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, Maverick Force S-Spot
DATE OF TEST:	5th 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:	Maverick Force S-Spot
TEST REF NUMBERS:	06681/12_1 to 7
SERIAL NUMBER:	Not Stated
POWER:	Not Stated
POWER SOURCE:	UK Mains
SETTINGS:	06681/12_1 “Ambient” 06681/12_2 “Max” 06681/12_3 “Eco” 06681/12_4 “Auto” 06681/12_5 “Full” 06681/12_6 “TV25” 06681/12_7 “TV35”

** Table 1.0 – Explanation of the “Settings” used to create the Test Configuration of the sample for each measurement.*

Explanation of Settings Used for Each Test	
Setting Name	Test Configuration
Ambient	Unit is in idle state, switched on and no output or movements
Max	Unit is using all mechanical options and the light output is on
Eco	All Effects Static, 100% Light output — ECO Fan mode
Auto	All Effects Static, 100% Light output — Auto Fan mode
Full	All Effects Static, 100% Light output — Full Fan mode
TV25	All Effects Static, 100% Light output — TV25 Fan mode
TV35	All Effects Static, 100% Light output — TV35 Fan mode

2.0 Test Conditions

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

	Measured Average Value
TEST REF NUMBER:	**06681/12_1 to 7**
SERIAL NO. / SAMPLE REF.	Maverick Force S-Spot
Atmospheric Pressure	100.778
Ambient Temperature	23.0
Ambient Relative Humidity	31.7

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 – unit under test mounted in the hemi-anechoic chamber at the University of Salford.

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 = 1.75 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 appliance

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	**06681/12_1**	**06681/12_2**	**06681/12_3**	**06681/12_4**	**06681/12_5**	**06681/12_6**	**06681/12_7**
Setting	Ambient	Max	Eco	Auto	Full	TV25	TV35
A-weighted sound power level, L_{wA} in dBA	41.9	49.1	44.5	46.6	51.7	51.3	51.3

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, 13.0 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	**06681/12_1**	**06681/12_2**	**06681/12_3**	**06681/12_4**	**06681/12_5**	**06681/12_6**	**06681/12_7**
Setting	Ambient	Max	Eco	Auto	Full	TV25	TV35
A-weighted sound pressure level, L_p in dBA	28.9	36.1	31.5	33.6	38.7	38.3	38.3

**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 1.75 m

	x, mm	y, mm	z, mm
Microphone Position 1	280	-1680	385
Microphone Position 2	1365	-1050	350
Microphone Position 3	1365	962.5	542.5
Microphone Position 4	280	1575	717.5
Microphone Position 5	-1452.5	560	787.5
Microphone Position 6	-1452.5	-700	665
Microphone Position 7	-455	-1137.5	1242.5
Microphone Position 8	1295	-122.5	1172.5
Microphone Position 9	-455	875	1452.5
Microphone Position 10	175	-175	1732.5

Surface Area, m^2	19.24 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 1.75 m, L'P - [06681/12_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	15.8	16.5	14.1	10.5	18.1	17.9	10.4	14.9	10.6	10.0	14.9	2.1	1.30	-2.4	16.0	28.8	-19.1	9.7	!
125	5.4	10.4	8.6	9.9	7.6	7.0	10.8	6.8	9.5	6.5	8.6	1.8	1.30	1.1	6.2	19.0	-16.1	2.9	!
160	3.6	6.8	5.9	4.3	5.3	5.2	4.2	3.9	4.4	6.4	5.1	2.2	1.30	0.5	3.3	16.1	-13.4	2.7	!
200	6.0	7.7	6.3	6.5	7.4	7.9	7.9	6.5	7.3	8.5	7.3	11.5	0.32	1.3	5.6	18.5	-10.9	7.6	
250	15.0	17.6	16.1	12.6	15.5	16.1	12.1	12.8	12.5	15.2	14.9	20.6	0.00	1.4	13.5	26.3	-8.6	17.7	
315	16.0	16.2	15.6	15.8	16.0	16.1	16.0	15.2	16.0	17.8	16.1	24.0	0.00	-0.5	16.6	29.5	-6.6	22.9	
400	22.0	22.0	21.8	21.5	20.0	20.2	20.3	19.1	20.4	20.6	20.9	29.1	0.00	0.6	20.3	33.1	-4.8	28.3	
500	24.9	26.6	22.7	19.4	25.8	27.4	25.5	24.3	23.8	26.1	25.1	33.6	0.00	0.2	24.9	37.8	-3.2	34.6	
630	20.6	22.7	22.3	20.6	23.2	23.8	22.1	23.4	18.9	23.9	22.4	31.5	0.00	-0.3	22.7	35.5	-1.9	33.6	
800	19.8	22.0	17.9	20.1	19.6	21.4	14.5	25.8	15.0	22.9	21.1	29.9	0.00	-0.5	21.5	34.4	-0.8	33.6	
1000	11.3	17.6	16.0	14.5	14.4	14.2	18.3	23.0	15.6	18.7	17.6	25.7	0.00	-0.9	18.5	31.3	0	31.3	
1250	17.1	17.4	15.6	14.0	14.7	14.2	19.2	22.5	18.4	19.6	18.1	25.6	0.00	-0.7	18.8	31.7	0.6	32.3	
1600	17.4	16.0	13.5	20.4	16.2	12.9	21.8	14.6	20.0	17.1	17.9	24.8	0.00	-0.2	18.1	31.0	1	32.0	
2000	15.1	16.4	16.0	17.9	18.3	16.2	17.9	16.5	16.6	14.4	16.7	23.0	0.00	0.3	16.4	29.2	1.2	30.4	
2500	12.6	12.4	13.7	14.8	15.6	14.8	14.9	15.2	11.0	12.7	14.0	19.5	0.00	-0.3	14.3	27.2	1.3	28.5	
3150	8.2	8.3	10.3	12.4	12.7	12.6	11.8	12.9	11.0	6.9	11.1	16.0	0.00	0.1	11.0	23.9	1.2	25.1	
4000	9.1	8.6	10.9	10.4	10.2	9.4	11.4	7.3	10.3	8.6	9.8	14.0	0.18	0.4	9.2	22.0	1	23.0	
5000	7.7	5.8	8.4	7.7	3.7	6.1	7.9	6.5	9.0	4.9	7.0	11.0	0.36	-0.8	7.5	20.3	0.5	20.8	
6300	8.9	9.6	5.9	5.8	4.1	2.7	4.2	6.1	5.8	0.5	6.1	10.2	0.43	-0.5	6.1	19.0	-0.1	18.9	
8000	4.6	3.6	3.4	4.6	3.2	3.7	5.1	2.9	2.8	0.9	3.6	7.3	0.88	-0.2	2.9	15.8	-1.1	14.7	
10000	0.9	0.2	1.7	1.1	1.1	1.6	0.7	2.0	1.0	-1.2	1.0	3.7	1.30	0.1	-0.4	12.4	-2.5	9.9	!
																	A-WEIGHTED SOUND POWER LEVEL	**41.9**	

MEASURED TIME AVERAGED SPL at 1.75 m, L'P - [06681/12_2 – Max 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	13.7	12.8	11.7	11.3	13.5	13.7	10.3	13.2	10.1	11.3	12.3	-0.4	1.30	-2.4	13.4	26.3	-19.1	7.2	!
125	15.0	16.0	15.2	14.7	15.8	15.7	14.2	15.8	13.6	12.4	15.0	8.1	0.72	1.1	13.1	25.9	-16.1	9.8	
160	22.6	22.3	20.9	20.5	23.6	23.2	18.5	21.2	18.6	20.9	21.5	18.6	0.00	0.5	21.0	33.8	-13.4	20.4	
200	33.5	36.5	35.5	31.8	34.4	34.4	33.2	30.5	32.6	27.1	33.6	37.9	0.00	1.3	32.3	45.1	-10.9	34.2	
250	34.9	36.7	35.2	31.5	35.7	36.0	29.8	29.5	29.0	31.8	33.9	39.6	0.00	1.4	32.4	45.3	-8.6	36.7	
315	37.1	37.0	34.6	33.0	35.2	35.9	31.0	30.0	33.1	34.8	34.7	42.6	0.00	-0.5	35.2	48.0	-6.6	41.4	
400	28.4	28.7	28.5	27.2	28.4	28.4	26.4	26.4	26.7	27.0	27.7	35.9	0.00	0.6	27.1	39.9	-4.8	35.1	
500	30.1	29.0	28.2	27.8	28.6	28.4	29.2	28.8	29.5	31.7	29.3	37.8	0.00	0.2	29.1	41.9	-3.2	38.7	
630	29.4	29.7	28.5	28.9	28.0	27.5	30.1	28.1	29.3	31.2	29.2	38.3	0.00	-0.3	29.5	42.3	-1.9	40.4	
800	26.5	27.4	24.7	26.0	25.4	25.2	26.3	26.0	25.8	25.8	26.0	34.8	0.00	-0.5	26.4	39.3	-0.8	38.5	
1000	25.0	25.8	23.8	26.3	26.9	26.4	25.6	24.3	24.1	23.0	25.3	33.4	0.00	-0.9	26.2	39.0	0	39.0	
1250	23.1	22.8	21.7	24.3	25.0	25.1	23.9	23.0	22.4	22.2	23.5	31.0	0.00	-0.7	24.2	37.1	0.6	37.7	
1600	22.5	21.8	20.6	21.5	22.6	22.0	23.6	22.7	22.0	19.1	22.0	28.9	0.00	-0.2	22.2	35.1	1	36.1	
2000	22.7	21.7	21.1	22.2	22.9	22.1	22.8	23.2	21.7	19.1	22.1	28.3	0.00	0.3	21.8	34.6	1.2	35.8	
2500	20.9	19.6	21.2	23.3	23.1	23.2	23.2	22.6	21.4	17.3	21.9	27.4	0.00	-0.3	22.2	35.1	1.3	36.4	
3150	16.7	17.4	18.9	19.5	20.0	19.2	18.8	17.8	18.5	12.9	18.3	23.2	0.00	0.1	18.2	31.0	1.2	32.2	
4000	14.7	16.9	18.2	18.1	18.3	18.2	17.2	17.1	17.4	11.6	17.1	21.4	0.00	0.4	16.7	29.5	1	30.5	
5000	14.8	13.9	15.6	13.6	14.5	14.6	15.2	14.9	15.1	8.8	14.4	18.4	0.00	-0.8	15.2	28.0	0.5	28.5	
6300	15.2	15.5	14.2	14.8	15.9	14.5	12.8	14.4	13.7	7.9	14.3	18.5	0.00	-0.5	14.8	27.6	-0.1	27.5	
8000	15.1	14.3	14.8	14.0	15.5	14.5	14.1	12.9	13.9	5.8	14.0	17.7	0.00	-0.2	14.2	27.0	-1.1	25.9	
10000	15.7	15.0	17.4	17.4	17.2	16.8	13.8	14.6	15.5	7.3	15.7	18.5	0.00	0.1	15.6	28.4	-2.5	25.9	
																	A-WEIGHTED SOUND POWER LEVEL	**49.1**	

MEASURED TIME AVERAGED SPL at 1.75 m, L'P - [06681/12_3 – Eco 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	14.0	13.3	11.7	11.5	13.9	14.1	9.9	12.6	9.8	10.9	12.4	-0.3	1.30	-2.4	13.5	26.3	-19.1	7.2	!
125	16.1	14.7	13.8	15.1	13.2	14.2	13.9	13.3	12.7	10.1	14.0	7.1	0.93	1.1	11.9	24.7	-16.1	8.6	
160	26.4	20.7	21.8	24.9	18.7	23.7	23.0	17.2	19.8	12.8	22.3	19.3	0.00	0.5	21.7	34.6	-13.4	21.2	
200	20.7	23.2	21.7	17.9	21.3	21.4	16.6	18.2	15.1	13.5	19.9	24.2	0.00	1.3	18.6	31.4	-10.9	20.5	
250	26.4	28.8	27.7	24.6	26.6	26.4	20.5	22.4	20.8	21.7	25.5	31.2	0.00	1.4	24.0	36.9	-8.6	28.3	
315	25.9	27.0	25.4	23.6	22.9	23.7	20.4	21.2	21.2	23.4	24.0	31.8	0.00	-0.5	24.5	37.3	-6.6	30.7	
400	24.8	24.8	24.4	24.1	23.7	23.4	22.2	21.5	22.6	22.2	23.5	31.8	0.00	0.6	22.9	35.7	-4.8	30.9	
500	28.7	28.6	26.1	25.1	28.4	29.5	27.9	27.4	27.1	29.0	27.9	36.5	0.00	0.2	27.8	40.6	-3.2	37.4	
630	23.6	24.4	24.3	24.0	24.6	25.1	24.4	25.5	22.8	26.0	24.6	33.6	0.00	-0.3	24.8	37.7	-1.9	35.8	
800	23.3	23.9	20.8	22.1	21.7	23.1	20.1	26.5	19.4	25.3	23.2	32.0	0.00	-0.5	23.6	36.5	-0.8	35.7	
1000	20.1	20.4	19.1	18.9	19.8	20.1	20.8	23.5	19.7	21.0	20.5	28.7	0.00	-0.9	21.5	34.3	0	34.3	
1250	20.0	19.0	16.8	16.5	19.0	18.8	20.6	23.1	20.5	20.3	19.8	27.3	0.00	-0.7	20.6	33.4	0.6	34.0	
1600	19.0	18.3	16.2	22.3	20.3	17.5	22.0	18.3	20.9	17.9	19.7	26.6	0.00	-0.2	19.9	32.8	1	33.8	
2000	20.3	17.7	21.1	21.0	20.3	21.0	21.0	18.9	19.1	16.4	19.9	26.2	0.00	0.3	19.6	32.4	1.2	33.6	
2500	16.4	14.4	16.3	16.1	17.4	16.6	16.6	16.9	13.4	13.6	16.0	21.5	0.00	-0.3	16.3	29.1	1.3	30.4	
3150	11.0	12.5	13.0	13.9	14.2	13.7	13.3	13.4	12.4	8.5	12.8	17.7	0.00	0.1	12.7	25.6	1.2	26.8	
4000	10.4	10.9	12.0	11.3	11.3	10.3	11.9	8.3	11.1	8.6	10.8	15.0	0.00	0.4	10.3	23.2	1	24.2	
5000	9.0	7.2	9.9	9.3	7.3	7.9	10.2	7.3	9.7	5.7	8.6	12.6	0.25	-0.8	9.1	22.0	0.5	22.5	
6300	10.3	11.0	8.4	8.8	10.8	7.5	8.1	6.7	7.7	2.1	8.7	12.9	0.23	-0.5	9.0	21.8	-0.1	21.7	
8000	5.8	5.0	4.6	5.8	8.2	6.9	7.0	3.6	4.6	1.7	5.7	9.4	0.53	-0.2	5.3	18.2	-1.1	17.1	
10000	2.4	1.2	2.7	2.2	3.7	5.1	2.4	2.2	2.8	-0.9	2.6	5.4	1.30	0.1	1.2	14.0	-2.5	11.5	!
																	A-WEIGHTED SOUND POWER LEVEL	**44.5**	

MEASURED TIME AVERAGED SPL at 1.75 m, L'P - [06681/12_4 – 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	14.7	13.0	11.0	11.4	14.4	14.6	10.1	12.9	10.0	11.0	12.7	-0.1	1.30	-2.4	13.7	26.6	-19.1	7.5	!
125	16.0	14.6	13.8	15.3	13.6	14.5	14.0	13.7	12.6	9.0	14.0	7.2	0.92	1.1	12.0	24.8	-16.1	8.7	
160	26.4	20.8	22.1	25.0	19.2	23.8	23.0	17.9	19.9	12.8	22.4	19.4	0.00	0.5	21.8	34.7	-13.4	21.3	
200	20.6	23.7	22.4	18.1	22.6	22.6	16.9	19.9	15.7	13.9	20.6	24.9	0.00	1.3	19.3	32.2	-10.9	21.3	
250	26.7	28.9	28.0	24.6	27.0	27.0	20.8	23.2	20.8	22.1	25.8	31.5	0.00	1.4	24.3	37.2	-8.6	28.6	
315	28.5	30.8	28.9	26.0	29.2	28.9	27.0	27.6	27.3	27.1	28.3	36.2	0.00	-0.5	28.8	41.7	-6.6	35.1	
400	27.9	29.1	28.4	26.9	29.3	28.8	26.5	26.9	26.9	25.9	27.8	36.0	0.00	0.6	27.2	40.0	-4.8	35.2	
500	29.7	29.3	26.9	26.6	29.4	30.1	28.9	28.4	28.6	30.2	29.0	37.5	0.00	0.2	28.8	41.6	-3.2	38.4	
630	26.4	25.5	26.3	28.8	28.1	27.2	27.5	26.9	27.2	28.1	27.3	36.4	0.00	-0.3	27.6	40.4	-1.9	38.5	
800	25.7	26.5	24.0	25.1	24.9	25.8	23.9	27.4	23.4	26.5	25.5	34.4	0.00	-0.5	25.9	38.8	-0.8	38.0	
1000	23.6	23.0	22.1	23.6	25.5	25.8	22.0	23.9	21.7	21.4	23.5	31.7	0.00	-0.9	24.4	37.3	0	37.3	
1250	21.4	20.9	19.3	20.1	24.2	25.0	21.9	23.4	21.6	20.5	22.2	29.7	0.00	-0.7	22.9	35.7	0.6	36.3	
1600	19.9	19.6	17.9	22.6	22.1	20.8	22.4	19.1	21.4	18.2	20.7	27.6	0.00	-0.2	20.9	33.8	1	34.8	
2000	21.2	18.7	21.1	21.4	21.6	21.7	21.7	19.5	19.7	17.3	20.6	26.9	0.00	0.3	20.3	33.1	1.2	34.3	
2500	17.4	15.5	17.2	16.6	18.8	18.0	17.2	17.9	14.5	14.0	16.9	22.5	0.00	-0.3	17.3	30.1	1.3	31.4	
3150	12.0	13.9	14.2	14.8	16.2	15.5	14.3	14.4	13.4	9.4	14.1	19.0	0.00	0.1	14.0	26.9	1.2	28.1	
4000	10.9	11.9	12.6	11.8	12.4	12.0	12.6	9.1	11.9	9.0	11.6	15.9	0.00	0.4	11.2	24.0	1	25.0	
5000	9.6	8.1	10.8	9.9	9.1	9.8	11.4	7.9	10.4	6.1	9.6	13.5	0.20	-0.8	10.2	23.0	0.5	23.5	
6300	10.8	12.0	9.5	9.6	12.8	9.7	9.8	7.9	9.0	3.1	10.0	14.2	0.17	-0.5	10.3	23.2	-0.1	23.1	
8000	6.3	5.4	5.3	6.0	10.0	8.4	7.9	4.1	5.5	1.9	6.6	10.4	0.42	-0.2	6.4	19.2	-1.1	18.1	
10000	2.6	1.3	3.1	2.3	5.5	6.9	3.0	2.4	3.6	-0.8	3.5	6.2	1.19	0.1	2.2	15.0	-2.5	12.5	
																	A-WEIGHTED SOUND POWER LEVEL	**46.6**	

MEASURED TIME AVERAGED SPL at 1.75 m, L'P - [06681/12_5 – Full 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	16.4	15.1	13.1	14.0	15.9	16.0	12.0	14.5	11.9	12.4	14.4	1.7	1.30	-2.4	15.5	28.4	-19.1	9.3	!
125	16.8	17.5	16.2	16.9	16.3	16.2	16.0	16.7	15.0	11.3	16.1	9.3	0.54	1.1	14.5	27.3	-16.1	11.2	
160	27.5	23.1	23.6	23.6	22.6	26.4	23.0	17.9	19.0	16.0	23.5	20.5	0.00	0.5	22.9	35.8	-13.4	22.4	
200	31.1	28.7	28.9	27.3	27.3	30.7	26.9	23.1	23.1	18.5	27.8	32.1	0.00	1.3	26.5	39.3	-10.9	28.4	
250	27.9	31.0	29.9	25.7	28.7	28.8	23.1	25.9	22.4	23.8	27.6	33.3	0.00	1.4	26.1	39.0	-8.6	30.4	
315	28.8	30.4	28.6	26.2	28.7	28.9	26.5	26.6	26.8	27.2	28.1	35.9	0.00	-0.5	28.6	41.4	-6.6	34.8	
400	36.5	38.2	37.0	35.0	38.8	38.3	35.3	36.0	36.1	34.6	36.8	45.1	0.00	0.6	36.2	49.0	-4.8	44.2	
500	36.6	35.6	34.0	34.3	36.0	36.4	34.9	34.2	35.2	35.8	35.4	43.9	0.00	0.2	35.2	48.1	-3.2	44.9	
630	29.1	27.8	27.2	29.9	29.8	29.8	30.0	28.4	29.0	30.0	29.2	38.3	0.00	-0.3	29.5	42.3	-1.9	40.4	
800	31.2	31.6	28.8	31.4	30.7	30.6	29.2	30.3	31.2	30.6	30.6	39.5	0.00	-0.5	31.1	43.9	-0.8	43.1	
1000	29.3	27.8	27.1	29.2	31.3	31.6	26.4	26.5	26.7	25.4	28.6	36.8	0.00	-0.9	29.5	42.4	0	42.4	
1250	25.6	25.5	25.0	24.4	29.1	30.1	25.7	26.3	25.3	23.5	26.5	34.0	0.00	-0.7	27.3	40.1	0.6	40.7	
1600	25.3	25.2	23.2	27.1	28.2	27.6	25.0	24.1	25.0	21.2	25.6	32.6	0.00	-0.2	25.8	38.7	1	39.7	
2000	27.2	23.0	25.4	26.3	26.0	27.4	26.5	24.3	24.8	21.8	25.6	31.8	0.00	0.3	25.3	38.1	1.2	39.3	
2500	22.4	20.0	21.9	19.8	23.7	23.1	21.4	22.5	19.7	17.1	21.5	27.0	0.00	-0.3	21.9	34.7	1.3	36.0	
3150	16.5	19.0	18.3	18.3	21.8	20.5	18.6	18.2	17.1	13.6	18.7	23.6	0.00	0.1	18.6	31.4	1.2	32.6	
4000	14.7	16.7	16.3	15.2	17.6	17.3	17.0	13.0	16.6	12.1	16.0	20.2	0.00	0.4	15.5	28.4	1	29.4	
5000	13.0	11.6	14.2	12.4	14.8	15.7	15.7	11.2	14.4	8.8	13.6	17.6	0.00	-0.8	14.4	27.3	0.5	27.8	
6300	13.2	14.1	12.3	11.4	16.0	13.8	13.2	10.6	12.3	5.7	12.9	17.0	0.00	-0.5	13.4	26.2	-0.1	26.1	
8000	9.4	7.6	7.6	7.3	14.6	12.6	11.1	6.3	8.7	3.1	10.0	13.7	0.19	-0.2	10.0	22.8	-1.1	21.7	
10000	4.8	3.2	5.1	3.6	11.4	12.4	6.0	3.8	6.4	0.3	7.3	10.0	0.46	0.1	6.7	19.5	-2.5	17.0	
																	A-WEIGHTED SOUND POWER LEVEL	**51.7**	

MEASURED TIME AVERAGED SPL at 1.75 m, L'P - [06681/12_6 – TV25 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	15.7	14.7	13.2	12.7	16.3	16.4	10.9	14.2	11.2	11.0	14.1	1.4	1.30	-2.4	15.2	28.0	-19.1	8.9	!
125	16.4	16.0	15.1	16.1	15.0	15.4	14.9	15.4	13.7	8.7	15.0	8.2	0.71	1.1	13.2	26.0	-16.1	9.9	
160	25.9	20.7	22.0	24.9	19.7	23.2	22.5	18.3	20.1	12.8	22.2	19.2	0.00	0.5	21.6	34.5	-13.4	21.1	
200	20.7	25.0	24.0	18.7	24.2	24.1	18.7	21.9	18.2	14.4	22.0	26.3	0.00	1.3	20.7	33.6	-10.9	22.7	
250	28.8	32.3	32.0	27.1	28.5	28.5	22.2	27.3	22.1	23.9	28.5	34.2	0.00	1.4	27.1	39.9	-8.6	31.3	
315	27.8	29.6	28.2	25.8	28.3	28.4	26.2	26.3	26.1	26.6	27.5	35.4	0.00	-0.5	28.0	40.9	-6.6	34.3	
400	36.5	38.1	37.0	35.0	38.7	38.2	35.3	36.0	36.1	34.5	36.8	45.0	0.00	0.6	36.1	49.0	-4.8	44.2	
500	36.6	35.6	33.9	34.3	36.0	36.4	34.9	34.1	35.3	35.7	35.4	43.9	0.00	0.2	35.2	48.0	-3.2	44.8	
630	28.7	27.3	26.9	29.8	29.7	29.7	29.9	28.3	28.9	29.7	29.0	38.1	0.00	-0.3	29.3	42.1	-1.9	40.2	
800	30.6	31.4	28.6	31.3	30.5	30.4	28.7	29.9	31.0	29.6	30.3	39.2	0.00	-0.5	30.8	43.6	-0.8	42.8	
1000	28.6	27.4	26.8	29.2	31.3	31.5	25.1	25.4	25.7	23.1	28.2	36.4	0.00	-0.9	29.1	42.0	0	42.0	
1250	24.1	25.0	24.9	24.1	28.8	30.1	25.1	26.0	24.1	22.7	26.1	33.6	0.00	-0.7	26.8	39.7	0.6	40.3	
1600	23.3	23.6	22.1	24.0	26.5	26.4	23.9	21.4	23.2	19.9	23.9	30.8	0.00	-0.2	24.1	36.9	1	37.9	
2000	22.6	21.2	22.2	22.8	24.8	25.1	22.8	21.8	22.1	19.4	22.7	29.0	0.00	0.3	22.4	35.3	1.2	36.5	
2500	20.2	18.7	20.2	18.4	22.6	22.0	19.7	21.1	18.0	15.8	20.1	25.6	0.00	-0.3	20.4	33.2	1.3	34.5	
3150	15.3	17.1	17.1	17.7	21.5	20.2	17.6	17.7	16.3	12.5	17.9	22.8	0.00	0.1	17.8	30.6	1.2	31.8	
4000	13.2	15.1	15.1	14.0	16.5	16.8	15.9	11.7	15.4	11.2	14.8	19.1	0.00	0.4	14.4	27.3	1	28.3	
5000	12.1	10.7	13.4	12.1	14.5	15.4	15.3	10.4	13.4	8.1	13.1	17.0	0.00	-0.8	13.8	26.7	0.5	27.2	
6300	12.8	14.1	12.0	11.5	16.1	13.8	13.2	10.4	12.1	5.4	12.8	17.0	0.00	-0.5	13.3	26.1	-0.1	26.0	
8000	9.1	7.4	7.3	7.2	14.6	12.6	10.9	6.1	8.4	3.0	9.9	13.6	0.19	-0.2	9.9	22.7	-1.1	21.6	
10000	4.5	3.1	5.1	3.6	11.5	12.5	5.8	3.7	6.4	0.2	7.3	10.0	0.45	0.1	6.7	19.6	-2.5	17.1	
																A-WEIGHTED SOUND POWER LEVEL		**51.3**	

MEASURED TIME AVERAGED SPL at 1.75 m, L'P - [06681/12_7 – TV35 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	14.1	12.9	11.8	11.6	13.6	13.9	9.7	12.8	10.2	9.6	12.3	-0.4	1.30	-2.4	13.4	26.2	-19.1	7.1	!
125	16.5	15.9	14.8	15.7	14.8	15.2	14.3	15.3	13.3	8.0	14.8	8.0	0.75	1.1	12.9	25.7	-16.1	9.6	
160	26.2	21.0	21.6	24.7	19.9	23.3	22.6	18.0	20.2	12.8	22.2	19.3	0.00	0.5	21.7	34.5	-13.4	21.1	
200	20.9	25.2	24.1	19.2	24.3	24.1	19.1	22.0	18.7	14.7	22.2	26.5	0.00	1.3	20.9	33.7	-10.9	22.8	
250	29.7	33.2	33.5	28.6	29.0	29.0	22.3	28.1	22.5	24.7	29.5	35.2	0.00	1.4	28.0	40.9	-8.6	32.3	
315	27.9	29.8	28.4	25.9	28.4	28.5	26.3	26.5	26.3	26.7	27.7	35.5	0.00	-0.5	28.2	41.0	-6.6	34.4	
400	36.5	38.2	37.0	35.0	38.8	38.3	35.3	36.1	36.1	34.5	36.8	45.0	0.00	0.6	36.2	49.0	-4.8	44.2	
500	36.6	35.6	34.0	34.4	36.0	36.5	34.9	34.2	35.3	35.7	35.4	43.9	0.00	0.2	35.2	48.1	-3.2	44.9	
630	28.7	27.3	26.9	29.8	29.7	29.7	29.9	28.3	28.9	29.7	29.0	38.1	0.00	-0.3	29.3	42.1	-1.9	40.2	
800	30.6	31.3	28.6	31.3	30.6	30.4	28.7	29.9	31.0	29.5	30.3	39.2	0.00	-0.5	30.7	43.6	-0.8	42.8	
1000	28.6	27.4	26.8	29.1	31.3	31.5	25.1	25.4	25.7	23.1	28.2	36.3	0.00	-0.9	29.1	41.9	0	41.9	
1250	24.1	25.0	24.9	24.1	28.8	30.1	25.0	26.1	24.0	22.6	26.1	33.6	0.00	-0.7	26.8	39.7	0.6	40.3	
1600	23.3	23.6	22.1	24.0	26.6	26.4	23.9	21.5	23.2	19.9	23.9	30.8	0.00	-0.2	24.1	37.0	1	38.0	
2000	22.6	21.3	22.3	22.7	24.8	25.2	22.8	21.7	22.0	19.0	22.7	29.0	0.00	0.3	22.4	35.3	1.2	36.5	
2500	20.2	18.7	20.2	18.3	22.6	22.0	19.7	21.0	18.0	15.8	20.1	25.6	0.00	-0.3	20.4	33.2	1.3	34.5	
3150	15.2	17.0	17.1	17.5	21.5	20.2	17.6	17.7	16.3	12.5	17.9	22.7	0.00	0.1	17.8	30.6	1.2	31.8	
4000	13.2	15.1	15.1	14.0	16.5	16.8	15.8	11.7	15.4	11.3	14.8	19.1	0.00	0.4	14.4	27.3	1	28.3	
5000	12.1	10.7	13.4	11.9	14.5	15.5	15.2	10.4	13.5	8.2	13.1	17.0	0.00	-0.8	13.9	26.7	0.5	27.2	
6300	12.9	14.1	12.0	11.4	16.2	13.9	13.2	10.5	12.1	5.5	12.8	17.0	0.00	-0.5	13.3	26.2	-0.1	26.1	
8000	9.2	7.5	7.4	7.3	14.6	12.6	11.1	6.1	8.5	3.1	9.9	13.7	0.19	-0.2	9.9	22.8	-1.1	21.7	
10000	4.4	3.1	5.1	3.5	11.4	12.5	5.8	3.7	6.5	0.3	7.3	10.0	0.45	0.1	6.7	19.6	-2.5	17.1	
																	A-WEIGHTED SOUND POWER LEVEL	**51.3**	

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	63.7	60.7	60.1	62.6	60.5	59.3	59.1	61.7	57.7	55.2	60.6	73.5
125	65.0	65.0	63.5	64.2	64.1	64.2	62.2	64.9	62.9	56.7	63.7	76.6
160	65.8	63.9	63.9	64.0	66.1	65.5	61.8	62.7	61.2	57.9	63.8	76.7
200	65.2	66.7	66.3	63.6	66.4	66.8	61.4	64.7	60.5	56.5	64.7	77.5
250	65.6	67.7	66.6	64.1	64.2	65.0	63.5	63.3	61.5	58.7	64.6	77.5
315	64.6	65.1	64.0	62.8	63.2	63.6	61.3	62.0	60.0	60.0	63.0	75.8
400	66.4	66.2	65.9	64.9	64.4	65.3	59.9	61.9	59.2	58.8	64.1	76.9
500	67.2	66.4	65.7	63.9	63.2	64.6	59.8	60.6	59.7	60.1	64.0	76.8
630	66.4	66.8	65.7	63.2	62.0	63.7	62.1	59.7	62.7	64.0	64.1	77.0
800	66.8	68.0	65.1	61.5	60.4	62.9	65.9	62.8	66.6	67.5	65.4	78.3
1000	67.0	68.5	64.1	60.0	60.9	60.1	68.8	67.1	68.3	65.1	66.1	78.9
1250	67.4	68.2	60.9	66.7	68.0	64.8	69.3	70.8	66.8	69.4	67.9	80.7
1600	63.6	64.6	65.1	71.0	71.2	69.9	67.2	67.9	69.5	68.5	68.5	81.4
2000	65.4	61.7	69.3	71.3	70.0	70.8	69.4	67.0	68.6	65.9	68.7	81.6
2500	66.7	62.8	69.0	66.5	65.3	67.6	65.9	67.9	65.1	62.7	66.4	79.2
3150	68.1	68.3	68.0	66.8	67.7	65.6	65.3	66.7	63.9	61.0	66.6	79.4
4000	66.6	69.7	65.5	68.0	67.5	67.4	65.6	66.3	64.3	61.1	66.7	79.5
5000	64.5	64.6	66.2	66.0	65.5	65.8	64.8	65.5	63.7	58.9	64.9	77.7
6300	66.2	65.0	65.3	64.7	64.2	64.8	61.7	63.6	61.6	57.5	64.0	76.8
8000	65.3	63.0	63.3	62.7	62.7	62.9	61.7	62.4	61.4	55.6	62.6	75.4
10000	61.9	61.0	62.3	61.6	61.2	61.6	59.4	61.0	59.7	54.2	60.8	73.6