Case Study of Spectrometer C-7000

Green Utility Co., Ltd.

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It is easy to measure on site,
also, it's good that the graph display is easy to understand.

Green Utility contributes to the prevention of global warming and people's health with unique products.

Green Utility Co., Ltd. started in 2003 as an industry-academia joint project with a capital of 46 million yen. The purpose of establishment was to put the research results of Nagoya University into practical use and to improve health problems related to energy. After the war, Japan's economy and society achieved high growth, but on the other hand, it is very regrettable that the number of suicide deaths in Japan is high, and there are many diseases such as cancer, depression, mental disorders, and autonomic imbalance. The cause is that the energy (light, water, air, food, exercise), which is necessary for humans, is not used properly.

Based on this awareness of issues, Green Utility develops and sells original LED lighting, power control devices, and water-saving purification devices that are environmentally friendly and useful for people's health. In addition, they conducts environmental consulting business specializing in energy, and as a result, they contribute to the development of society.

Less blue light, more friendly to human body, sunlight LED "Myo-Ou"

Blue wavelength light from LED lighting is called blue light, and its adverse effects on health have been viewed as a problem. Blue light with a wavelength of 460 nm is a strong light that reaches the fundus of the eye, causing many eye disorders such as macular degeneration and retinal inflammation. In addition, it has been found that the risk of sleep disorders increases, due to the disturbance of the autonomic nervous system and the suppression of melatonin secretion.

Spectrum comparison

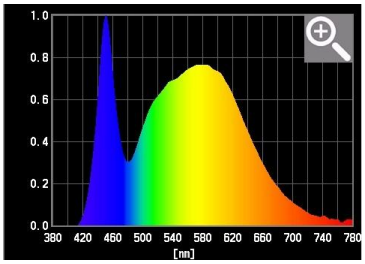

Figure 1: General LED lighting

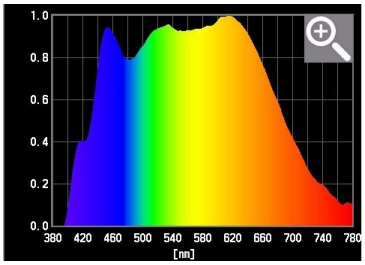

Figure 2: Sunlight LED "Myo-Ou"

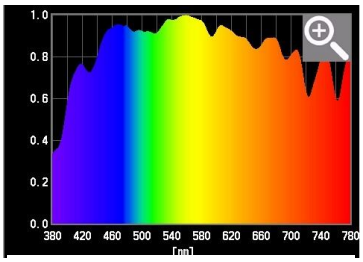

Figure 3: Sunlight

The figures above show the spectrum of three types of light sources measured with a Sekonic spectrometer. Fig. 1 on the left shows the measurement results of general LED lighting. From this graph, you can clearly see that blue light is strong in general LED lighting. On the other hand, the sunlight LED “Myo-Ou” measured in Fig. 2 is Green Utility’s main LED lighting products, and it can be seen that the intensity of blue light is suppressed and the spectrum is close to that of sunlight in Fig. 3. Green Utility’s LED lighting products are used in a wide range of fields, including commercial facilities, public facilities, and transportation. Green Utility contributes to the health of people who work and live there by suppressing the generation of blue light and electromagnetic waves from LED lighting.

Reasons for choosing Sekonic's handheld spectrometer

A spectrometer is a convenient tool that can measure various kinds of light sources such as LED, fluorescent lamp, mercury lamp, and incandescent lamp, and can analyze the quantity, color, and quality of light such as illuminance, color temperature, color rendering index, and spectrum. Green Utility uses our spectrometers to analyze light from lighting products, to measure before and after replacement of lighting at client sites, and to demonstrate lighting products by showing instant measurement results on site. When they selected the spectrometer, the key point was that the following features of Sekonic’s handheld spectrometer were suitable for their purpose of use.

【Features of Sekonic Spectrometer】

(1) Handy type measuring instrument that can be easily used on site
(2) Swivel measurement head for easily aiming at the light source
(3) Measurement time is short, and measurement results can be obtained immediately

(4) Measurement results are displayed graphically, making it intuitive and easy to understand

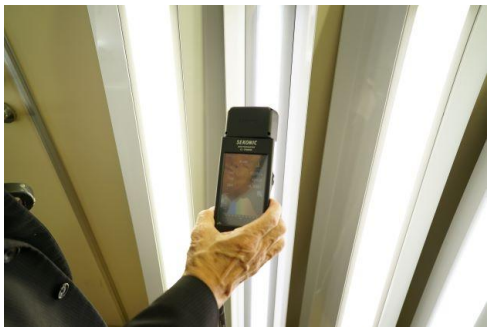

Figure 4: On-site measurement of spectrum and color rendering index

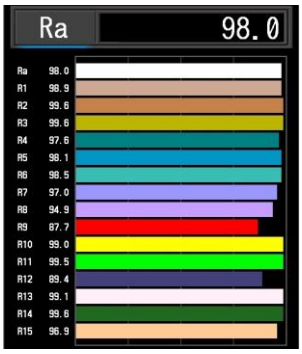

Figure 5: Numerical and graphical display of color rendering index

As shown in Fig. 4, since the swivel measurement head is rotatable, it is possible to measure with the light receptor facing the light source and the display facing the user. Measurement results are displayed immediately, and various measurement indexes such as illuminance, color temperature, color deviation, and color rendering index, etc. can be displayed numerically, and in intuitive graphs as well. As shown in Fig. 5, it is possible to display color rendering index in Ra, and to display graphs and numerical values for each color from R1 to R15. From the measurement results in Fig. 5, it is clear that Green Utility's LED lighting features very high level of color rendering index.

Website of Green Utility Co., Ltd.

If you would like to know more about Green Utility's products, please visit the following website.
https://greenutility.co.jp/

Product information of Sekonic's handheld spectrometer

In addition to the above features, Sekonic's spectrometer can offer the display graphs such as chromaticity diagrams and TM-30, PPFD measurement, data output using utility software, and remote control from a PC by using Excel add-in software or SDK. For more information, please visit the product page below.

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https://www.sekonicindustrial.com/c-7000