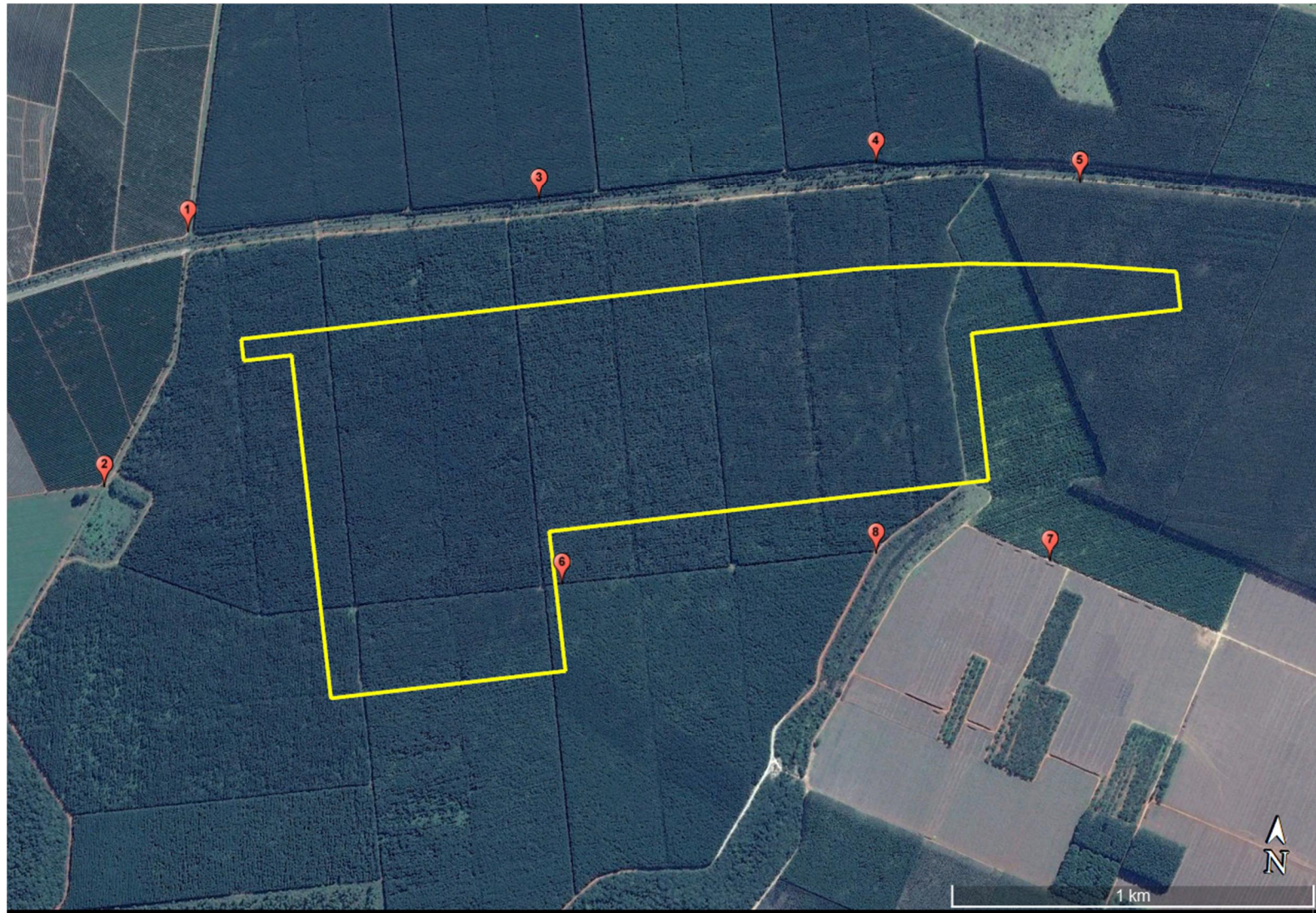


Figure 1 – Location map of the 8 measurement points of ambient sound pressure level. Source: Adapted of *Google Earth* (2018).



Figure 2 – P01 (18°49'55,87"S 47°55'32,29"O). Source: Pöyry Tecnologia (2018).



Figure 3 – P02 (18°50'18,98"S 47°55'38,49"O). Source: Pöyry Tecnologia (2018).



Figure 4 – P03 (18°49'50,84"S 47°54'59,59"O). Source: Pöyry Tecnologia (2018).



Figure 5 – P04 (18°49'45,52"S 47°54'28,22"O). Source: Pöyry Tecnologia (2018).



Figure 6 – P05 (18°49'46,34"S 47°53'55,08"O). Source: Pöyry Tecnologia (2018).



Figure 7 – P06 (18°50'25,16"S 47°54'56,75"O). Source: Pöyry Tecnologia (2018).



Figure 8 – P07 (18°50'24,34"S 47°53'56,76"O). Source: Pöyry Tecnologia (2018).



Figure 9 – P08 (18°50'23,19"S 47°54'27,02"O). Source: Pöyry Tecnologia (2018).

4.2 Methodology

The measurement methodology was based on the instructions of the Standard NBR 10.151/2000, which is regulated by CONAMA Resolution No. 01/1990. In addition, the instructions of State Law No. 7.302 / 1978 and its amendments were also contemplated.

The evaluation method involved measurements of the equivalent sound pressure level (LAeq) in "A" weighted decibels, commonly called dB (A), as recommended in item 1.3 of Standard NBR 10.151/2000.

Measurements were made at points distant approximately 1.2 m from the floor and at least 2 m from the property boundary and from any other reflecting surface, such as walls, walls, etc.

The measurement time of the ambient sound pressure level was 2 minutes for each point. During the measurements the microphone wind shield was used.

The sound pressure evaluation was performed in the 2 periods recommended by Standard NBR 10.151/2000, that is, day and night period.

4.3 Equipment

The characteristics of the sound level meter and acoustic calibrator used in this monitoring are presented below. Certificates are given in **ANNEX I**.

Sonometer Features

- Model: Decibelímetro DT-8852
- Standard complied with: IEC-616721 Class 2
- Accuracy: ± 1.4 dB
- Frequency range: 31.5 Hz ~ 8 KHz
- Dynamic Range: 50 dB
- Memory: 32,700 data
- Scale levels:
 - Lo: 30 dB ~ 80 dB
 - Med: 50dB ~ 100dB
 - Hi: 80 dB ~ 130 dB
 - Auto: 30 dB ~ 130 dB
- Frequency Weighting: A / C
- Time weighting: fast or fast (125 ms) and slow or slow (1s)
- Microphone: 1/2 inch with electret condenser
- Resolution: 0.1dB
- Serial Number: 150622900
- Calibration certificate No. 3547
- Calibration date: 03/08/2018

Acoustic Calibrator Features

- Model: SC05 Calibrator
- Standard complied with: IEC 60942 Class 2
- Output sound pressure levels: 94 dB and 114 dB
- Output frequency: 1000 Hz $\pm 4\%$
- Accuracy: ± 0.5 dB
- Serial Number: 150621430
- Calibration certificate No. 3885
- Calibration date: 03/07/2018

5 RESULTS

The results of the ambient sound pressure level measurements are shown in the Table and in the following figure.

Table 2 – Results of ambient sound pressure level measurements

ID	Local	Period	Time	Environmental characteristics of the local	Results LAeq
P01	Near the fence of the eucalyptus farm	Day	10:39	Sunny day and weak wind	38.2 dB(A)
		Night	19:54	No wind and sound of insects	43.9 dB(A)
P02	Near the fence of the eucalyptus farm	Day	10:30	Sunny day and weak wind	40.1 dB(A)
		Night	20:05	No wind	40.9 dB(A)
P03	Near the railway line	Day	11:19	No sun and no wind	34.4 dB(A)
		Night	19:47	No wind and sound of insects	44.6 dB(A)
P04	Near the railway line	Day	11:39	No sun and no wind	34.7 dB(A)
		Night	19:34	No wind and sound of insects	45.8 dB(A)
P05	Near the railway line	Day	11:48	No wind and sound of birds	34.4 dB(A)
		Night	19:20	No wind and sound of insects	41.8 dB(A)
P06	In the middle of the eucalyptus plantation	Day	12:31	No sun and no wind	35.1 dB(A)
		Night	20:19	No wind and sound of insects	45.1 dB(A)
P07	In the middle of the eucalyptus plantation	Day	12:59	No wind and sound of birds	34.8 dB(A)
		Night	21:13	No wind and sound of insects	44.2 dB(A)
P08	Near to native vegetation	Day	12:44	No sun and no wind	36.2 dB(A)
		Night	20:52	No wind and sound of insects	46.6 dB(A)

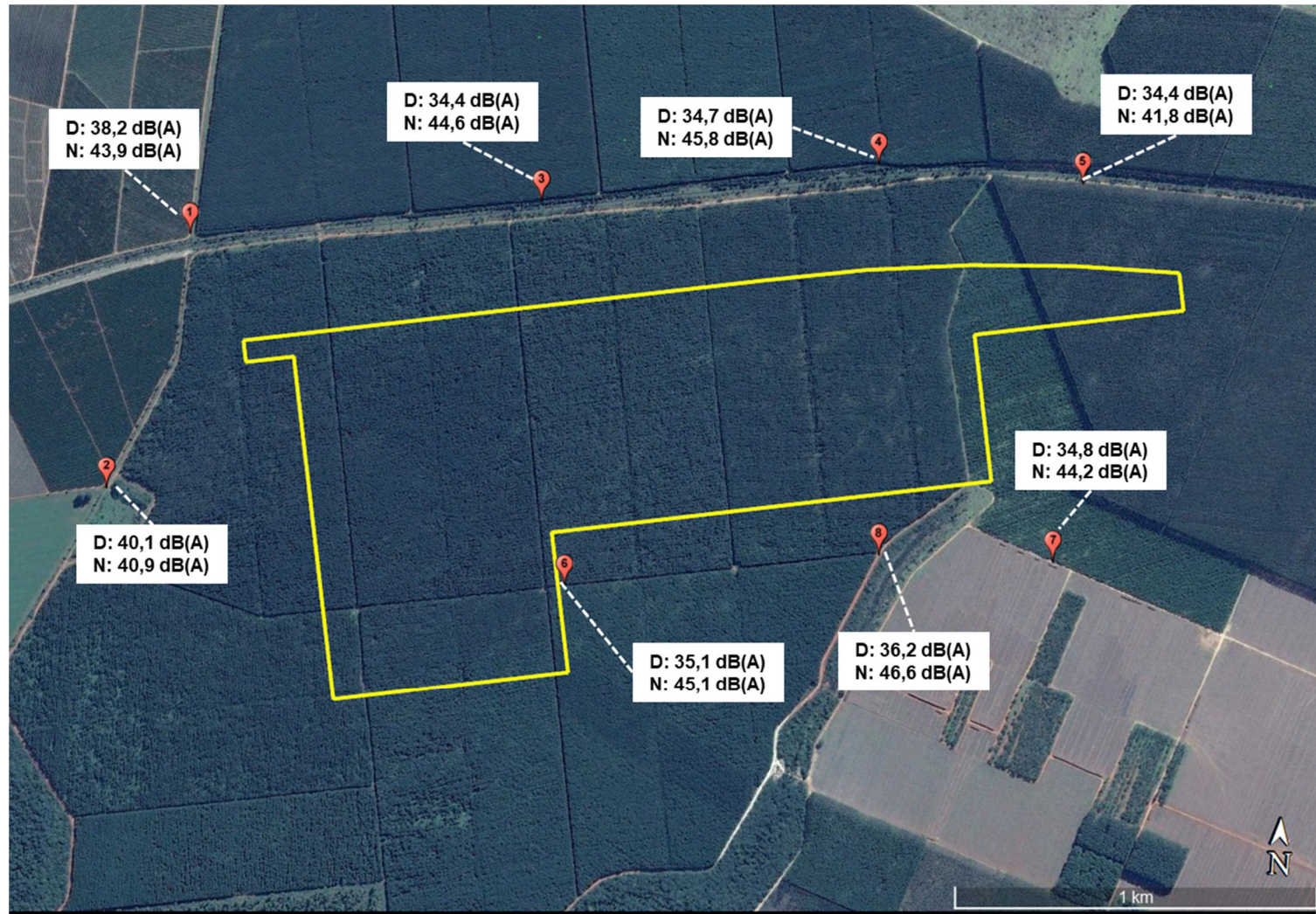


Figure 10 – Location of measurement points and their results for day (D) and night (N) period. Source: Adapted de *Google Earth* (2018).

The results of ambient sound pressure level around area of the dissolving pulp mill ranged between 34.4 dB(A) e 40.1 dB(A) in day period, and between 40.9 dB(A) e 46.6 dB(A) in night period.

The highest results in the night period occurred mainly due to the sounds of insects.

6 CONCLUSION

It was measured the ambient sound pressure level during day and night periods in 8 different points around area of the dissolving pulp mill of LD CELULOSE S.A.

All ambient sound pressure levels are below of standard for the predominantly industrial area established by NBR 10151/2000 (70 dBA for day period and 60 dBA for night period) and are also below of standard established by State Law 10.100 / 1990 (70 dBA for day period and 60 dBA for night period).

However, regarding to the standard for site areas and farms (40 dBA for day period and 35 dBA for night period), there is 1 measure for day period and there are 8 measures for night period above that. In this case, according to NBR 10.151/2000, when the ambient sound pressure levels are above, the sound pressure levels obtained in the field measurement are maintained as the evaluation criterion.

7 TECHNICAL TEAM

The technical team responsible for preparing this document is presented below.

- Environmental Engineer Rafael Lourenço Thomaz Favery
CREA 5062655712 SP / IBAMA 2765347
- Chemical Engineer Celso Tomio Tsutsumi
CREA 5060443241/D SP / IBAMA 1590847

8 REFERENCES

ABNT. Standard NBR 10.151/2000 – Noise Assessment in Inhabited Areas, Aiming at Community Comfort - Procedure.

MINAS GERAIS. State Law No. 7302/1978 – Provides for protection against noise pollution in the state of Minas Gerais.

MINAS GERAIS. State Law No. 10100/1990 – Provisions on protection against noise pollution in the State of Minas Gerais.

MMA. CONAMA Resolution No. 01/1990 – Provides criteria for noise emission standards arising from any industrial activities. .

ANNEX I
CALIBRATION CERTIFICATE



“Segurança e Precisão ao seu alcance”

Certificado de calibração

Nº 3547

Cliente: POYRY TECNOLOGIA LTDA
Endereço: Avenida Alfredo Egídio de Souza Aranha, 100
Cidade: São Paulo Estado SP Bairro CHACARA SANTO ANTONIO
Equipamento calibrado MEDIDOR DE NIVEL SONORO CEP 04726-170
Marca ENEQUIPA N° de Serie 150622900 Modelo DT-8852
Ordem de Serviço N° 3884 Data da Calibração 08/03/2018

CONDIÇÕES AMBIENTAIS

Temperatura 23 ± 3 °C Umidade Relativa 45 a 65 % U.R.

PROCEDIMENTO DE CALIBRAÇÃO

Procedimento operacional de calibração PE-001 revisão 01, emitido em 11/12/2017 – A calibração foi realizada através do processo de comparação com um padrão rastreado a um laboratório acreditado pela CGCRE/INMETRO.

PADRÃO UTILIZADO

011 – CALIBRADOR ACUSTICO CAL-BK mod7 – Certificado de calibração nº CBR1600378 – RBC (CAL 0305) – Validade Junho/2018

013 – MEDIDOR DE NIVEL SONORO DEC-INST mod5 – Certificado de calibração nº 87.368 – RBC (CAL 0256) – Validade Junho/2019

RESULTADOS OBTIDOS

Tempo de resposta	Escala (dB)	Valor indicado no Instrumento calibrado (dB)	Valor indicado no instrumento em teste (dB)	Erro (dB)	Incerteza (± dB)	k
SLOW A	50 - 100	94,2	94,3	0,1	0,3	2,00
SLOW A	80 - 130	94,2	94,1	0,1	0,3	2,00
SLOW A	30 - 130	94,2	94,1	0,1	0,3	2,00
SLOW A	80 - 130	114,2	114,0	0,2	0,3	2,00
SLOW A	30 - 130	114,2	114,0	0,2	0,3	2,00
FAST A	50 - 100	94,2	94,3	0,1	0,3	2,00
FAST A	80 - 130	94,2	94,1	0,1	0,3	2,00
FAST A	30 - 130	94,2	94,1	0,1	0,3	2,00
FAST A	80 - 130	114,2	114,0	0,2	0,3	2,00
FAST A	30 - 130	114,2	114,0	0,2	0,3	2,00
	Fast A 50 - 100		Fast A 80 - 130			
Valor anterior		93,7		93,6		
Valor após ajuste		94,3		94,1		

NOTAS

A incerteza expandida relatada é baseada em uma incerteza padronizada combinada e multiplicada pelo fator de abrangência padronizado k=2,0 para uma probabilidade de abrangência de 95%.

Os resultados acima referem-se exclusivamente ao equipamento calibrado e as condições supra mencionadas. Este certificado somente pode ser reproduzido na sua forma e conteúdo integrais e sem alterações. Não pode ser utilizado para fins promocionais

Executante Júlio César Davi

Este certificado foi assinado eletronicamente



“Segurança e Precisão ao seu alcance”

Certificado de calibração

Nº 3546

Folha 01/01

Cliente: POYRY TECNOLOGIA LTDA
Endereço: Avenida Alfredo Egídio de Souza Aranha, 100
Cidade: São Paulo Estado SP Bairro CHACARA SANTO ANTONIO
Equipamento calibrado CALIBRADOR PARA MEDIDOR DE NIVEL SONORO Modelo SC-05
Marca ENEQUIPA N° de Serie 150621430
Ordem de Serviço N° 3885 Data da Calibração 07/03/2018

CONDIÇÕES AMBIENTAIS

Temperatura 23 ± 3 °C Umidade Relativa 45 a 65 % U.R.

PROCEDIMENTO DE CALIBRAÇÃO

Procedimento operacional de calibração PE-002 revisão 00, emitido em 01/07/2013 – A calibração foi realizada através do processo de comparação com um padrão rastreado a um laboratório acreditado pela CGCRE/INMETRO.

PADRÃO UTILIZADO

011 – CALIBRADOR ACUSTICO CAL-BK mod7 – Certificado de calibração nº CBR1600378 – RBC (CAL 0305) – Validade Junho/2018

013 – MEDIDOR DE NIVEL SONORO DEC-INST mod5 – Certificado de calibração nº 87.368 – RBC (CAL 0256) – Validade Junho/19

RESULTADOS OBTIDOS

Valor indicado no Instrumento calibrado (dB)	Valor indicado no instrumento em teste (dB)	Erro (dB)	Incerteza (\pm dB)	k
94,2	94,2	0,0	0,3	2,00
114,2	144,2	0,0	0,3	2,00

Ajuste

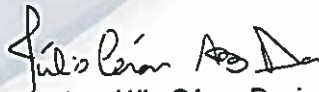
Valor anterior	94,6	114,4
Valor após ajuste	94,2	94,2

NOTAS

A incerteza expandida relatada é baseada em uma incerteza padronizada combinada e multiplicada pelo fator de abrangência padronizado $k=2,0$ para uma probabilidade de abrangência de 95%.

Os resultados acima referem-se exclusivamente ao equipamento calibrado e as condições supra mencionadas. Este certificado somente pode ser reproduzido na sua forma e conteúdo integrais e sem alterações. Não pode ser utilizado para fins promocionais

Data da emissão do certificado 07/03/2018


Executante Júlio César Davi
Este certificado foi assinado eletronicamente

ANNEX II
CALCULATION MEMORY OF LAEQ

Measures	Ambient Sound Pressure Level															
	Day Period								Night Period							
	P1	P2	P3	P4	P5	P6	P7	P8	P1	P2	P3	P4	P5	P6	P7	P8
1	39	41.0	33.9	35.0	35.4	36.0	36.5	37.3	46.2	41.0	44.2	47.1	42.2	46.2	45.4	48.7
2	38.6	41.0	33.6	35.0	35.3	35.9	36.3	37.4	45.8	40.8	43.9	47.0	42.1	46.3	45.1	48.6
3	38.6	41.0	33.5	34.9	35.2	35.8	36.2	37.3	45.5	40.7	43.8	46.9	42.0	46.2	45.0	48.6
4	38.4	40.9	34.4	34.8	35.2	35.8	36.2	37.4	45.6	40.7	43.7	46.8	41.9	46.3	44.9	48.7
5	38.3	40.9	34.4	34.7	35.1	35.7	36.1	37.1	45.5	40.5	43.6	46.7	41.8	46.0	44.8	48.5
6	38.1	38.1	34.5	34.7	35.1	35.7	36.1	36.9	45.2	40.6	43.7	46.6	42.7	45.8	44.6	48.4
7	38	38.2	34.6	34.6	35.0	35.6	36.0	36.8	45.0	40.5	43.7	46.5	42.6	45.7	44.6	48.3
8	38.9	38.4	34.5	34.7	35.0	35.6	35.9	36.8	44.8	41.0	43.6	46.4	42.5	45.7	44.4	47.9
9	38.8	38.6	34.6	34.6	34.9	35.5	35.9	36.6	44.7	41.0	43.7	46.4	42.5	45.5	45.0	47.8
10	38.7	38.6	34.7	34.7	34.9	35.5	35.8	36.7	44.6	41.0	43.8	46.3	42.4	45.6	45.0	47.7
11	38.7	39.0	34.8	34.4	34.9	35.5	35.7	36.6	44.4	40.9	43.9	46.2	42.3	45.5	44.9	47.7
12	38.6	40.9	34.5	34.9	34.8	35.4	35.7	37.1	44.2	40.9	44.4	46.2	42.3	46.0	44.8	47.6
13	38.6	40.9	34.5	34.8	34.7	35.3	35.6	37.1	44.2	40.9	44.5	46.1	42.2	46.0	44.7	47.6
14	38.4	41.0	34.5	34.8	34.7	35.3	35.5	37.1	44.0	40.9	44.6	46.1	42.2	46.0	44.7	47.4
15	38.4	38.0	34.4	34.6	34.6	35.4	35.4	37.0	43.9	41.0	45.0	46.0	42.1	45.9	44.6	47.4
16	38.3	37.9	34.7	34.7	34.6	35.4	35.4	37.0	43.8	40.9	45.2	46.0	42.1	45.9	44.5	47.3
17	38.1	37.8	34.5	34.6	34.6	35.4	35.3	37.0	43.6	41.0	45.5	45.9	42.0	45.9	44.5	47.1
18	38.2	37.7	34.6	34.5	34.6	35.3	35.3	37.0	43.5	40.9	45.6	45.9	42.0	45.9	44.5	47.2
19	38.1	39.7	34.6	34.5	34.5	35.3	35.2	37.1	43.4	41.1	45.6	45.8	42.0	46.0	44.4	47.1
20	38	39.7	34.8	34.5	34.5	35.1	35.2	35.1	43.4	41.1	45.6	45.8	42.0	44.0	44.3	47.0
21	38	39.6	34.8	34.4	34.9	35.5	35.1	34.7	43.3	41.1	45.5	45.8	42.0	43.6	44.3	47.3
22	37.9	39.6	34.8	34.4	34.8	35.4	35.0	34.7	43.6	41.0	45.5	45.8	42.0	43.6	44.3	47.1
23	37.8	39.6	34.8	34.4	34.8	35.4	35.0	34.5	43.4	41.3	45.3	45.8	42.0	43.4	44.3	47.2
24	37.8	40.1	34.8	34.4	34.7	35.3	34.9	34.3	43.4	41.3	45.3	45.8	42.0	43.2	44.3	47.1
25	37.7	39.9	34.8	34.5	34.7	35.3	34.9	34.2	43.4	41.4	45.5	45.8	42.0	43.1	44.3	47.1
26	37.7	39.8	34.8	34.4	34.7	35.2	34.8	34.1	43.6	41.3	45.4	45.7	41.9	43.0	44.3	47.1
27	37.6	39.9	34.6	34.5	34.7	35.2	34.8	34.0	43.4	41.4	45.3	45.8	41.9	42.9	44.3	46.6
28	37.5	39.6	34.6	34.4	34.7	35.2	34.8	33.9	43.4	41.4	45.2	45.7	41.8	42.8	44.3	46.5
29	37.5	39.6	34.6	34.6	34.7	35.2	34.7	33.8	43.3	41.4	45.1	45.7	41.8	42.7	44.3	46.5
30	37.4	40.1	34.5	34.5	34.7	35.2	34.7	33.8	43.6	41.3	45.0	45.7	41.8	42.7	44.2	46.4
31	37.4	39.9	34.5	34.5	34.7	35.2	35.1	35.9	44.4	41.2	44.9	45.5	41.6	44.8	44.2	46.4
32	38.3	39.9	34.5	34.4	34.7	35.2	35.4	35.8	44.4	41.4	44.8	45.5	41.6	44.7	44.2	46.3
33	38.3	39.8	34.4	34.7	34.7	35.2	35.6	35.8	44.3	41.3	44.7	45.5	41.6	44.7	43.9	46.3
34	38.2	41.3	34.4	34.7	34.7	35.2	35.7	35.7	44.2	41.3	44.7	45.5	41.6	44.6	43.9	46.2
35	38.2	41.0	34.4	34.8	34.7	35.2	35.6	35.7	44.0	41.2	44.5	45.5	41.6	44.6	43.9	46.2
36	38.1	40.8	34.4	34.8	34.7	35.2	35.6	35.7	43.9	41.3	44.5	45.5	41.6	44.6	43.9	46.1
37	38.1	40.7	34.4	34.8	34.7	35.2	35.5	36.2	43.8	41.2	44.6	45.5	41.6	45.1	43.9	46.1

Measures	Ambient Sound Pressure Level															
	Day Period								Night Period							
	P1	P2	P3	P4	P5	P6	P7	P8	P1	P2	P3	P4	P5	P6	P7	P8
38	38.1	40.7	34.5	34.7	34.7	35.2	35.4	36.0	43.8	41.7	44.5	45.5	41.6	44.9	43.8	46.1
39	38.1	40.5	34.6	34.6	34.7	35.2	35.4	36.0	43.6	41.7	44.5	45.6	41.6	44.9	43.9	46.1
40	38.1	40.6	34.5	34.8	34.7	35.2	35.3	35.9	43.6	41.6	44.6	45.6	41.6	44.8	43.8	46.1
41	38	40.5	34.5	34.7	34.7	35.2	35.3	35.8	43.6	41.5	44.7	45.6	41.6	44.7	43.8	46.0
42	38.1	40.8	34.5	34.7	34.9	35.4	35.2	35.8	43.5	41.4	44.7	45.6	41.6	44.7	43.8	46.1
43	38.1	40.8	34.5	34.6	34.9	35.4	35.2	35.7	43.5	41.4	44.7	45.6	41.6	44.6	43.8	46.1
44	38.2	40.8	34.6	34.7	34.9	35.4	35.1	35.7	43.7	41.0	44.7	45.6	41.6	44.6	43.9	46.2
45	38.2	40.7	34.6	34.6	34.9	35.4	35.1	35.7	43.6	40.9	44.7	45.6	41.6	44.6	43.9	46.2
46	38.2	40.7	34.7	34.7	34.8	35.3	35.2	36.2	43.6	40.8	44.8	45.6	41.6	45.1	44.0	46.2
47	38.3	40.5	34.0	34.7	34.7	35.2	35.2	36.0	43.5	40.7	44.8	45.6	41.6	44.9	44.1	46.3
48	38.5	40.5	34.0	34.7	34.7	35.2	35.1	35.9	43.4	40.6	44.7	45.4	41.6	44.8	44.1	46.5
49	38.4	40.7	34.0	34.4	34.6	35.1	35.0	36.0	43.3	40.6	44.7	45.4	41.6	44.8	44.1	46.4
50	38.3	40.7	34.0	34.4	34.6	35.1	35.0	35.9	43.3	40.6	44.6	45.4	41.6	44.7	44.1	46.3
51	38.4	40.7	34.0	34.4	34.6	35.1	35.0	35.9	43.2	40.5	44.6	45.4	41.6	44.7	44.1	46.4
52	38.3	40.7	34.0	34.9	34.6	35.1	35.0	35.8	43.2	41.3	44.7	45.4	41.6	44.6	44.1	46.3
53	38.3	39.6	34.0	34.8	34.6	35.1	34.9	35.9	43.1	41.4	44.7	45.5	41.7	44.7	44.1	46.3
54	38.2	39.6	34.0	34.7	34.5	35.0	34.9	35.7	43.1	40.6	44.6	45.6	41.8	44.5	44.1	46.2
55	38.2	39.5	34.0	34.6	34.5	35.0	34.8	35.7	43.3	40.9	44.5	45.5	41.7	44.5	44.1	46.2
56	38.1	39.4	34.0	34.6	34.5	35.0	34.8	35.6	43.3	40.9	44.4	45.6	41.8	44.4	44.1	46.1
57	38.1	40.7	34.0	34.6	34.5	35.0	34.8	35.5	43.0	40.9	44.3	45.6	41.8	44.3	44.1	46.1
58	38	40.5	34.0	34.5	34.4	34.9	34.8	36.8	43.3	40.5	44.2	45.6	41.8	45.6	44.1	46.3
59	38.1	40.5	34.0	34.4	34.4	34.9	34.7	36.6	43.4	40.4	44.3	45.6	41.8	45.4	44.1	46.3
60	38	40.4	33.8	34.3	34.4	34.9	34.7	36.6	42.9	40.6	44.3	45.6	41.8	45.4	44.1	46.2
61	38	40.3	34.3	34.3	34.3	34.8	34.7	36.5	42.9	40.3	44.3	45.6	41.8	45.3	44.1	46.2
62	37.9	40.7	34.3	34.1	34.3	34.8	34.6	36.4	43.1	40.4	44.4	45.6	41.8	45.2	44.1	46.1
63	37.9	40.7	34.3	34.0	34.3	34.8	34.6	36.3	43.1	40.3	44.7	45.6	41.8	45.1	44.1	46.1
64	37.9	40.5	34.3	33.9	34.3	34.8	34.6	36.2	43.4	40.1	44.7	45.8	41.8	45.0	44.1	46.3
65	37.8	40.5	34.3	34.0	34.3	34.8	34.5	36.2	43.3	40.0	48.6	45.8	41.8	45.0	44.1	46.3
66	37.8	40.5	34.3	33.9	34.2	34.7	34.5	36.1	43.2	39.9	48.2	45.8	41.8	44.9	44.1	46.2
67	37.8	40.5	34.3	33.8	34.2	34.7	34.4	36.0	43.2	40.0	47.8	45.8	41.8	44.8	44.1	46.3
68	37.9	40.5	34.3	35.6	34.2	34.7	34.4	36.0	43.5	39.9	47.4	45.8	41.8	44.8	44.1	46.3
69	37.8	40.5	34.3	35.5	34.2	34.7	34.4	35.9	44.6	39.8	47.0	45.8	41.8	44.7	44.1	46.5
70	37.8	40.5	34.3	35.4	34.1	34.6	34.3	35.9	44.4	41.6	46.8	45.8	41.8	44.7	44.1	46.8
71	37.8	40.5	34.3	35.4	34.2	34.7	34.3	35.3	44.3	41.5	46.6	45.8	41.8	44.1	44.1	46.9
72	37.8	40.2	34.3	35.3	34.1	35.5	35.1	35.1	44.2	41.0	46.3	45.8	41.8	43.9	44.1	46.8
73	37.7	40.1	34.0	35.3	34.1	35.6	35.0	35.3	44.0	41.0	46.2	45.8	41.8	44.1	44.1	46.8
74	37.7	40.1	34.0	35.2	34.1	35.5	35.0	35.3	43.9	41.0	45.9	45.9	41.9	44.1	44.1	46.8

Measures	Ambient Sound Pressure Level															
	Day Period								Night Period							
	P1	P2	P3	P4	P5	P6	P7	P8	P1	P2	P3	P4	P5	P6	P7	P8
75	38.7	40.0	34.0	35.2	34.1	35.4	34.9	35.2	43.8	41.0	45.7	46.0	42.0	44.0	44.1	46.8
76	38.8	39.9	34.0	35.1	34.1	35.4	34.8	35.6	43.6	41.3	45.5	45.9	41.9	44.4	44.1	46.7
77	38.9	39.9	34.1	35.1	34.1	35.3	34.7	35.5	43.6	41.1	45.4	45.9	41.9	44.3	44.2	46.7
78	38.8	39.8	34.1	35.0	34.1	35.3	34.7	35.3	43.5	41.1	45.2	45.9	41.9	44.1	44.2	46.7
79	38.8	39.8	34.1	35.0	34.0	35.3	34.6	35.4	43.4	41.0	44.9	45.9	41.9	44.2	44.2	46.7
80	38.8	39.2	34.2	35.0	34.6	35.1	34.6	36.0	43.3	41.0	44.7	45.9	41.9	44.8	44.3	46.6
81	38.8	39.0	34.2	35.0	34.6	35.1	34.6	36.6	43.4	41.3	44.6	45.9	41.9	45.4	44.3	46.6
82	38.7	40.1	34.2	35.3	34.6	35.1	34.5	36.3	43.2	41.3	44.4	45.9	41.9	45.1	44.3	46.5
83	38.7	40.3	34.2	35.2	34.5	35.0	34.5	36.6	43.2	41.2	44.3	45.9	41.9	45.4	44.3	46.5
84	38.7	40.2	34.2	35.2	34.5	35.0	34.4	36.9	43.1	41.2	44.1	45.9	41.9	45.7	44.3	46.5
85	38.7	40.1	34.4	35.1	34.4	34.9	34.4	37.0	43.0	41.1	43.9	45.9	41.9	45.8	44.2	46.5
86	38.6	39.9	34.5	35.1	34.4	34.9	34.4	36.9	43.0	41.1	43.9	45.8	41.8	45.7	44.2	46.5
87	38.6	39.9	34.5	35.0	34.3	35.1	34.3	36.9	43.0	41.0	43.8	45.9	41.9	45.7	44.2	46.4
88	38.5	40.5	34.5	34.9	34.3	35.1	34.2	36.9	42.9	41.0	43.7	45.8	41.8	45.7	44.2	46.4
89	38.5	40.5	34.5	35.0	34.3	35.1	34.2	36.9	42.9	41.2	43.5	45.8	41.8	45.7	44.1	46.3
90	38.5	40.7	34.5	35.0	34.2	35.0	34.1	36.2	42.9	41.2	43.5	45.6	41.8	45.0	44.1	46.3
91	38.5	40.7	34.4	34.8	34.2	35.0	34.1	36.4	42.8	41.2	43.4	45.7	41.9	45.2	44.1	46.3
92	38.5	39.2	34.5	34.8	34.2	35.0	34.1	36.3	42.8	40.9	43.4	45.6	41.8	45.1	44.1	46.3
93	38.4	39.1	34.3	34.9	34.1	34.9	34.0	36.2	42.8	40.9	43.3	45.6	41.8	45.0	44.1	46.3
94	38.4	39.5	34.3	35.0	34.1	34.9	34.0	36.0	42.8	40.3	43.3	45.7	41.9	44.8	44.1	46.2
95	38.3	39.4	34.5	34.9	34.0	34.8	34.0	36.0	43.1	40.2	43.3	45.6	41.8	44.8	44.1	46.2
96	38.3	39.2	34.5	34.9	34.0	34.8	33.9	36.6	43.1	40.7	43.3	45.6	41.8	45.4	44.0	46.2
97	38.3	39.3	34.6	34.9	34.0	34.8	33.9	36.6	43.2	40.7	43.1	45.7	41.9	45.4	44.0	46.3
98	38.3	39.9	34.6	34.9	34.0	34.8	33.9	36.8	43.0	40.8	43.1	45.6	41.8	45.6	44.0	46.3
99	38.3	40.5	34.7	34.5	33.9	34.7	33.8	36.8	43.3	40.9	43.3	45.6	41.8	45.6	44.0	46.3
100	38.2	40.2	34.3	34.4	33.9	34.7	33.9	36.9	43.4	40.8	43.3	45.6	41.8	45.7	43.9	46.3
101	38.2	40.5	34.3	34.2	33.9	34.7	33.9	36.9	43.4	40.8	43.3	45.6	41.8	45.7	43.9	46.3
102	38.2	40.8	34.3	34.2	33.9	34.7	33.9	36.8	43.5	40.8	43.3	45.6	41.7	45.7	43.9	46.2
103	38.3	40.9	34.5	34.2	33.9	34.7	33.9	36.7	43.5	40.8	43.1	45.7	41.8	45.6	43.9	46.2
104	38.3	40.8	34.5	34.4	33.9	34.7	33.8	36.7	46.4	40.4	43.1	45.7	41.8	45.6	44.0	46.1
105	38.3	40.8	34.5	34.3	33.9	34.7	33.8	36.5	46.1	40.3	43.1	45.7	41.8	45.6	44.0	46.1
106	38.3	40.8	34.2	34.2	33.9	34.7	33.8	36.5	45.8	40.1	43.1	45.7	41.8	45.6	44.1	46.1
107	38.3	40.8	34.5	34.0	33.9	34.8	33.7	36.7	45.5	40.1	43.0	45.6	41.7	45.8	44.1	46.1
108	38.2	39.2	34.5	34.8	33.9	34.8	33.7	36.7	45.3	40.1	42.9	45.7	41.8	45.8	44.1	46.0
109	38.2	37.7	34.3	34.8	33.9	34.5	33.7	36.7	45.1	40.3	42.7	45.8	41.8	45.8	44.1	46.0
110	38.1	39.8	34.3	34.9	33.9	34.5	33.7	36.7	44.9	40.2	42.7	45.8	41.8	45.8	44.1	46.1
111	38.1	39.7	34.3	35.0	33.9	34.5	33.7	36.5	44.7	40.1	42.7	45.8	41.8	45.6	44.1	46.1

Measures	Ambient Sound Pressure Level															
	Day Period								Night Period							
	P1	P2	P3	P4	P5	P6	P7	P8	P1	P2	P3	P4	P5	P6	P7	P8
112	38.1	39.7	34.3	34.6	33.9	34.5	33.8	36.7	44.5	39.9	42.9	45.8	41.8	45.8	43.9	46.1
113	38.1	39.6	34.4	34.5	33.7	34.3	33.7	36.7	44.3	40.7	42.8	45.8	41.8	45.8	44.0	46.0
114	38.0	41.2	34.8	34.5	33.9	34.6	33.7	36.5	44.2	40.7	42.7	45.8	41.7	45.6	43.9	46.0
115	38.0	41.3	34.8	34.5	33.9	34.6	33.6	36.5	44.1	40.8	42.5	45.8	41.7	45.6	43.9	45.9
116	37.9	41.2	34.7	34.5	33.9	34.6	33.6	36.5	43.9	40.9	42.5	45.8	41.6	45.6	43.9	45.9
117	38.0	39.8	34.6	34.4	33.8	34.5	33.6	36.5	43.8	40.9	43.1	45.8	41.6	45.6	45.1	45.9
118	38.0	39.8	34.5	34.6	33.8	34.5	33.6	36.5	43.7	40.8	43.1	45.8	41.6	45.6	45.0	45.8
119	37.9	39.7	34.0	34.3	33.8	34.5	33.5	36.5	43.5	40.9	43.5	45.8	41.7	45.6	44.8	45.8
120	37.9	39.8	34.3	34.4	33.8	34.5	33.5	36.5	43.5	40.9	43.3	45.7	41.7	45.6	44.7	45.8
LAeq	38.2	40.1	34.4	34.7	34.4	35.1	34.8	36.2	43.9	40.9	44.6	45.8	41.8	45.1	44.2	46.6