

TOOL TEST SUMMARY SHEET

NAME OF DEVICE UNDER TEST (DUT)	Orbital Sander
TEST ENGINEER	Edward Zechmann
TEST DATE	5/30/2006
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	free-free, bungy cords
LOADING CONDITIONS	Full speed no load
K1 (dBA)	0
K2 (dBA)	1.42
TEMPERATURE (CELSIUS)	24 C
HUMIDITY %	43
BAROMETRIC PRESSURE ("Hg)	30.10 "Hg
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)	113
VOLTAGE (VOLTS)	122
CURRENT (AMPS)	1
RATED SPEED (RPM)	13000
ACTUAL SPEED (RPM)	NA
SOUND POWER LEVEL (dBA)	90.3
SOUND POWER (WATTS) A-weighted	0.00107
SWL - k2 (dBA)	88.9
SWL - k2 (WATTS) A-weighted	0.00077
SOUND PRESSURE LEVEL -k2 @ (2m) (dBA)	74.9
AT THE NOMINAL HEARING ZONE OF OPERATOR	
SOUND PRESSURE LEVEL (dBA)	86.1

12/14/2007

Directivity Study

TEST DATE	5/30/2006
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

	Position1
Mic #	dBA
0	77.5
1	74.9
2	76.1
3	74.6
4	75.5
5	77.6
6	75.6
7	77.0
8	76.2
9	78.2
10	86.1
dB difference	3.6

	A-weighted Directivity Index
Mic #	Position1
0	1.2
1	-1.4
2	-0.2
3	-1.7
4	-0.9
5	1.3
6	-0.7
7	0.7
8	-0.1
9	1.9

TOOL TEST DATA SHEET

TEST DATE 5/30/2006
 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) 113
 Voltage (Volts) 122
 Current (Amps) 1
 Actual RPM NA
 Temperature (Deg. F) 24 C
 Humidity (%) 43
 Baro. Press. (inch of Hg) 30.10 "Hg

Measurement Data

Linear

Position 1

Sound Power Level (dB) 92.5
 Sound Power Level (Watt) 0.00180
 Sound Pressure Level (dB) 78.5

A-Weighted

	Test 1	Test 2	Test 3	Test 4
Sound Power Level (dBA)	90.2	90.2	90.3	90.4
Sound Power Level (Watt)	0.00105	0.00106	0.00106	0.00110
Sound Pressure Level (dBA)	76.2	76.2	76.3	76.4

Calculations

Average Sound Power Level (Watt) 0.00107
 Average Sound Power Level (dBA) 90.3
 Average Sound Pressure Level (dBA) 76.3

 Std. Deviation of Sound Power Level (dBA) 0.0855

 0.95 Confidence of Sound Power Level (dBA) 0.0912

 Average Sound Power Level (dBA) -K2 88.86
 Average Sound Pressure Level (dBA) -K2 74.86