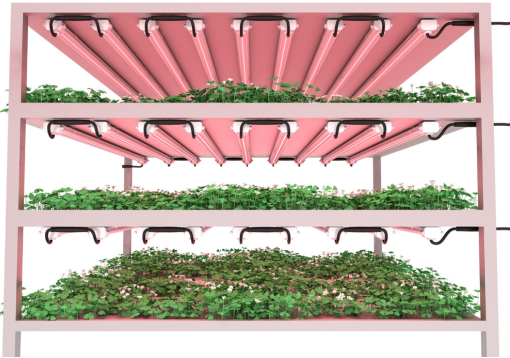
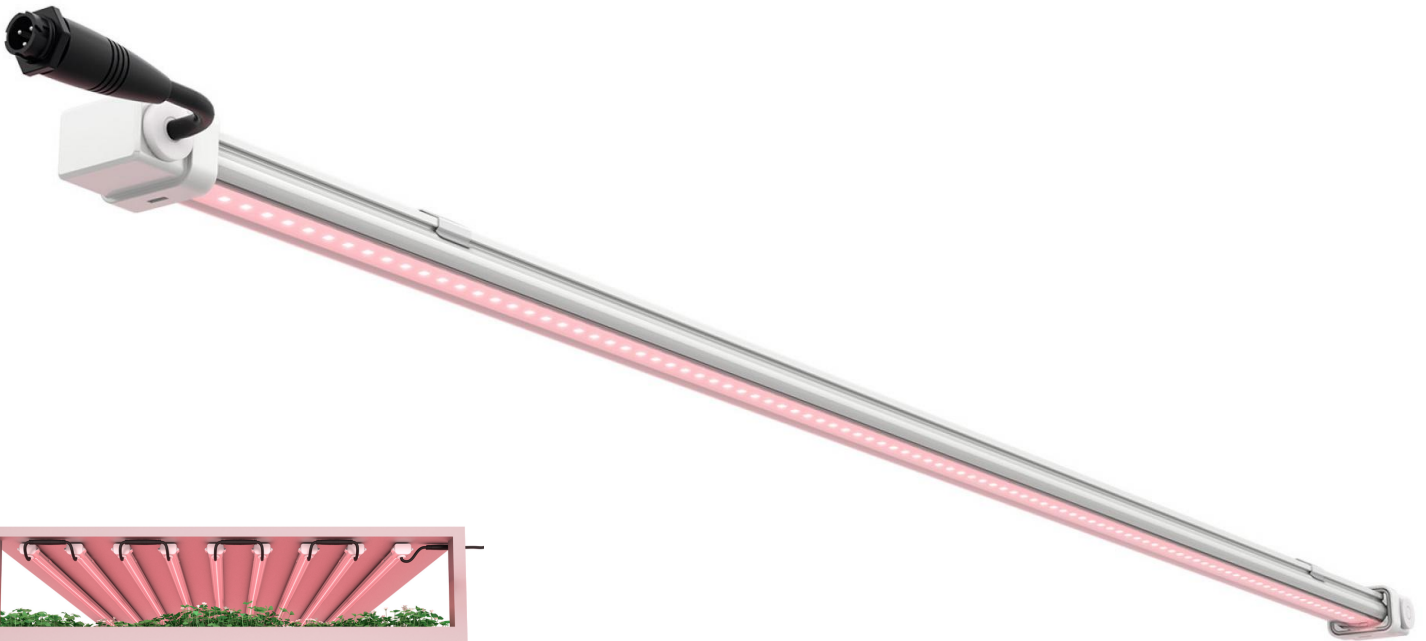





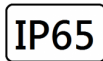



TUNOLA-GL

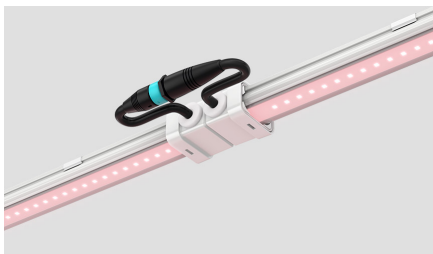
LED GROW LIGHT



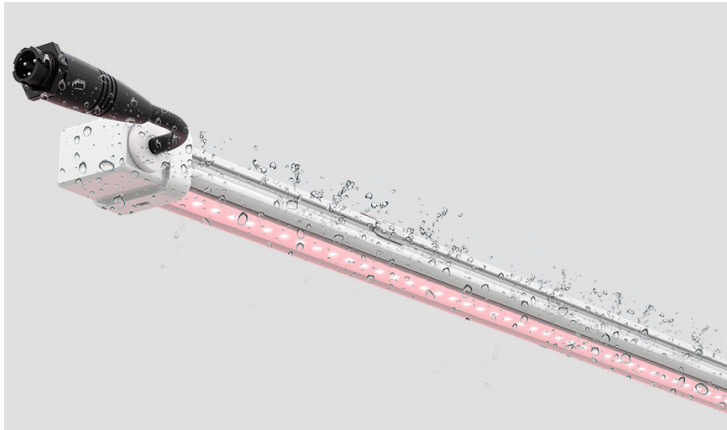
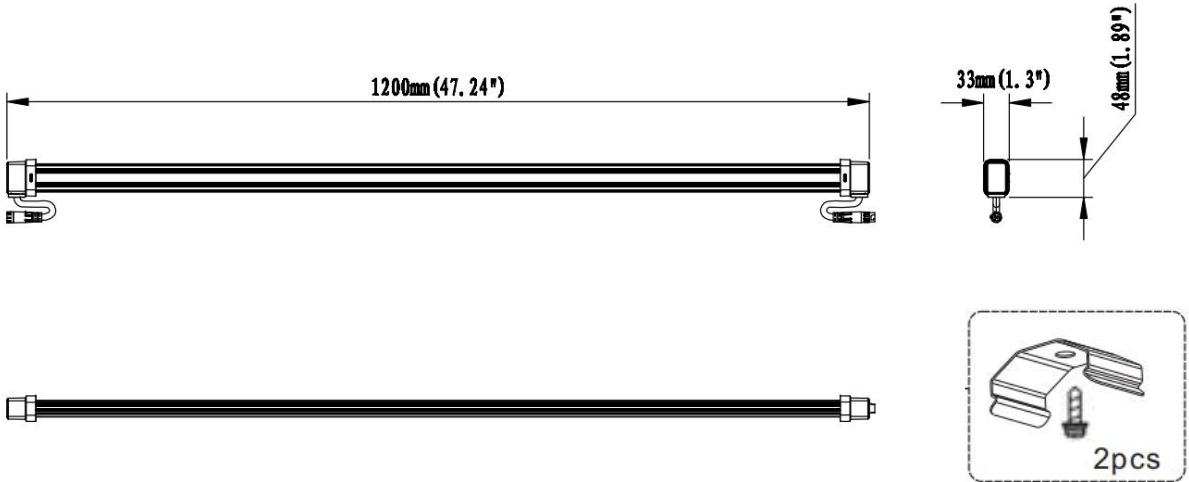
- Vertical farms and plant factory use TUNOLA-GL grow lights to grow leafy greens and cannabis clone, deliver the exact nutrients each plant needs with temperature and humidity control to create an optimized climate zone year-round.
- IP65 Waterproof
- **Option A:** A full spectrum maximizes red and blue lights to allow for chlorophyll A and B absorption with a balance of green wavelengths to allow much deeper canopy penetration. Specifically formulated for indoor grow environments, this spectrum fosters photosynthesis in all stages, from propagation to flowering.
- **Option B:** A full-spectrum white light that mimics the sun, making it exactly what your plants crave. The spectrum is based on cooler (blue spectrum) white light, making it ideal for the vegetative and cloning stages of plant growth. The spectrum comes very close to natural daylight, truly simulating what plants have adapted to over many generations. It is especially well suited for seedling.

Technical Data

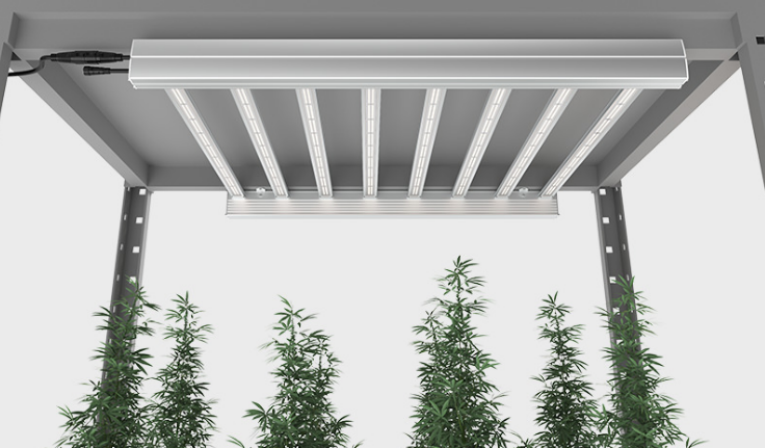
Power Per Tube Power of Multi -Tier	<ul style="list-style-type: none"> 20W 80W (4pcs x 20W) 100W (5pcs x 20W) 220W (11pcs x 20W) 400W (20pcs x 20W) 	<ul style="list-style-type: none"> 30W 120W (4pcs x 30W) 150W (5pcs x 30W) 330W (11pcs x 30W) 600W (20pcs x30W)
Control	<ul style="list-style-type: none"> Buidt in ON/OFF Remoted Dali 1-100% Dimming LED Driver Remoted 1-10V Dimming LED Driver 	
PPF Output per Tube	<ul style="list-style-type: none"> 20W: 46 $\mu\text{mol/s m}^2$ 30W: 60 $\mu\text{mol/s m}^2$ 80W: 100 $\mu\text{mol/s m}^2$ 100W: 125 $\mu\text{mol/s m}^2$ 120W: 150 $\mu\text{mol/s m}^2$ 220W : 200$\mu\text{mol/s m}^2$ 330W : 350$\mu\text{mol/s m}^2$ 400W: 500$\mu\text{mol/s m}^2$ 600W: 750$\mu\text{mol/s m}^2$ 	
AC Input Voltage	<ul style="list-style-type: none"> 100-240Vac 50/60 Hz 100-270Vac 50/60 Hz 	
Nominal Power Factor	<ul style="list-style-type: none"> >0.9 for Built-in ON/OFF Control >0.95 for Remoted LED Driver 0-10V or DALI Dimming THD< 20% 	
Light Source	LED	
Lifetime	> 60,000 hours	
Spectrum	<ul style="list-style-type: none"> DM11-P121 ----A full spectrum maximizes red and blue lights to allow for chlorophyll A and B absorption with a balance of green wavelengths to allow much deeper canopy penetration. Specifically formulated for indoor grow environments, this spectrum fosters photosynthesis in all stages, from propagation to flowering. DM11-P122 ----A full-spectrum white light that mimics the sun, making it exactly what your plants crave. The spectrum is based on cooler (blue spectrum) white light, making it ideal for the vegetative and cloning stages of plant growth. DM11-6530---- 6500K + 3000K Ratio 5:4 ,full spectrum can achieve the best canopy penetration, easy to observe, ideal for seedling harvesting and growth for Microgreens 	
Light Distribution	120°	
Mounting Height Above Canopy	150mm - 600mm	
Thermal Management	Passive Heat BTU Generated 68.2 @20W Tube 102.3 BTU@ 30W Tube	
Operation Ambient Temperature/Humidity	0°C to 40°C / 32°F to 104°F (95% RH)	
IP rating	IP65	
Dimensions	1200 x 48 x 33mm for one Tube Only	
Net Weight	0.5kg/1.1lbs per Tube	
Housing material Optics materials	Aluminum Conformal coating (transmission >97%) and Clear Polycarbonate	
Certification-認證	      	



Technical Drawing

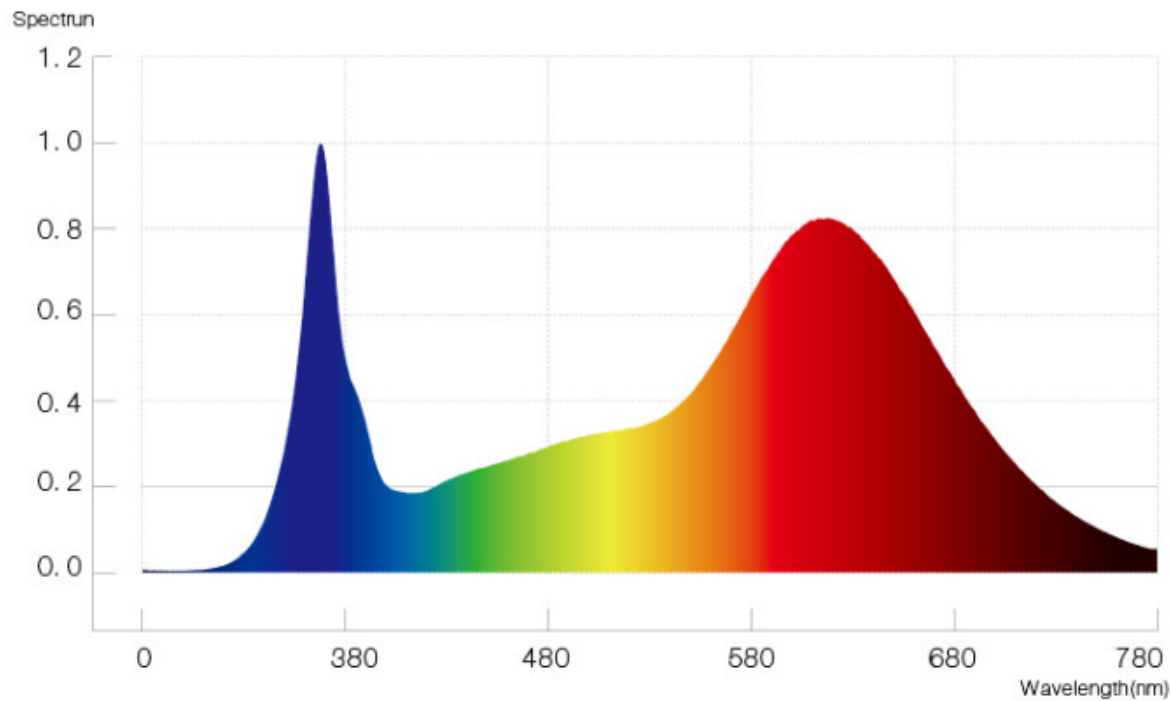


Custom Made -Multi Layer



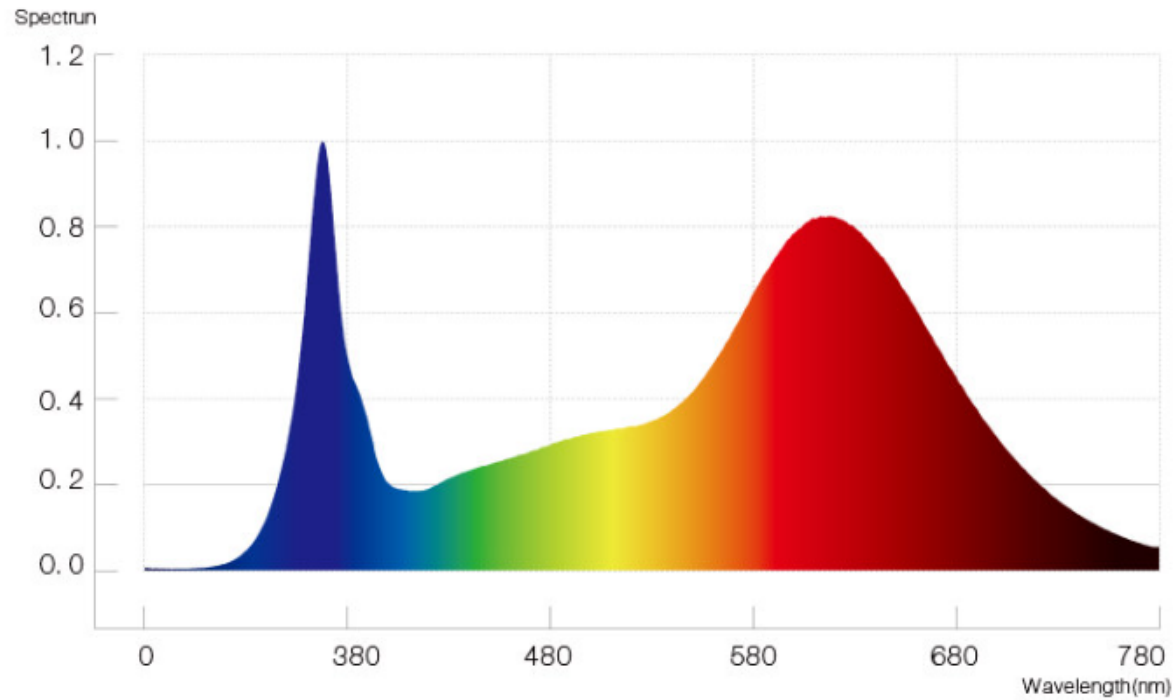
Full Spectrum For Plant-DM11-P121

- A full spectrum maximizes red and blue lights to allow for chlorophyll A and B absorption with a balance of green wavelengths to allow much deeper canopy penetration. Specifically formulated for indoor grow environments, this spectrum fosters photosynthesis in all stages, from propagation to flowering.



Full Spectrum For Plant-DM11-P122

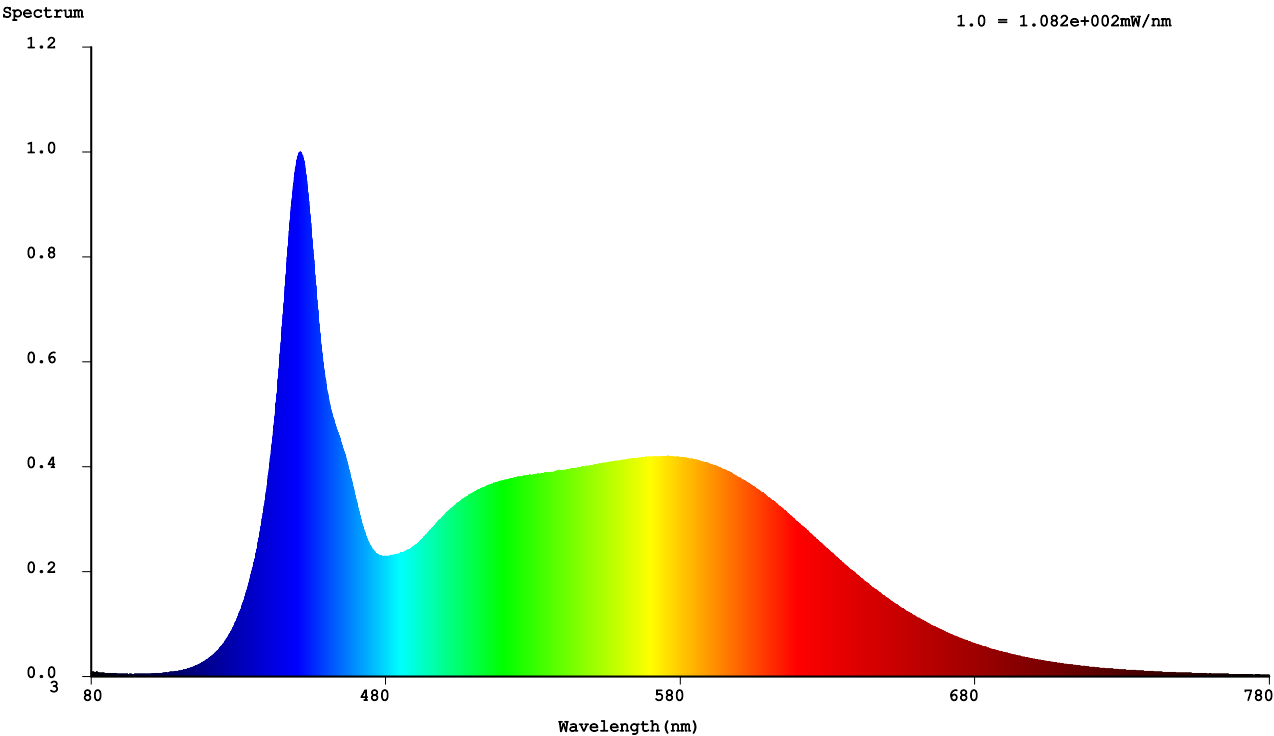
A full-spectrum white light that mimics the sun, making it exactly what your plants crave. The spectrum is based on cooler (blue spectrum) white light, making it ideal for the vegetative and cloning stages of plant growth.



Full Spectrum For Plant-DM11-6530



6500K + 3000K Ratio 5:4 ,full spectrum can achieve the best canopy penetration, easy to observe, ideal for seedling harvesting and growth for Microgreens



Case Book





SUCCESSFUL CASES with PROFESSIONAL GROW LIGHTS



Lighting Solution



Canadian Indoor Leafy Greens

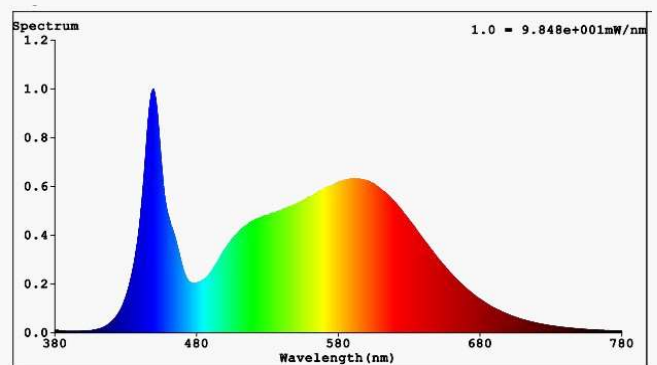
Project information:

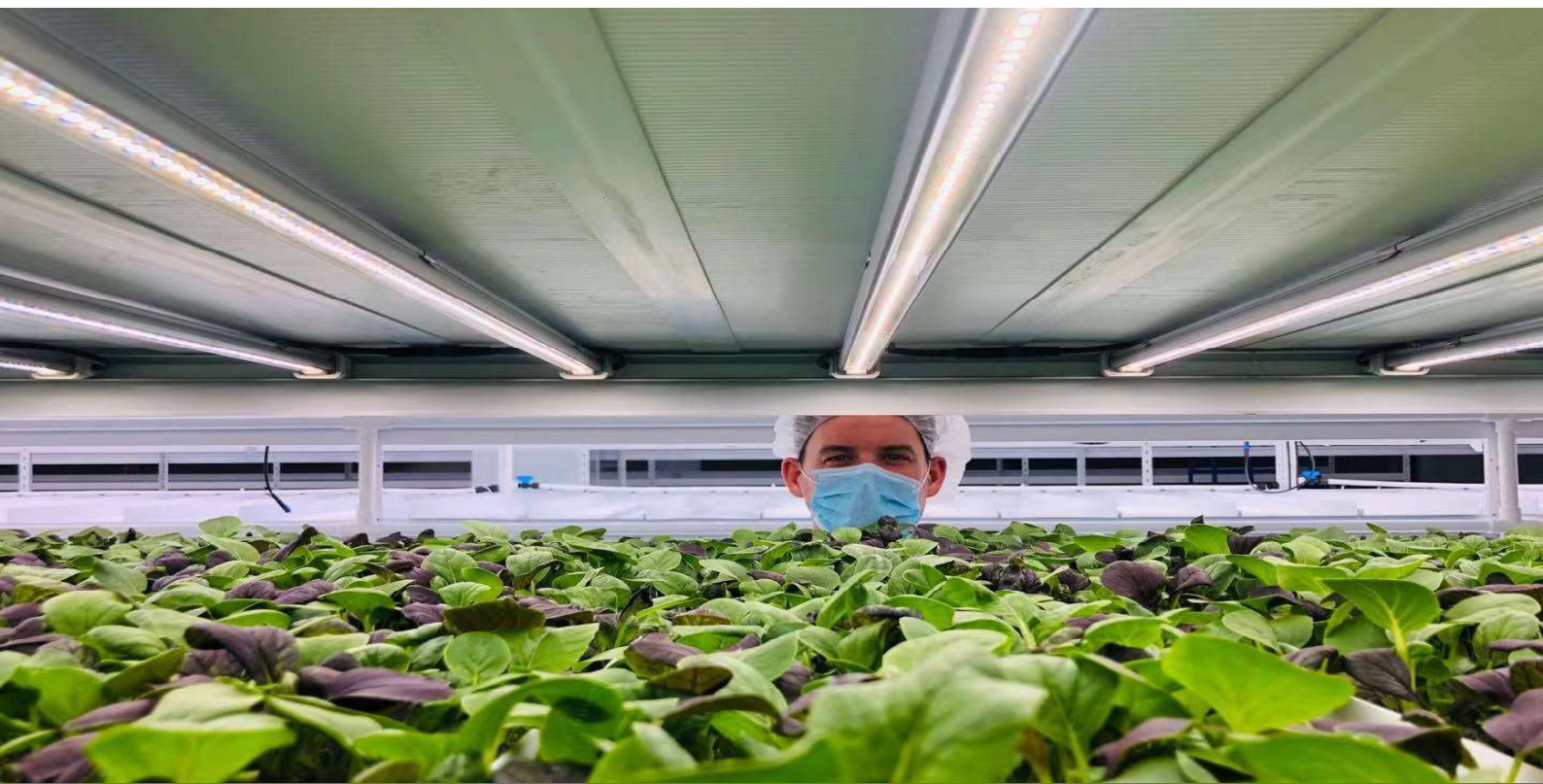
Application: indoor vertical farming

Growing stage: Whole growth

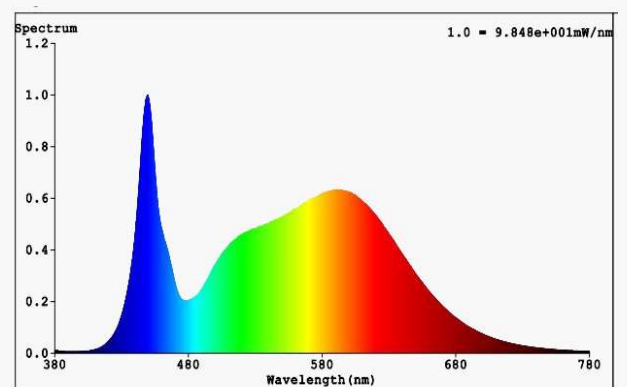
Spectrum: 3500K+6500K

This case is a planting test done by a customer for a large project, using a spectrum of 3500K+6500K, as shown in the picture, plants like this light very much.





North American Indoor Leafy Greens



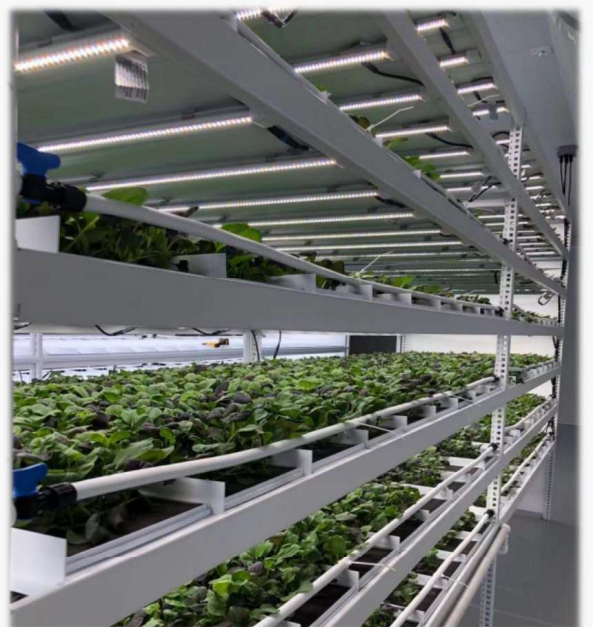
Project information

Application: indoor vertical farming

Growing stage: Whole growth

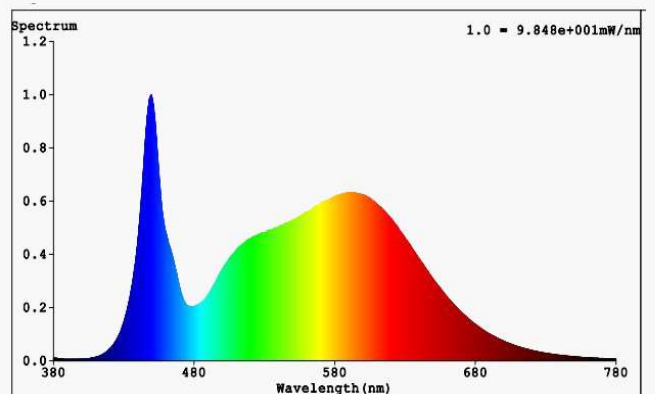
Spectrum: 3500K+6500K

After the customer conducted a small-scale test, the customer reported that this lamp has at least 15% higher yield compared with the customer's original lamp. So the client decided to use our solution in their large project.





American Indoor Microgreen



Project information

Application: indoor vertical farming

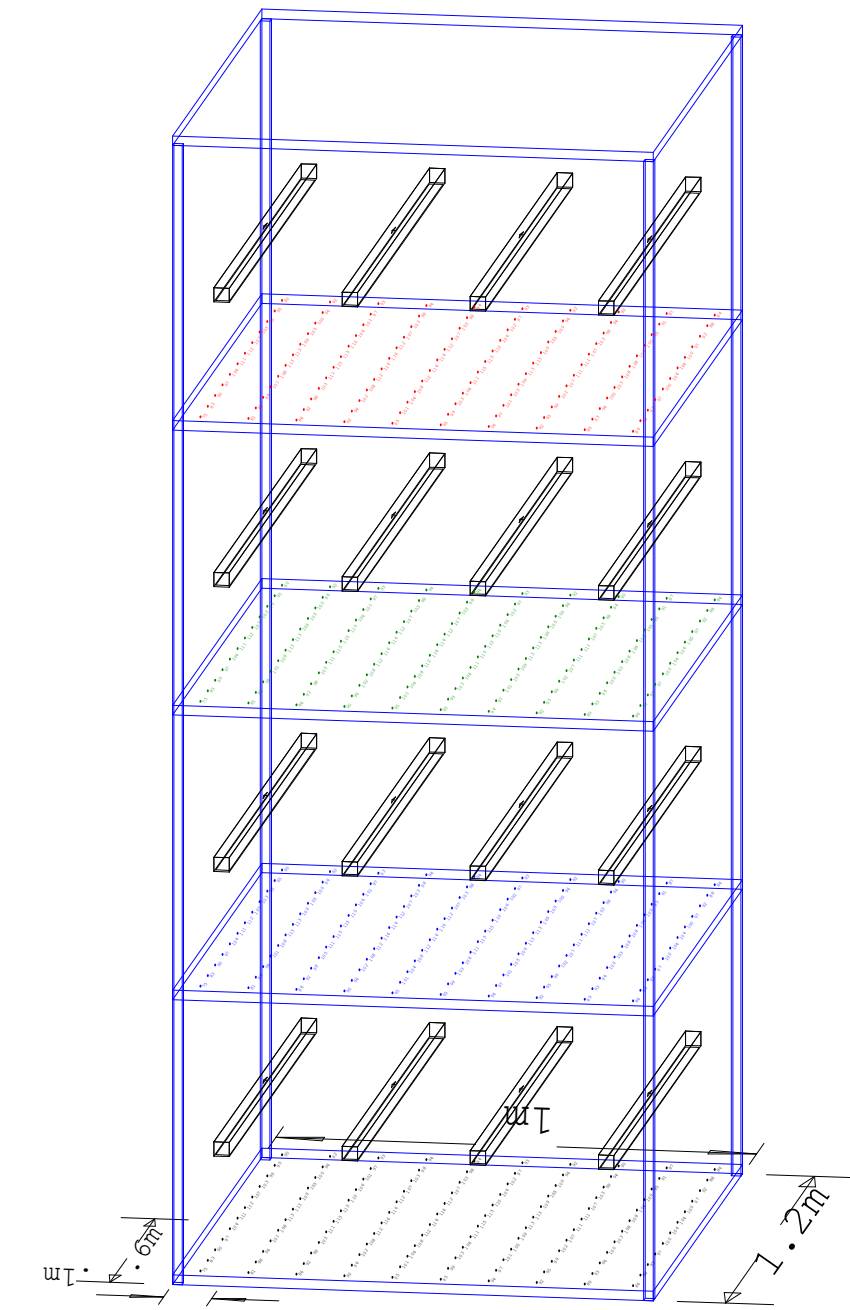
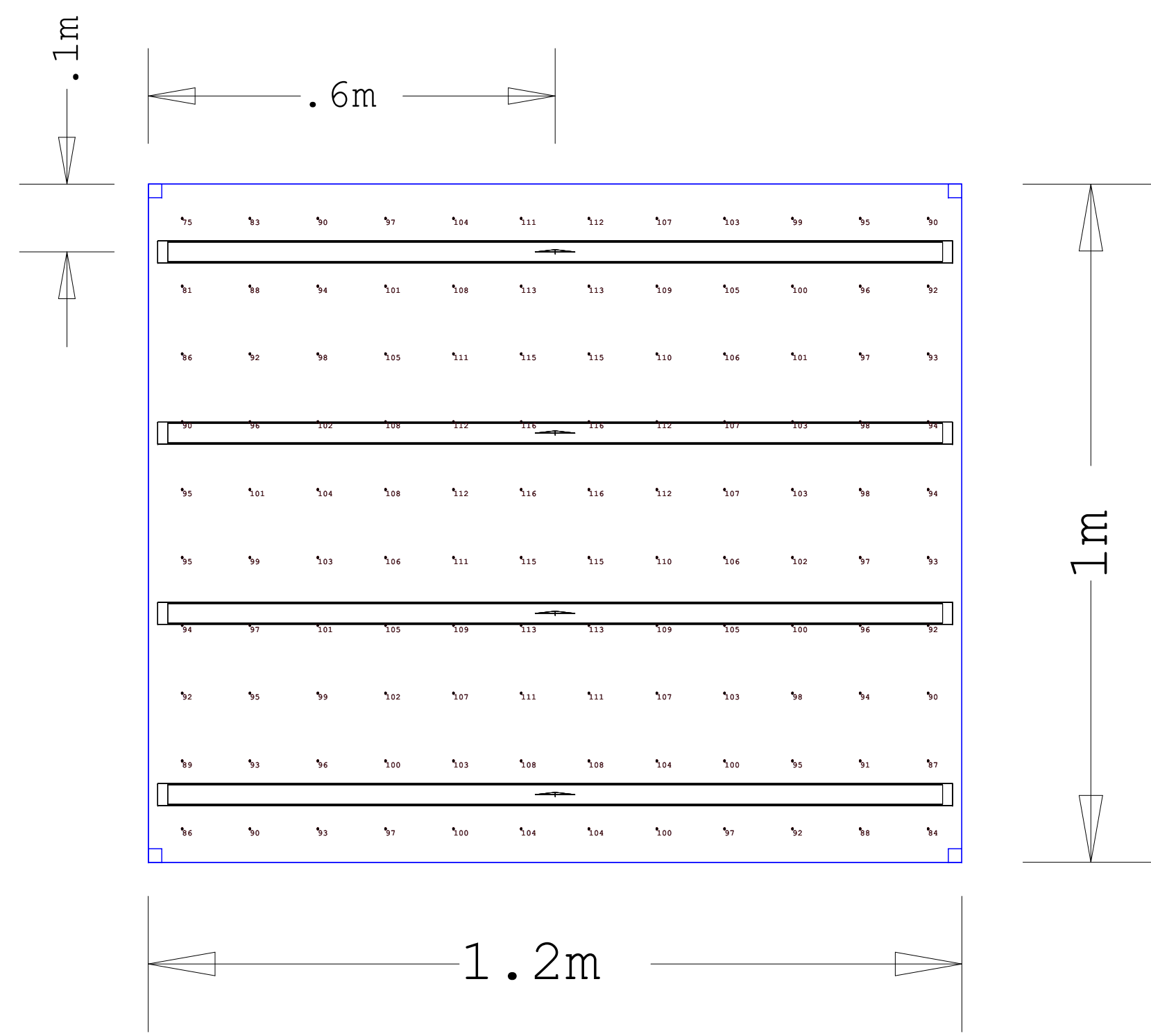
Growing stage: Whole growth

Spectrum: 3500K+6500K

Researches show that lettuce, which originally took 52 to 60 days to grow, matured in just 20 days after using LED grow lights.

When the lettuce is just planted, it cannot grow too high, and the blue light should be more than the red light.



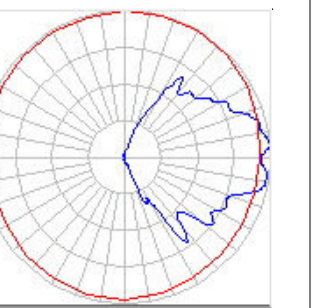
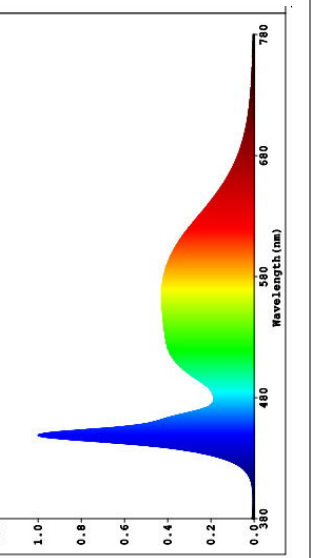
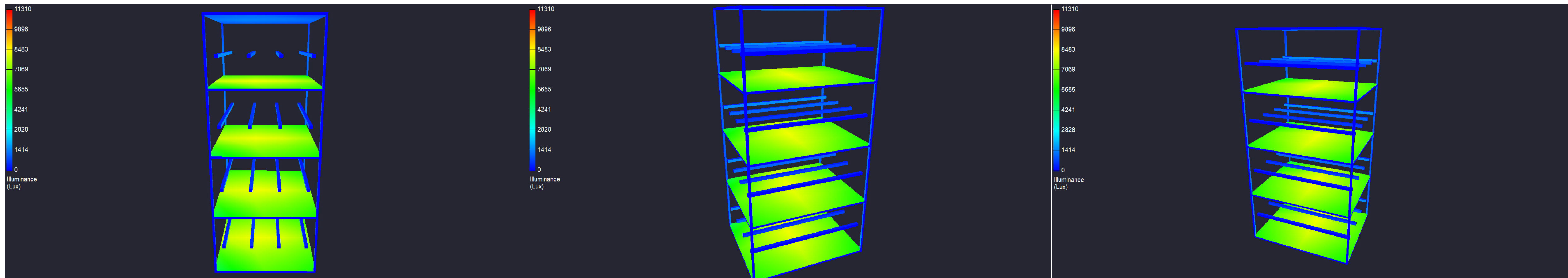


Luminaire Schedule

Symbol	Qty	Label	LLF	Lumens/Lamp	Lum. Watts	Total Watts	Description
	16	DM11-6530-20W	0.900	N.A.	19.1641	306.6256	

Calculation Summary

Label	CalcType	Avg	Max	Min	Min/Avg	Min/Max	PPFD Factor	UNIT
FIRST FLOOR_Top_1	PPFD	100.99	116	75	0.74	0.65	14.2	umol/s/m^2
FOURTH FLOOR_Top_4	PPFD	100.99	116	75	0.74	0.65	14.2	umol/s/m^2
SECOND FLOOR_Top_2	PPFD	100.99	116	75	0.74	0.65	14.2	umol/s/m^2
THIRD FLOOR_Top_3	PPFD	100.99	116	75	0.74	0.65	14.2	umol/s/m^2



Drawn By: H.W

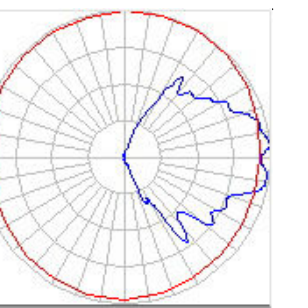
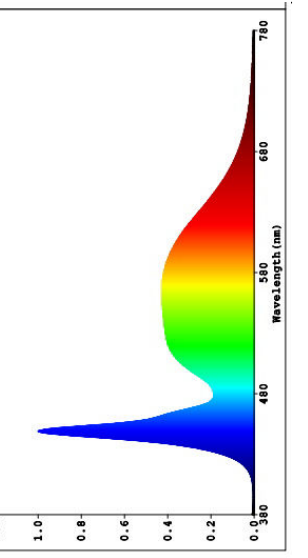
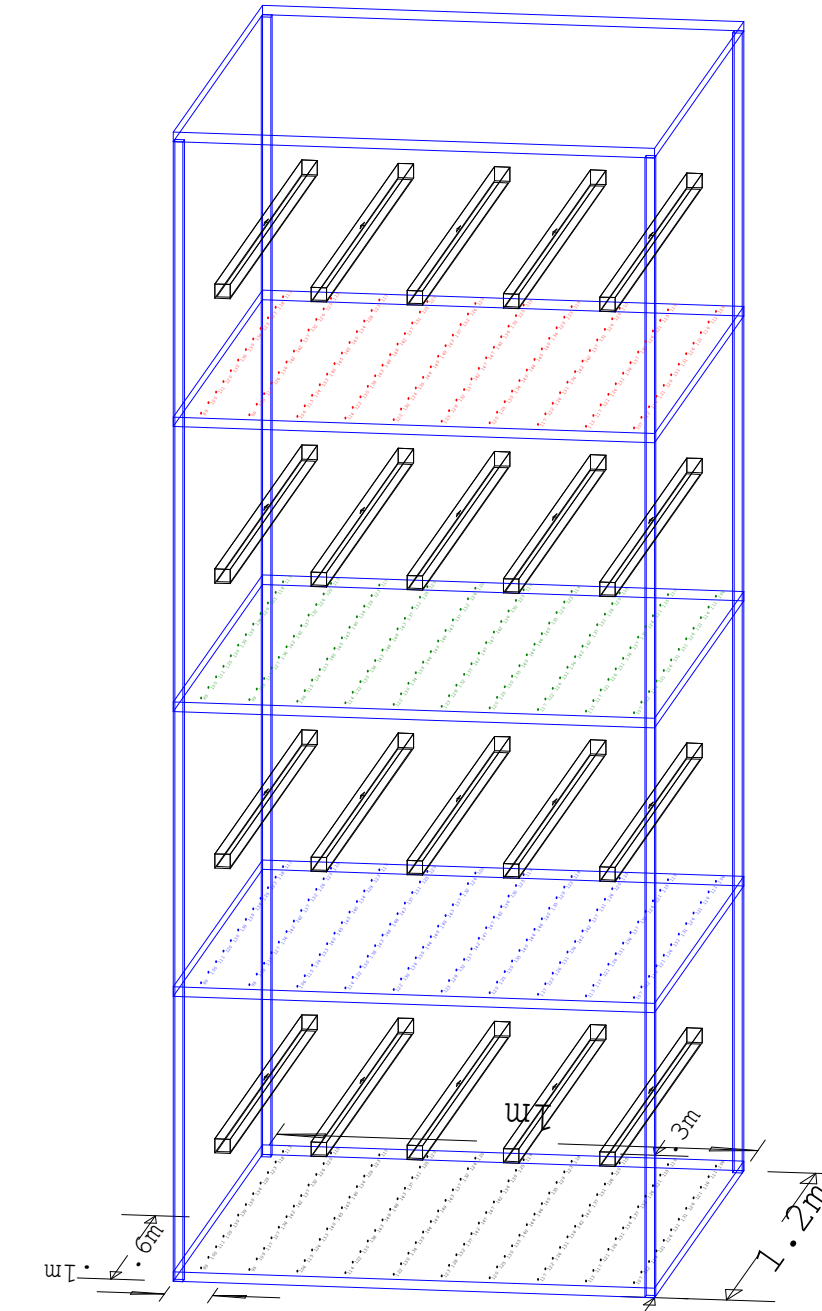
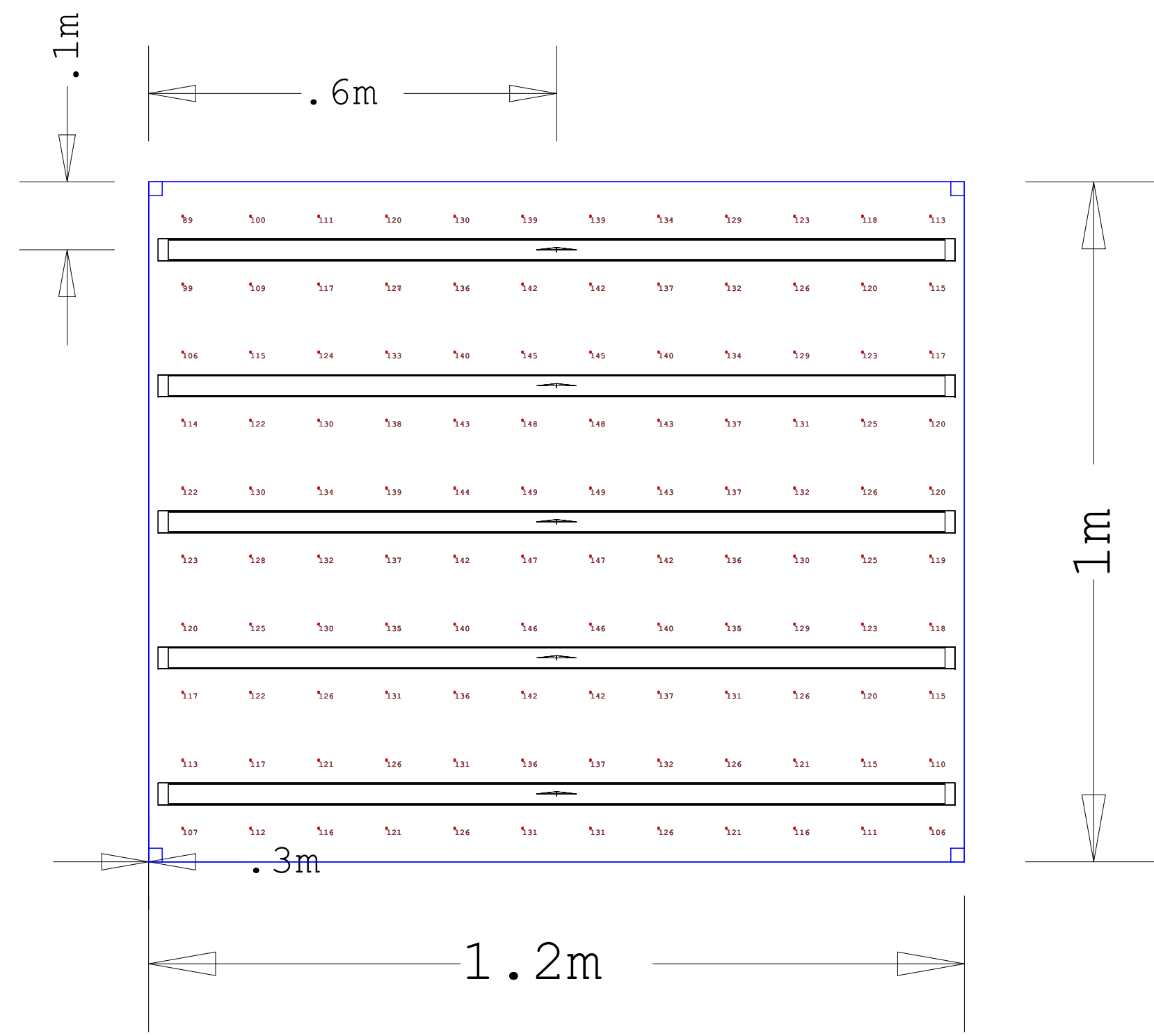
Date: 2022/7/28

Description:

Lighting Simulation

Shelf size: 1.2m X 1m X 2.4m

Distance between lamp and plants: 0.3M

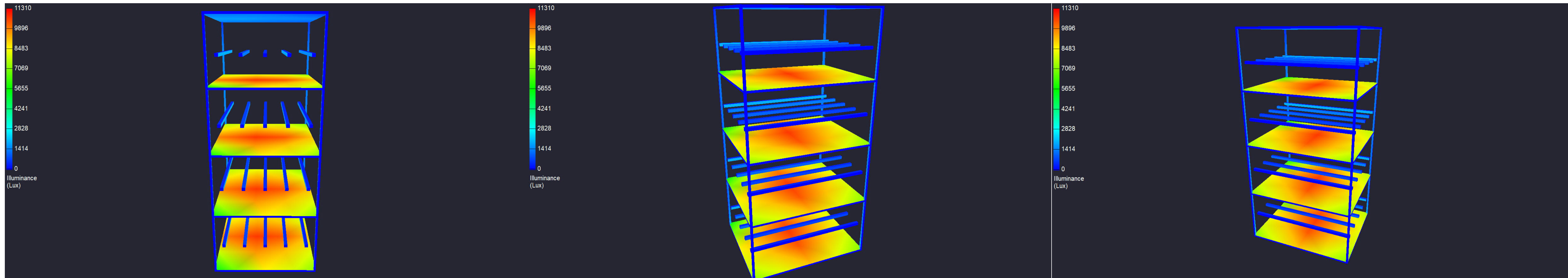


Luminaire Schedule

Symbol	Qty	Label	LLF	Lumens/Lamp	Lum. Watts	Total Watts	Description
	20	DM11-6530-20W	0.900	N.A.	19.1641	383.282	

Calculation Summary

Label	CalcType	Avg	Max	Min	Min/Avg	Min/Max	PPFD Factor	UNIT
FIRST FLOOR_Top_1	PPFD	128.09	149	89	0.69	0.60	14.2	umol/s/m ²
FOURTH FLOOR_Top_4	PPFD	128.04	149	89	0.70	0.60	14.2	umol/s/m ²
SECOND FLOOR_Top_2	PPFD	128.09	149	89	0.69	0.60	14.2	umol/s/m ²
THIRD FLOOR_Top_3	PPFD	128.09	149	89	0.69	0.60	14.2	umol/s/m ²



Drawn By: HJW

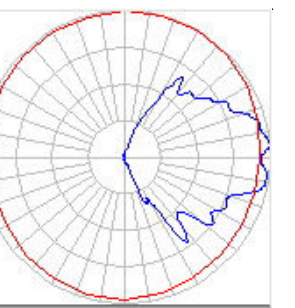
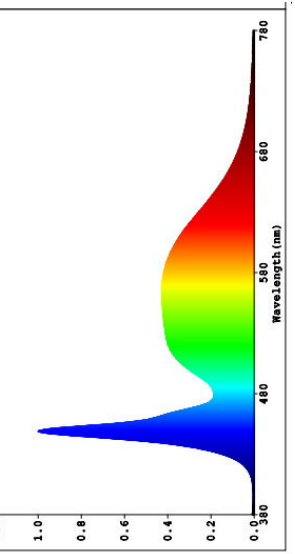
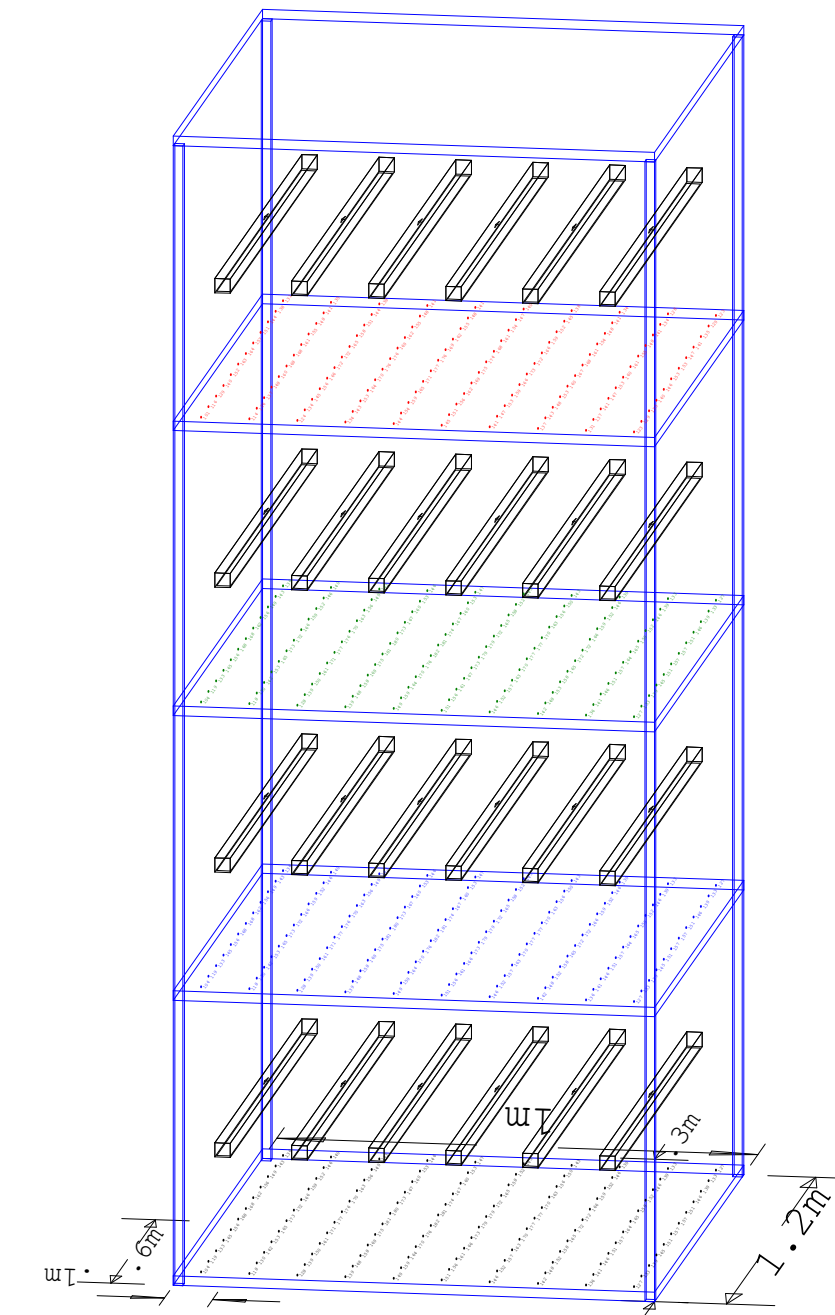
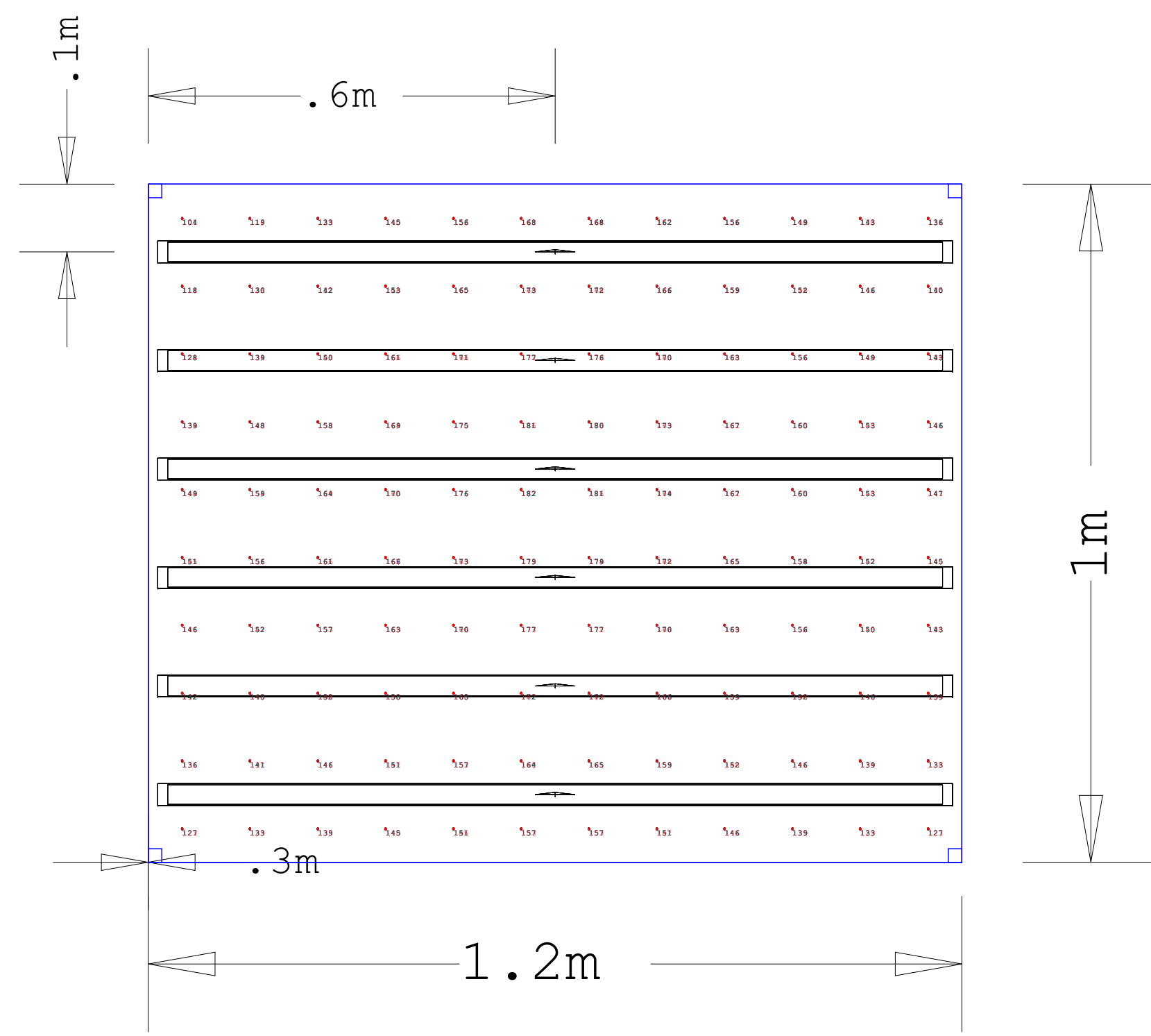
Date: 2022/7/28

Description:

Lighting Simulation

Shelf size: 1.2m X 1m X 2.4m

Distance between lamp and plants: 0.3M

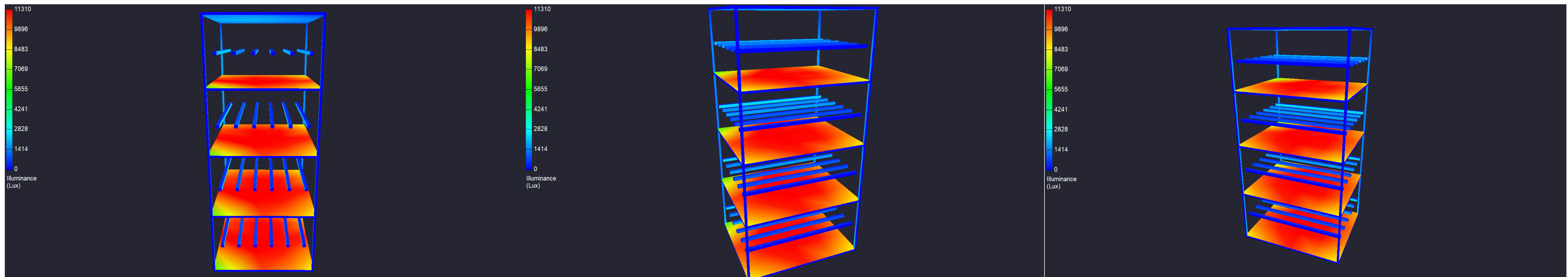


Luminaire Schedule

Symbol	Qty	Label	LLF	Lumens/Lamp	Lum. Watts	Total Watts	Description
	24	DM11-6530-20W	0.900	N.A.	19.1641	459.9384	

Calculation Summary

Label	CalcType	Avg	Max	Min	Min/Avg	Min/Max	PPFD Factor	UNIT
FIRST FLOOR_Top_1	PPFD	155.13	182	104	0.67	0.57	14.2	umol/s/m ²
FOURTH FLOOR_Top_4	PPFD	150.51	177	101	0.67	0.57	14.2	umol/s/m ²
SECOND FLOOR_Top_2	PPFD	155.13	182	104	0.67	0.57	14.2	umol/s/m ²
THIRD FLOOR_Top_3	PPFD	155.14	182	104	0.67	0.57	14.2	umol/s/m ²



Drawn By: H.W

Date: 2022/7/28

Description:

Lighting Simulation

Shelf size: 1.2m X 1m X 2.4m

Distance between lamp and plants: 0.3M