

LOADED SOUND TEST SUMMARY SHEET

NAME OF DEVICE UNDER TEST (DUT)	Circular Saw
TOOL OPERATOR	Manual Mode, Brian Kim
COMPUTER OPERATOR	Edward Zechmann
TEST DATE	6/8/2009
TEST DESCRIPTION	Sound Power Level Measurement
TEST LOCATION	UC anechoic lab
MANUFACTURER	Craftsman
MODEL	172-10865
SERIAL NUMBER	NONE
MODE OF OPERATION	FULL SPEED, LOADED, WITH OPERATOR
RUN NUMBER	1
YEAR MADE	2008
DIMENSIONS (inches)	Length 11.1", Width 9.0", Height 7.5"
WEIGHT (lbs.)	9.8
TECHNICAL SPECIFICATIONS	7 1/4 inch saw blade
MOUNTING CONDITIONS	SLIDING ON BOARD, PUSHED BY OPERATOR, DEPTH GUIDE
LOADING CONDITIONS	FULL SPEED, LOADED WITH OAK BOARD
K1 (dBA)	0
K2 (dBA)	-0.02
TEMPERATURE (CELSIUS)	24
HUMIDITY %	41
BAROMETRIC PRESSURE ("Hg)	29.95
TEST ENVIRONMENT	SEMI ANECHOIC, SEMI HEMISPHERICAL
TOOL TESTING STANDARD	ANSI S12.15-1992
MEASUREMENT STANDARD	ISO 3744:1994-05-01
MICROPHONE SET-UP	10-MICROPHONES
SURFACE RADIUS	2.00 meters
RATED POWER (WATTS)	1440
ACTUAL INPUT POWER (WATTS)	-
VOLTAGE (VOLTS)	-
CURRENT (AMPS)	-
RATED RPM	4800
ACTUAL RPM	-
SOUND POWER LEVEL (dBA)	109.1
SOUND POWER (WATTS) A-weighted	0.08057
SWLA - k2 (dBA)	109.1
SWLA - k2 (WATTS) A-weighted	0.08088
SOUND PRESSURE LEVEL (dBA) @ 2 meters	95.1
AT THE NOMINAL HEARING ZONE OF OPERATOR	
SOUND PRESSURE LEVEL (dBA)	101.7

Average Directivity Study

TEST DATE	6/8/2009
DUT	Circular Saw
Manufacturer	Craftsman
Model Number	172-10865
Serial Number	NONE
Mode	FULL SPEED, LOADED, WITH OPERATOR
Run Number	1

A-weighted Sound Pressure Level

	Position1	Position2
Mic #	dBA	dBA
0	93.4	94.1
1	98.0	89.6
2	93.9	97.1
3	88.8	95.7
4	96.9	90.8
5	97.6	86.7
6	91.3	96.3
7	89.8	96.8
8	98.1	93.8
9	94.9	96.6
10	101.7	98.1
dB difference	9.3	10.3

A-weighted Directivity Index

Mic #	dBA	dBA
0	-0.8	0.4
1	3.7	-4.2
2	-0.4	3.3
3	-5.5	2.0
4	2.6	-3.0
5	3.3	-7.0
6	-3.0	2.6
7	-4.4	3.0
8	3.8	0.0
9	0.7	2.8

SOUND DATA SHEET

PRODUCT INFORMATION

TEST CONDITIONS

TEST DATE	6/8/2009	Actual Power (watt)	-
DUT	Circular Saw	Voltage (Volts)	-
Manufacturer	Craftsman	Current (Amps)	-
Model Number	172-10865	Actual RPM	-
Serial Number	NONE	Temperature (Deg. F)	24
Mode of Operation	FULL SPEED, LOADED, WITH OP	Humidity (%)	41
Run Number	1		

Measurement Data

Baro. Press. (inch of Hg) 29.95

Linear (unweighted) Position 1

Sound Power (dB)	109.25	109.52	112.99	113.92	109.42	107.10	110.63	107.03	109.78	104.53	107.50
Sound Power (Watts)	0.08421	0.08944	0.19892	0.24634	0.08754	0.05130	0.11570	0.05046	0.09499	0.02836	0.05617
Sound Pressure (dB)	95.25	95.51	98.98	99.91	95.42	93.10	96.63	93.03	95.77	90.52	93.49

Linear (unweighted) Position 2

Sound Power (dB)	113.35	111.45	107.24	105.83	109.56	108.20	110.72	108.70	108.12	108.81	108.14
Sound Power (Watts)	0.21648	0.13972	0.05296	0.03829	0.09027	0.06605	0.11813	0.07417	0.06491	0.07596	0.06513
Sound Pressure (dB)	99.35	97.45	93.24	91.83	95.55	94.20	96.72	94.70	94.12	94.80	94.14

A-weighted Position 1

Sound Power (dBA)	108.17	108.62	112.62	113.70	108.18	105.88	110.00	105.80	109.30	103.26	106.22
Sound Power (Watts)	0.06567	0.07285	0.18266	0.23422	0.06573	0.03877	0.10002	0.03801	0.08516	0.02119	0.04191
Sound Pressure (dBA)	94.17	94.62	98.61	99.69	94.18	91.88	96.00	91.80	95.30	89.26	92.22

A-weighted Position 2

Sound Power (dBA)	113.09	110.87	106.16	104.59	108.67	106.99	109.80	107.46	106.94	107.69	106.75
Sound Power (Watts)	0.20383	0.12209	0.04132	0.02875	0.07368	0.04997	0.09548	0.05578	0.04943	0.05882	0.04730
Sound Pressure (dBA)	99.09	96.86	92.16	90.58	94.67	92.98	95.80	93.46	92.94	93.69	92.75

Calculations

Average A-weighted Sound Data

Sound Power (dBA)	109.06
Sound Power (Watts)	0.0806
Sound Pressure (dBA)	95.06

Std. Deviation SWLA 2.6795

95 % Confidence Level 1.1880

Mean SPLA-k2 95.08

LOADED VIBRATIONS TEST SUMMARY SHEET

NAME OF DEVICE UNDER TEST (DUT)	Circular Saw
TOOL OPERATOR (SUBJECT OF TEST)	Manual Mode, Brian Kim
COMPUTER OPERATOR	Edward Zechmann
TEST DATE	6/8/2009
TEST DESCRIPTION	Human Exposure to Vibrations
TEST LOCATION	UC ANECHOIC LAB
MANUFACTURER	Craftsman
MODEL	172-10865
SERIAL NUMBER	NONE
MODE OF OPERATION	FULL SPEED, LOADED, WITH OPERATOR
RUN NUMBER	1
YEAR MADE	2008
DIMENSIONS (inches)	Length 11.1", Width 9.0", Height 7.5"
WEIGHT (lbs.)	9.8
TECHNICAL SPECIFICATIONS	7 1/4 inch saw blade
MOUNTING CONDITIONS	SLIDING ON BOARD, PUSHED BY OPERATOR, DEPTH GUIDE
LOADING CONDITIONS	FULL SPEED, LOADED WITH OAK BOARD
TEMPERATURE (CELSIUS)	24
HUMIDITY %	41
BAROMETRIC PRESSURE ("Hg)	29.95
TEST ENVIRONMENT	SEMI ANECHOIC, SEMI HEMISPHERICAL
MEASUREMENT STANDARD	ISO 5349-1 and ISO 5349-2
ACCELEROMETER SETUP	2 - ACCELEROMETERS
SETUP DIAGRAM	circular_saw_8_sv_accel_setup.doc
LOCATION ACCEL 1	right hand, right handle, near electrical switch
ORIENTATION ACCEL 1	X toward blade housing, Y toward top of tool, Z toward right side of tool
LOCATION ACCEL 2	left hand, left grip, on top of tool
ORIENTATION ACCEL 2	X toward blade housing, Y toward left side of tool, Z toward top of tool
ADAPTER TYPE	Accel 1-side adapter, Accel 2-tall two stem adapter
OPERATOR POSTURE	Standing over tool, both hands gripping and sliding tool through the cut
HAND GRIP FORCE	Hands gripping tightly to control tool and pressing electrical switch
RATED POWER (WATTS)	1440
ACTUAL INPUT POWER (WATTS)	-
VOLTAGE (VOLTS)	-
CURRENT (AMPS)	-
RATED RPM	4800
ACTUAL RPM	-
Vibrations	
Accelerometer 1	
X, Y, Z arms m/s^2 weighted	4.1, 4.2, 1.7
X, Y, Z arms m/s^2 linear	61, 37.9, 35.5
Total arms m/s^2 (weighted, linear)	6.2, 80.3
Accelerometer 2	
X, Y, Z arms m/s^2 weighted	2.4, 2.5, 1.3
X, Y, Z arms m/s^2 linear	37.7, 34.4, 45.9
Total arms m/s^2 (weighted, linear)	3.7, 68.8

VIBRATIONS DATA SHEET

TEST DATE	6/8/2009		
DUT	Circular Saw	Actual Power (watt)	-
Manufacturer	Craftsman	Voltage (Volts)	-
Model Number	172-10865	Current (Amps)	-
Serial Number	NONE	Actual RPM	-
Mode of Operation	FULL SPEED, LOADED, WITH C	Temperature	24
Run Number	1	Humidity (%)	41

Accelerometer 1 arms weighted m/s²

Axis	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
X	4.3	4.1	4.5	4.9	4.2	3.5	4.8	3.8	3.5	3.1	3.9	4.7	4.4	3.8	3.6	4.0	4.0
Y	3.8	3.6	3.9	11.0	5.0	2.9	8.8	3.2	3.1	2.5	3.6	3.5	4.5	3.1	2.9	3.7	3.4
Z	1.8	1.5	2.2	2.5	1.9	1.3	2.2	1.5	1.2	1.0	1.5	2.1	2.2	1.6	1.4	1.8	1.6
Total arms	6.0	5.7	6.3	12.4	6.8	4.7	10.3	5.2	4.9	4.1	5.5	6.2	6.6	5.2	4.8	5.8	5.5

Accelerometer 1 arms linear m/s²

X	67.6	62.4	74.6	79.6	65.0	49.9	75.7	55.8	49.4	39.9	58.0	73.5	67.0	54.9	51.1	59.1	59.1
Y	40.7	37.4	42.2	70.3	40.4	26.9	53.6	30.6	26.9	22.2	34.3	41.0	45.6	31.3	28.1	36.1	34.3
Z	38.3	34.2	47.1	53.7	36.7	26.3	45.1	29.2	28.3	21.7	30.3	44.8	46.0	31.7	28.1	34.7	33.0
Total arms	87.7	80.4	97.8	119.0	84.9	62.5	103.1	70.0	63.0	50.5	73.9	95.3	93.2	70.8	64.8	77.5	75.9

Accelerometer 2 arms weighted m/s²

Axis	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
X	2.9	2.4	2.7	2.9	2.3	2.3	2.7	2.0	2.2	1.8	2.3	2.7	2.6	2.2	2.3	2.4	2.3
Y	2.6	2.5	2.6	3.3	2.5	2.1	3.1	2.2	2.3	1.9	2.4	2.3	3.0	2.2	2.2	2.6	2.3
Z	1.3	1.3	1.5	1.5	1.3	1.1	1.4	1.2	1.0	0.9	1.2	1.3	1.3	1.2	1.0	1.3	1.2
Total arms	4.1	3.7	4.0	4.6	3.6	3.3	4.3	3.2	3.3	2.8	3.5	3.8	4.2	3.4	3.3	3.8	3.5

Accelerometer 2 arms linear m/s²

X	49.1	36.2	45.8	54.9	35.5	29.8	42.6	29.3	31.7	21.8	34.3	47.3	46.5	32.7	31.0	35.4	35.5
Y	37.1	33.2	43.8	49.1	33.7	27.4	41.5	29.0	27.5	22.7	31.6	40.6	42.1	30.4	27.6	33.7	32.5
Z	48.7	45.7	60.4	80.8	37.4	33.4	52.6	33.7	40.8	27.5	40.6	63.9	63.9	39.2	33.4	39.2	42.2
Total arms	78.5	67.2	87.6	109.3	61.6	52.5	79.4	53.2	58.5	41.8	61.8	89.3	89.6	59.4	53.3	62.7	64.0

Average arms

Weighted m/s ²	Accel 1	Accel 2	Linear	Accel 1	Accel 2
X	4.1	2.4	X	61.0	37.7
Y	4.2	2.5	Y	37.9	34.4
Z	1.7	1.3	Z	35.5	45.9
Total arms m/s ²	6.2	3.7		80.3	68.8
Std. Deviation	1.8	0.4		15.6	16.2
95 % Confidence Level	0.8	0.2		6.9	7.2

18	19	20	21	22
4.4	4.1	3.9	3.9	3.9
4.4	4.2	3.5	3.9	3.7
2.1	1.8	1.6	1.7	1.7
6.6	6.2	5.5	5.7	5.6

68.4	61.5	56.5	55.1	57.0
44.8	41.4	34.0	36.7	36.0
42.8	35.0	32.4	30.7	31.7
92.3	81.9	73.5	72.9	74.5

18	19	20	21	22
2.9	2.5	2.4	2.4	2.3
3.0	2.8	2.5	2.7	2.6
1.5	1.4	1.1	1.3	1.2
4.4	4.0	3.6	3.8	3.6

49.0	38.8	35.3	34.2	33.8
42.0	36.2	31.4	31.6	32.1
62.9	45.3	42.5	36.1	39.6
90.1	69.8	63.6	58.9	61.1