

12/14/2007

## TOOL TEST SUMMARY SHEET

NAME OF DEVICE UNDER TEST (DUT)	Orbital Sander
TEST ENGINEER	Edward Zechmann
TEST DATE	10/25/2004
TEST DESCRIPTION	Sound Power Level Measurement
TEST LOCATION	UC anechoic lab
MANUFACTURER	Black & Decker
MODEL	MS500K
SERIAL NUMBER	200417-47-41
MODE OF OPERATION	Normal
RUN NUMBER	1
YEAR MADE	2004
DIMENSIONS (inches)	LENGTH 5, WIDTH 3.5, HEIGHT 4.5
TECHNICAL SPECIFICATIONS	3 5/8 x 5 1/4 inch triangle sander
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)	1.25
TEMPERATURE (FARHENHEIT, CELSIUS)	80 F, 27 C
HUMIDITY %	37
BAROMETRIC PRESSURE ("Hg, Pa)	29.23 "Hg, 98,970 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)	60
ACTUAL INPUT POWER (WATTS)	46.2
VOLTAGE (VOLTS)	118
CURRENT (AMPS)	0.3
RATED RPM	11000
ACTUAL RPM	NA
SOUND POWER LEVEL (dBA)	74.7
SOUND POWER (WATTS) A-weighted	0.00003
SWL - k2 (dBA)	73.5
SWL - k2 (WATTS) A-weighted	0.00002
SOUND PRESSURE LEVEL @ (2m) (dBA)	60.9
AT THE NOMINAL HEARING ZONE OF OPERATOR	
SOUND PRESSURE LEVEL (dBA)	65.8

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## Directivity Study

DUT	Orbital Sander
Manufacturer	Black & Decker
Model Number	MS500K
Serial Number	200417-47-41
MODE OF OPERATION	Normal
RUN NUMBER	1

### A-weighted Sound Pressure Level

Mic #	Position1 dBA	Position2 dBA
0	61.7	
1	58.6	
2	59.9	
3	59.0	
4	60.1	
5	60.6	
6	59.0	
7	60.6	
8	61.9	
9	60.2	
10	65.8	
dB difference	3.3	

Mic #	A-weighted Directivity Index	
	Position1	Position2
0	1.5	
1	-1.6	
2	-0.3	
3	-1.2	
4	-0.1	
5	0.4	
6	-1.2	
7	0.4	
8	1.8	
9	0.0	
10	5.6	

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# TOOL TEST DATA SHEET

DUT                           Orbital Sander  
 Manufacturer               Black & Decker  
 Model Number               MS500K  
 Serial Number               200417-47-41  
 MODE OF OPERATION       Normal  
 RUN NUMBER                 1

## TEST CONDITIONS

Actual Power (watt)                           46.2  
 Voltage (Volts)                               118  
 Current (Amps)                                0.3  
 Actual RPM                                    NA  
 Temperature (Deg. F)                       80 F, 27 C  
 Humidity (%)                                 37  
 Baro. Press. (inch of Hg)                   29.23 "Hg, 98,970 Pa

## Measurement Data

### Linear

	Position 1	Position 2
Sound Power Level (dB)	79.9	
Sound Power Level (Watt)	0.00010	
Sound Pressure Level (dB)	66.1	

### A-Weighted

	Position 1			
	Test 1	Test 2	Test 3	Test 4
Sound Power Level (dBA)	73.9	74.9	75.0	75.0
Sound Power Level (Watt)	0.00002	0.00003	0.00003	0.00003
Sound Pressure Level (dBA)	60.1	61.1	61.1	61.2

## Calculations

Average Sound Power Level (Watt)	0.00003
Average Sound Power Level (dBA)	74.7
Average Sound Pressure Level (dBA)	60.9
Std. Deviation of Sound Power Level (dBA)	0.5388
0.95 Confidence of Sound Power Level (dBA)	0.5743
Average Sound Power Level (dBA) -K2	73.46
Average Sound Pressure Level (dBA) -K2	59.62