

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
ratingPLED - ratingLED	Negative Ranks	0 ^a	.00	.00
	Positive Ranks	10 ^b	5.50	55.00
	Ties	0 ^c		
	Total	10		
ratingMotor - ratingLED	Negative Ranks	5 ^d	4.60	23.00
	Positive Ranks	5 ^e	6.40	32.00
	Ties	0 ^f		
	Total	10		
ratingSMotor - ratingLED	Negative Ranks	2 ^g	2.50	5.00
	Positive Ranks	8 ^h	6.25	50.00
	Ties	0 ⁱ		
	Total	10		
ratingPeltier - ratingLED	Negative Ranks	0 ^j	.00	.00
	Positive Ranks	10 ^k	5.50	55.00
	Ties	0 ^l		
	Total	10		
ratingSound - ratingLED	Negative Ranks	2 ^m	6.25	12.50
	Positive Ranks	8 ⁿ	5.31	42.50
	Ties	0 ^o		
	Total	10		
ratingMotor - ratingPLED	Negative Ranks	7 ^p	6.71	47.00
	Positive Ranks	3 ^q	2.67	8.00
	Ties	0 ^r		
	Total	10		
ratingSMotor - ratingPLED	Negative Ranks	6 ^s	4.50	27.00
	Positive Ranks	4 ^t	7.00	28.00
	Ties	0 ^u		
	Total	10		
ratingPeltier - ratingPLED	Negative Ranks	0 ^v	.00	.00
	Positive Ranks	10 ^w	5.50	55.00
	Ties	0 ^x		
	Total	10		
ratingSound - ratingPLED	Negative Ranks	6 ^y	6.08	36.50
	Positive Ranks	4 ^z	4.63	18.50
	Ties	0 ^{aa}		
	Total	10		

Ranks

		N	Mean Rank	Sum of Ranks
ratingSMotor - ratingMotor	Negative Ranks	0 ^{ab}	.00	.00
	Positive Ranks	10 ^{ac}	5.50	55.00
	Ties	0 ^{ad}		
	Total	10		
ratingPeltier - ratingMotor	Negative Ranks	0 ^{ae}	.00	.00
	Positive Ranks	10 ^{af}	5.50	55.00
	Ties	0 ^{ag}		
	Total	10		
ratingSound - ratingMotor	Negative Ranks	4 ^{ah}	3.00	12.00
	Positive Ranks	6 ^{ai}	7.17	43.00
	Ties	0 ^{aj}		
	Total	10		
ratingPeltier - ratingSMotor	Negative Ranks	0 ^{ak}	.00	.00
	Positive Ranks	10 ^{al}	5.50	55.00
	Ties	0 ^{am}		
	Total	10		
ratingSound - ratingSMotor	Negative Ranks	6 ^{an}	6.17	37.00
	Positive Ranks	4 ^{ao}	4.50	18.00
	Ties	0 ^{ap}		
	Total	10		
ratingSound - ratingPeltier	Negative Ranks	10 ^{aq}	5.50	55.00
	Positive Ranks	0 ^{ar}	.00	.00
	Ties	0 ^{as}		
	Total	10		

- a. ratingPLED < ratingLED
- b. ratingPLED > ratingLED
- c. ratingPLED = ratingLED
- d. ratingMotor < ratingLED
- e. ratingMotor > ratingLED
- f. ratingMotor = ratingLED
- g. ratingSMotor < ratingLED
- h. ratingSMotor > ratingLED
- i. ratingSMotor = ratingLED
- j. ratingPeltier < ratingLED
- k. ratingPeltier > ratingLED
- l. ratingPeltier = ratingLED

m. ratingSound < ratingLED
n. ratingSound > ratingLED
o. ratingSound = ratingLED
p. ratingMotor < ratingPLED
q. ratingMotor > ratingPLED
r. ratingMotor = ratingPLED
s. ratingSMotor < ratingPLED
t. ratingSMotor > ratingPLED
u. ratingSMotor = ratingPLED
v. ratingPeltier < ratingPLED
w. ratingPeltier > ratingPLED
x. ratingPeltier = ratingPLED
y. ratingSound < ratingPLED
z. ratingSound > ratingPLED
aa. ratingSound = ratingPLED
ab. ratingSMotor < ratingMotor
ac. ratingSMotor > ratingMotor
ad. ratingSMotor = ratingMotor
ae. ratingPeltier < ratingMotor
af. ratingPeltier > ratingMotor
ag. ratingPeltier = ratingMotor
ah. ratingSound < ratingMotor
ai. ratingSound > ratingMotor
aj. ratingSound = ratingMotor
ak. ratingPeltier < ratingSMotor
al. ratingPeltier > ratingSMotor
am. ratingPeltier = ratingSMotor
an. ratingSound < ratingSMotor
ao. ratingSound > ratingSMotor
ap. ratingSound = ratingSMotor
aq. ratingSound < ratingPeltier
ar. ratingSound > ratingPeltier
as. ratingSound = ratingPeltier

Test Statistics^a

	ratingPLED - ratingLED	ratingMotor - ratingLED	ratingSMotor - ratingLED	ratingPeltier - ratingLED
Z	-2.831 ^b	-.466 ^b	-2.316 ^b	-2.844 ^b
Asymp. Sig. (2-tailed)	<u>.005</u>	.641	<u>.021</u>	<u>.004</u>

Test Statistics^a

	ratingSound - ratingLED	ratingMotor - ratingPLED	ratingSMotor - ratingPLED	ratingPeltier - ratingPLED
Z	-1.544 ^b	-2.007 ^c	-.053 ^b	-2.844 ^b
Asymp. Sig. (2-tailed)	.123	<u>.045</u>	.958	<u>.004</u>

Test Statistics^a

	ratingSound - ratingPLED	ratingSMotor - ratingMotor	ratingPeltier - ratingMotor	ratingSound - ratingMotor
Z	-.940 ^c	-2.873 ^b	-2.831 ^b	-1.605 ^b
Asymp. Sig. (2-tailed)	.347	<u>.004</u>	<u>.005</u>	.108

Test Statistics^a

	ratingPeltier - ratingSMotor	ratingSound - ratingSMotor	ratingSound - ratingPeltier
Z	-2.825 ^b	-.984 ^c	-2.816 ^c
Asymp. Sig. (2-tailed)	<u>.005</u>	.325	<u>.005</u>

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

c. Based on positive ranks.