

CWSF 2014 - Windsor, Ontario



Jack Osiowy

Linear vs. Logarithmic Changes: What Works Best for Human Senses?

Challenge: Discovery

Category: Intermediate

Region: Winnipeg Schools

City: Winnipeg, MB

School: Grant Park High

Abstract: I compared the two most common types of control, linear and logarithmic, and determined which one the human senses are most attuned to. Test participants manipulated either a logarithmic or linear potentiometer to find a subjective half-brightness point, which I compared to the respective true value. I concluded that the logarithmic scale, on average, was overwhelmingly closer to the true value than the linear scale.

Biography

I have had an interest in electricity for many years, and my science fair project last year also dealt with electricity. I work on electric O-gauge (model) trains as well. I have attended the Winnipeg School Division Annual Science Fair for the past three years. I am very active in the debate program at my school and in my city. I am also involved with the Fair Trade club in my school. I found the inspiration for my science fair project on the internet, while looking for projects that were engineering-related. I would have really liked to continue my project with further testing into different age groups: do different ages of eyes make a difference when it comes to recognizing scale? Would my graphs look different? I think they would. Another area of exploration is the colour of the light. Our eyes are more sensitive to green light, so would using green vs. red light make a difference? I would remind any students thinking of doing a project like mine to take a large sample group, and to pay attention to your results, and the interpretation of them.

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