

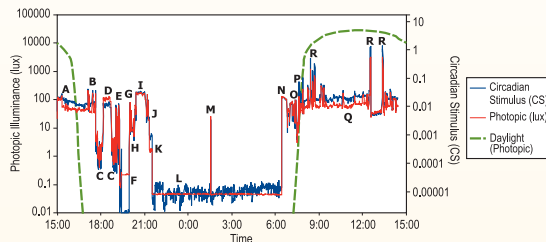
Daysimeter User Group: Gathering and Sharing Data for Circadian Research

The LRC is forming a group of researchers from around the world to collect data in different lighting applications using a special light measuring device known as a Daysimeter.

The goal of the Daysimeter User Group is to create a cooperative forum of lighting scholars, scientists, and physicians already working in the field of photobiology and circadian light exposure.

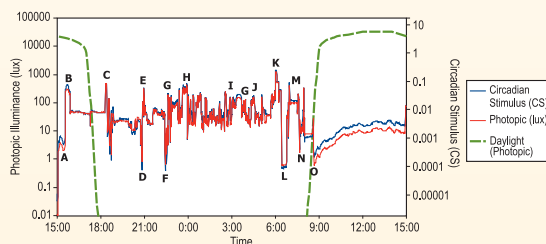
The Daysimeter

is the first device to measure and characterize light (intensity, spectrum, timing, and duration) accurately. The Daysimeter measures light entering the eye that affects the human body's clock. It also measures conventional light levels and records head movements to differentiate between rest/sleep and active/awake periods.



Daytime worker

A = inside windowed office; B = inside lighted stairwell with window; C = night driving; D = inside restaurant; E = pumping fuel at service station; F = driving at night; G = inside home kitchen; H = inside living room watching television; I = working on computer at home with table lamp on; J = inside home bathroom; K = inside bedroom with lights off and television on; L = sleeping; M = trip to bathroom at night; N = inside home bathroom (with windows); O = inside home kitchen (with windows); P = daytime driving; Q = inside windowed office after sunrise; R = outdoors.



Nighttime worker

A = sleeping; B = taking shower; C = inside friend's house; D = night driving; E = inside restaurant; F = driving to work; G = inside at work; H = lights turned on at work; I = lunch in break room; J = medical procedure; K = at nurses' station; L = in patient room; M = in break room; N = walking to car; O = turned off home lights to go to sleep.

Light exposure profiles over 24 hours for a day shift woman (top panel) and a night shift woman (bottom panel). Also shown is daylight exposure for a hypothetical person working outdoors during daytime hours.

Note the dampened light/dark exposure pattern in the night shift worker.

Use of the Daysimeter will enable better design of light sources, luminaires, lighting techniques, and lighting applications that will help maintain regular circadian functions.

The human circadian system responds to light in a dramatically different manner than the visual system.

The work of the Daysimeter User Group may lead to a better understanding of many health-related issues, including:

- how premature infants develop
- appropriate learning environments for school children
- improved sleep for people with Alzheimer's disease
- teenagers with delayed sleep phase disorder (DSPS)
- visual needs of drivers, pilots, and night shift workers.

To help accelerate further the understanding of circadian light exposure, the LRC will:

- participate in a joint workshop/training program
- develop a collaborative effort between researchers, scientists, physicians, manufacturers and government groups
- conduct research, demonstration, evaluation, and educational activities
- leverage participants' memberships to obtain other funding.

LRC Light and Health Program
www.lrc.rpi.edu/programs/lightHealth



View LRC Project Sheets at
www.lrc.rpi.edu/resources/newsroom/projectsheets.asp

Lighting
Research Center