Test Report

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University of Salford MANCHESTER

Determination of airborne noise from an appliance

Measurements described in this test report comply with:-

BS EN ISO 3744:2010 'Acoustics. Determination of sound power levels and sound energy levels of noise sources using sound pressure. Engineering methods for an essentially free field over a reflecting plane'

COMPANY NAME & ADDRESS:	Chauvet UK POD 1 EVO Park Nottingham NG16 6NT
FOR ATTENTION OF:	Ben Virgo
UNIT UNDER TEST:	Lighting Unit, OVATION E910 FC
DATE OF TEST:	6th March 2024
TEST ENGINEER:	Alex Spencer
MEASUREMENT PURPOSE:	To determine airborne noise by measurements to the above standards.

Results relate only to samples tested. Items tested are the samples supplied by the manufacturer, who was responsible for selecting at random from a standard production run.

1.0 Description of Appliance Under Test

CATEGORY:	Lighting Unit
DESIGN CHARACTERISTICS:	Floor mounted
MANUFACTURER:	Chauvet
MODEL:	OVATION E910 FC
TEST REF NUMBERS:	06681/21_1 to 5
SERIAL NUMBER:	Not Stated
POWER:	Not Stated
POWER SOURCE:	UK Mains
SETTINGS: **See Table 1.0 below for details of settings*	06681/21_1 "Ambient" 06681/21_2 "Auto" 06681/21_3 "On" 06681/21_4 "Off" 06681/21_5 "Silent"

** Table 1.0 – Manufacturer's description of the different settings of the sample that were used to create the Test Configuration for each measurement.*

Explanation of Settings Used for Each Test	
Setting Name	Test Configuration
Ambient	Unit is in idle state, switched on and 0% Light output
Auto	100% Light output — Auto Fan mode
On	100% Light output — On Fan mode
Off	100% Light output — Off Fan mode
Silent	100% Light output — Silent Fan mode

2.0 Test Conditions

2.1 The following conditions were measured over duration of the test:-

	Measured Average Value
TEST REF NUMBER:	**06681/21_1 to 5**
SERIAL NO. / SAMPLE REF.	OVATION E910 FC
Atmospheric Pressure	101.311
Ambient Temperature	21.6
Ambient Relative Humidity	33.5

2.2 The test was carried out in the hemi-anechoic chamber at the University of Salford.

2.3 The unit under test was mounted directly on the floor, in the centre of the hemi-anechoic chamber.

2.4 Unit operation was controlled by the client from outside the chamber, after initial configuration directly at the unit. Measurements were taken immediately after each setting of the unit was set and confirmed by the client.

2.5 For measurement of the sound pressure level of the Reference Sound Source (RSS), the RSS was placed directly on the floor of the hemi-anechoic chamber at the same location as the unit under test as defined in BS EN ISO 3744: 2010.

Figure 1.0 – Client image of unit type under test, "OVATION E910 FC".

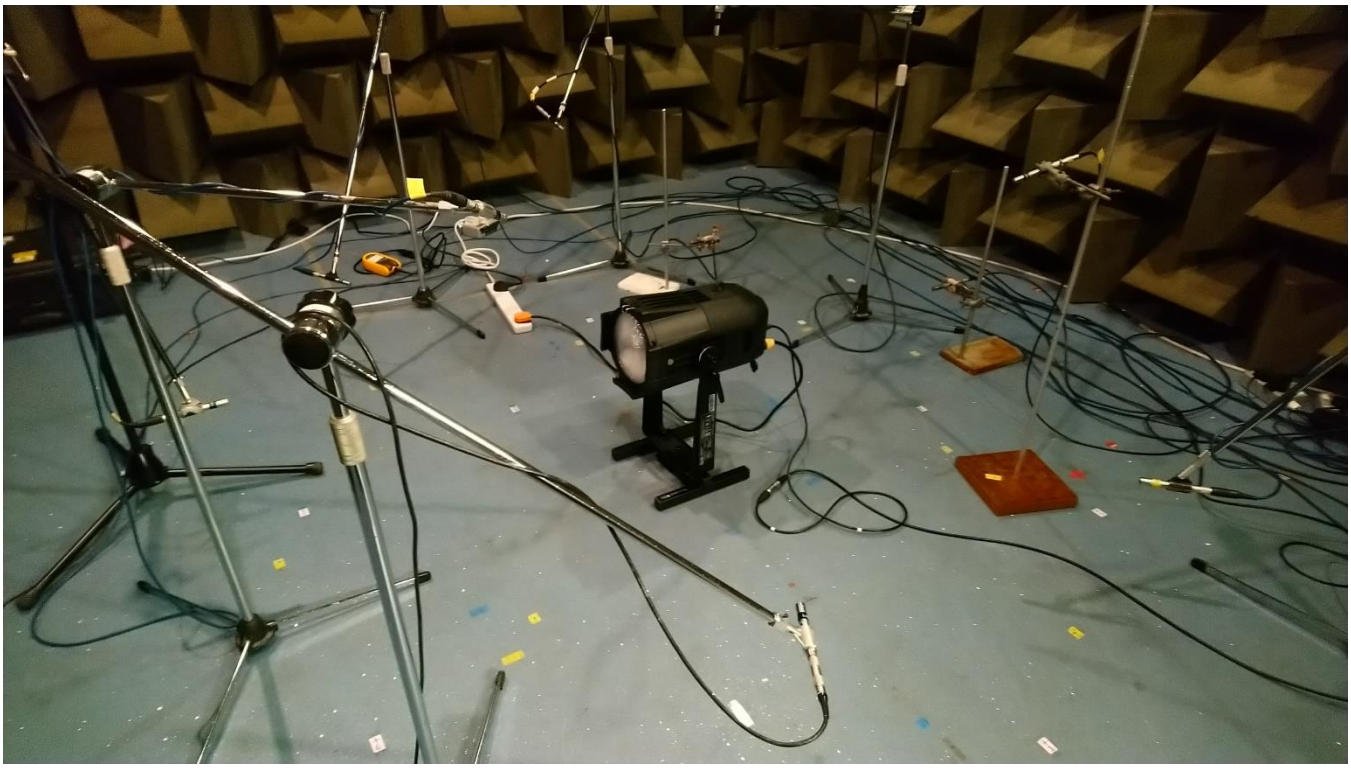

Figure 2.1 – Example of the typical arrangement of a unit under test, as mounted in the hemi-anechoic chamber at the University of Salford.
(N.B. this image does not represent the specific unit covered by this Test Report.)

3 Acoustical Data

3.1 Measurement method

A direct measurement method was used as stated in BS EN ISO 3744: 2010.

3.2 Reference Sound Source

The Laboratory reference sound source (RSS) type B&K 4204, serial number 1460189 was used on mains supply.

3.3 Microphone Array

Ten laboratory free field, low noise microphones were used for the measurement, placed in fixed positions 1 to 10 on a hemispherical surface (d = 1.00 m) with guidance from BS EN ISO 3744: 2010. The location of each measurement position is provided in Appendix 1 to this report.

3.4 Measured sound pressure levels of the unit

Each unit was run at the selected setting. Six measurements were made at each setting,

Mean sound pressure levels were measured over 30 seconds to give the measured sound pressure levels, L_{pi} at each measurement position in each third octave band. The sound power level was then calculated.

The background noise corrections K_1, environmental correction calculated from RSS levels K_2, measured sound pressure levels, L_{pi} at each measurement point, corrected sound pressure levels, L_{pf}, and the sound power level, L_w of the source in each third octave frequency band are given in Appendix 2 of this report. The measured time averaged sound pressure level of the RSS, $L'_{P(RSS)}$, at each microphone position is reported in Appendix 3 to this report.

3.5 Calculated sound power levels

The calculated A-Weighted sound power level, L_{WA} in dBA for each setting are given in table 3.1.

Table 3.1 –A-weighted noise emissions for each setting, averaged over 30 seconds and over 10 microphone positions.

Test Number	**06681/21_1**	**06681/21 _2**	**06681/21 _3**	**06681/21 _4**	**06681/21 _5**
Setting	Ambient	Auto	On	Off	Silent
A-weighted sound power level, L_{wA} in dBA	13.9	29.7	42.5	26.7	38.5

3.6 Sound Pressure Level at 1 m from the source (not covered by BS EN 3744: 2010)

The A-weighted Sound Power Level can be used to calculate the A-weighted sound pressure level expected at different distances from the source in hemi-anechoic free field conditions*.

The calculation of the sound pressure levels is based on the formulae in BS EN 3744: 2010 for a parallelpiped measurement surface (for a noise source measured, in this case, above a single reflective plane).

The calculations show that to estimate the average sound pressure level expected at a distance of 1 m from the surface of the unit, 12.9 dB should be subtracted from the sound power value. This would give A-weighted average sound pressure levels in table 3.2 for each unit setting at 1 m from the surface of the unit:-

Table 3.2 – Calculated A-weighted sound pressure level for each setting at 1 m from the unit surface*

Test Number	**06681/21_1**	**06681/21 _2**	**06681/21 _3**	**06681/21 _4**	**06681/21 _5**
Setting	Ambient	Auto	On	Off	Silent
A-weighted sound pressure level, L_p in dBA	1.0	16.8	29.6	13.8	25.6

**This calculation represents an estimate of the levels that would be obtained in hemi-anechoic free field conditions and should not be assumed to be valid for any specific building environments where the characteristics of the room should be accounted for.*

Appendix 1 – Locations of measurement positions

Defining measurement surface & Co-ordinates

Measurement distance, d 1.00 m

	x, mm	y, mm	z, mm
Microphone Position 1	160	-960	220
Microphone Position 2	780	-600	200
Microphone Position 3	780	550	310
Microphone Position 4	160	900	410
Microphone Position 5	-830	320	450
Microphone Position 6	-830	-400	380
Microphone Position 7	-260	-650	710
Microphone Position 8	740	-70	670
Microphone Position 9	-260	500	830
Microphone Position 10	100	-100	990

Surface Area, m^2	6.28 m^2

Appendix 2 – Measurements and calculations according to BS EN ISO 3744

The following tables include measurement details that provide in each third octave band, for each of the seven settings:-

- measured L_{pi}, averaged over 30 s, at each measurement position
- background noise corrections K_1
- environmental correction K_2, calculated from RSS levels
- corrected sound pressure levels, L_{pf}
- the sound power level, L_w of the source
- the A-weighted sound power level, L_{wA} of the source

! The levels at these frequencies are affected by background level and therefore levels quoted represent an upper limit for the sound pressure levels of the noise source.

MEASURED TIME AVERAGED SPL at 1 m, L'P - [06681/21_1 – "Ambient" Setting]											Mean L_P over mic positions	ΔL_p [dB]	BG corr. K_1, [dB]	Env corr. K_2, [dB]	L_p [dB]	Sound Power, L_w [dB]	A-weighting corrections [dB]	Sound Power, L_{wA} [dB]	
Frequency [Hz]	Mic 1 [dB]	Mic 2 [dB]	Mic 3 [dB]	Mic 4 [dB]	Mic 5 [dB]	Mic 6 [dB]	Mic 7 [dB]	Mic 8 [dB]	Mic 9 [dB]	Mic 10 [dB]									
100	13.0	15.0	12.7	11.4	13.9	14.7	11.5	13.1	10.8	11.3	13.0	8.6	0.64	1.4	10.9	18.9	-19.1	-0.2	
125	11.2	11.5	9.3	8.0	9.6	9.6	6.2	6.5	7.6	2.3	8.8	11.8	0.30	2.7	5.8	13.8	-16.1	-2.3	
160	4.1	5.4	5.7	2.1	2.8	4.0	1.1	-0.3	1.3	0.9	3.2	9.9	0.47	0.9	1.8	9.7	-13.4	-3.7	
200	-2.0	-0.5	-0.7	-3.1	-2.2	-2.7	-3.6	-4.4	-3.6	-3.8	-2.5	5.9	1.30	0.8	-4.5	3.4	-10.9	-7.5	!
250	-4.7	-3.5	-5.7	-5.6	-6.2	-6.8	-6.1	-4.2	-5.8	-6.3	-5.4	4.7	1.30	1.2	-7.8	0.2	-8.6	-8.4	!
315	-7.6	-6.1	-7.9	-8.4	-8.7	-6.7	-7.8	-8.2	-3.8	-8.1	-7.1	1.9	1.30	0.6	-8.9	-1.0	-6.6	-7.6	!
400	-9.8	-7.4	-8.6	-10.0	-9.5	-10.0	-8.5	-9.2	-3.1	-8.5	-7.9	1.2	1.30	0.6	-9.8	-1.8	-4.8	-6.6	!
500	-7.8	-6.4	-8.2	-8.8	-9.3	-9.3	-7.1	-7.4	-6.8	-6.6	-7.6	2.3	1.30	0.5	-9.4	-1.5	-3.2	-4.7	!
630	-9.1	-7.3	-8.8	-9.7	-9.8	-10.0	-7.5	-8.5	-6.9	-7.4	-8.4	0.9	1.30	0.1	-9.8	-1.8	-1.9	-3.7	!
800	-9.9	-7.5	-9.0	-9.7	-9.1	-9.4	-7.8	-8.3	-6.5	-7.9	-8.4	0.4	1.30	-0.1	-9.6	-1.6	-0.8	-2.4	!
1000	-9.5	-6.7	-8.2	-8.8	-6.7	-6.5	-7.5	-7.1	-7.2	-7.3	-7.5	0.7	1.30	-0.8	-8.0	0.0	0	0.0	!
1250	-9.0	-6.0	-7.5	-7.9	-6.6	-6.6	-6.8	-6.7	-6.9	-6.7	-7.0	0.6	1.30	-0.6	-7.7	0.3	0.6	0.9	!
1600	-8.1	-4.7	-5.7	-6.8	-6.4	-6.1	-6.0	-5.8	-6.0	-4.9	-5.9	1.0	1.30	-0.2	-7.1	0.9	1	1.9	!
2000	-7.3	-4.4	-6.0	-6.2	-5.9	-5.7	-5.4	-5.0	-5.6	-5.7	-5.7	0.6	1.30	0.5	-7.4	0.6	1.2	1.8	!
2500	-5.5	-4.1	-4.0	-5.3	-4.6	-4.9	-4.4	-3.5	-4.4	-4.7	-4.5	1.1	1.30	0.0	-5.7	2.2	1.3	3.5	!
3150	-3.8	-2.7	-3.5	-4.1	-4.4	-4.7	-3.3	-1.4	-3.8	-3.1	-3.4	1.7	1.30	0.7	-5.4	2.6	1.2	3.8	!
4000	-4.8	-1.5	-3.1	-3.7	-3.6	-3.1	-3.2	-0.1	-3.0	-3.4	-2.8	1.6	1.30	0.7	-4.8	3.2	1	4.2	!
5000	-4.3	-2.9	-3.8	-3.8	-3.7	-3.7	-3.3	-2.5	-3.9	-3.8	-3.5	0.5	1.30	-0.7	-4.2	3.8	0.5	4.3	!
6300	-5.0	-3.0	-4.0	-4.1	-3.7	-4.1	-3.5	-2.7	-3.9	-3.9	-3.7	0.4	1.30	-0.1	-4.9	3.1	-0.1	3.0	!
8000	-4.1	-2.5	-2.9	-3.4	-2.9	-3.3	-3.0	-1.4	-3.1	-3.1	-2.9	0.8	1.30	0.1	-4.4	3.6	-1.1	2.5	!
10000	-1.3	-2.0	0.5	-1.7	-1.4	-1.9	-1.0	0.1	-1.2	-1.1	-1.0	1.6	1.30	0.8	-3.1	4.9	-2.5	2.4	!
																	A-WEIGHTED SOUND POWER LEVEL	**13.9**	!

MEASURED TIME AVERAGED SPL at 1 m, L'P - [06681/21 _2 – "Auto" Setting]											Mean L_P over mic positions	ΔL_p [dB]	BG corr. K_1, [dB]	Env corr. K_2, [dB]	L_p [dB]	Sound Power, L_w [dB]	A-weighting corrections [dB]	Sound Power, L_{wA} [dB]	
Frequency [Hz]	Mic 1 [dB]	Mic 2 [dB]	Mic 3 [dB]	Mic 4 [dB]	Mic 5 [dB]	Mic 6 [dB]	Mic 7 [dB]	Mic 8 [dB]	Mic 9 [dB]	Mic 10 [dB]									
100	10.5	12.8	10.7	8.8	11.0	12.0	9.5	11.8	8.6	9.9	10.8	6.4	1.13	1.4	8.2	16.2	-19.1	-2.9	
125	10.8	11.9	11.4	9.1	9.6	10.5	9.0	12.3	7.7	11.9	10.6	13.6	0.19	2.7	7.7	15.7	-16.1	-0.4	
160	11.7	12.0	11.7	10.4	10.1	10.5	12.6	18.0	11.9	19.6	14.3	21.0	0.00	0.9	13.3	21.3	-13.4	7.9	
200	8.8	9.0	8.0	7.7	5.9	5.8	7.8	12.5	7.8	14.1	9.6	17.9	0.00	0.8	8.8	16.8	-10.9	5.9	
250	7.4	9.0	7.4	5.5	4.9	5.1	3.4	9.5	5.2	9.4	7.2	17.2	0.00	1.2	6.0	14.0	-8.6	5.4	
315	7.5	9.2	8.0	6.0	5.1	5.4	3.8	11.3	7.0	10.3	8.0	16.9	0.00	0.6	7.4	15.4	-6.6	8.8	
400	9.3	10.7	7.1	6.2	4.2	5.2	4.8	12.3	8.2	11.3	8.8	17.9	0.00	0.6	8.2	16.2	-4.8	11.4	
500	14.6	15.0	6.4	7.5	8.1	10.2	12.5	17.3	17.7	15.4	14.0	24.0	0.00	0.5	13.5	21.5	-3.2	18.3	
630	9.6	9.3	5.6	8.3	1.5	0.3	11.4	15.9	9.2	11.8	10.3	19.5	0.00	0.1	10.1	18.1	-1.9	16.2	
800	4.4	6.3	8.0	6.4	5.4	4.1	9.3	13.0	7.6	11.1	8.5	17.3	0.00	-0.1	8.6	16.6	-0.8	15.8	
1000	5.0	11.2	13.0	7.4	10.9	9.8	9.2	13.3	7.6	13.3	10.8	19.0	0.00	-0.8	11.6	19.6	0	19.6	
1250	16.2	22.1	14.1	10.7	11.9	11.6	14.0	15.0	11.0	15.4	15.7	23.4	0.00	-0.6	16.3	24.3	0.6	24.9	
1600	13.3	16.3	13.1	9.4	9.0	10.9	10.5	15.5	10.9	12.4	12.8	19.7	0.00	-0.2	13.0	21.0	1	22.0	
2000	10.3	11.8	8.3	9.5	3.6	6.3	6.9	12.1	8.2	11.2	9.5	15.7	0.00	0.5	9.0	17.0	1.2	18.2	
2500	12.9	7.7	3.7	6.7	7.2	3.9	3.3	12.3	4.7	10.9	8.7	14.3	0.16	0.0	8.6	16.6	1.3	17.9	
3150	-0.8	5.9	0.2	-1.1	1.6	0.5	-1.5	3.0	4.6	2.3	2.1	7.2	0.91	0.7	0.5	8.5	1.2	9.7	
4000	1.9	9.9	3.6	1.1	5.1	4.3	-0.8	4.2	8.0	5.1	5.3	9.6	0.50	0.7	4.0	12.0	1	13.0	
5000	-3.4	-1.2	3.2	-3.0	-0.9	-0.2	-1.7	6.6	0.3	1.0	1.2	5.3	1.30	-0.7	0.6	8.5	0.5	9.0	!
6300	1.0	6.8	-0.6	1.0	-1.0	1.1	0.3	6.7	0.3	5.6	3.2	7.3	0.89	-0.1	2.4	10.4	-0.1	10.3	
8000	3.8	4.3	0.4	2.9	-0.3	1.4	0.2	5.2	2.6	8.2	3.7	7.3	0.88	0.1	2.6	10.6	-1.1	9.5	
10000	9.4	3.5	3.4	2.9	1.3	1.0	2.2	5.6	1.6	7.0	4.7	7.4	0.88	0.8	3.0	11.0	-2.5	8.5	
																	A-WEIGHTED SOUND POWER LEVEL	**29.7**	!

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MEASURED TIME AVERAGED SPL at 1 m, L'P - [06681/21 _3 – "On" Setting]											Mean L_P over mic positions	ΔL_p [dB]	BG corr. K_1, [dB]	Env corr. K_2, [dB]	L_p [dB]	Sound Power, L_w [dB]	A-weighting corrections [dB]	Sound Power, L_{wA} [dB]
Frequency [Hz]	Mic 1 [dB]	Mic 2 [dB]	Mic 3 [dB]	Mic 4 [dB]	Mic 5 [dB]	Mic 6 [dB]	Mic 7 [dB]	Mic 8 [dB]	Mic 9 [dB]	Mic 10 [dB]								
100	14.5	17.3	15.8	13.0	14.4	14.8	13.8	17.6	13.3	15.1	15.2	10.9	0.37	1.4	13.5	21.4	-19.1	2.3
125	16.6	18.6	17.0	15.3	15.4	15.3	13.9	17.6	13.8	15.5	16.2	19.1	0.00	2.7	13.4	21.4	-16.1	5.3
160	18.1	20.3	17.9	17.4	15.3	14.4	15.1	18.8	16.1	18.8	17.6	24.4	0.00	0.9	16.7	24.7	-13.4	11.3
200	22.6	19.7	21.4	23.3	22.4	23.0	23.7	29.3	23.2	31.5	25.7	34.0	0.00	0.8	24.9	32.9	-10.9	22.0
250	18.7	19.8	18.5	16.3	15.9	16.2	14.7	20.3	16.2	21.2	18.3	28.3	0.00	1.2	17.1	25.1	-8.6	16.5
315	18.9	20.1	18.9	17.0	16.4	16.9	15.0	20.8	17.2	20.6	18.6	27.6	0.00	0.6	18.0	26.0	-6.6	19.4
400	22.0	22.6	20.1	18.0	16.4	18.3	18.0	26.8	21.2	25.9	22.3	31.3	0.00	0.6	21.6	29.6	-4.8	24.8
500	23.0	23.8	17.8	17.8	16.1	18.6	22.5	27.9	22.9	26.6	23.3	33.2	0.00	0.5	22.8	30.7	-3.2	27.5
630	21.5	21.4	18.4	22.7	15.3	12.6	25.8	27.3	21.5	25.4	23.0	32.2	0.00	0.1	22.8	30.8	-1.9	28.9
800	18.8	19.5	21.2	21.6	20.6	18.0	23.1	25.4	21.0	25.2	22.1	30.9	0.00	-0.1	22.2	30.2	-0.8	29.4
1000	20.5	23.7	27.3	20.3	26.3	24.3	24.9	26.2	21.0	28.6	25.1	33.3	0.00	-0.8	25.9	33.9	0	33.9
1250	32.8	35.1	27.4	23.6	25.3	26.1	29.9	28.3	22.0	28.7	29.6	37.2	0.00	-0.6	30.2	38.2	0.6	38.8
1600	27.4	30.6	24.6	22.8	23.1	22.3	24.8	27.0	20.3	25.6	25.8	32.7	0.00	-0.2	26.0	34.0	1	35.0
2000	24.0	24.9	18.9	17.6	16.4	16.7	19.7	24.6	19.8	24.8	21.9	28.2	0.00	0.5	21.5	29.5	1.2	30.7
2500	17.8	17.2	17.2	16.5	13.9	14.4	17.1	21.7	17.6	16.9	17.5	23.1	0.00	0.0	17.6	25.6	1.3	26.9
3150	9.9	14.9	8.3	8.8	8.2	6.8	10.9	14.9	13.6	14.5	12.1	17.2	0.00	0.7	11.3	19.3	1.2	20.5
4000	10.4	18.1	8.6	7.6	9.4	5.8	9.2	14.5	11.7	15.2	12.7	17.0	0.00	0.7	11.9	19.9	1	20.9
5000	2.0	7.0	4.7	0.6	2.3	1.4	5.3	7.4	5.9	9.5	5.5	9.6	0.51	-0.7	5.7	13.6	0.5	14.1
6300	2.4	5.0	4.9	-0.3	3.6	0.2	4.4	7.8	5.4	10.0	5.4	9.5	0.51	-0.1	5.0	13.0	-0.1	12.9
8000	4.3	4.0	3.4	-0.9	4.3	-0.3	2.9	6.1	3.7	8.6	4.4	8.1	0.74	0.1	3.5	11.5	-1.1	10.4
10000	6.0	4.5	4.7	1.0	4.3	2.2	6.3	8.0	7.4	10.9	6.4	9.1	0.57	0.8	5.1	13.1	-2.5	10.6
																	A-WEIGHTED SOUND POWER LEVEL	**42.5**

MEASURED TIME AVERAGED SPL at 1 m, L'P - [06681/21_4 – "Off" Setting]											Mean L_P over mic positions	ΔL_p [dB]	BG corr. K_1, [dB]	Env corr. K_2, [dB]	L_p [dB]	Sound Power, L_w [dB]	A-weighting corrections [dB]	Sound Power, L_{wA} [dB]	
Frequency [Hz]	Mic 1 [dB]	Mic 2 [dB]	Mic 3 [dB]	Mic 4 [dB]	Mic 5 [dB]	Mic 6 [dB]	Mic 7 [dB]	Mic 8 [dB]	Mic 9 [dB]	Mic 10 [dB]									
100	12.0	13.9	12.0	10.4	13.6	14.6	11.1	12.3	9.9	10.8	12.3	8.0	0.75	1.4	10.2	18.1	-19.1	-1.0	
125	8.3	8.7	7.0	5.2	7.1	7.7	4.4	3.3	5.9	0.1	6.4	9.3	0.54	2.7	3.1	11.1	-16.1	-5.0	
160	4.0	5.0	5.4	1.2	2.3	3.5	0.6	-0.1	1.9	0.6	2.9	9.6	0.50	0.9	1.4	9.4	-13.4	-4.0	
200	-0.6	-0.6	-1.8	-2.4	-2.8	-1.7	-3.6	-4.4	-2.9	-3.8	-2.3	6.1	1.23	0.8	-4.3	3.7	-10.9	-7.2	
250	-1.3	-1.8	-3.6	-3.0	-3.1	-3.4	-4.8	-2.1	-3.1	-4.3	-2.9	7.1	0.94	1.2	-5.0	3.0	-8.6	-5.6	
315	-5.9	-5.5	-6.4	-7.3	-6.6	-6.8	-7.3	-8.1	-1.0	-6.5	-5.6	3.4	1.30	0.6	-7.5	0.5	-6.6	-6.1	!
400	-7.2	-4.0	-5.0	-6.9	-6.4	-6.6	-4.4	-6.2	-3.7	-5.2	-5.4	3.6	1.30	0.6	-7.3	0.6	-4.8	-4.2	!
500	-4.9	-3.8	-5.7	-6.5	-7.9	-6.9	-4.7	-4.0	-5.7	-3.6	-5.2	4.8	1.30	0.5	-7.0	1.0	-3.2	-2.2	!
630	-7.6	-6.3	-7.6	-7.6	-9.4	-9.8	-5.8	-6.7	-4.8	-5.1	-6.8	2.4	1.30	0.1	-8.2	-0.3	-1.9	-2.2	!
800	-7.4	-5.7	-6.6	-7.5	-7.2	-8.4	-5.7	-4.8	-6.0	-4.2	-6.2	2.6	1.30	-0.1	-7.4	0.6	-0.8	-0.2	!
1000	-8.6	-5.8	-0.6	4.8	-3.3	-4.9	-4.2	4.2	-2.7	3.7	0.4	8.6	0.65	-0.8	0.5	8.5	0	8.5	
1250	-3.0	-0.9	12.5	19.6	8.9	5.0	7.7	18.8	10.3	18.0	14.4	22.0	0.00	-0.6	15.0	23.0	0.6	23.6	
1600	-6.1	-2.8	-4.2	-3.1	-5.7	-5.4	-4.6	-2.7	-4.7	-2.0	-3.9	3.0	1.30	-0.2	-5.0	2.9	1	3.9	!
2000	-1.5	-0.8	-1.8	1.0	-2.0	-3.8	-3.9	0.1	-2.8	-1.3	-1.4	4.8	1.30	0.5	-3.2	4.8	1.2	6.0	!
2500	11.9	11.2	11.0	15.0	10.4	6.4	5.5	12.6	6.6	11.5	11.1	16.7	0.00	0.0	11.2	19.1	1.3	20.4	
3150	0.4	12.5	-1.9	0.1	2.6	-1.1	1.3	6.3	1.4	-1.7	4.9	10.0	0.46	0.7	3.7	11.7	1.2	12.9	
4000	3.3	17.1	0.0	2.9	6.5	1.7	4.0	10.4	4.6	-1.4	9.0	13.3	0.21	0.7	8.0	16.0	1	17.0	
5000	-1.3	0.3	-0.4	-2.6	-1.1	-2.0	-1.0	3.8	-2.4	1.2	-0.1	4.0	1.30	-0.7	-0.7	7.2	0.5	7.7	!
6300	-2.0	2.5	3.9	-2.5	2.3	-1.2	3.0	4.9	0.4	3.8	2.2	6.3	1.15	-0.1	1.1	9.1	-0.1	9.0	
8000	6.7	6.2	7.1	0.9	6.5	1.0	4.3	6.9	1.3	7.5	5.5	9.2	0.56	0.1	4.8	12.8	-1.1	11.7	
10000	5.1	4.1	5.3	1.1	5.6	6.4	6.0	8.0	3.3	5.6	5.4	8.0	0.74	0.8	3.9	11.8	-2.5	9.3	
																	A-WEIGHTED SOUND POWER LEVEL	**26.7**	!

MEASURED TIME AVERAGED SPL at 1 m, L'P - [06681/21 _5 – "Silent"Setting]											Mean L_P over mic positions	ΔL_p [dB]	BG corr. K_1, [dB]	Env corr. K_2, [dB]	L_p [dB]	Sound Power, L_w [dB]	A-weighting corrections [dB]	Sound Power, L_{wA} [dB]
Frequency [Hz]	Mic 1 [dB]	Mic 2 [dB]	Mic 3 [dB]	Mic 4 [dB]	Mic 5 [dB]	Mic 6 [dB]	Mic 7 [dB]	Mic 8 [dB]	Mic 9 [dB]	Mic 10 [dB]								
100	14.6	17.5	15.7	13.5	14.8	15.6	13.4	17.2	12.9	14.1	15.2	10.9	0.37	1.4	13.4	21.4	-19.1	2.3
125	16.7	17.9	16.5	14.9	15.4	15.8	13.4	16.9	13.7	13.6	15.7	18.7	0.00	2.7	13.0	21.0	-16.1	4.9
160	19.1	19.6	18.5	17.6	16.3	15.8	19.5	24.9	19.9	26.7	21.3	28.1	0.00	0.9	20.4	28.4	-13.4	15.0
200	18.9	18.0	17.4	17.1	15.3	15.4	19.1	24.5	19.1	26.4	20.8	29.1	0.00	0.8	20.0	28.0	-10.9	17.1
250	15.6	17.1	15.7	13.4	13.1	13.6	11.5	17.8	12.9	17.4	15.3	25.3	0.00	1.2	14.1	22.1	-8.6	13.5
315	16.1	17.6	16.1	14.3	13.3	13.9	11.9	19.7	15.1	18.3	16.2	25.2	0.00	0.6	15.7	23.7	-6.6	17.1
400	17.8	19.1	16.0	14.5	12.9	14.0	13.1	21.6	16.7	20.2	17.6	26.6	0.00	0.6	16.9	24.9	-4.8	20.1
500	24.3	24.4	16.8	15.7	17.9	20.6	23.4	29.1	25.9	26.1	24.2	34.2	0.00	0.5	23.7	31.7	-3.2	28.5
630	18.4	18.0	14.5	17.4	10.1	8.8	20.5	24.8	18.2	20.8	19.2	28.4	0.00	0.1	19.0	27.0	-1.9	25.1
800	13.6	15.0	18.0	15.7	14.6	12.8	18.8	22.3	16.5	20.7	17.9	26.6	0.00	-0.1	17.9	25.9	-0.8	25.1
1000	15.2	20.5	23.6	17.1	20.5	18.9	18.9	22.4	16.7	23.9	20.7	28.8	0.00	-0.8	21.4	29.4	0	29.4
1250	26.1	31.7	23.5	20.1	21.4	21.3	23.7	23.8	19.0	24.9	25.3	32.9	0.00	-0.6	25.9	33.8	0.6	34.4
1600	22.8	25.6	20.5	18.8	19.8	19.9	20.6	21.5	17.8	20.9	21.4	28.3	0.00	-0.2	21.6	29.6	1	30.6
2000	18.4	20.1	15.3	14.4	11.2	12.7	13.0	20.3	15.0	19.3	17.1	23.3	0.00	0.5	16.6	24.6	1.2	25.8
2500	13.6	12.1	10.2	10.8	8.9	7.1	10.3	17.9	11.9	11.7	12.5	18.1	0.00	0.0	12.5	20.5	1.3	21.8
3150	4.5	8.4	3.9	3.9	3.1	2.6	4.8	11.1	9.1	8.8	7.0	12.1	0.28	0.7	6.0	14.0	1.2	15.2
4000	6.1	10.2	5.8	3.0	3.9	5.1	4.3	10.3	9.3	10.4	7.7	12.0	0.28	0.7	6.7	14.6	1	15.6
5000	3.5	2.5	4.6	3.4	4.1	1.1	3.1	9.1	4.9	7.4	5.0	9.1	0.58	-0.7	5.1	13.1	0.5	13.6
6300	3.1	5.7	4.5	4.7	2.6	1.0	3.0	7.8	4.8	9.3	5.3	9.5	0.52	-0.1	4.9	12.9	-0.1	12.8
8000	3.6	4.0	2.4	3.1	1.6	1.4	4.2	8.7	5.8	8.1	5.0	8.7	0.63	0.1	4.2	12.2	-1.1	11.1
10000	7.9	3.1	6.3	4.2	4.2	3.8	3.9	9.0	6.6	11.4	6.9	9.6	0.51	0.8	5.6	13.6	-2.5	11.1
																A-WEIGHTED SOUND POWER LEVEL		**38.5**

Appendix 3 – Measured time averaged sound pressure level of RSS, $L'_{P(RSS)}$ at each microphone position

Frequency	Mic 1	Mic 2	Mic 3	Mic 4	Mic 5	Mic 6	Mic 7	Mic 8	Mic 9	Mic 10	Average $L'_{P(RSS)}$ over microphone positions	Calculated Sound Power of RSS
[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
100	69.4	71.4	69.8	68.4	70.7	70.5	67.8	69.5	66.8	60.9	69.2	77.2
125	71.3	72.3	70.5	70.1	71.7	70.8	68.2	69.8	68.2	61.9	70.1	78.1
160	70.8	71.3	70.0	69.3	68.9	69.5	68.6	67.9	65.9	62.8	69.0	77.0
200	71.3	69.9	69.8	70.4	69.1	70.3	67.8	67.3	65.1	62.5	69.0	76.9
250	70.9	71.2	70.0	69.4	70.1	70.2	67.0	68.2	65.7	63.8	69.2	77.1
315	70.7	71.0	70.0	69.4	68.8	69.5	67.0	66.5	65.9	66.0	68.9	76.8
400	71.4	71.5	70.3	69.2	69.0	69.9	65.7	66.2	64.3	64.8	68.9	76.9
500	71.6	72.1	70.7	69.2	68.5	69.7	65.0	65.2	65.0	66.3	69.1	77.1
630	71.6	72.5	70.0	67.9	67.3	68.7	66.8	65.5	68.1	69.9	69.3	77.3
800	72.7	72.9	70.0	66.4	65.6	67.2	70.6	69.2	71.6	72.9	70.6	78.6
1000	72.2	72.9	68.2	65.1	66.9	65.0	73.1	72.9	72.7	71.2	71.0	79.0
1250	71.3	72.6	65.6	71.7	73.8	70.3	74.1	74.9	71.5	75.5	72.8	80.8
1600	66.5	69.0	71.6	75.9	76.2	75.2	71.7	71.3	74.4	73.6	73.4	81.4
2000	68.1	67.4	75.1	75.7	74.3	76.2	74.0	73.3	73.2	71.6	73.6	81.6
2500	72.4	69.1	74.0	71.4	70.5	72.4	70.9	72.1	70.0	68.8	71.4	79.4
3150	75.3	73.4	71.9	71.7	73.0	71.1	71.1	71.3	69.7	67.0	72.0	80.0
4000	73.5	74.4	70.4	72.8	72.2	73.1	70.5	71.0	68.7	66.3	71.8	79.8
5000	70.2	69.7	70.9	71.0	70.7	70.6	69.4	70.0	68.1	64.6	69.8	77.8
6300	70.9	70.6	69.8	70.0	69.6	69.4	68.0	68.9	67.0	63.3	69.2	77.1
8000	69.3	68.6	68.6	68.4	68.6	67.9	67.1	67.3	66.1	61.7	67.7	75.7
10000	67.5	66.6	67.1	67.0	67.2	66.8	65.7	66.1	64.8	60.2	66.3	74.2