DESCRIPTION

This apparatus is designed to present two 1-3/8 light stimuli from a single common source, however, each stimuli can be independently varied in intensity by means of a precisely tapered aperture and finely calibrated scales on each side of the unit. This unit is useful in illustrating the various psycho-physical methods (limits, average error, constant stimuli, etc.) in visual discrimination. Due to uncontrolled variables such as voltage fluctuations, external light, etc., the absolute value of the stimulus cannot always be ascertained; however, since a common light source is employed, the relative differences between the two stimuli are highly reliable.

SPECIFICATIONS

Line Voltage	105/125V AC 50.60 Hz
Stimulus Lamp*	15 Watt, 115V, Single Contact Candelabra Base

SAMPLE EXPERIMENT: Method of Average Error

Purpose: To illustrate the Method of Average Error in the discrimination of light intensity.

Procedure: Place the apparatus directly in front of the S so that he cannot read the intensity adjustment dials. Set the standard (arbitrarily placed on the S's right or left) to a middle value. Read the following instructions to the S:

"This is a light discrimination test. The light on your right (left) is variable in intensity. The other light is fixed in intensity and is called the standard. Your job is to adjust the variable light so that it LOOKS equal in intensity to the standard."

Arbitrarily set the variable to its maximum or minimum intensity:

"The variable is now set so that I'm sure it
looks a lot brighter (dimmer). Adjust it so
that it appears equal."

The E should record the S's response and set the vari-
able randomly either much brighter or much dimmer.
Repeat some preselected counterbalanced order recording
both the sign and magnitude of the S's response. When
S has finished, E and S should exchange roles.

Results: Compute the point of subjective equality, constant error,
and variable error. Discuss some of the errors which may
have been introduced into the study by the method employed.

* NOTE: Since the lamp's filaments are not always centered with
respect to the lamp base, it may be necessary to adjust
the position of the lamp when replacing bulbs. Bulb
aging will not affect the balance of the intensities of
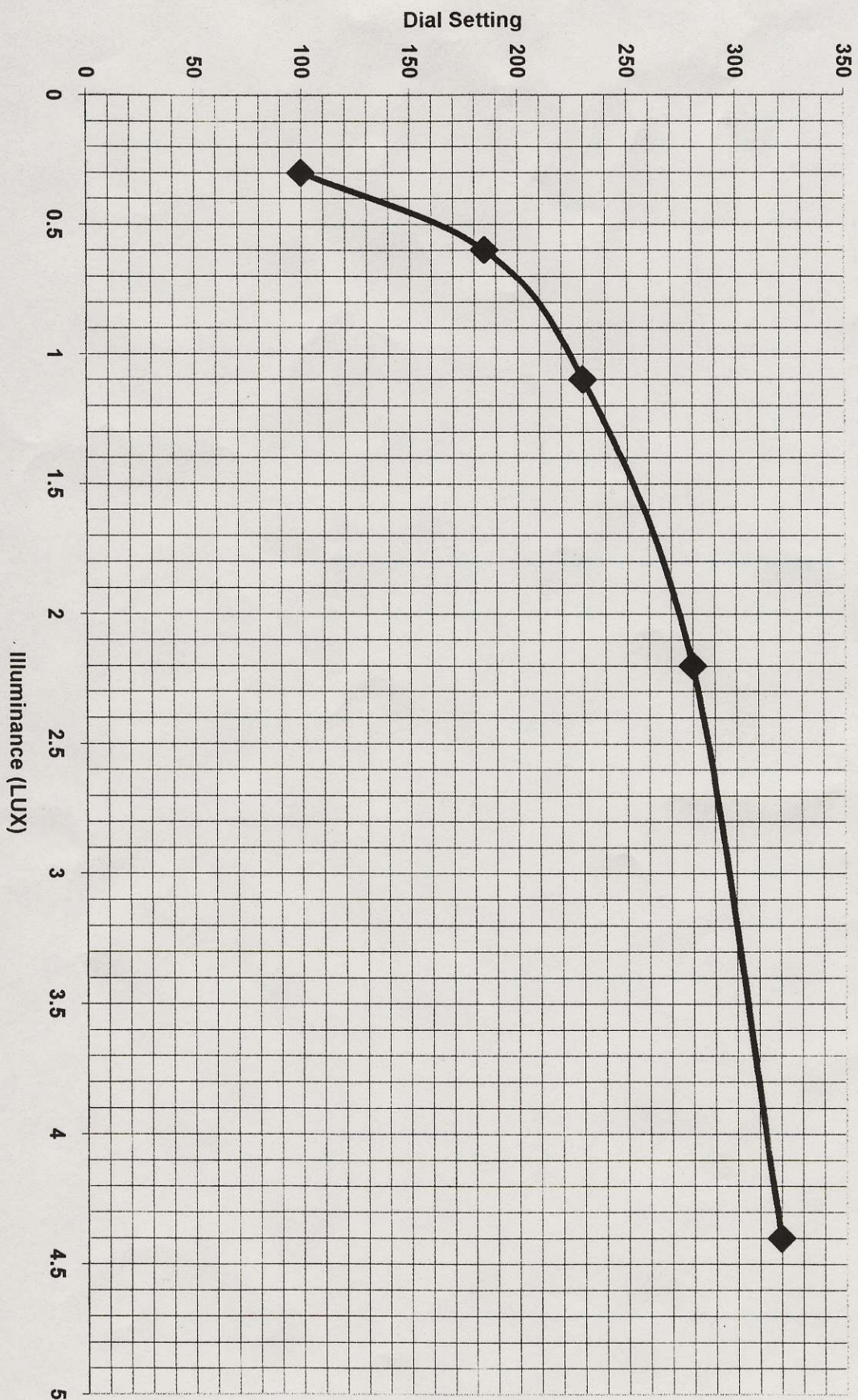the two stimuli.

References:

Underwood, B. J. Experimental Psychology. New York: Appleton-
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Woodworth, R. S. & Schlosberg, H. Experimental Psychology, rev.
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Lafayette Instrument Company, Inc.

Model 14011 Dial versus Illuminance

Dial Setting

Illuminance (LUX)

Prepared by Terry Echard 8/31/00

Model 14011 Light Discrimination Apparatus

Re: Relationship between dial setting and illuminance of light source.

Method:

The 14011 was tested using a digital LUX meter from Tenma model 72-580. The LUX meter was set to the 200 LUX scale. The sensor was placed and held parallel up against the window of the 14011.

The right window was tested first. The dial for the right window was set to 320 and the resulting illuminance was read from the meter. Then the dial was adjusted to produce half the illuminance and then the dial reading as recorded. This was repeated until approximately 1/16th of full illuminance was recorded.

The left window was tested by setting the dial to the dial values recorded for the right window. Then, the illuminance values were recorded. These values matched those from the right window.

Results:

Dial setting	LUX reading (illuminance)
320	4.4
280	2.2
230	1.1
185	0.6
100	0.3

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