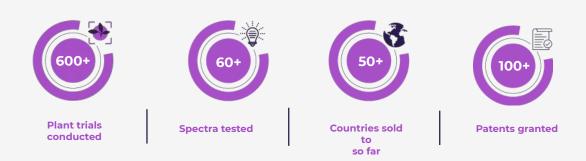


14 Years of Excellence

Since 2009 we have been committed to creating the best LED grow lights on the market enabling growers to increase their yields, quality and energy savings.

With one of the largest patent portfolios of the horticulture lighting industry, we are the pioneers of high quality LED grow light solutions.



Hundreds of clients around the world rely on Valoya technology including 8 out of 10 world's largest agricultural companies.

As our customers, you will receive the support and care of our photobiologists, seed to sale.

- The Valoya Team



Choose a Spectrum for Your Needs

Valoya LED spectra.

Please contact sales@valoya.com to inquire about customized spectra.

Typical values presented in the tables. There may be some variations between the spectra in different fixture models due to a disparity in the LED layout.

> Rs:FRs (Sellrao et al. 2010)



NS1 **NS12**

Optimized sunlight for horticulture and research applications.

commercial Sun-like, wide spectrum for research and biotech.

All growth stages.

A balanced range of wavelengths from UV to The spectrum that illuminates the FR suitable for all growth stages. Designed to boost metabolite production and result in consistent growth. Solray works as both sole institutes and agricultural companies. source and supplemental light.

All growth stages.

chambers and greenhouses of some of the world's largest universities, research

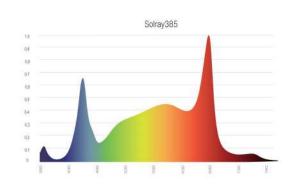
Table below expresses data for NS1 (upper row)/NS12 (lower row).

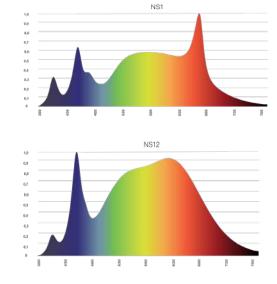
UV	В	G	R	FR	PAF
1%	21 %	36 %	38 %	4 %	95 %
~1 %	20 %	38 %	36 %	6 %	94 %
ССТ	CRI	B:G	B:R	R:FR	R:sFI
4800	90	0.6	0.6	9.1	10.4
4500	90	0.5	0.6	6.1	4.3

UV G PAR 95 % 2 % 19 % 36 % 40 % 3 % CCT CRI B:G B:R R:FR Rs:FRs 4500 95 0.5 0.5 12.9 13.0

Valoya LED spectra graph

Please contact sales@valoya.com to inquire about customized spectra.









AP673L



Spectrum for vegetative and strong generative growth.

Vegetative growth, flowering, tissue culture, propagation.

Designed and proven to quickly boost plant biomass and induce flowering. Spectrum for vegetative and strong generative growth.

Vegetative growth, flowering, tissue culture, propagation.

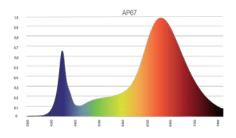
Designed and proven to quickly boost plant biomass and produce plants saturated with flavor and nutrients. Ideal for the cultivation of leafy greens.

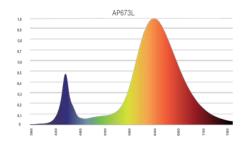
Spectrum for enhacing vernalization process, flowering and stem elongation.

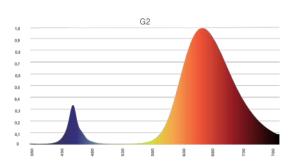
Vernalization, flowering, rooting.

Designed to enhance vernalization process by reducing the time required for flowering induction. Greater plant survival, improved developement by formation of strong rootball.

UV	В	G	R	FR	PAR	UV	В	G	R	FR	PAR	UV	В	G	R	FR	PAR
0 %	12 %	16 %	57 %	15 %	85 %	0 %	10 %	19 %	63 %	8 %	91 %	0 %	9 %	2 %	66 %	23 %	77 %
CCT	CRI	B:G	B:R	R:FR	Rs:FRs	CCT	CRI	B:G	B:R	R:FR	Rs:FRs	CCT	CRI	B:G	B:R	R:FR	Rs:FRs
2500	70	0.8	0.2	3.7	3.3	2000	60	0.6	0.2	7.9	5.5	NA	NA	3.6	0.1	2.8	2.8







Choose a Spectrum for Your Needs

Valoya LED spectra.

Please contact sales@valoya.com to inquire about customized spectra.



SolrayX

Supplementary light for greenhouse production.

All growth stages.

Efficient spectrum to boost biomass accumulation and yield in greenhouses. Focusing on the most effective wavelengths results in improved energy efficiency and lower operational costs. Ideal for supplementing natural sunlight or in hybrid lighting solutions.

Natural looking white light for commercial horticulture.

All growth stages.

Optimized combination of wavelengths in the continuous PAR range. Ideal for consistent growth on most plant species cultivated worldwide. Solray works as both sole source and supplemental light.

Typical values presented in the tables.
There may be some variations between the spectra in different fixture models due to a disparity in the LED layout.

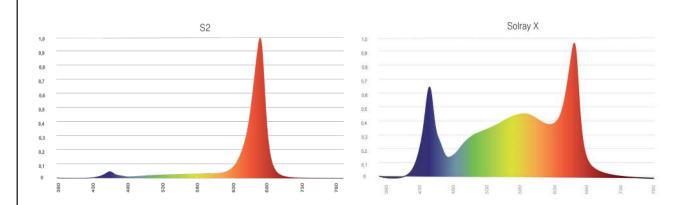
Rs:FRs (Sellrao et al. 2010)

UV	В	G	R	FR	PAR
0 %	5 %	8 %	86 %	1%	99 %
CCT	CRI	B:G	B:R	R:FR	Rs:FRs
NA	NA	0.6	0.1	-	-

l	UV	В	G	R	FR	PAR
	0 %	19 %	37 %	42 %	2 %	98 %
	CCT	CRI	B:G	B:R	R:FR	Rs:FRs
	4500	95	0.5	0.5	26	37.6

Valoya LED spectra graph

Please contact sales@valoya.com to inquire about customized spectra.





Choose a Form Factor for Your Needs

Valoya LED luminaires.

To see which spectrum is available in which product series, please see detailed tech sheets, pages 8-14 of this brochure.



High intensity multi-tier grow room, vertical farming

- · Dimmable
- · IP65

- Greenhouses and HPS hybrid.
- · Dimmable
- · High power
- · IP65

BX-Series BL-Series



Rooms and chambers, vertical farming, greenhouses, and HPS hybrid.

- · Dimmable
- · IP67



Greenhouses, rooms and chambers and HPS hybrid.

- · Non-dimmable
- · Chainable
- · IP66

Valoya LED luminaires.

To see which spectrum is available in which product series, please see detailed tech sheets, pages 8 - 14 of this brochure.

L-Series C-Series



Rooms and chambers, tissue culture and vertical farming.

- · Non-dimmable
- · Slim, retro-fit
- · IP65



Rooms and chambers, tissue culture and vertical farming.

- · Dimmable
- · IP66



RF-Series



The Racking Fixture combines the latest in vertical cultivation design with Valoya's historic build quality. We utilize tempered glass lenses to obtain high light output and quality with easy cleaning and consistent predictable results for years to come.

Typical applications

Mid - to - high intensity lighting, multi-tier grow rooms

· Light intensity in typical applications

 $100 \sim 1700 + \mu \text{mol/m}^2/\text{s}$

Accessories

Standard hooks included. Optional hooks, mains input connector and blank cap available to order

	RF350-3	RF700-6				
Spectra available	Solray385	Solray385				
Power consumption	360 W	730 W				
Power input		120 - 277 VAC 220 - 480 VAC				
Weight	4.3 kg/9.5 lb	8.5 kg/ 18.7 lb				
Dimensions (L x W x H)	1190 X 520 X 85 mm 46.9" x 20.5" x 3.3"	1190 X 1130 X 85 mm 46.9" x 44.5" x 3.3"				
Certifications / Approvals	CE, UKCA, RoHS compliance Tested and certified to UL/CSA standards					
Dimming	0-10V, PWM					
Lifetime	Q90: > 50 000 h					
Light efficacy (380 - 820 nm)	Up to 2.6 μmol/J (spectrum dependent)					
Ambient Operating Temperature	0°C+40°C/+32°F+104°F					
Water & impact protection	IP65: Dust-tight & protected against water jets					
Warranty	Up to 5 years limited warranty. More details at www.valoya.com/warranty					
Typical values presented. Tolerances apply. For more detailed technical specifications please download the 'Installation Guide' from valoya.com/brocl						



RX-Series



The RX-series design resembles traditional HID lighting and offers an easy to install option for oneto-one replacement of HID lights. RX-series lights are thus ideal for a step by step investment in LEDs by replacing part of HID lights with more energy efficient Valoya wide spectrum LED lights. A highly durable fixture due to all aluminium build, high IP and passive cooling.

- Typical applications High intensity lighting, HID replacement
- · Light intensity in typical applications $100 \sim 1000 \, \mu \text{mol/m}^2/\text{s}$





Optional

· Accessories

Standard hooks and mating part to the cable connector included. Optional hooks available to order.

	RX400		RX500	RX600	RX800		
Spectra available	AP67, NS1		AP67, NS1	Solray385, SolrayX, S2	S2		
Power consumption	395W	46	55W - 496W	650W	795W		
Power Input	100 - 277 VAC	RX500/600HV 200 - 480 VAC RX500/600HH 220 - 480 VAC					
Weight	11,6 kg (25.6 lb)						
Dimensions (L x W x H)	350 x 400 x 178 mm 13.8" x 15.7" x 7"						
_ight efficacy decay : Up to 3	3,1 µmol/J (spectrum deper	ndent)	Power input: Please check with sales (product dependent)				
Certification : CE marked, Ro JL/CSA standards	HS compliant. Tested and	certified to	Distance from the plants (rec.): 0,5 - 4,0 m (20" - 13.1')				
Dimming: 0-10V, PWM. Ligh	t output: off. 10 - 100%		Ambient operating temperature: 0 $^{\circ}$ C $-$ 40 $^{\circ}$ C $(32^{\circ}$ F $-$ 104 $^{\circ}$ F)				
Water & impact protection: water jets	IP65: Dust-tight & protecte	Light intensity decay : Q90: > 50 000 h (SolrayX, S2, Solray385) , Q90: 36 000 h (AP67, AP673L, NS1)					
Cables: 2,5m (11.8") mains inpical values presented. Tolerance	, ,			ears. More at www.valoya.cor the 'Technical Data Sheet' from			

References



PA. USA Indoor facility for medical plants



DELIVERDE, FINLAND



MPI, GERMANY Research greenhouse



LFL, GERMANY Research greenhouse

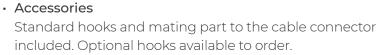
Solray385



RX-Series

The RX-series design resembles traditional HID lighting and offers an easy to install option for one-to-one replacement of HID lights. RX-series lights are thus ideal for a step by step investment in LEDs by replacing part of HID lights with more energy efficient Valoya wide spectrum LED lights. A highly durable fixture due to all aluminium build, high IP and passive cooling.

- Typical applications
 High intensity lighting, HID replacement
- Light intensity in typical applications $100 \sim 1000 \ \mu mol/m^2/s$
- 100 ~ 1000 µmol/m²/s







Standard

Optional

RX325 RX360

Spectra available	AP67, NS1, SolrayX, Solray385,S2	S2				
Power consumption		230 - 360W				
Power Input	120 - 277 VAC, 220 - 480 VAC 5.8 kg (12.8 lb)					
Weight						
Dimensions (L x W x H)		350 X 181 X 161 mm 13.8" X 7.1" X 6.3"				
Light efficacy decay : Up to 3,1 µ	ımol/J (spectrum dependent)	Power input: Please check with sales (product dependent)				
Certification : CE marked, RoHS UL/CSA standards	compliant. Tested and certified to	Distance from the plants (rec.): 0,5 - 4,0 m (20" - 13.1')				
Dimming: 0-10V, PWM. Light ou	utput: off. 10 - 100%	Ambient operating temperature: 0 $^{\circ}$ C – 40 $^{\circ}$ C (32 $^{\circ}$ F – 104 $^{\circ}$ F)				
Water & impact protection: IP6 water jets	55: Dust-tight & protected against	Light intensity decay : Q90: > 50 000 h (SolrayX, S2, Solray385) , Q90: 36 000 h (AP67, AP673L, NS1)				

Typical values presented. Tolerances apply. For more detailed technical specifications please download the 'Technical Data Sheet' from valoya.com/brochures

References

Cables: 0,3 m (11.8") mains input, 0,3 m (11.8") dimming cable



PA, USA Indoor facility for medical plants



DELIVERDE, FINLAND



MPI, GERMANY Research greenhouse



Warranty: Up to 5 years. More at www.valoya.com/warranty

LFL, GERMANY Research greenhouse



BX-Series



High intensity lighting comes in slim, light, humidity and impact resistant bar shaped luminaires. Applications demanding high light intensity with absolute light uniformity are what BX-Series was designed for.

- Typical applications
 High intensity lighting, growth rooms, multilayer
- Light intensity in typical applications 200 ~ 1000 µmol/m²/s

available to order.

Accessories
 Standard hooks and LED driver with mating part to the cable connector included. Optional hooks





Standard

Optional

BX120 BX180

Spectra available	AP67, AP673L, G2, NS1, Solray385	, SolrayX	AP67, AP673L, NS1			
Power consumption	132W		199W			
Weight (incl. LED driver)	4,1 kg (9.0 lb)		5,4 kg (11.9 lb)			
Dimensions (L x W x H)	1176 x 73,5 x 58 mm 46.3" x 2.9" x 2.3"		1722 x 73,5 x 58 mm 68" x 2.9" x 2.3"			
Light efficacy decay: Up to 2,5 µmo	ol/J (spectrum dependent)	Power input: Please check with sales (product dependent)				
Dimming: Yes		Distance from the plants (rec.): 0.1 - 4.0 m (4 - 13.1")				
Light intensity decay : Q90: 50 000h for others	n SolrayX &Solray385, Q90: 36 000	Ambient operating temperature: $0^{\circ} C - 40^{\circ} C (32^{\circ} F - 104^{\circ} F)$				
Water & impact protection: IP67: Dust-tight & protected against the effects of immersion			Certification : CE marked, RoHS compliant. Tested and certified to UL/CSA standards			
Cables: 0,3 m (11.8") mains to LED of driver, 0,3 m (11.8") dimming cable	driver, 3 m (118") luminaire to LED	Warranty: Up to 5 years. More at www.valoya.com/warranty				
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Typical values presented. Tolerances apply. For more detailed technical specifications please download the 'Technical Data Sheet' from valoya. com/brochures

References



CA, USA Indoor facility for medical plants



MPI, GERMANY Research chamber







BL-Series

BL-Series combines the high intensity and durability of the BX-Series with the chainability feature allowing up to 16 luminaires to be connected to a single mains input. The installation is easy due to an internal driver

and the lifespan and quality of light are ensured due to the robust build, tempered glass cover and IP66 rating.

- Typical applications
 High intensity lighting, greenhouses, growth room
- Light intensity in typical applications 100 ~ 1000 μ mol/m²/s
- Accessories
 Standard hooks included. Optional hooks, mains input Wieland connector and blank cap available to order.



Standard Optional





Optional

Optional

BL120

Spectra available	AP67, AP673L, NS1				
Power consumption (incl. LED driver)	125W				
Weight (incl. LED driver)	3,2 kg (7.1 lb)				
Dimensions (L x W x H)	1175 x 45 x 33 mm 46.3" x 2.9" x 2.3"				
Light efficacy decay : Up to 2,2 μ mol/J (spectrum dependent)	Power input: 220 -240 VAC				
Dimming: No	Distance from the plants (rec.): 0,1 - 4,0 m (4 - 13.1")				
Light intensity decay: Q90: 36 000h	Ambient operating temperature: $0^{\circ} \text{C} - 35^{\circ} \text{C} (32^{\circ} \text{F} - 95^{\circ} \text{F})$				
Water & impact protection: IP66: Dust-tight & protected against powerful water jets	Certification: CE marked, RoHS compliant				
Cables: 0.3 m (11.8") from each end of the luminaire	Warranty: Up to 5 years. More at www.valoya.com/warranty				

Typical values presented. Tolerances apply. For more detailed technical specifications please download the 'Technical Data Sheet' from valoya.com/brochures

References



CMF, MALAYSIA Greenhouse

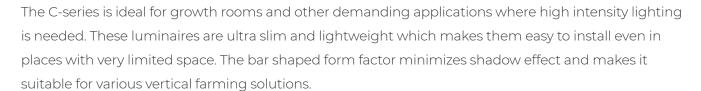


HELSINKI UNIVERSITY, FINLAND Research greenhouse





C-Series



- Typical applications
 Growth rooms, vertical farms
- Light intensity in typical applications $50 \sim 400 \ \mu mol/m^2/s$
- Accessories
 Standard hooks and LED driver included.
 Optional hooks available to order.





Standard

C75

Optional

C90

		<u> </u>	<u> </u>	
Spectra available	AP67, AP673L, NS12	AP67, AP673L, NS12	AP67, AP673L, NS12	
Power consumption (incl. LED driver)	65W	75W	90W	
Weight (incl. LED driver)	2,8 kg (6.2 lb)	3,3 kg (7.2 lb)	3,8 kg (8.4 lb)	
Directories (L. W. V. II)	1175 x 45 x 33 mm	1475 x 45 x 33 mm	1750 x 45 x 33 mm	
Dimensions (L x W x H)	/.6 Z" ∨ 1 Q" ∨ 1 Z"	50" y 1 0" y 1 7"	60 0" v 1 0" v 1 7"	

C65

Light efficacy decay : Up to 2.2 μmol/J (spectrum dependent)	Power input: 100-240, 277 VAC
Dimming: 0 - 10 V, PWM, light output: off, 10 - 100%	Distance from the plants (rec.) : 0,1 - 1,5 m (4 - 59")
Light intensity decay: Q90: 36 000h	Ambient operating temperature: 0° C -30° C $(32^{\circ}$ F -86° F)
Water & impact protection: IP66: Dust-tight & protected against powerful water jets	Certification : CE marked, RoHS compliant. Tested and certified to UL/CSA standards
Cables: 0,5 m (20") mains input to PSU, 3 m (118") PSU to luminaire, 0,3 m (11.8") dimming	Warranty: Up to 5 years. More at www.valoya.com/warranty

Typical values presented. Tolerances apply. For more detailed technical specifications please download the 'Technical Data Sheet' from valoya.com/brochures

References

BAYER, FRANCE Research chamber





LEAF EXPRESSION SYSTEM, UK Research chamber

"There's no heat produced by the lights at all, so watering and general handling of the tray is absolutely convenient."

Dr. Franziska Kellner, Leaf Expression System





LightDNA

LightDNA is a high-end product line of Valoya's professional LED grow lights. Our Light DNA-2 product offers two dimmable channels in the BX-series. One channel provides the NSI spectrum and one channel provides FR. This allows custom adjustments to be made with both intensity and spectrum.

Accessories

Standard hooks included. Other required accessories are defined based on the project specification. Please consult our sales representative prior to purchase.



Standard

	Dynamic 2-Channel Light						
		BX120		BX180			
Luminaire(s) per complete system	2	3	4	2	3	4	
Power consumption (complete system)	314 W	471 W	625 W	422 W	633 W	844 W	
Dimension (fixture),	-	1176 x 74 x 58 m	nm	1722 x 74 x 58 mm			
LxWxH		46.3" x 2.9" x 2.	3"	68" × 2.9" × 2.3"			
Total weight (complete system)	9,7 kg (21.4 lb)	14 kg (30.9 lb)	18,3 kg (40.3 lb)	12,6 kg (27.8 lb)	18,5 kg (40.8 lb)	24 kg (52.9 lb)	
Ambient operating temperature	0 - 40°C (32 - 104°F)						
Water & impact protection	IP67: Dust-tight & protected against the effects of immersion						

Light efficacy decay : Up to 1,8 μmol/J	Power input: Please check with sales (product dependent)
Dimming : 1 - 10 V, PWM. Light output: 10 - 100%	Light intensity decay: Q90: 36 000h
Certification: CE marked, RoHS compliant.	Warranty: Up to 3 years. More at www.valoya.com/warranty

Typical values presented. Tolerances apply. For more detailed technical specifications please download the 'Technical Data Sheet' from valoya.com/brochures

References



MPI, GERMANY Research chamber





L-Series



The T8 form factor allows the L-series products to be installed in fluorescent tube fixtures without modification (fixtures with magnetic ballast). Other installation options are cost effective, easy to install end-caps with IP65.

- Typical applications
 Vertical farming, tissue culture, growth chamber
- Light intensity in typical applications $20 \sim 250 \ \mu mol/m^2/s$
- Accessories
 Optional Valoya end-cap set with ingress protection available to order.



Optional (IP65 single



Optional (IP65) chain up to 189 luminaires with 1 mains cable

	L14	L18	L28	L35
Spectra available	NS12	AP67	AP67, AP673L, G2, NS12	
Power consumption	14W	18W	28W	35W
Weight	0,29 kg (0.64 lb)	0,36 kg (0.79 lb)	0,36 kg (0.79 lb)	0,44 kg (0.97 lb)
Dimensions (Length / Diameter)	895 mm / Ø 26	1198 mm / Ø 26	1198 mm / Ø 26	1498 mm / Ø 26

	35.2" / Ø 1.02	47.2" / Ø 1.02	47.2" / Ø 1.02	59" / Ø 1.02	
Light efficacy decay: Up to 2,1 µmol/J (spectrum dependent)		Power input: 110	Power input: 110-240, 277 VAC		
Dimming: No		Distance from t	Distance from the plants (rec.): < 0,5 m (20")		
Light intensity decay: Q90: 36 000 h		Ambient opera	Ambient operating temperature: -10 $^{\circ}$ C $-$ +40 $^{\circ}$ C $(14 ^{\circ}$ F $-$ 104 $^{\circ}$ F)		
Water & impact protection : Non-PIP65 with end-cap: Dust-tight & pi					
MOQ: 12 pieces		Warranty: Up to	Warranty: Up to 5 years. More at www.valoya.com/warranty		

Typical values presented. Tolerances apply. For more detailed technical specifications please download the 'Installation Guide' from valoya.com/brochures

References

GROWING UNDERGROUND, UK Vertical farm 30m under the ground





SELECTA KLEMM, GERMANY Tissue culture

"We looked at about 6-8 light manufacturers and we found throughout all of the testing, whether it was the yield, flavor or the support and the service, every single time we chose Valoya"



STANDARDS

EUROPE

EN60598-1: Luminaires. General requirements and tests.

EN60598-2-1: Luminaires. Part 2: Particular requirements. Section one – Fixed general purpose luminaires.

EN62031: LED modules for general lighting. Safety specifications.

EN 62493: Assessment of lighting equipment related to human exposure to electromagnetic fields.

EN55015: Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment.

EN61547: Equipment for general lighting purposes. EMC immunity requirements.

EN61000-3-2: Electromagnetic compatibility - Limits - Limits for harmonic current emissions.

EN61000-3-3: Electromagnetic compatibility – Limits - Limits for Voltage Fluctuations and Flicker.

IEC EN 61000-4-2: Electromagnetic compatibility (EMC)- Part 4-2: Testing and measurement techniques - electrostatic discharge immunity test.

IEC EN 61000-4-3: Electromagnetic compatibility (EMC)- Part 4-3: Testing and measurement techniques - radiated, radio-frequency, electromagnetic field immunity test.

IEC EN 61000-4-4: Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test.

IEC EN 61000-4-5: Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test.

IEC EN 61000-4-6: Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields.

IEC EN 61000-4-8: Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test.

IEC EN 61000-4-11: Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests.

IEC 61347-2-13: Lamp controlgear. Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules.

IEC 61347-1: Lamp controlgear - Part 1: General and safety requirements.

IEC 62384: DC or AC supplied electronic control gear for LED modules. Performance requirements.

EN62471: Photobiological safety of lamps and lamp systems.

EN62560: Self-ballasted LED-lamps for general lighting services by voltage >50V - Safety specifications.

EN62776: Double-capped LED lamps designed to retrofit linear fluorescent lamps - Safety specifications.

NORTH AMERICA

UL1598: Luminare safety.

UL8750: Light Emitting Diode (LED) equipment for use In lighting products.

UL2108: Standard for Low Voltage Lighting Systems.

UL 8800: Standard for Horticultural Lighting Equipment

CSA C22.2: #9.0: General Requirements for Luminaires.

CSA C22.2: #250.0.8: Safety for Light emitting diode (LED) equipment for lighting applications.

CSA C22.2 No. 250.13-14: Light Emitting Diode (LED) equipment for use in lighting products.



Get in touch with Valoya

T +358 29 3700 670 E sales@greenlux.com W www.valoya.com



We are happy to announce that Valoya is now a part of Greenlux Lighting Solutions.

Head office

Mekaanikonkatu 1, 00880 Helsinki.

Finland

Distributors

You can get Valoya products through one of 30 global distributors. The complete distributor list is available at:

www.valoya.com/contact

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