

STANDARD CONFIGURATION

Below is a summary of the standard configuration.

Values may change slightly depending on the current availability of the different wavelength (color) or flux bins.

Channel	N° of LEDs	Color	Peak Emission (nm)	Radiometric Value (w)	Photometric Value (lm)	FWHM (nm)
CH 1	2	UV	429	0.74	13.4	16
CH 2	2	Royal Blue	446	0.95	35.8	22
CH 3	3	Dark Blue	465	0.94	73.9	27
CH 4	3	Blue	475	0.89	97.5	27
CH 5	5	Cyan	505	0.98	319.3	34
CH 6	5	Green	525	0.77	389.2	37
CH 7	10	Lime	550	2.75	1256.4	115
CH 8	12	PC Amber	595	2.76	990.9	81
CH 9	2	Red	638	0.62	101.9	21
CH 10	4	Deep Red	660	1.25	81.4	23

Figure 1. Generic features of the standard Tunable Spectral Light Engine

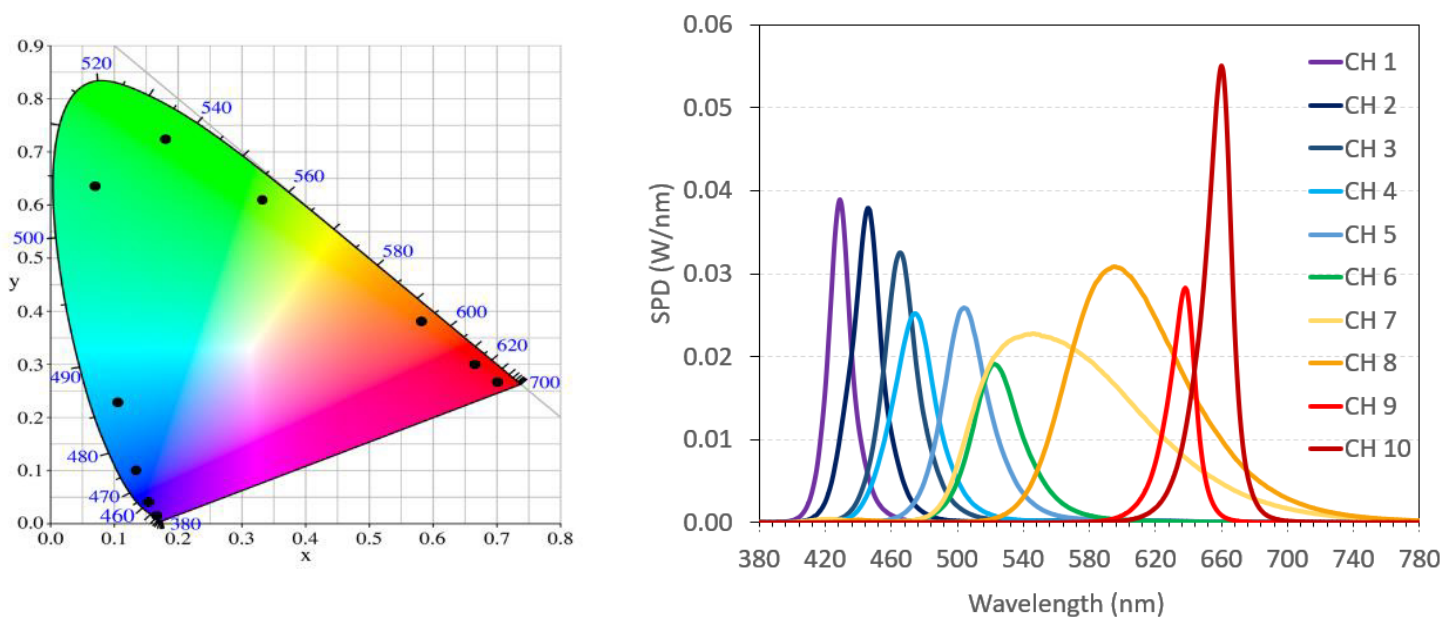


Figure 2. (left) CIE 1931 xy coordinates of the 10 channels that define the color gamut and (right) Spectral Power Distributions (SPDs) of the LED channels

All active channels are mixed at the exit plane of the LED module, which provides the Tunable Spectral Light Engine with a smooth (highly uniform in color) light with a Lambertian pattern profile.

SPECTRAL MODULATION

Example of two different spectral modulations that best reproduce a blackbody radiation curve at two different temperatures (2700 K and 6500 K):

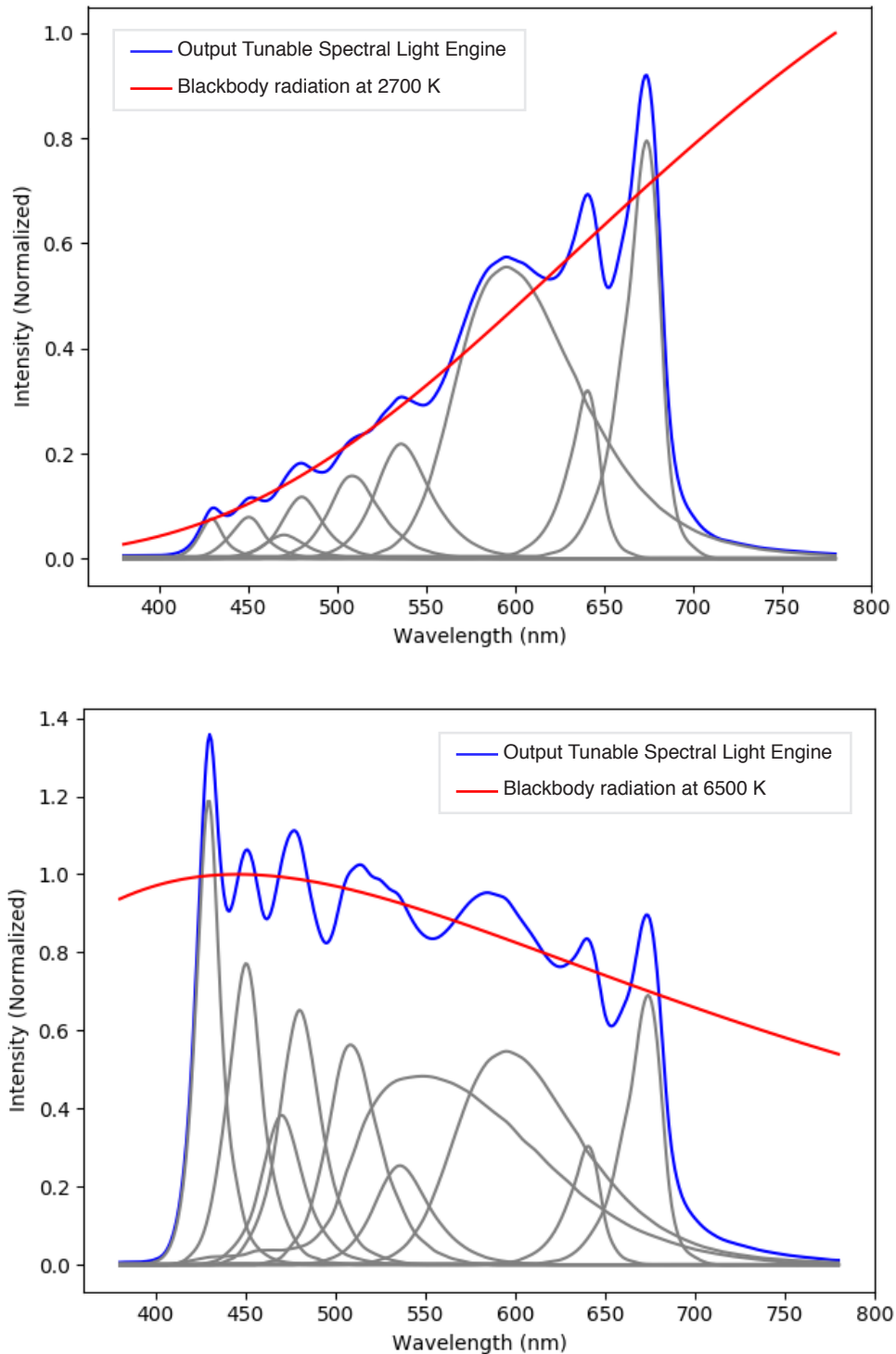


Figure 3. Example of two different spectral fittings (2700 K and 6500 K blackbody radiators)

CONTROL SOFTWARE

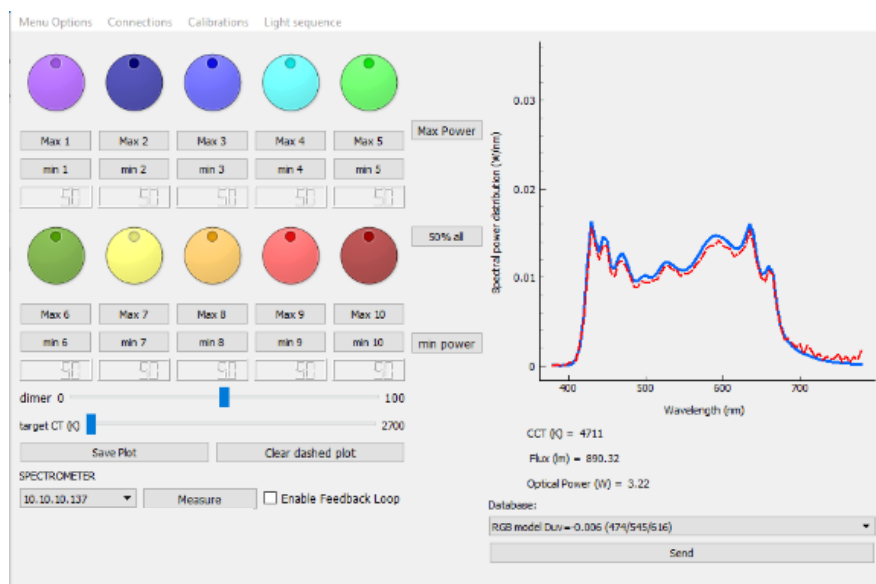


Figure 4. Screenshot of μ WAVE Software

Computer requirements:

- 64-bit Operating System
- Windows version; preferred WIN 8 and above

Features:

- Change the amplitude of each channel to create a specific spectrum
- Dim the light output
- Save and import light spectra
- Playback spectra from the spectral database
- Create, save and reproduce light sequences (dynamic streaming of light spectra) by adding different light spectra to the sequence pool

QUICK START - OPERATING INSTRUCTIONS

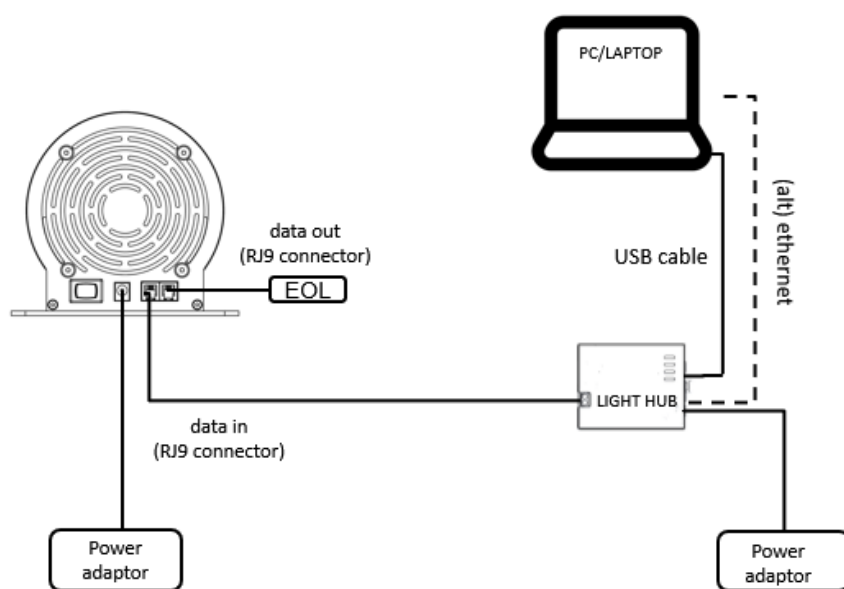


Figure 5. Schematics of the TUNABLE SPECTRAL LIGHT ENGINE connections. Instead of a USB cable, an ethernet cable can be used to connect a PC and the LIGHT HUB (not provided)

1. Connect all the items together as shown to the left
2. Make sure the End-Of-Line (EOL) is connected to the data out connector
3. Connect all power adaptors to the main electrical socket
4. TURN ON the device
5. Run the provided Control Software
6. Play and discover what you can do with the TUNABLE SPECTRAL LIGHT ENGINE

SUMMARY TUNABLE SPECTRAL LIGHT ENGINE STANDARD CONFIGURATION

SOURCE TYPE	Multiple high-power LED
OUTPUT	10 different spectral bands
MAX RADIOMETRIC POWER	12.7 W (all channels at full power) ¹
MAX LUMINOUS FLUX	3360 lumens
SPECTRAL RANGE	400-700 nm
LIGHT OUTPUT PATTERN	Lambertian
OPERATING TEMPERATURE RANGE	0 °C to +35 °C
SYNCHRONOUS OPERATION MODE SPEED	250 milliseconds
FEEDBACK CONTROL LOOP	Enabled by default
NOMINAL INPUT VOLTAGE	24 V DC (Constant voltage) ± 5%
MAX INPUT CURRENT	2.5 A (limited by firmware)
MAX INPUT ELECTRICAL POWER	80 W (limited by firmware)
COMMUNICATIONS PROTOCOL	bus TIA-485
CONTROL SOFTWARE	Basic version
DIMENSIONS (MM)	156 x 126 x 130
IP	20
INSULATION CLASS	Class II
OPTIONAL	
ADAPTERS	C-Mount adaptor
ADVANCED CONTROL SOFTWARE	RESTful API
ASYNCHRONOUS OPERATION MODE SPEED	10 milliseconds (API required)

¹ Radiometric power may slightly change depending on the currently available LED binning