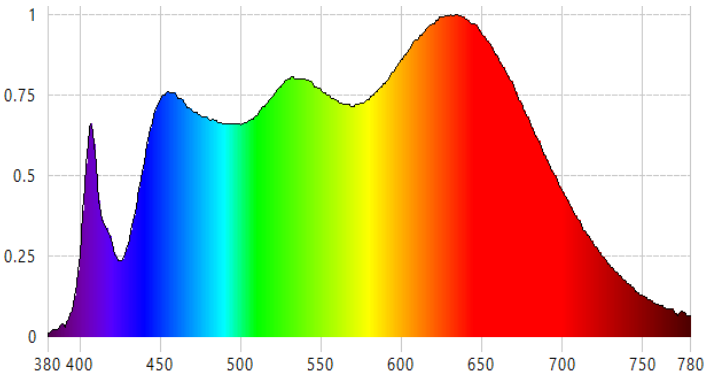
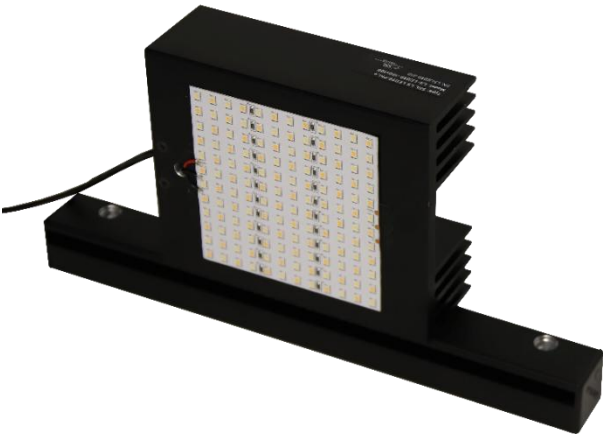
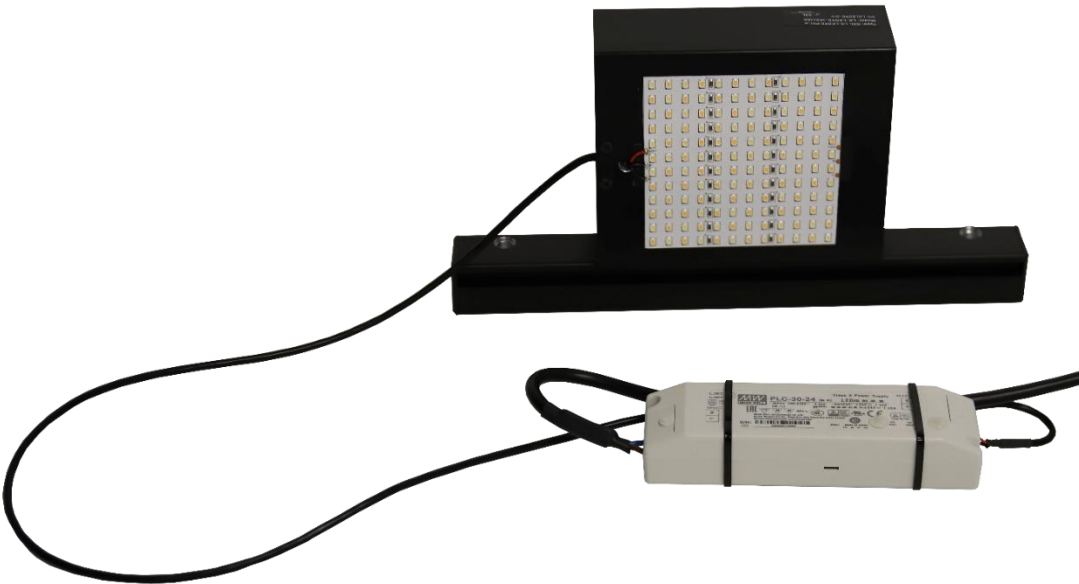


Flux Calibration Source



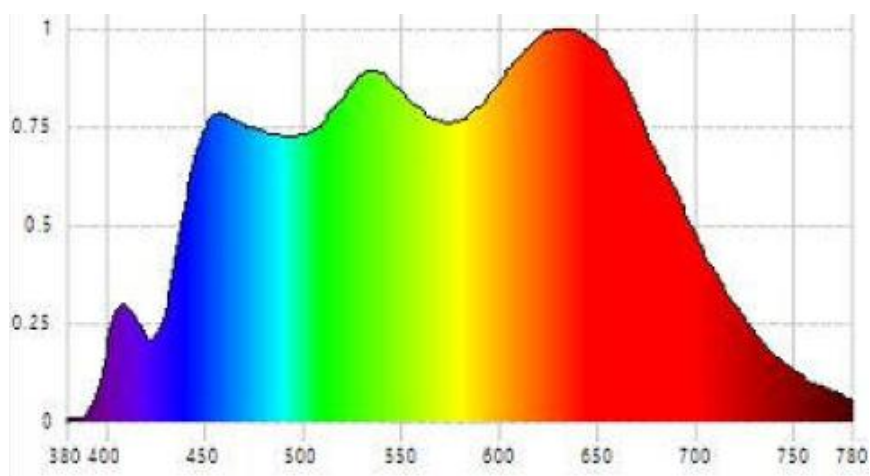
DEVICE CODE	SSL LS LED90a.Phi_e_W
Total Flux (lm)	1100
CCT (K)	4200
CRI	Ra= 91 ... 93
Total optical power (W)	4.91
Input voltage (V)	230Vac (W=A), 24Vdc (W=D)
Input power (W)	22 (W=A) 17 (W=D)
Stabilization time (min)	30 min
Spectrum	see below
Dimensions (W x D x H, m)	196x195x50
Calibration quantity	Total Spectral Radiant Flux (W/nm)
Wavelength range	390-780 nm
W, powering way	D = No power supply A = AC power supply



Flux Calibration Source

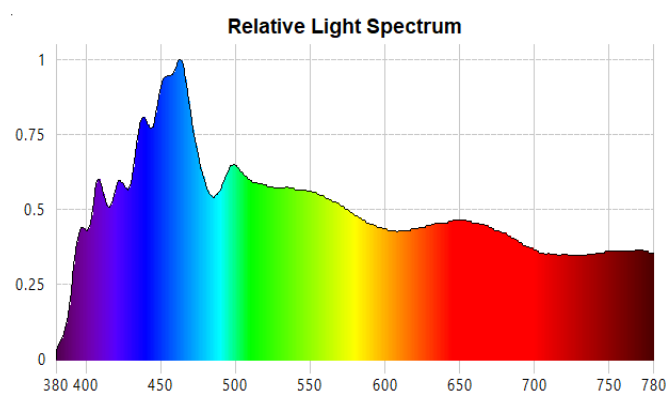


DEVICE CODE	SSL LS LED90b.Phi_e_W
Total Flux (lm)	130
CCT (K)	4400
CRI	Ra= 93...95
Input voltage (V)	24
Input power (W)	3.2
Stabilization time (min)	15 min
Spectrum	see below
Dimensions (W x D x H, m)	300x10x10
Calibration quantity	Total Spectral Radiant Flux (W/nm)
Wavelength range	390-780 nm
W, powering way	D = No power supply A = AC power supply



SPHERE 5 Calibrator

DEVICE CODE	SSL LS LED5a-TEC.Phi_e
Total Flux (lm)	40
Input current (A)	0.1
Input power (W)	0.9
Stabilization time (min)	15 min
Spectrum	see below
Calibration quantity	Total Spectral Radiant Flux (W/nm)
Wavelength range	380-900 nm
Package content	LED source with TEC control. PS.1U power supply. SRM cal sw calibrator software

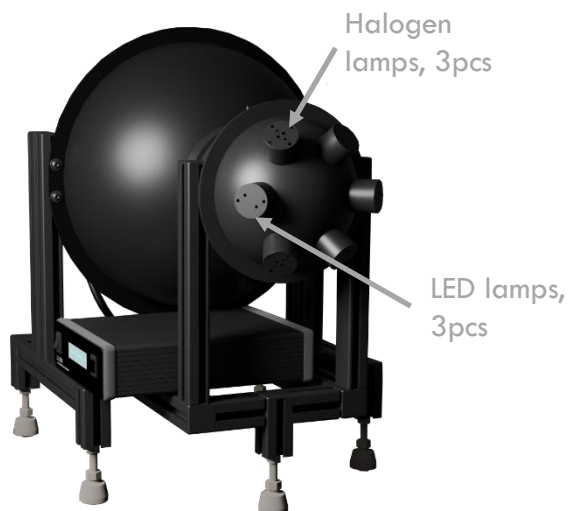
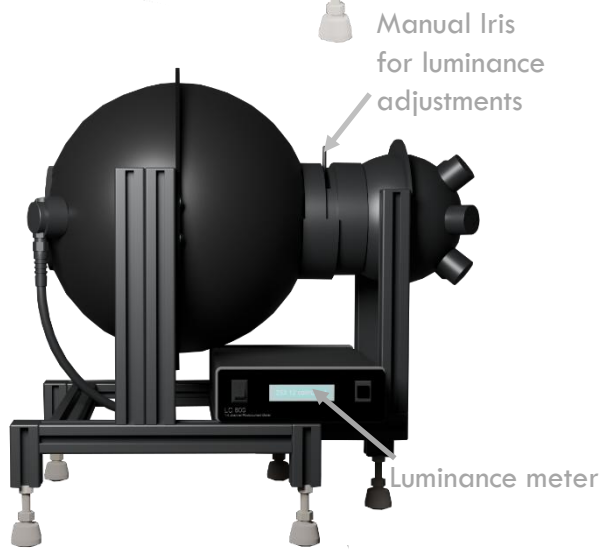
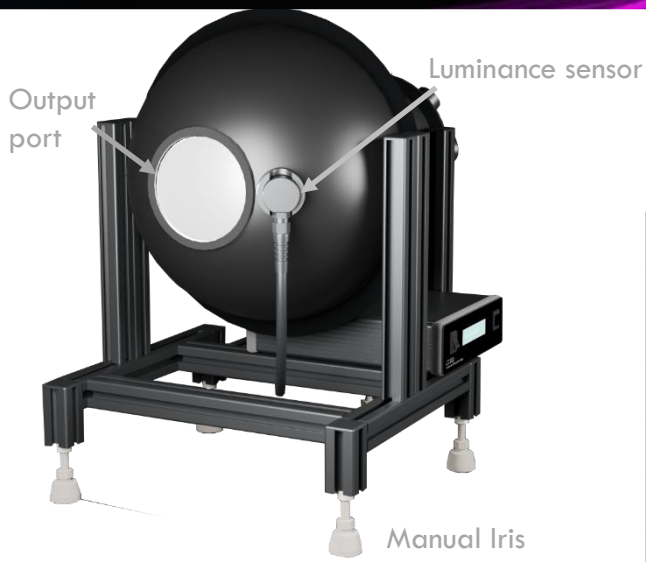


BTC Calibration Source



DEVICE CODE	SSL LS DIFFa.I_v
Luminous intensity (cd)	560
Total Flux (lm)	880
Input voltage (V)	12
Input current (A)	0.4
Input power (W)	9
Stabilization time (min)	30 min
Spectrum	NA
Dimensions (W x D x H, m)	196x195x50
Calibration quantity	Luminous intensity (cd) distribution
Wavelength range	380-780 nm

SSL SPHERE SOURCE F 30/15



DEVICE CODE	LS IS-F30/IS-F15.HAL-yy/LEDx
Type	Integrating sphere of 30cm with satellite sphere of 15cm
Light source type	LED or Halogen, or both.
Halogen lamp:	3pcs of 10-50W lamps
LED source ¹	3pcs of type LS LED19.5-5_CIED6
Output port	10 cm
Luminance ²	0.5 - 5 000 cd/m ²
Luminance Uniformity ²	97.5%
Stabilization time (min)	5
Wavelength range	400 – 2200 nm

¹ Type of LED source is choosable. See more

² Depends on the amount of lamps and lamp power

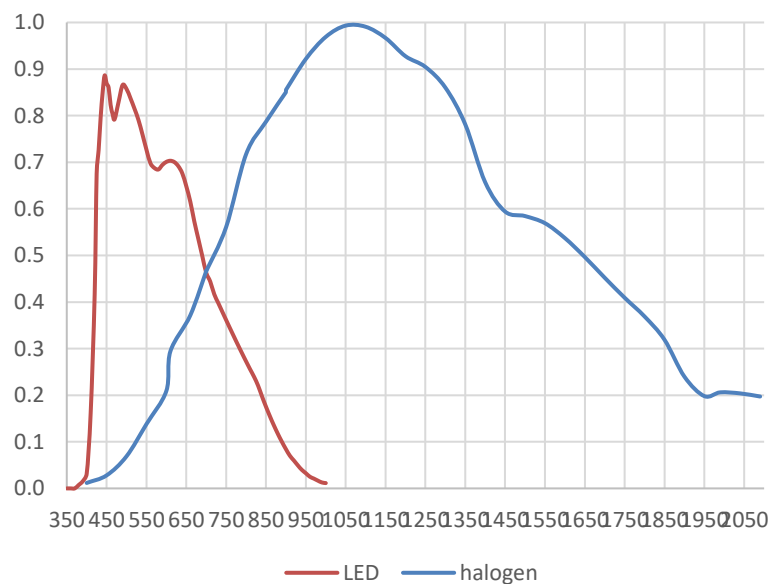


Fig. Relative Spectral distribution of sphere with Halogen lamp and LED lamp.

SSL SPHERE SOURCE 30



DEVICE CODE	LS IS-H30.HAL-yy-3/6
Type	Integrating hemisphere, Diameter 30 cm
Input port	6 cm
Wattage of lamps	10-40W/pc ("yy" specifies the watts)
Nr of lamps	3/6 pcs
Luminance*	Up to 80 000 cd/m ²
Luminance Uniformity	97.5%
Stabilization time (min)	5
Wavelength range	400 – 2200 nm

*Depends on the amount of lamps and lamp power

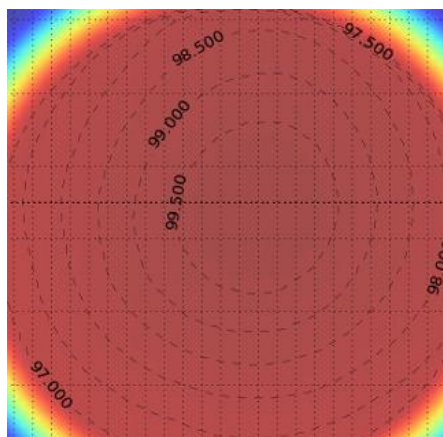


Fig. Relative spatial distribution of the sphere's output port.

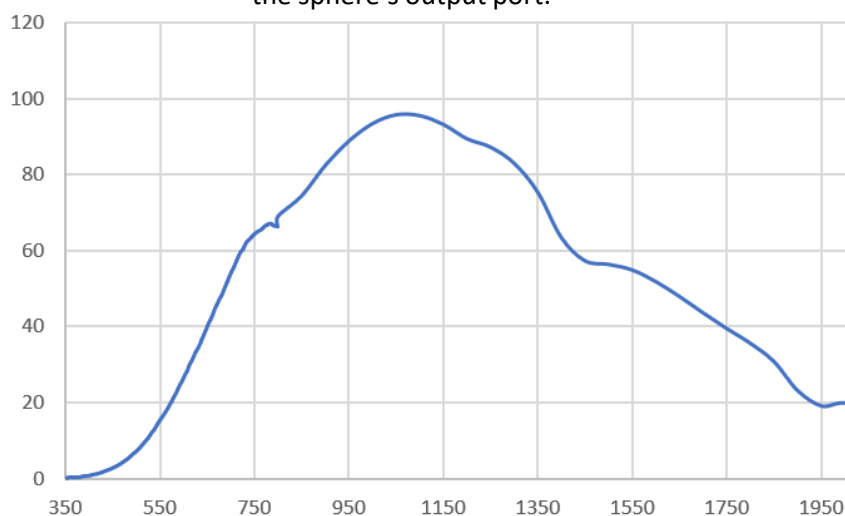


Fig. Relative Spectral distribution of sphere with Halogen lamp

SSL SPHERE SOURCE F 30



DEVICE CODE	LS IS-30.LED42-x
Type	Integrating sphere, Diameter 30 cm
Input port	6 cm
Type of lamp	LS MH-42.LEDN_xxx Exchangeable Measuring head LED light source
Nr of lamps	Depends on the chosen lamp
Luminance range	Depends on the chosen lamp
Luminance Uniformity*	97.5%
Power supply	350mA DC
Wavelength range*	360 – 1050 nm

*Depends on the amount of lamps and lamp power

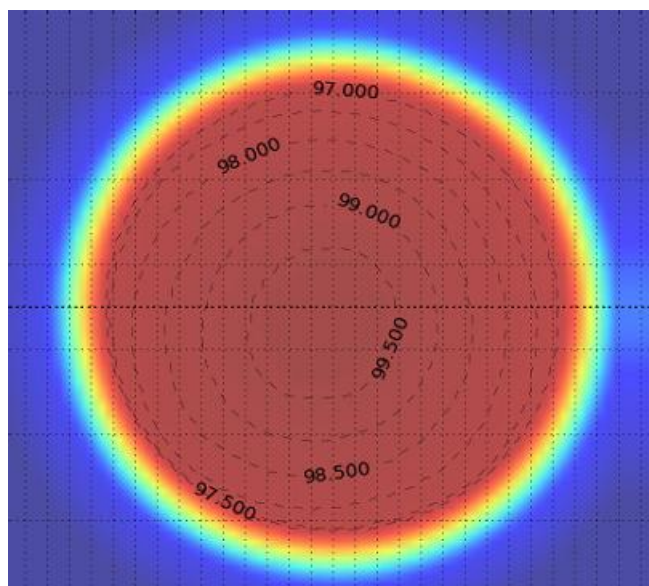


Fig. Relative spatial distribution of the sphere's output port.

LED Light Source

LED19.5-N

DEVICE CODE	LS LED19.5-N_xxxxx
Application	- Aux light sources of SSL sphere detectors (SPHERE F xx and SPHERE xx) - Luminance light sources (SSL SPHERE SOURCE F 30/15)
Spectrum	Color LEDs in the range of 365-950 nm (13 pcs), white LEDs
Dimensions (diam. D x H, mm)	Diam. 19mm x 1.6mm (PCB), holder Ø32mm x 24mm
Wavelength range	360-950 nm depending on LED type
xxxxx	365,385,395,410,454,473,530,590,612,625,642,720,950 = LED wavelength of cool state WW,NW,CW = warm/netural/cool white, 2800K/4000K/5700K, Ra-80...85 "CIEA" = standard illuminant A, SAI 95 "CIED6" = standard illuminant D65, SAI 82 "CIED5" = standard illuminant D50, SAI 86 "CIEE" = standard illuminant E, SAI 95
N, nr of LEDs	1 ... 4



Fig. example product LS
LED19.5-5_CIED6

Measuring head LED Light Source

DEVICE CODE	LS MH-42.LEDN_xxx_W_DA
Application	- Indication lights of luminance probes (compatible with SSL stray light tubes) - Luminance light sources (SSL SPHERE SOURCE F 30)
Input voltage (V)	2-3.5 V
Input current (A)	0.350
Input power (W)	1W
Stabilization time (min)	10 min
Spectrum	Color LEDs in the range of 365-950 nm (13 pcs), white LEDs
Dimensions (diam. D x H, mm)	Diam. 42 x 41 mm
Calibration quantity	Spectral radiant intensity (mW/sr/nm) Luminous intensity (cd)
Wavelength range	380-780 nm
xxxxx	365,385,395,410,454,473,530,590,612,625,642,720,950 = LED wavelength of cool state WW,NW,CW = warm/netural/cool white, 2800K/4000K/5700K, Ra-80...85 "CIEA" = standard illuminant A, SAI 95 "CIED6" = standard illuminant D65, SAI 82 "CIED5" = standard illuminant D50, SAI 86 "CIEE" = standard illuminant E, SAI 95
N, nr of LEDs	1 ... 9
W, powering way	D = No power supply A = AC power supply U = USB A plug connectable to pc or 5Vdc power supply
D, diffuser	N = none P = PTFE
A, aperture	N = none 22 = Aperture 2.4x2.4mm² 66 = Aperture 5.8x5.8mm² 1010 = Aperture 10x10mm² 20 = Aperture diam. 2mm 50 = Aperture diam. 5mm 80 = Aperture diam. 8mm



SSL LightEngine RGB 250 F

DEVICE CODE	SSL LS-LEF-RGB.7-250.E_e
Fiber	Core 1500 μ m, length 1m, NA 0.5
Output aperture of Collimator	diameter 10mm
Spot size	15-16 mm @5cm 21-22 mm @10cm
Divergence angle	$\pm 3.5^\circ$
Max Total Irradiance @5cm	250 W/m ² / channel
Calibration quantity	Spectrally Integrated Total Irradiance (W/m ²)
Nr of channels	3 pcs (Red, Green, Blue)
Spectrum	RGB light source: Peak WL:s 450nm, 525nm, 635nm
Output on/off Switches	Switch for each channel: possible to create different combinations of channels
Manual potentiometer	For adjusting the illumination level of each channel independently
Input Power	Max 50 W, 230Vac
Device controller box	200mm (width), 300mm (length/depth), 70mm (height)

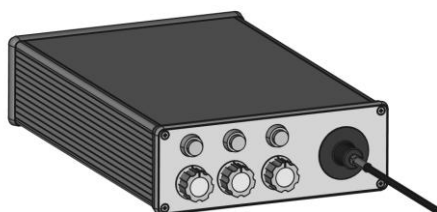


Fig. View of the controller box of LightEngine.



Fig. Light Collimator optics of LightEngine.

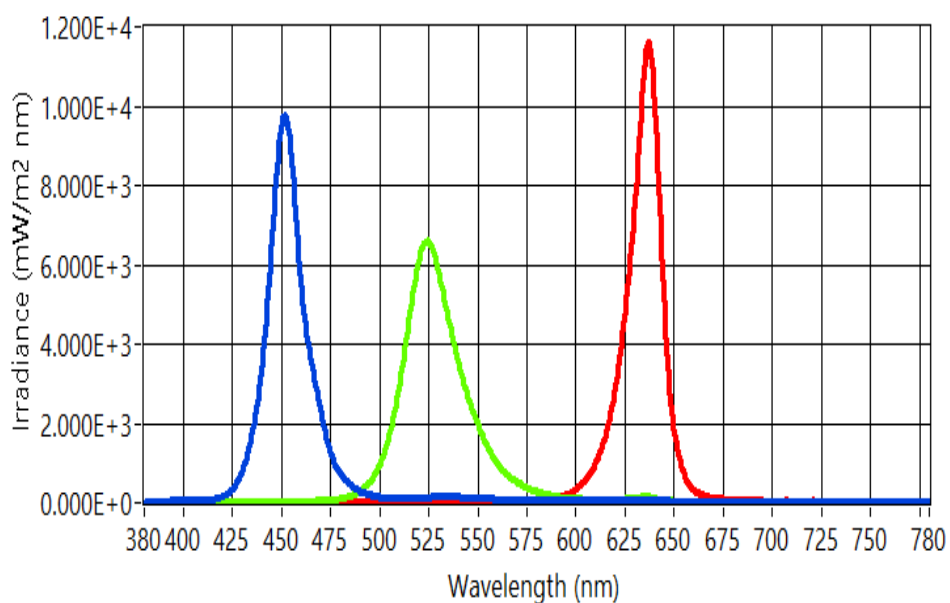


Fig. Measured Spectral Irradiance of LightEngine at 55mm.

SSL LightEngine IR-GB 250 F

DEVICE CODE	SSL LS-LEF-IRGB.7-250.E_e
Fiber	Core 1500 μ m, length 1m, NA 0.5
Output aperture of Collimator	diameter 10mm
Spot size	15-16 mm @5cm 21-22 mm @10cm
Divergence angle	$\pm 3.5^\circ$
Max Total Irradiance @5cm	250 W/m ² / channel
Calibration quantity	Spectrally Integrated Total Irradiance (W/m ²)
Nr of channels	3 pcs (Infra-Red, Green, Blue)
Spectrum	IR-GB light source: Peak WL:s 450nm, 525nm, 950nm
Output on/off Switches	Switch for each channel: possible to create different combinations of channels
Manual potentiometer	For adjusting the illumination level of each channel independently
Input Power	Max 50 W, 230Vac
Device controller box	200mm (width), 300mm (length/depth), 70mm (height)

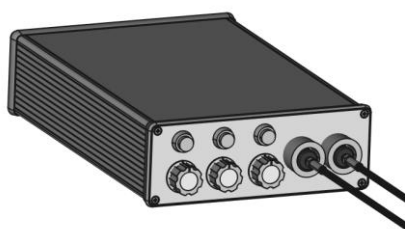


Fig. View of the controller box of LightEngine.



Fig. Light Collimator optics of LightEngine.

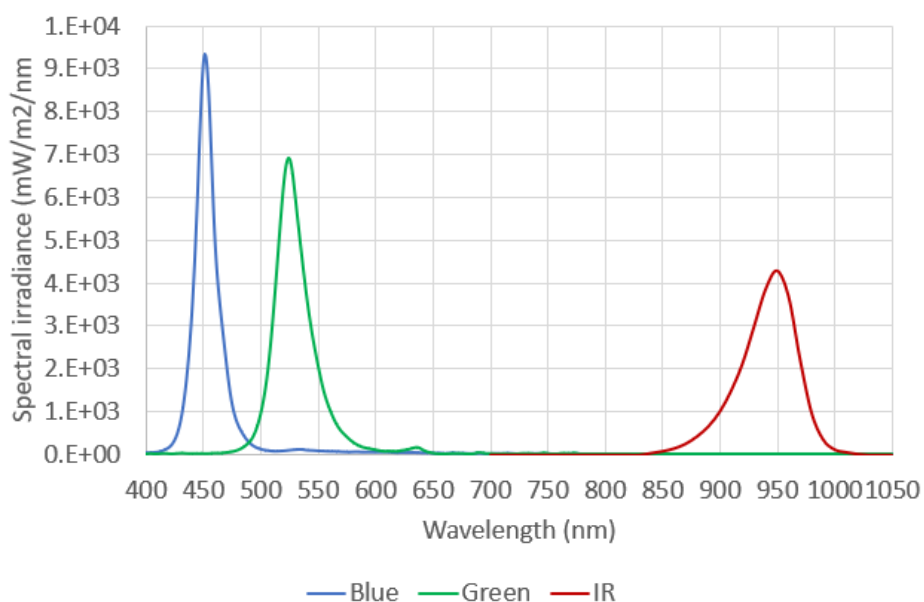


Fig. Measured Spectral Irradiance of LightEngine at 55mm.

Light source name (code)

- Lamp types
 - LED, HAL, DIFF(diffuse surface),etc
- Calibrations
 - Φ_e = total spectral radiant flux
 - I_v = luminous intensity
 - I_e = spectral radiant intensity
- Example
 - SSL LS LED90 α . Φ_e
 - SSL LS DIFF. I_v
 - SSL LS LEDmh42_405. I_e