

12/14/2007

TOOL TEST SUMMARY SHEET

NAME OF DEVICE UNDER TEST (DUT)	Orbital Sander
TEST ENGINEER	Edward Zechmann
TEST DATE	10/22/2004
TEST DESCRIPTION	Sound Power Level Measurement
TEST LOCATION	UC anechoic lab
MANUFACTURER	Black & Decker
MODEL	FS540
SERIAL NUMBER	200426-47-13
MODE OF OPERATION	Normal
RUN NUMBER	1
YEAR MADE	2004
DIMENSIONS (inches)	LENGTH 4, WIDTH 4, HEIGHT 5.5
TECHNICAL SPECIFICATIONS	4 1/2 by 5 1/2 inch sheet
MOUNTING CONDITIONS	On a steel table tool center 30 cm high
LOADING CONDITIONS	FULL SPEED, FULL 8lb LOAD
	Tethered to steel frame with bungee cords
K1 (dBA)	0
K2 (dBA)	1.28
TEMPERATURE (FARHENHEIT, CELSIUS)	79 F, 26 C
HUMIDITY %	38
BAROMETRIC PRESSURE ("Hg, Pa)	29.28 "Hg, 99,140 Pa
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)	216
ACTUAL INPUT POWER (WATTS)	134
VOLTAGE (VOLTS)	117
CURRENT (AMPS)	1.18
RATED RPM	13000
ACTUAL RPM	NA
SOUND POWER LEVEL (dBA)	88.5
SOUND POWER (WATTS) A-weighted	0.00071
SWL - k2 (dBA)	87.2
SWL - k2 (WATTS) A-weighted	0.00053
SOUND PRESSURE LEVEL @ (2m) (dBA)	74.7
AT THE NOMINAL HEARING ZONE OF OPERATOR	
SOUND PRESSURE LEVEL (dBA)	81.3

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Directivity Study

DUT	Orbital Sander
Manufacturer	Black & Decker
Model Number	FS540
Serial Number	200426-47-13
MODE OF OPERATION	Normal
RUN NUMBER	1

A-weighted Sound Pressure Level

Mic #	Position1 dBA	Position2 dBA
0	75.6	
1	71.9	
2	72.9	
3	74.0	
4	74.8	
5	75.3	
6	74.9	
7	75.5	
8	74.6	
9	76.7	
10	81.3	
dB difference	4.9	

Mic #	A-weighted Directivity Index	
	Position1	Position2
0	1.0	
1	-2.8	
2	-1.7	
3	-0.6	
4	0.2	
5	0.7	
6	0.3	
7	0.9	
8	0.0	
9	2.1	
10	6.7	

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TOOL TEST DATA SHEET

DUT Orbital Sander
 Manufacturer Black & Decker
 Model Number FS540
 Serial Number 200426-47-13
 MODE OF OPERATION Normal
 RUN NUMBER 1

TEST CONDITIONS

Actual Power (watt) 134
 Voltage (Volts) 117
 Current (Amps) 1.18
 Actual RPM NA
 Temperature (Deg. F) 79 F, 26 C
 Humidity (%) 38
 Baro. Press. (inch of Hg) 29.28 "Hg, 99,140 Pa

Measurement Data

Linear

	Position 1	Position 2
Sound Power Level (dB)	90.6	
Sound Power Level (Watt)	0.00114	
Sound Pressure Level (dB)	76.7	

A-Weighted

	Position 1			
	Test 1	Test 2	Test 3	Test 4
Sound Power Level (dBA)	88.5	88.5	88.5	88.6
Sound Power Level (Watt)	0.00070	0.00070	0.00071	0.00072
Sound Pressure Level (dBA)	74.6	74.6	74.7	74.7

Calculations

Average Sound Power Level (Watt)	0.00071
Average Sound Power Level (dBA)	88.5
Average Sound Pressure Level (dBA)	74.7
Std. Deviation of Sound Power Level (dBA)	0.0509
0.95 Confidence of Sound Power Level (dBA)	0.0542
Average Sound Power Level (dBA) -K2	87.22
Average Sound Pressure Level (dBA) -K2	73.38