

# RGB Color Matching Apparatus

BEX-8204

## Summary

BEX-8204 is mainly composed of integrating sphere, fiber spectrometer, and a standard light source, etc. Red, green, and blue LED or LD are selected as RGB color sources, and they are powered by independent power supplies. By adjusting the current to change the light intensity, the continuous variations of RGB tristimulus values can be achieved, matching out different colors of light. One can not only observe the color changes directly through the window of the integrating sphere, but also precisely measure color coordinates, color temperature, main wavelength and other chromaticity parameters through the spectrometer and BSV software. Moreover, optical power meter can be used for absolute intensity measurement, helping students understand and master the basic theory and methods of color measurement.



## Features

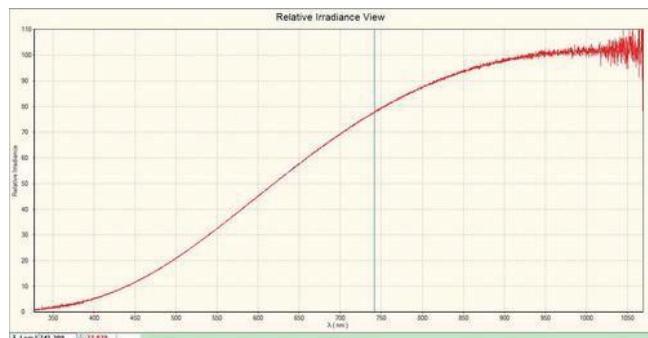
1. Through the observation window, one can directly observe the continuous changes of the three primary color-matched colors.
2. Equipped with an industrial-grade fiber spectrometer, it can accurately measure chromaticity parameters.
3. Independent power supply design, allowing for experiments with a single light source as well as measurements of mixed colors.
4. The application of integrating sphere prevents the direct illumination of the light source through the fiber onto the eyes, enhancing safety and improving experimental accuracy.
5. Professional color measurement software.

## Main Experiment Contents

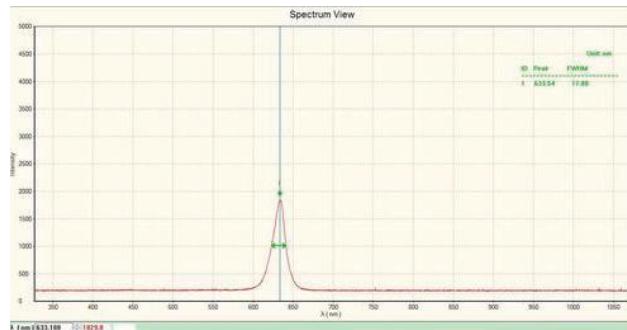
1. Relative strength calibration of the measurement system.
2. Measurement of LED basic optical properties.
3. Matching white light using red, blue and green LED.

## Experiment Contents and Typical Data

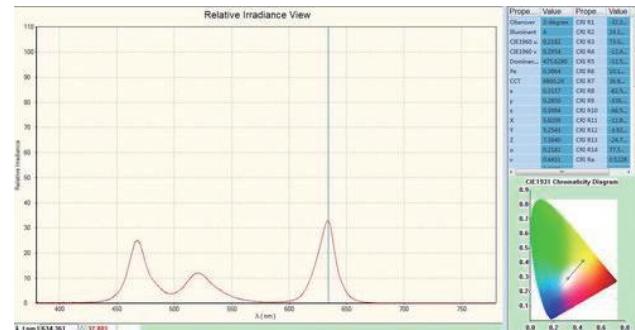
1. Perform relative intensity calibration of the measurement system using a standard halogen-tungsten lamp with known color temperature.



2. Measurement of basic optical properties such as LED bandwidth and central wavelength



3. Utilize red, blue and green LED to match white light



## Specifications

NO.	Part Name	Main Parameter
1	RGB Light Distribution Power Supply	3-channel current output, current 0-40mA, current 0-20mA, current 0-8mA
2	Fiber Spectrometer	wavelength range: 350nm-1050nm resolution: ~ 1nm
3	Fan Cooling Tungsten Light Source	wavelength range: 400 nm-2000 nm Cooling method: fan
4	Integrating Sphere	Radiation integrating sphere
5	RGB Light Source Fixture	Configure 3 LEDs.
6	Quartz Fiber	Length 0.5m, Φ600μm

## Configuration List

NO.	Part Name	Model	Qty.
1	RGB Light Distribution Power Supply	BEM-5711	1
2	Fiber Spectrometer	BIM-6002A-05	1
3	Fan Cooling Tungsten Light Source	BIM-6210	1
4	Integrating Sphere	BEM-5216-15004	1
5	RGB Light Source Fixture	BEM-5224	1
6	Quartz Fiber	SIM-6102-0605-S/S-P	1
7	Power cord	BC-105075	1
8	USB cable	BC-105080	1
9	6-core aviation plug cable	BC-104103	1