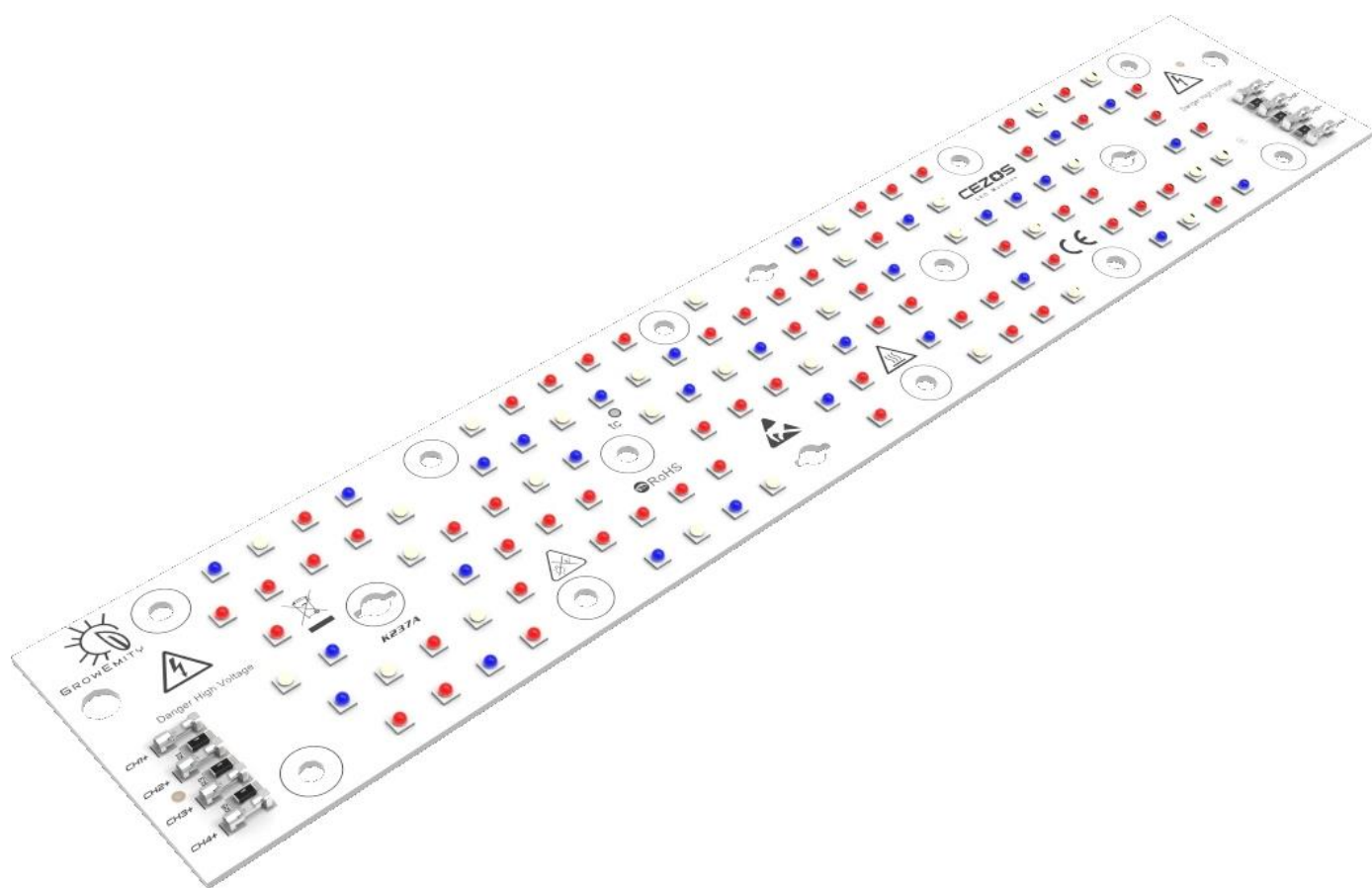


CEZOS

GrowEmity 120 - K237



LED  **Light for you**
powered by OSRAM



MTx
MechaTronix

The GrowEmity LED light source allows to accelerate plant growth and increase harvest. It is even possible to regulate plant growth and blooming time. Unlike an artificial light sources, LED light sources have specially matched spectrum for specific plants. Additionally, LEDs generate more light and less heat than sodium lamp, allow for lighting from side of plants. LED light sources are used in artificial plantation without daylight.

Possibility to choose up to four colors from the following (one set of 30 LEDs).

Colour	λ [nm] / CCT [K]	Input Current [mA]	Forward Voltage [V]	Power [W]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]
RED	625	350	63,0	22,1	2470	56,40	2,56
		500	66,2	33,1	3495	79,80	2,41
		700	70,1	49,1	4835	110,40	2,25
		800	71,7	57,3	5457	124,60	2,17
		1000	75,7	75,7	6701	153,00	2,02
HYPER RED	657	350	64,5	22,6	12750	69,15	3,06
		500	67,5	33,8	17978	97,50	2,89
		700	72,0	50,4	24353	132,08	2,62
		800	74,4	59,5	27795	150,75	2,53
		1000	77,1	77,1	33469	181,52	2,35
FAR RED	727	350	64,5	22,6	12750	69,15	3,06
		500	58,5	29,3	11210	6,77	0,23
		700	62,1	43,5	15185	9,17	0,21
		800	63,3	50,6	17331	10,46	0,21
		1000	66,6	66,6	20869	12,60	0,19
DEEP BLUE	455	350	85,5	29,9	19050	70,50	2,36
		500	87,0	43,5	26480	98,00	2,25
		700	89,1	62,4	32766	121,26	1,94
		800	89,7	71,8	36195	133,95	1,87
		1000	91,8	91,8	45720	169,20	1,84
BLUE	470	350	85,5	29,9	840	48,60	1,62
		500	87,9	44,0	1110	64,20	1,46
		700	91,3	63,9	1436	83,10	1,30
		800	91,6	73,3	1580	91,40	1,25
		1000	94,7	94,7	1867	108,00	1,14
TRUE GREEN	528	350	100,5	35,2	3630	33,60	0,95
		500	103,1	51,5	4732	43,80	0,85
		700	106,3	74,4	6028	55,80	0,75
		800	106,6	85,3	6601	61,10	0,72
		1000	110,3	110,3	7746	71,70	0,65
AMBER	617	350	63,0	22,1	2676	59,10	2,68
		500	66,2	33,1	3763	83,10	2,51
		700	70,1	49,1	5135	113,40	2,31
		800	71,6	57,3	5769	127,40	2,22
		1000	75,8	75,8	7036	155,40	2,05
YELLOW	590	350	66,0	23,1	2460	26,10	1,13
		500	69,3	34,7	3365	35,70	1,03
		700	73,2	51,2	4298	45,60	0,89
		800	73,6	58,9	4609	48,90	0,83
		1000	78,2	78,2	5231	55,50	0,71
WHITE	5000	350	82,5	28,9	4437	58,80	2,04
		500	85,5	42,8	6079	78,60	1,84
		700	88,5	62,0	7987	102,00	1,65
		800	89,4	71,5	8785	112,20	1,57
		1000	99,4	99,5	10180	130,01	1,35

Radiant Power for Hyper Red, Far Red, Deep Blue. Luminous flux for rest of colour.

CCT only for White colour.

CALCULATED PARAMETERS AT $T_j = 25^{\circ}\text{C}$

Name	GrowEmity 120 – K237
Size	278x53 mm
Power Supply Type	Constant Current (CC)
Number Of Channels	4
Power Supply Current	Max. 1000 mA / channel
Far Red LED	OSRAM - GF CSSPM1.24
Red LED	OSRAM - GH CSSPM1.24
Deep Blue LED	OSRAM - GD CSSPM1.14
White LED	OSRAM - GW CSHPM1.PM
Ambient Temperature	0 - 40°C
Material Type / Thickness	MCPCB / 1,5 mm

GROWEMITY 120 RFBW - K237

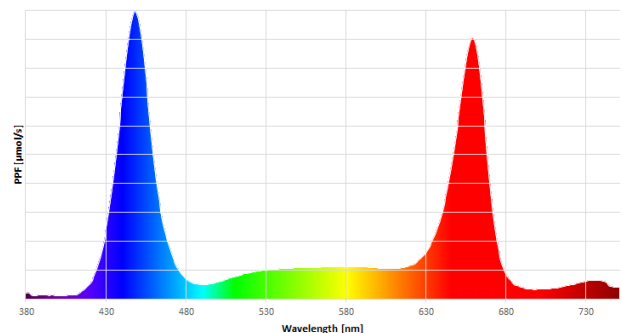
	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 120 RFBW - K237	350	64,5	22,6	100,8	RED	657	12750	69,15	3,06	203,25	2,02	LO-278053-RFBW-C1000-K237
		55,5	19,4		FAR RED	727	7950	4,80	0,25			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	67,5	33,8	149,3	RED	657	17978	97,50	2,89	280,86	1,88	LO-278053-RFBW-C1000-K237
		58,5	29,3		FAR RED	727	11210	6,77	0,23			
		87,0	43,5		DEEP BLUE	455	26480	98,00	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	72,0	50,4	218,2	RED	657	24353	132,08	2,62	364,50	1,67	LO-278053-RFBW-C1000-K237
		62,1	43,5		FAR RED	727	15185	9,17	0,21			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	74,4	59,5	253,4	RED	657	27795	150,75	2,53	407,36	1,61	LO-278053-RFBW-C1000-K237
		63,3	50,6		FAR RED	727	17331	10,46	0,21			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_j = 25^{\circ}\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.

Different type of plants have different requirements for the best growth, so to maximized effect, GrowEmity light sources have many sets of LEDs configuration. Most commands LED types are: red, far red, hyper red, blue, deep blue and white with different colour temperature. Some examples are below.

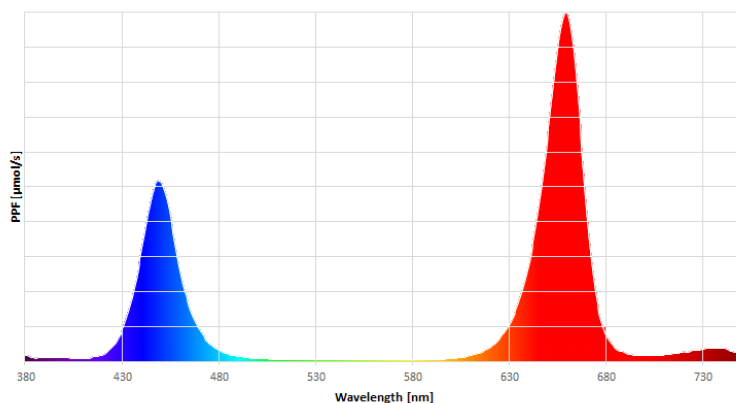
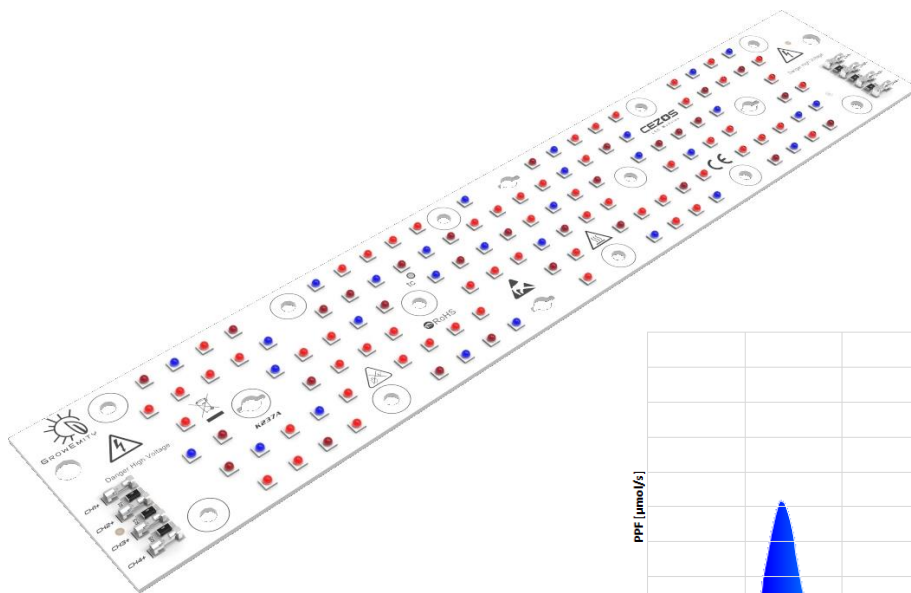


GROWEMITY 120 RRFB - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 120 RRFB - K237	350	64,5	22,6	94,5	RED	657	12750	69,15	3,06	213,60	2,26	LO-278053-RRFB-C1000-K237
		64,5	22,6		RED	657	12750	69,15	0,25			
		55,5	19,4		FAR RED	727	7950	4,80	2,36			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,04			
	500	67,5	33,8	140,3	RED	657	17978	97,50	2,89	299,77	2,14	LO-278053-RRFB-C1000-K237
		67,5	33,8		RED	657	17978	97,50	0,23			
		58,5	29,3		FAR RED	727	11210	6,77	2,25			
		87,0	43,5		DEEP BLUE	455	26480	98,00	1,84			
	700	72,0	50,4	206,6	RED	657	24353	132,08	2,62	394,58	1,91	LO-278053-RRFB-C1000-K237
		72,0	50,4		RED	657	24353	132,08	0,21			
		62,1	43,5		FAR RED	727	15185	9,17	1,94			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,65			
	800	74,4	59,5	241,4	RED	657	27795	150,75	2,53	445,91	1,85	LO-278053-RRFB-C1000-K237
		74,4	59,5		RED	657	27795	150,75	0,21			
		63,3	50,6		FAR RED	727	17331	10,46	1,87			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.



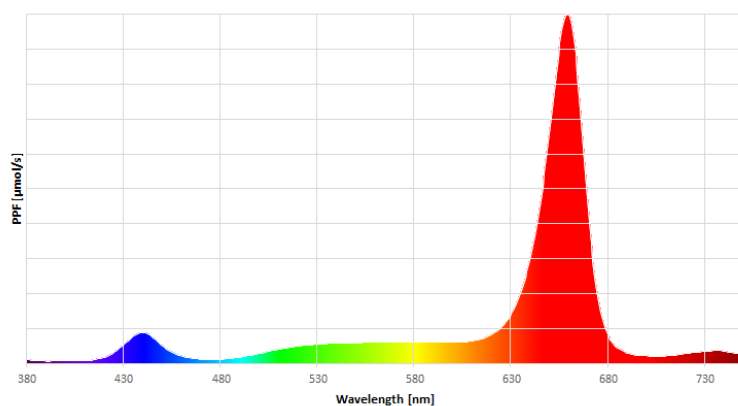
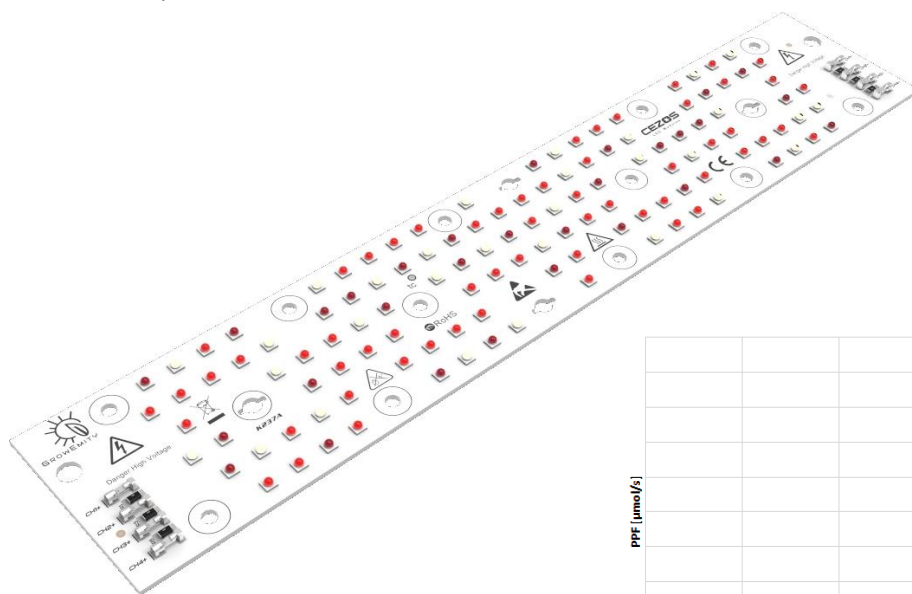
GROWEMITY 120 RRFW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 120 RRFW - K237	350	64,5	22,6	93,5	RED	657	12750	69,15	3,06	201,90	2,16	LO-278053-RRFW-C1000-K237
		64,5	22,6		RED	657	12750	69,15	0,25			
		55,5	19,4		FAR RED	727	7950	4,80	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	67,5	33,8	139,5	RED	657	17978	97,50	2,89	280,37	2,01	LO-278053-RRFW-C1000-K237
		67,5	33,8		RED	657	17978	97,50	0,23			
		58,5	29,3		FAR RED	727	11210	6,77	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	72,0	50,4	206,2	RED	657	24353	132,08	2,62	375,32	1,82	LO-278053-RRFW-C1000-K237
		72,0	50,4		RED	657	24353	132,08	0,21			
		62,1	43,5		FAR RED	727	15185	9,17	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	74,4	59,5	241,2	RED	657	27795	150,75	2,53	424,16	1,76	LO-278053-RRFW-C1000-K237
		74,4	59,5		RED	657	27795	150,75	0,21			
		63,3	50,6		FAR RED	727	17331	10,46	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.



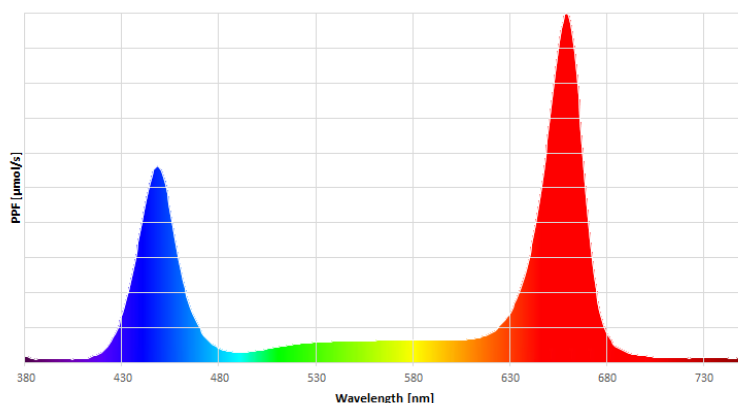
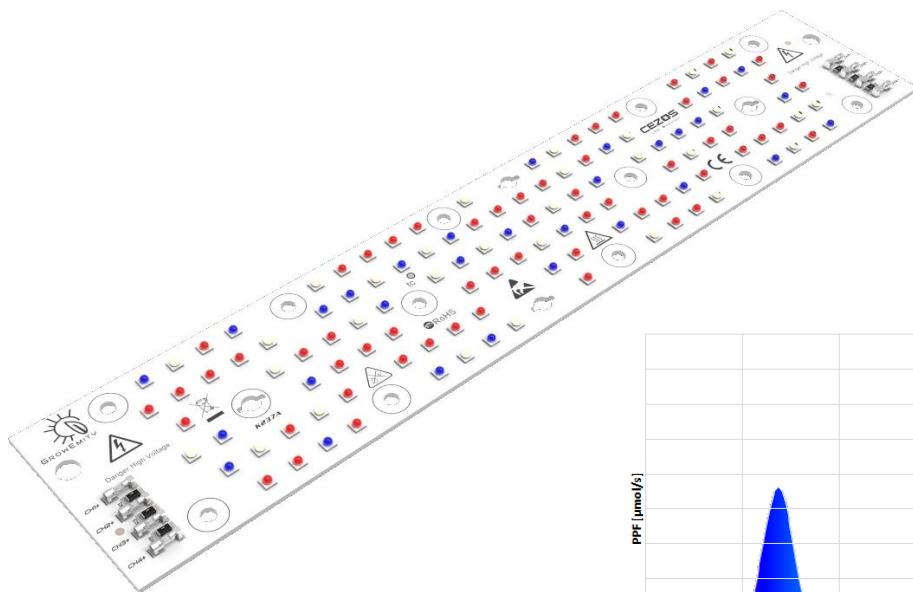
GROWEMITY 120 RRBW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 120 RRBW - K237	350	64,5	22,6	104,0	RED	657	12750	69,15	3,06	267,60	2,57	LO-278053-RRBW-C1000-K237
		64,5	22,6		RED	657	12750	69,15	0,25			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	67,5	33,8	153,8	RED	657	17978	97,50	2,89	371,60	2,42	LO-278053-RRBW-C1000-K237
		67,5	33,8		RED	657	17978	97,50	0,23			
		87,0	43,5		DEEP BLUE	455	26480	98,00	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	72,0	50,4	225,1	RED	657	24353	132,08	2,62	487,41	2,17	LO-278053-RRBW-C1000-K237
		72,0	50,4		RED	657	24353	132,08	0,21			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	74,4	59,5	262,3	RED	657	27795	150,75	2,53	547,64	2,09	LO-278053-RRBW-C1000-K237
		74,4	59,5		RED	657	27795	150,75	0,21			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.

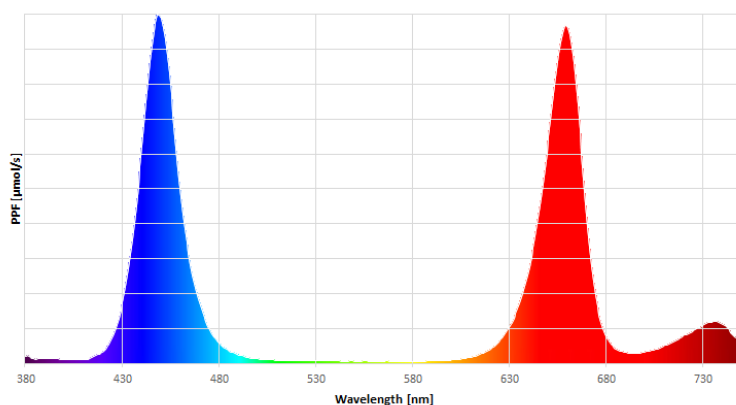
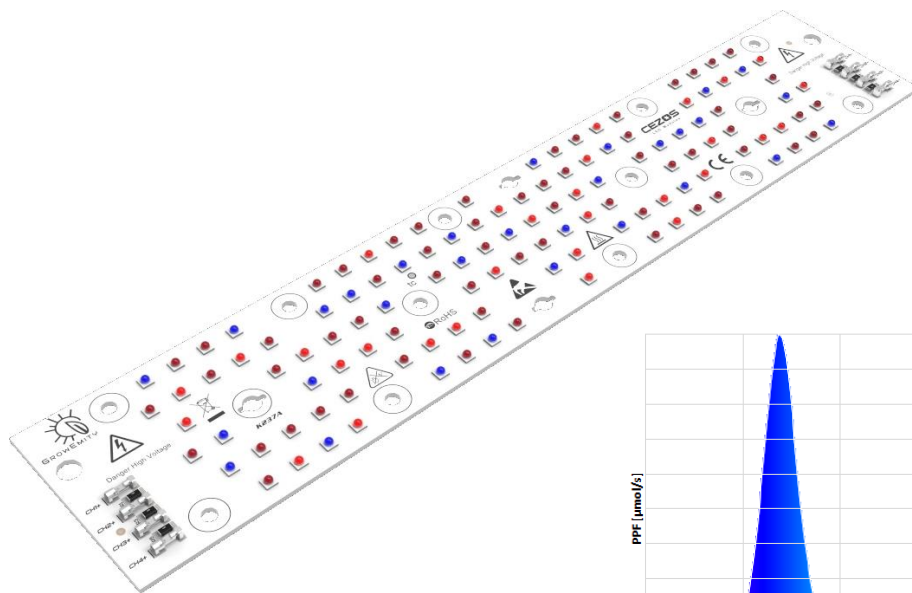


GROWEMITY 120 RFFB - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 120 RFFB - K237	350	64,5	22,6	91,4	RED	657	12750	69,15	3,06	149,25	1,63	LO-278053-RFFB-C1000-K237
		55,5	19,4		FAR RED	727	7950	4,80	0,25			
		55,5	19,4		FAR RED	727	7950	4,80	2,36			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,04			
	500	67,5	33,8	135,8	RED	657	17978	97,50	2,89	209,03	1,54	LO-278053-RFFB-C1000-K237
		58,5	29,3		FAR RED	727	11210	6,77	0,23			
		58,5	29,3		FAR RED	727	11210	6,77	2,25			
		87,0	43,5		DEEP BLUE	455	26480	98,00	1,84			
	700	72,0	50,4	199,7	RED	657	24353	132,08	2,62	271,67	1,36	LO-278053-RFFB-C1000-K237
		62,1	43,5		FAR RED	727	15185	9,17	0,21			
		62,1	43,5		FAR RED	727	15185	9,17	1,94			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,65			
	800	74,4	59,5	232,6	RED	657	27795	150,75	2,53	305,63	1,31	LO-278053-RFFB-C1000-K237
		63,3	50,6		FAR RED	727	17331	10,46	0,21			
		63,3	50,6		FAR RED	727	17331	10,46	1,87			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.



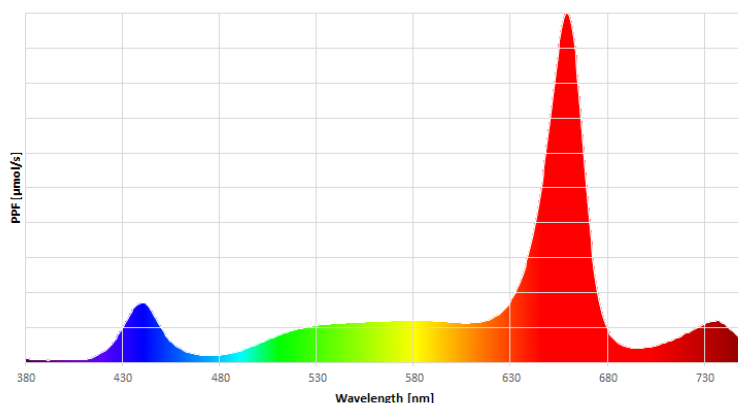
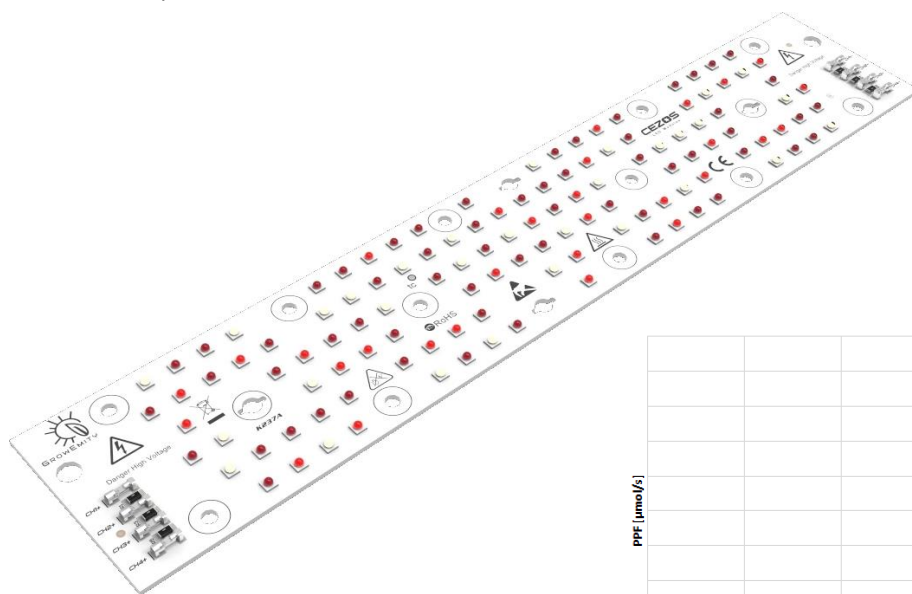
GROWEMITY 120 RFFW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 120 RFFW - K237	350	64,5	22,6	90,3	RED	657	12750	69,15	3,06	137,55	1,52	L0-278053-RFFW-C1000-K237
		55,5	19,4		FAR RED	727	7950	4,80	0,25			
		55,5	19,4		FAR RED	727	7950	4,80	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	67,5	33,8	135,0	RED	657	17978	97,50	2,89	189,64	1,40	L0-278053-RFFW-C1000-K237
		58,5	29,3		FAR RED	727	11210	6,77	0,23			
		58,5	29,3		FAR RED	727	11210	6,77	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	72,0	50,4	199,3	RED	657	24353	132,08	2,62	252,41	1,27	L0-278053-RFFW-C1000-K237
		62,1	43,5		FAR RED	727	15185	9,17	0,21			
		62,1	43,5		FAR RED	727	15185	9,17	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	74,4	59,5	232,3	RED	657	27795	150,75	2,53	283,88	1,22	L0-278053-RFFW-C1000-K237
		63,3	50,6		FAR RED	727	17331	10,46	0,21			
		63,3	50,6		FAR RED	727	17331	10,46	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.



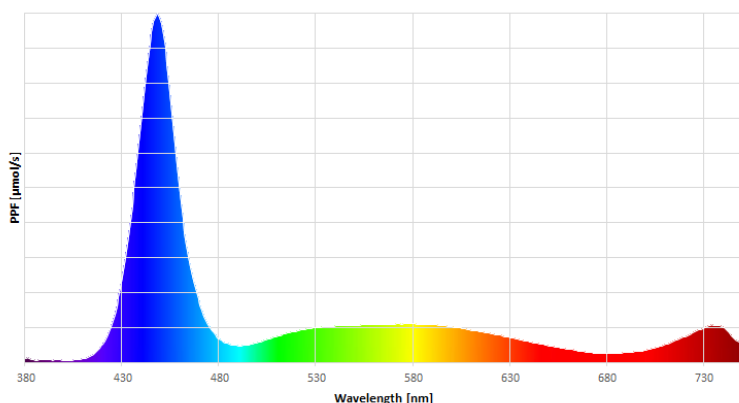
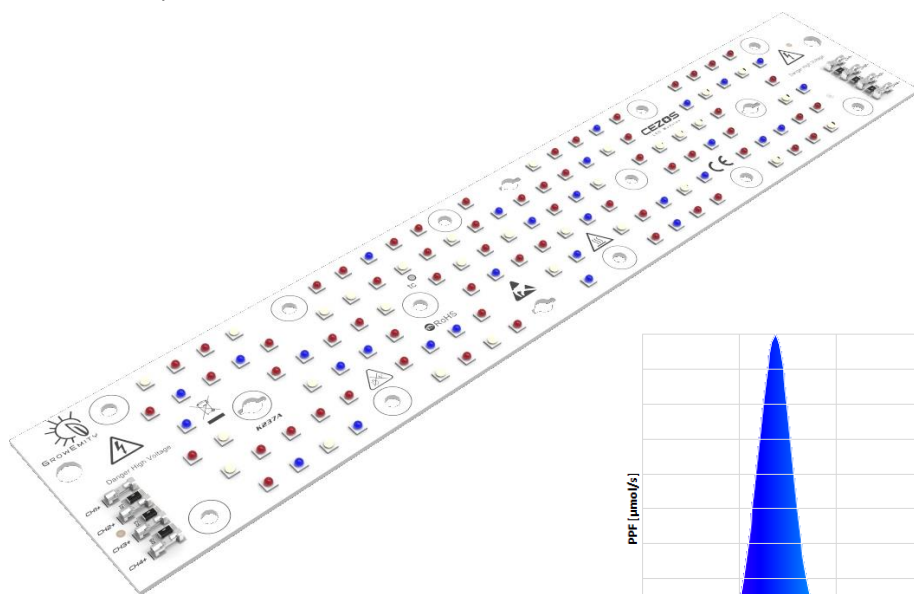
GROWEMITY 120 FFBW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 FFBW - K237	350	55,5	19,4	97,7	FAR RED	727	7950	4,80	3,06	138,90	1,42	L0-278053-FFBW-C1000-K237
		55,5	19,4		FAR RED	727	7950	4,80	0,25			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	58,5	29,3	144,8	FAR RED	727	11210	6,77	2,89	190,13	1,31	L0-278053-FFBW-C1000-K237
		58,5	29,3		FAR RED	727	11210	6,77	0,23			
		87,0	43,5		DEEP BLUE	455	26480	98,00	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	62,1	43,5	211,3	FAR RED	727	15185	9,17	2,62	241,60	1,14	L0-278053-FFBW-C1000-K237
		62,1	43,5		FAR RED	727	15185	9,17	0,21			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	63,3	50,6	244,6	FAR RED	727	17331	10,46	2,53	267,08	1,09	L0-278053-FFBW-C1000-K237
		63,3	50,6		FAR RED	727	17331	10,46	0,21			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.

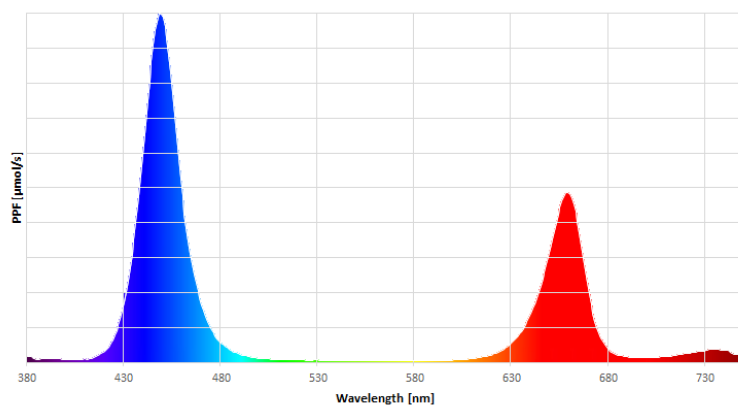
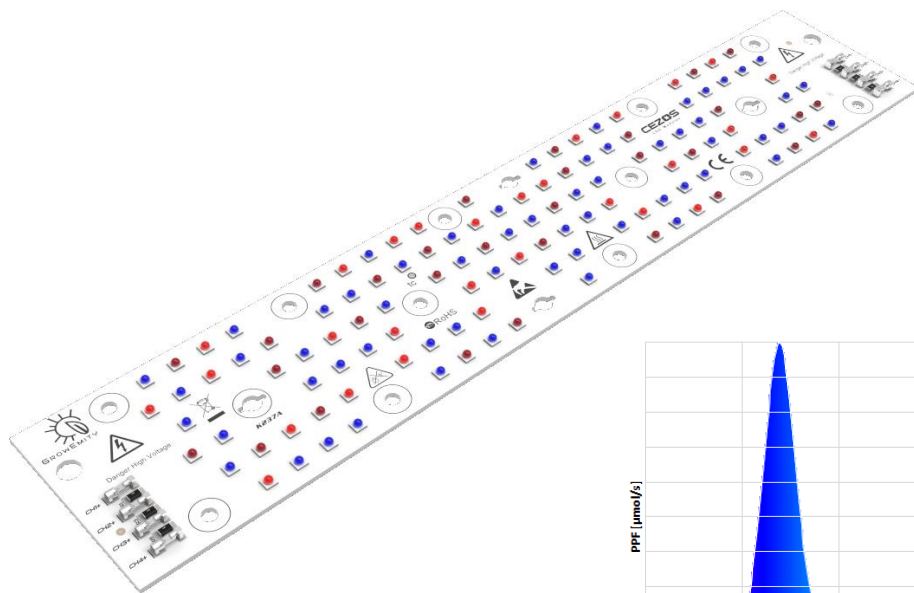


GROWEMITY 120 RFBB - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 120 RFBB - K237	350	64,5	22,6	101,9	RED	657	12750	69,15	3,06	214,95	2,11	LO-278053-RFBB-C1000-K237
		55,5	19,4		FAR RED	727	7950	4,80	0,25			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,04			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,04			
	500	67,5	33,8	150,0	RED	657	17978	97,50	2,89	300,26	2,00	LO-278053-RFBB-C1000-K237
		58,5	29,3		FAR RED	727	11210	6,77	0,23			
		87,0	43,5		DEEP BLUE	455	26480	98,00	1,84			
		87,0	43,5		DEEP BLUE	455	26480	98,00	1,84			
	700	72,0	50,4	218,6	RED	657	24353	132,08	2,62	383,76	1,76	LO-278053-RFBB-C1000-K237
		62,1	43,5		FAR RED	727	15185	9,17	0,21			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,65			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,65			
	800	74,4	59,5	253,7	RED	657	27795	150,75	2,53	429,11	1,69	LO-278053-RFBB-C1000-K237
		63,3	50,6		FAR RED	727	17331	10,46	0,21			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,57			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.



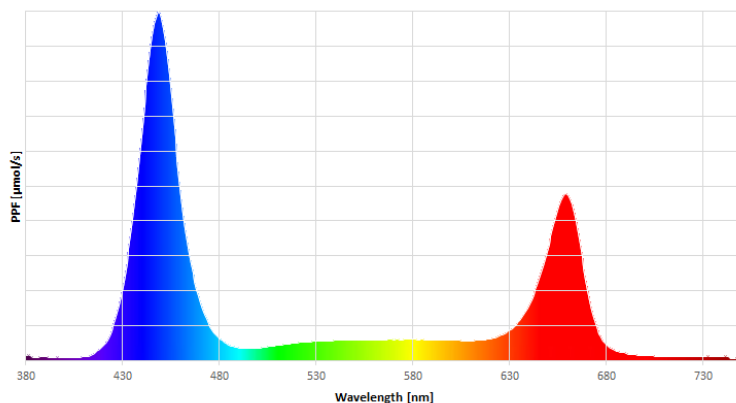
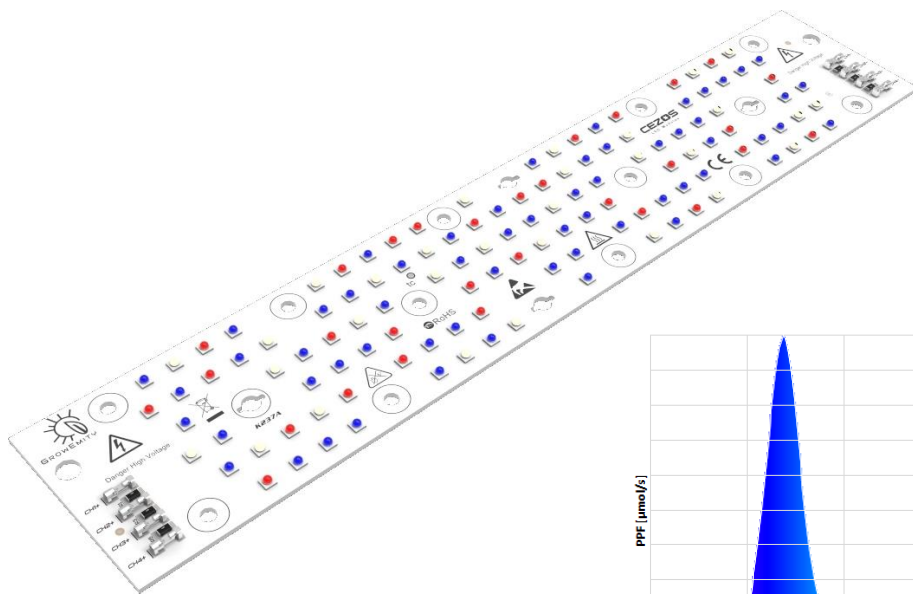
GROWEMITY 120 RBBW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 RBBW - K237	350	64,5	22,6	111,3	RED	657	12750	69,15	3,06	268,95	2,42	LO-278053-RBBW-C1000-K237
		85,5	29,9		DEEP BLUE	455	19050	70,50	0,25			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	67,5	33,8	163,5	RED	657	17978	97,50	2,89	372,09	2,28	LO-278053-RBBW-C1000-K237
		87,0	43,5		DEEP BLUE	455	26480	98,00	0,23			
		87,0	43,5		DEEP BLUE	455	26480	98,00	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	72,0	50,4	237,1	RED	657	24353	132,08	2,62	476,60	2,01	LO-278053-RBBW-C1000-K237
		89,1	62,4		DEEP BLUE	455	32766	121,26	0,21			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	74,4	59,5	274,6	RED	657	27795	150,75	2,53	530,85	1,93	LO-278053-RBBW-C1000-K237
		89,7	71,8		DEEP BLUE	455	36195	133,95	0,21			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.



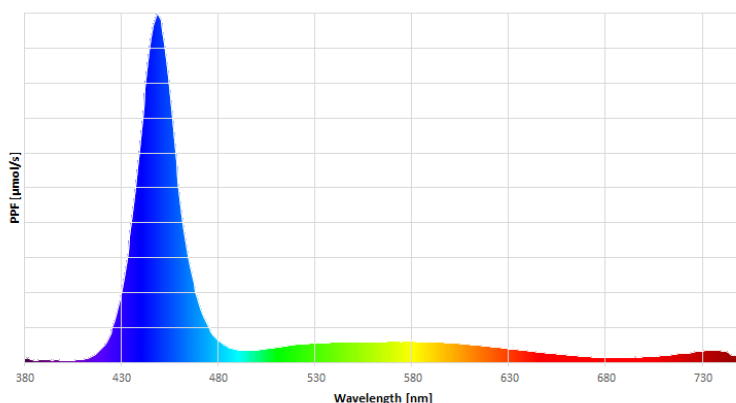
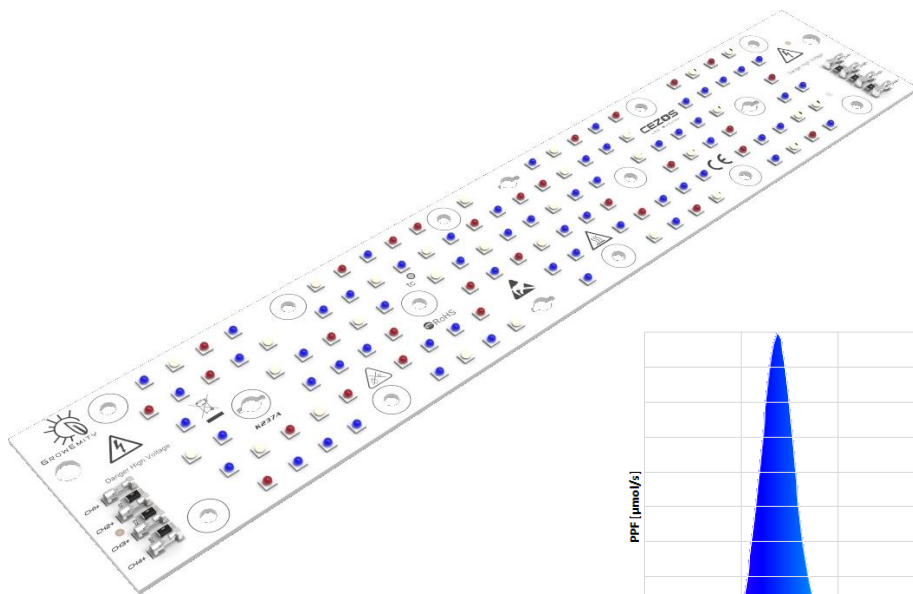
GROWEMITY 120 FBBW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 FBBW - K237	350	55,5	19,4	108,2	FAR RED	727	7950	4,80	3,06	204,60	1,89	LO-278053-FBBW-C1000-K237
		85,5	29,9		DEEP BLUE	455	19050	70,50	0,25			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	58,5	29,3	159,0	FAR RED	727	11210	6,77	2,89	281,36	1,77	LO-278053-FBBW-C1000-K237
		87,0	43,5		DEEP BLUE	455	26480	98,00	0,23			
		87,0	43,5		DEEP BLUE	455	26480	98,00	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	62,1	43,5	230,2	FAR RED	727	15185	9,17	2,62	353,69	1,54	LO-278053-FBBW-C1000-K237
		89,1	62,4		DEEP BLUE	455	32766	121,26	0,21			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	63,3	50,6	265,7	FAR RED	727	17331	10,46	2,53	390,56	1,47	LO-278053-FBBW-C1000-K237
		89,7	71,8		DEEP BLUE	455	36195	133,95	0,21			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.



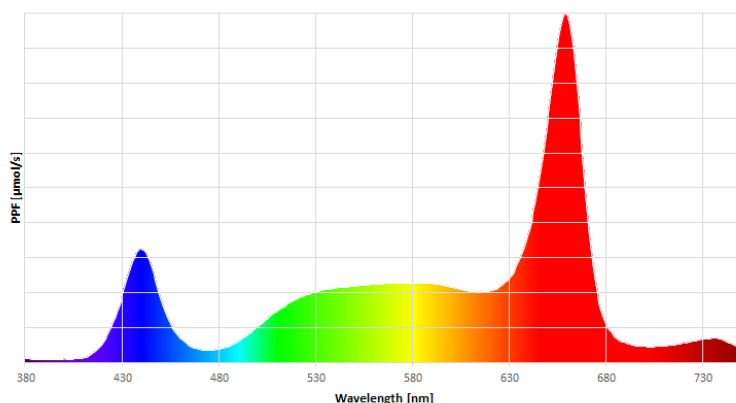
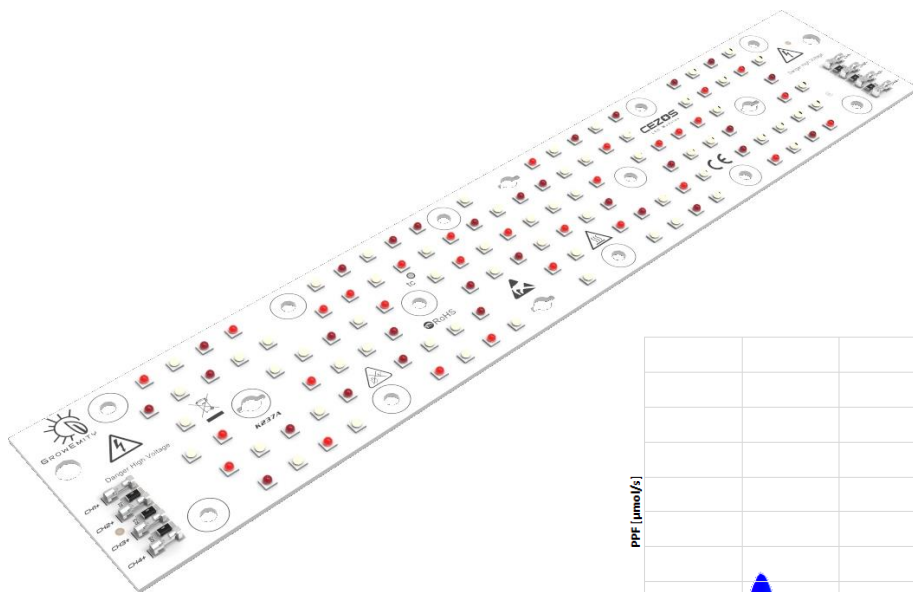
GROWEMITY 120 RFWW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 RFWW - K237	350	64,5	22,6	99,8	RED	657	12750	69,15	3,06	191,55	1,92	LO-278053-RFWW-C1000-K237
		55,5	19,4		FAR RED	727	7950	4,80	0,25			
		82,5	28,9		WHITE	5000	4437	58,80	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	67,5	33,8	148,5	RED	657	17978	97,50	2,89	261,47	1,76	LO-278053-RFWW-C1000-K237
		58,5	29,3		FAR RED	727	11210	6,77	0,23			
		85,5	42,8		WHITE	5000	6079	78,60	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	72,0	50,4	217,8	RED	657	24353	132,08	2,62	345,24	1,59	LO-278053-RFWW-C1000-K237
		62,1	43,5		FAR RED	727	15185	9,17	0,21			
		88,5	62,0		WHITE	5000	7987	102,00	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	74,4	59,5	253,2	RED	657	27795	150,75	2,53	385,61	1,52	LO-278053-RFWW-C1000-K237
		63,3	50,6		FAR RED	727	17331	10,46	0,21			
		89,4	71,5		WHITE	5000	8785	112,20	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.



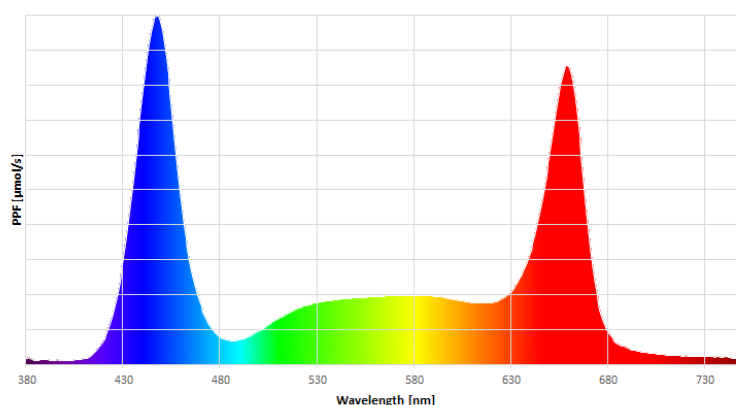
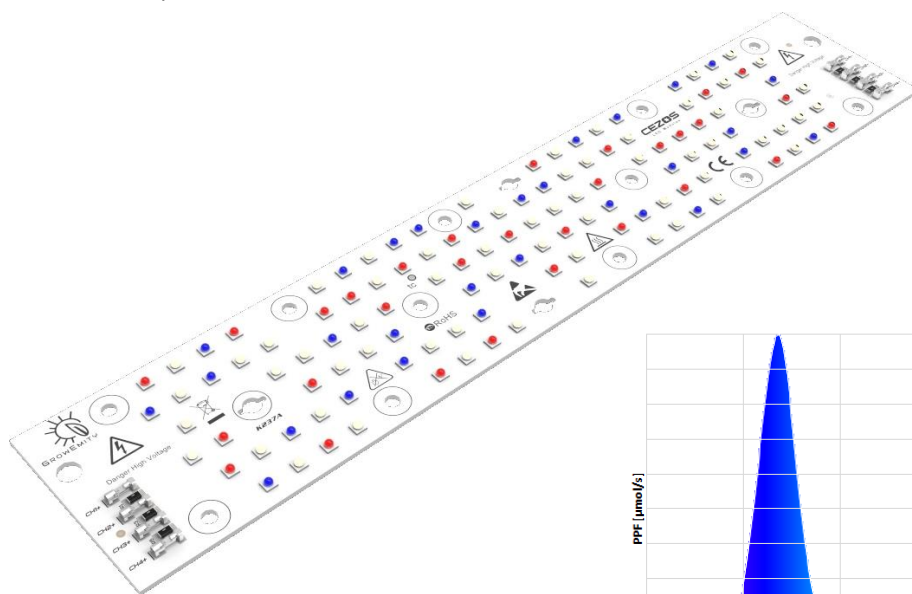
GROWEMITY 120 RBWW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 RBWW - K237	350	64,5	22,6	110,3	RED	657	12750	69,15	3,06	257,25	2,33	LO-278053-RBWW-C1000-K237
		85,5	29,9		DEEP BLUE	455	19050	70,50	0,25			
		82,5	28,9		WHITE	5000	4437	58,80	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	67,5	33,8	162,8	RED	657	17978	97,50	2,89	352,70	2,17	LO-278053-RBWW-C1000-K237
		87,0	43,5		DEEP BLUE	455	26480	98,00	0,23			
		85,5	42,8		WHITE	5000	6079	78,60	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	72,0	50,4	236,7	RED	657	24353	132,08	2,62	457,34	1,93	LO-278053-RBWW-C1000-K237
		89,1	62,4		DEEP BLUE	455	32766	121,26	0,21			
		88,5	62,0		WHITE	5000	7987	102,00	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	74,4	59,5	274,3	RED	657	27795	150,75	2,53	509,10	1,86	LO-278053-RBWW-C1000-K237
		89,7	71,8		DEEP BLUE	455	36195	133,95	0,21			
		89,4	71,5		WHITE	5000	8785	112,20	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.



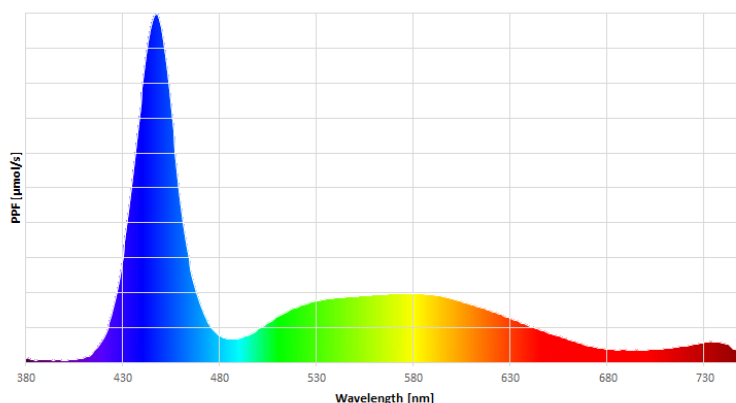
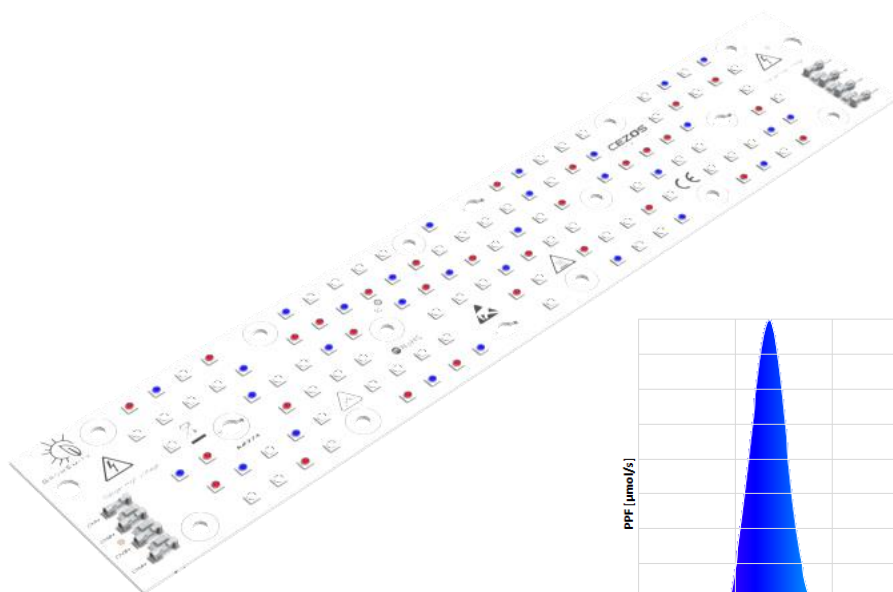
GROWEMITY 120 FBWW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 FBWW - K237	350	55,5	19,4	107,1	FAR RED	727	7950	4,80	3,06	192,90	1,80	L0-278053-FBWW-C1000-K237
		85,5	29,9		DEEP BLUE	455	19050	70,50	0,25			
		82,5	28,9		WHITE	5000	4437	58,80	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	58,5	29,3	158,3	FAR RED	727	11210	6,77	2,89	261,96	1,66	L0-278053-FBWW-C1000-K237
		87,0	43,5		DEEP BLUE	455	26480	98,00	0,23			
		85,5	42,8		WHITE	5000	6079	78,60	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	62,1	43,5	229,7	FAR RED	727	15185	9,17	2,62	334,43	1,46	L0-278053-FBWW-C1000-K237
		89,1	62,4		DEEP BLUE	455	32766	121,26	0,21			
		88,5	62,0		WHITE	5000	7987	102,00	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	63,3	50,6	265,4	FAR RED	727	17331	10,46	2,53	368,81	1,39	L0-278053-FBWW-C1000-K237
		89,7	71,8		DEEP BLUE	455	36195	133,95	0,21			
		89,4	71,5		WHITE	5000	8785	112,20	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.

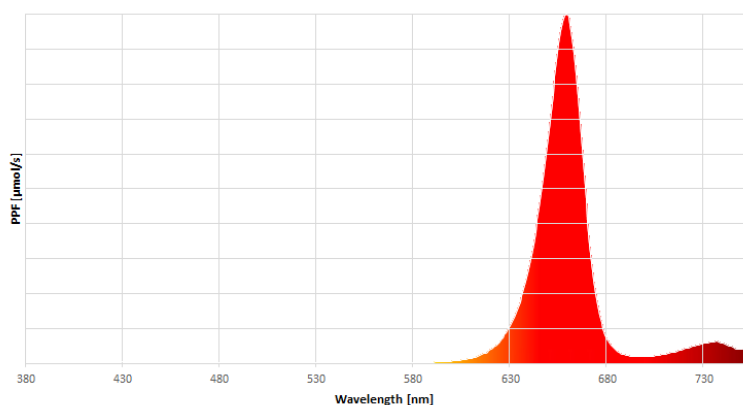
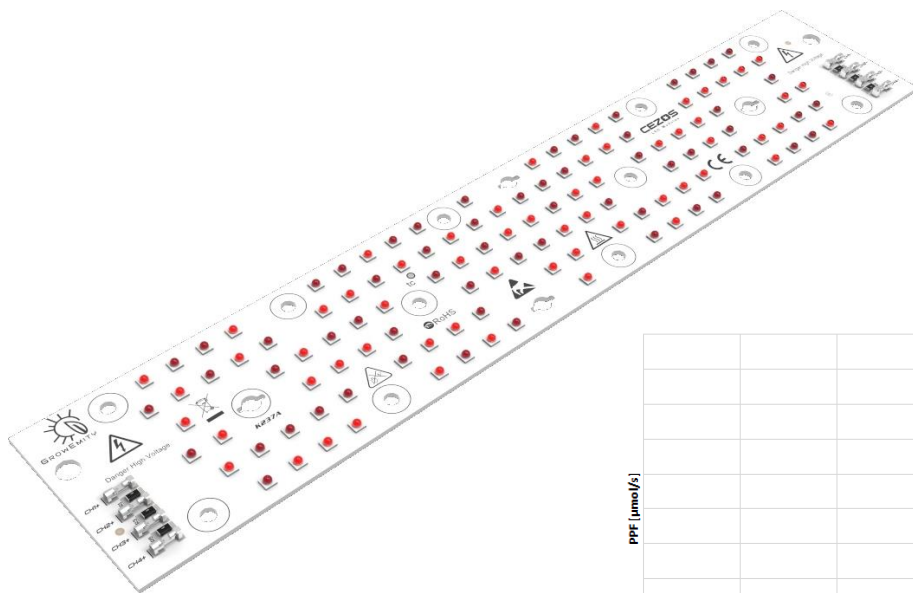


GROWEMITY 120 RRFF - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 RRFF - K237	350	64,5	22,6	84,0	RED	657	12750	69,15	3,06	147,90	1,76	LO-278053-RRFF-C1000-K237
		64,5	22,6		RED	657	12750	69,15	0,25			
		55,5	19,4		FAR RED	727	7950	4,80	2,36			
		55,5	19,4		FAR RED	727	7950	4,80	2,04			
	500	67,5	33,8	126,0	RED	657	17978	97,50	2,89	208,54	1,66	LO-278053-RRFF-C1000-K237
		67,5	33,8		RED	657	17978	97,50	0,23			
		58,5	29,3		FAR RED	727	11210	6,77	2,25			
		58,5	29,3		FAR RED	727	11210	6,77	1,84			
	700	72,0	50,4	187,7	RED	657	24353	132,08	2,62	282,49	1,50	LO-278053-RRFF-C1000-K237
		72,0	50,4		RED	657	24353	132,08	0,21			
		62,1	43,5		FAR RED	727	15185	9,17	1,94			
		62,1	43,5		FAR RED	727	15185	9,17	1,65			
	800	74,4	59,5	220,3	RED	657	27795	150,75	2,53	322,42	1,46	LO-278053-RRFF-C1000-K237
		74,4	59,5		RED	657	27795	150,75	0,21			
		63,3	50,6		FAR RED	727	17331	10,46	1,87			
		63,3	50,6		FAR RED	727	17331	10,46	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.



LED  Light for you
powered by OSRAM

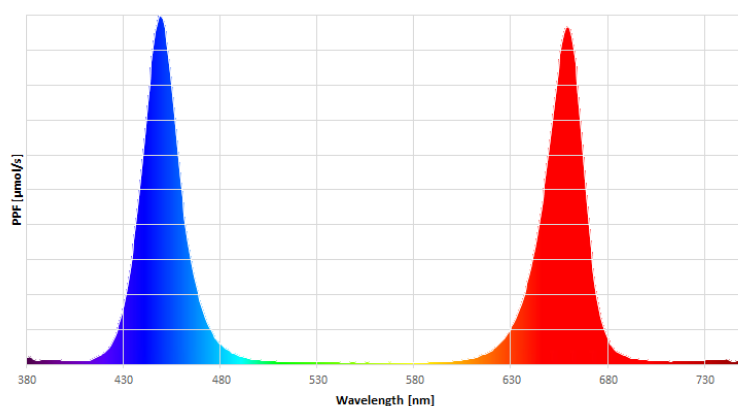
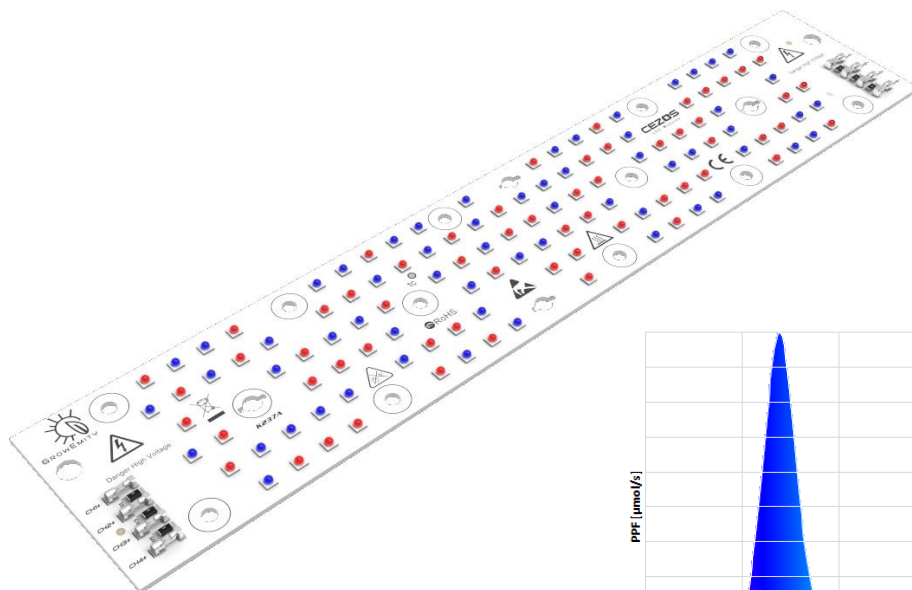


GROWEMITY 120 RRBB - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 RRBB - K237	350	64,5	22,6	105,0	RED	657	12750	69,15	3,06	279,30	2,66	L0-278053-RRBB-C1000-K237
		64,5	22,6		RED	657	12750	69,15	0,25			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,36			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,04			
	500	67,5	33,8	154,5	RED	657	17978	97,50	2,89	390,99	2,53	L0-278053-RRBB-C1000-K237
		67,5	33,8		RED	657	17978	97,50	0,23			
		87,0	43,5		DEEP BLUE	455	26480	98,00	2,25			
		87,0	43,5		DEEP BLUE	455	26480	98,00	1,84			
	700	72,0	50,4	225,5	RED	657	24353	132,08	2,62	506,67	2,25	L0-278053-RRBB-C1000-K237
		72,0	50,4		RED	657	24353	132,08	0,21			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,94			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,65			
	800	74,4	59,5	262,6	RED	657	27795	150,75	2,53	569,39	2,17	L0-278053-RRBB-C1000-K237
		74,4	59,5		RED	657	27795	150,75	0,21			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,87			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.



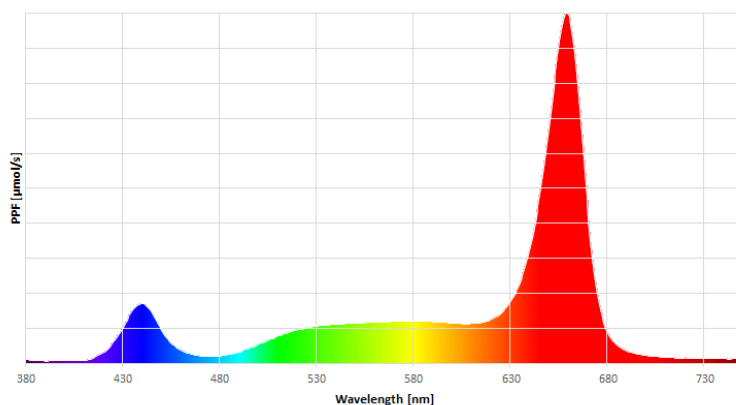
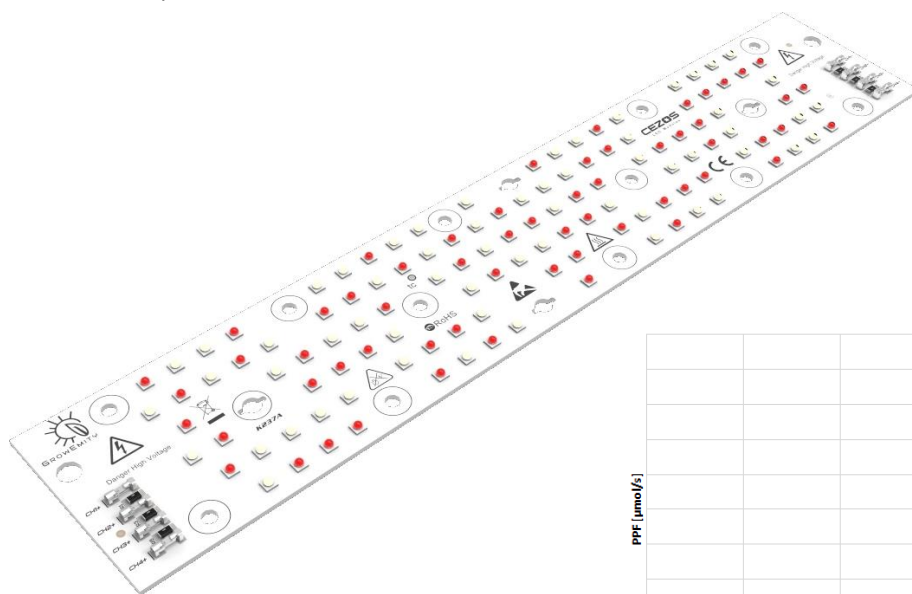
GROWEMITY 120 RRWW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 RRWW - K237	350	64,5	22,6	102,9	RED	657	12750	69,15	3,06	255,90	2,49	LO-278053-RRWW-C1000-K237
		64,5	22,6		RED	657	12750	69,15	0,25			
		82,5	28,9		WHITE	5000	4437	58,80	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	67,5	33,8	153,0	RED	657	17978	97,50	2,89	352,20	2,30	LO-278053-RRWW-C1000-K237
		67,5	33,8		RED	657	17978	97,50	0,23			
		85,5	42,8		WHITE	5000	6079	78,60	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	72,0	50,4	224,7	RED	657	24353	132,08	2,62	468,15	2,08	LO-278053-RRWW-C1000-K237
		72,0	50,4		RED	657	24353	132,08	0,21			
		88,5	62,0		WHITE	5000	7987	102,00	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	74,4	59,5	262,1	RED	657	27795	150,75	2,53	525,89	2,01	LO-278053-RRWW-C1000-K237
		74,4	59,5		RED	657	27795	150,75	0,21			
		89,4	71,5		WHITE	5000	8785	112,20	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.

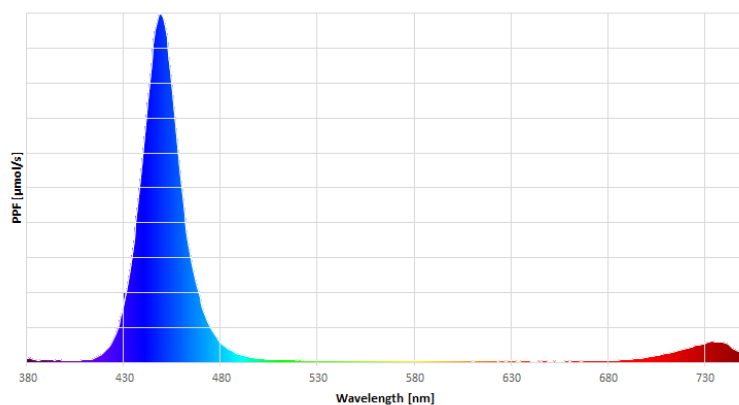
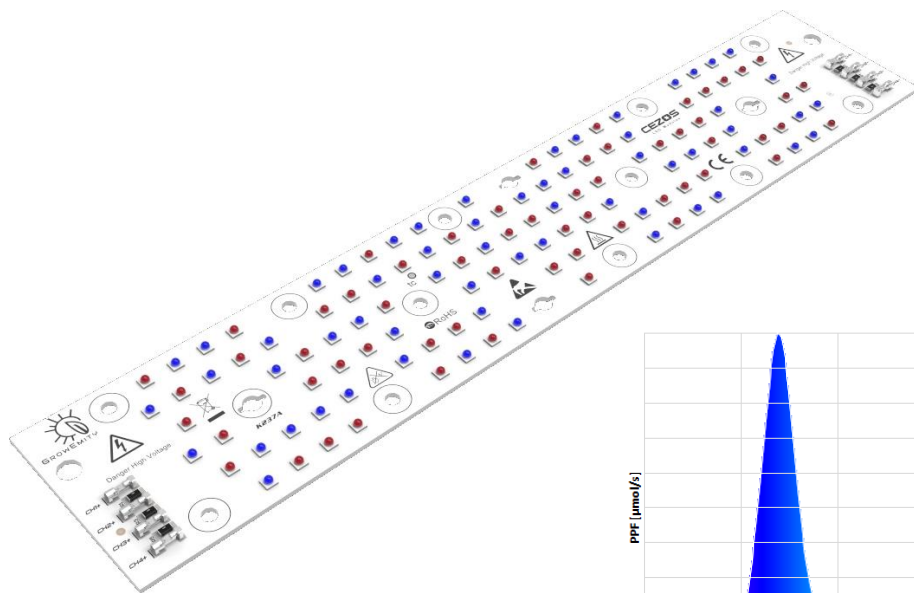


GROWEMITY 120 FFBB - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 FFBB - K237	350	55,5	19,4	98,7	FAR RED	727	7950	4,80	3,06	150,60	1,53	LO-278053-FFBB-C1000-K237
		55,5	19,4		FAR RED	727	7950	4,80	0,25			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,36			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,04			
	500	58,5	29,3	145,5	FAR RED	727	11210	6,77	2,89	209,53	1,44	LO-278053-FFBB-C1000-K237
		58,5	29,3		FAR RED	727	11210	6,77	0,23			
		87,0	43,5		DEEP BLUE	455	26480	98,00	2,25			
		87,0	43,5		DEEP BLUE	455	26480	98,00	1,84			
	700	62,1	43,5	211,7	FAR RED	727	15185	9,17	2,62	260,86	1,23	LO-278053-FFBB-C1000-K237
		62,1	43,5		FAR RED	727	15185	9,17	0,21			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,94			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,65			
	800	63,3	50,6	244,8	FAR RED	727	17331	10,46	2,53	288,83	1,18	LO-278053-FFBB-C1000-K237
		63,3	50,6		FAR RED	727	17331	10,46	0,21			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,87			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.



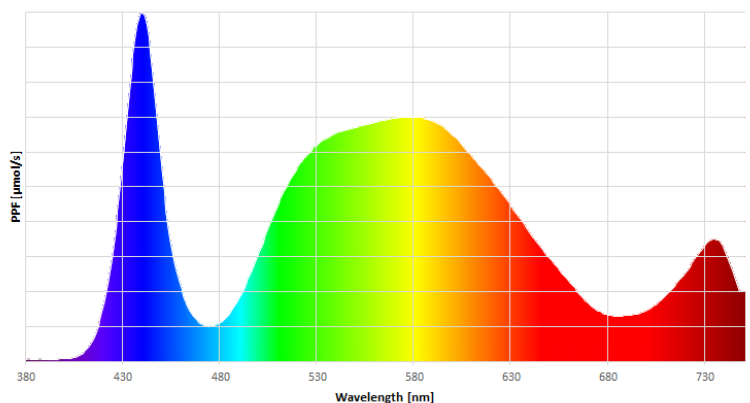
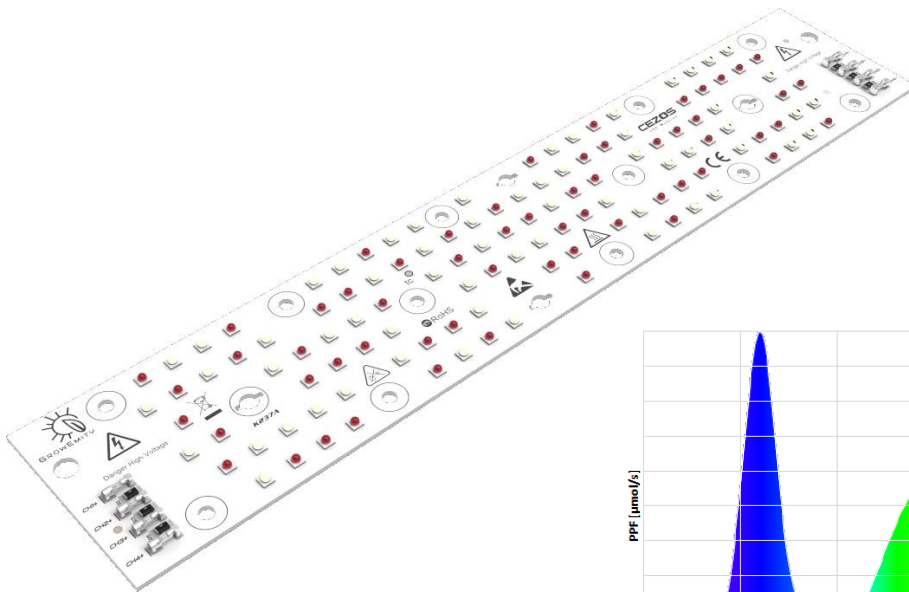
GROWEMITY 120 FFWW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 FFWW - K237	350	55,5	19,4	96,6	FAR RED	727	7950	4,80	3,06	127,20	1,32	LO-278053-FFWW-C1000-K237
		55,5	19,4		FAR RED	727	7950	4,80	0,25			
		82,5	28,9		WHITE	5000	4437	58,80	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	58,5	29,3	144,0	FAR RED	727	11210	6,77	2,89	170,74	1,19	LO-278053-FFWW-C1000-K237
		58,5	29,3		FAR RED	727	11210	6,77	0,23			
		85,5	42,8		WHITE	5000	6079	78,60	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	62,1	43,5	210,8	FAR RED	727	15185	9,17	2,62	222,34	1,05	LO-278053-FFWW-C1000-K237
		62,1	43,5		FAR RED	727	15185	9,17	0,21			
		88,5	62,0		WHITE	5000	7987	102,00	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	63,3	50,6	244,3	FAR RED	727	17331	10,46	2,53	245,33	1,00	LO-278053-FFWW-C1000-K237
		63,3	50,6		FAR RED	727	17331	10,46	0,21			
		89,4	71,5		WHITE	5000	8785	112,20	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.



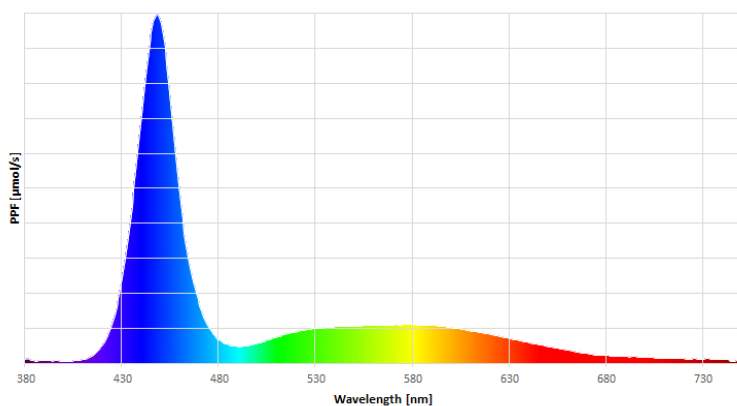
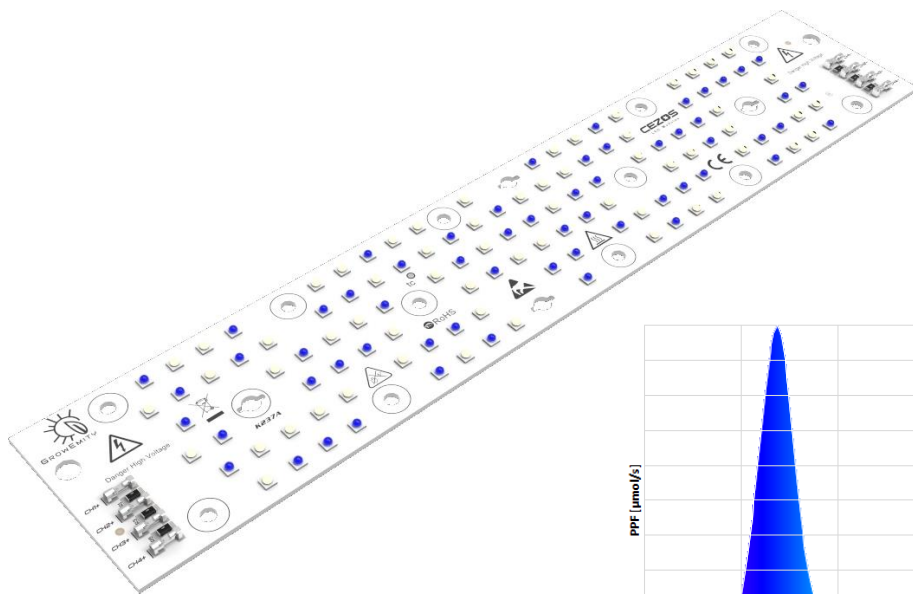
GROWEMITY 120 BBWW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 BBWW - K237	350	85,5	29,9	117,6	DEEP BLUE	455	19050	70,50	3,06	258,60	2,20	LO-278053-BBWW-C1000-K237
		85,5	29,9		DEEP BLUE	455	19050	70,50	0,25			
		82,5	28,9		WHITE	5000	4437	58,80	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	87,0	43,5	172,5	DEEP BLUE	455	26480	98,00	2,89	353,19	2,05	LO-278053-BBWW-C1000-K237
		87,0	43,5		DEEP BLUE	455	26480	98,00	0,23			
		85,5	42,8		WHITE	5000	6079	78,60	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	89,1	62,4	248,6	DEEP BLUE	455	32766	121,26	2,62	446,52	1,80	LO-278053-BBWW-C1000-K237
		89,1	62,4		DEEP BLUE	455	32766	121,26	0,21			
		88,5	62,0		WHITE	5000	7987	102,00	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	89,7	71,8	286,6	DEEP BLUE	455	36195	133,95	2,53	492,30	1,72	LO-278053-BBWW-C1000-K237
		89,7	71,8		DEEP BLUE	455	36195	133,95	0,21			
		89,4	71,5		WHITE	5000	8785	112,20	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.



LED  Light for you
powered by OSRAM



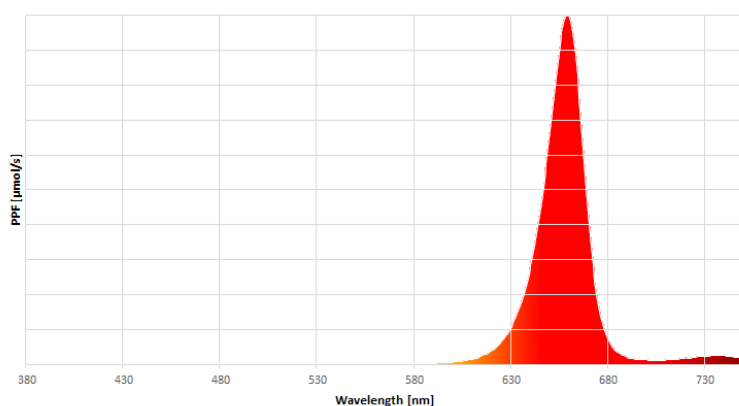
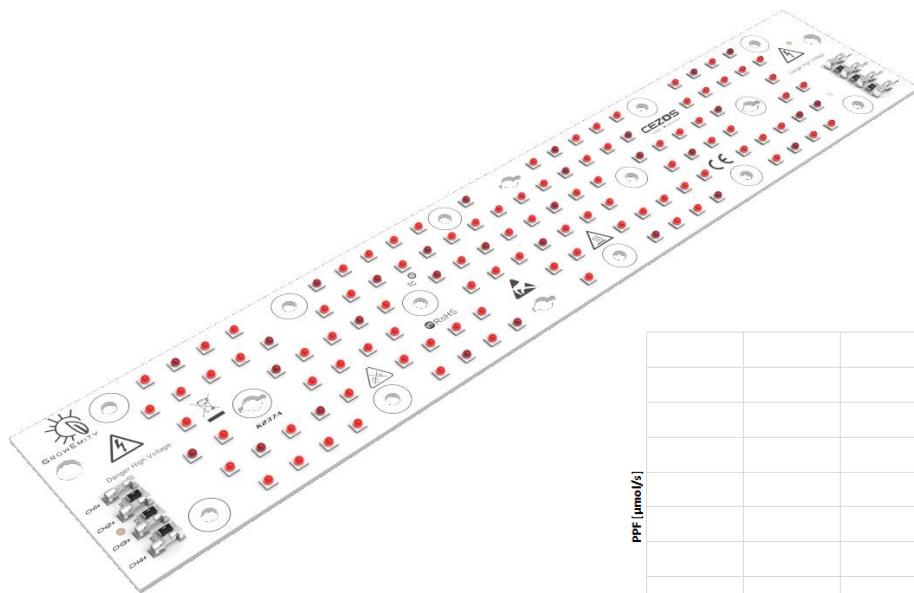

MechaTronix

GROWEMITY 120 RRRF - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 RRRF - K237	350	64,5	22,6	87,2	RED	657	12750	69,15	3,06	212,25	2,44	LO-278053-RRRF-C1000-K237
		64,5	22,6		RED	657	12750	69,15	0,25			
		64,5	22,6		RED	657	12750	69,15	2,36			
		55,5	19,4		FAR RED	727	7950	4,80	2,04			
	500	67,5	33,8	130,5	RED	657	17978	97,50	2,89	299,27	2,29	LO-278053-RRRF-C1000-K237
		67,5	33,8		RED	657	17978	97,50	0,23			
		67,5	33,8		RED	657	17978	97,50	2,25			
		58,5	29,3		FAR RED	727	11210	6,77	1,84			
	700	72,0	50,4	194,7	RED	657	24353	132,08	2,62	405,40	2,08	LO-278053-RRRF-C1000-K237
		72,0	50,4		RED	657	24353	132,08	0,21			
		72,0	50,4		RED	657	24353	132,08	1,94			
		62,1	43,5		FAR RED	727	15185	9,17	1,65			
	800	74,4	59,5	229,2	RED	657	27795	150,75	2,53	462,71	2,02	LO-278053-RRRF-C1000-K237
		74,4	59,5		RED	657	27795	150,75	0,21			
		74,4	59,5		RED	657	27795	150,75	1,87			
		63,3	50,6		FAR RED	727	17331	10,46	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.

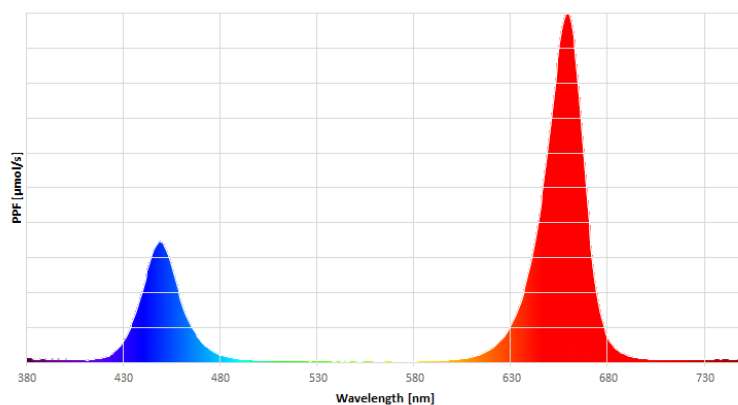
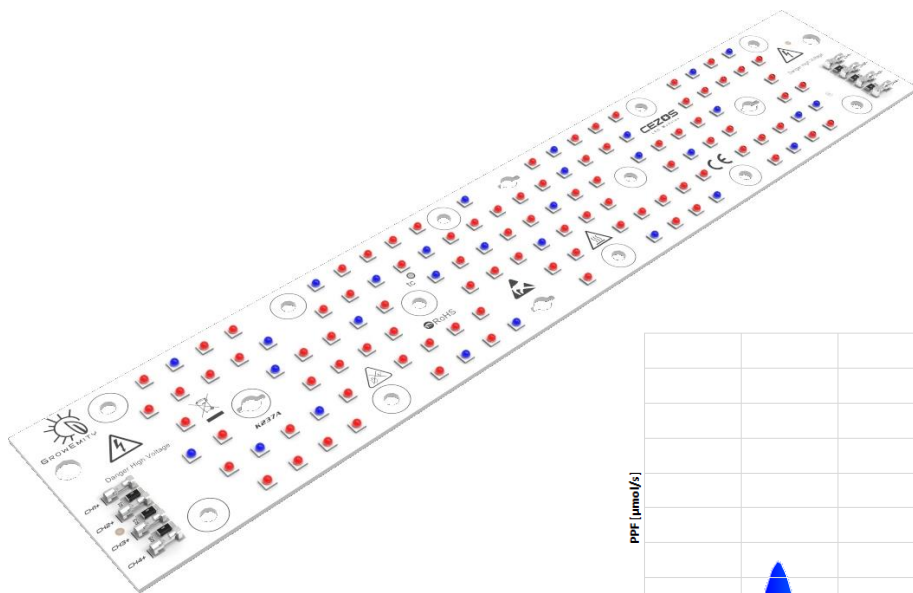


GROWEMITY 120 RRRB - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 RRRB - K237	350	64,5	22,6	97,7	RED	657	12750	69,15	3,06	277,95	2,85	L0-278053-RRRB-C1000-K237
		64,5	22,6		RED	657	12750	69,15	0,25			
		64,5	22,6		RED	657	12750	69,15	2,36			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,04			
	500	67,5	33,8	144,8	RED	657	17978	97,50	2,89	390,50	2,70	L0-278053-RRRB-C1000-K237
		67,5	33,8		RED	657	17978	97,50	0,23			
		67,5	33,8		RED	657	17978	97,50	2,25			
		87,0	43,5		DEEP BLUE	455	26480	98,00	1,84			
	700	72,0	50,4	213,6	RED	657	24353	132,08	2,62	517,49	2,42	L0-278053-RRRB-C1000-K237
		72,0	50,4		RED	657	24353	132,08	0,21			
		72,0	50,4		RED	657	24353	132,08	1,94			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,65			
	800	74,4	59,5	250,3	RED	657	27795	150,75	2,53	586,19	2,34	L0-278053-RRRB-C1000-K237
		74,4	59,5		RED	657	27795	150,75	0,21			
		74,4	59,5		RED	657	27795	150,75	1,87			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.



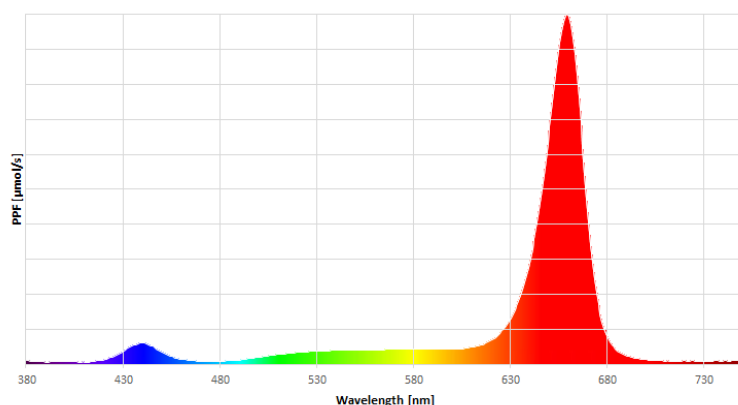
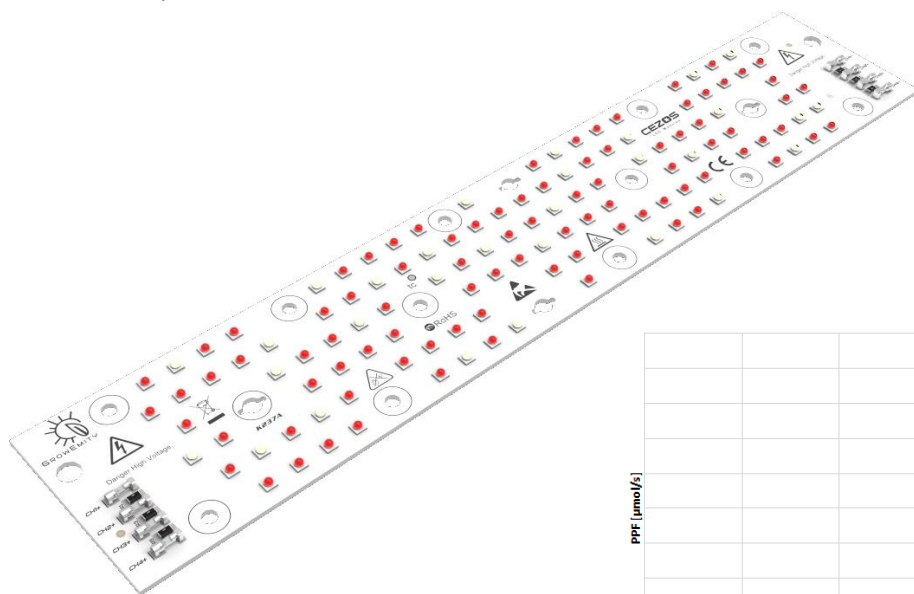
GROWEMITY 120 RRRW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 RRRW - K237	350	64,5	22,6	96,6	RED	657	12750	69,15	3,06	266,25	2,76	LO-278053-RRRW-C1000-K237
		64,5	22,6		RED	657	12750	69,15	0,25			
		64,5	22,6		RED	657	12750	69,15	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	67,5	33,8	144,0	RED	657	17978	97,50	2,89	371,10	2,58	LO-278053-RRRW-C1000-K237
		67,5	33,8		RED	657	17978	97,50	0,23			
		67,5	33,8		RED	657	17978	97,50	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	72,0	50,4	213,2	RED	657	24353	132,08	2,62	498,23	2,34	LO-278053-RRRW-C1000-K237
		72,0	50,4		RED	657	24353	132,08	0,21			
		72,0	50,4		RED	657	24353	132,08	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	74,4	59,5	250,1	RED	657	27795	150,75	2,53	564,44	2,26	LO-278053-RRRW-C1000-K237
		74,4	59,5		RED	657	27795	150,75	0,21			
		74,4	59,5		RED	657	27795	150,75	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.

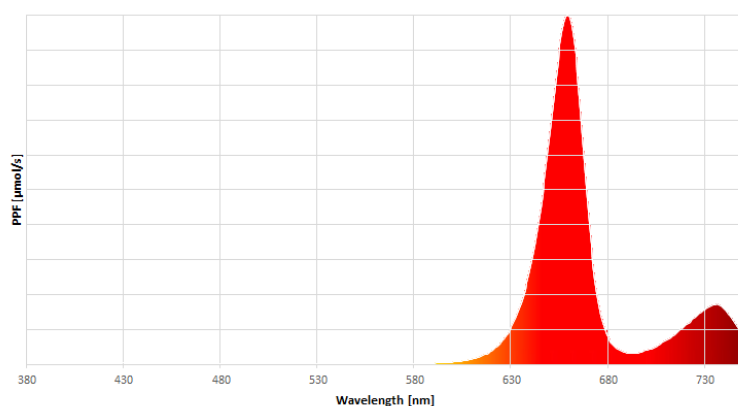
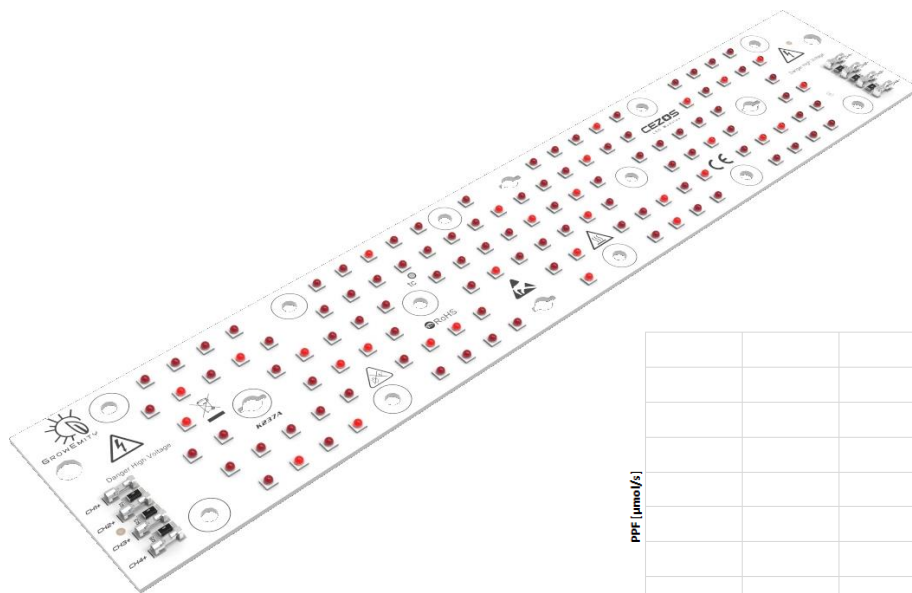


GROWEMITY 120 RFFF - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 RFFF - K237	350	64,5	22,6	80,9	RED	657	12750	69,15	3,06	83,55	1,03	LO-278053-RFFF-C1000-K237
		55,5	19,4		FAR RED	727	7950	4,80	0,25			
		55,5	19,4		FAR RED	727	7950	4,80	2,36			
		55,5	19,4		FAR RED	727	7950	4,80	2,04			
	500	67,5	33,8	121,5	RED	657	17978	97,50	2,89	117,81	0,97	LO-278053-RFFF-C1000-K237
		58,5	29,3		FAR RED	727	11210	6,77	0,23			
		58,5	29,3		FAR RED	727	11210	6,77	2,25			
		58,5	29,3		FAR RED	727	11210	6,77	1,84			
	700	72,0	50,4	180,8	RED	657	24353	132,08	2,62	159,58	0,88	LO-278053-RFFF-C1000-K237
		62,1	43,5		FAR RED	727	15185	9,17	0,21			
		62,1	43,5		FAR RED	727	15185	9,17	1,94			
		62,1	43,5		FAR RED	727	15185	9,17	1,65			
	800	74,4	59,5	211,4	RED	657	27795	150,75	2,53	182,14	0,86	LO-278053-RFFF-C1000-K237
		63,3	50,6		FAR RED	727	17331	10,46	0,21			
		63,3	50,6		FAR RED	727	17331	10,46	1,87			
		63,3	50,6		FAR RED	727	17331	10,46	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.

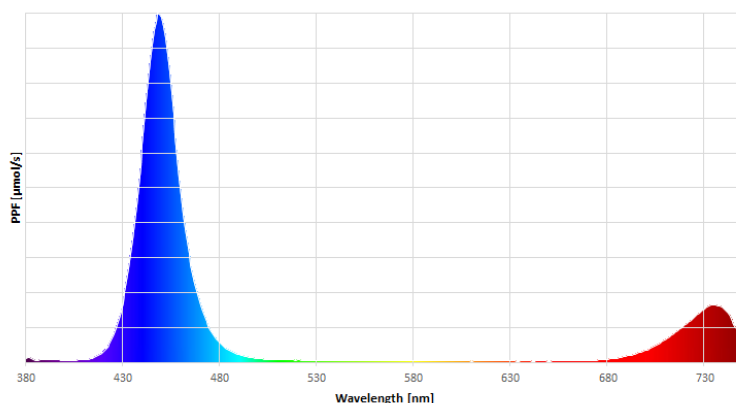
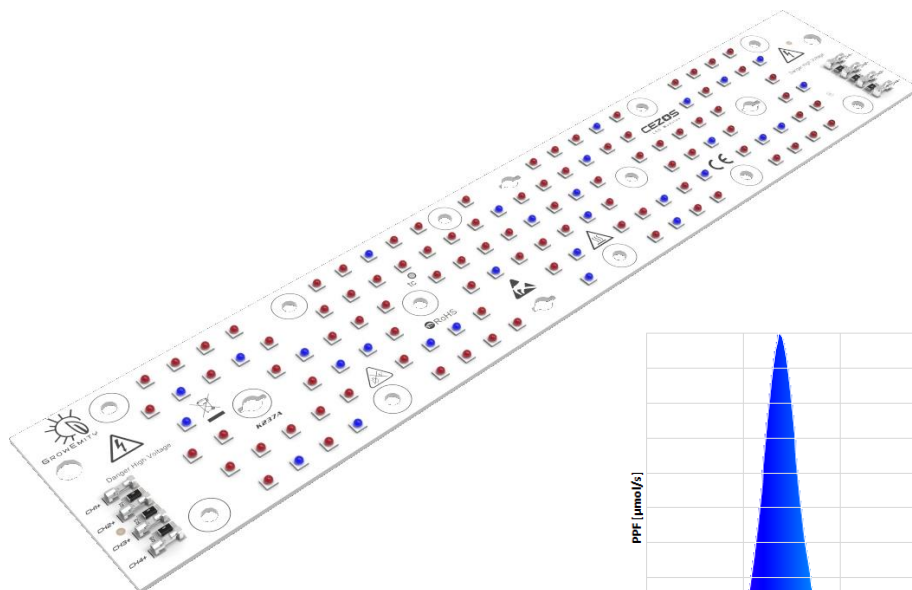


GROWEMITY 120 FFFB - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 FFFB - K237	350	55,5	19,4	88,2	FAR RED	727	7950	4,80	3,06	84,90	0,96	LO-278053-FFFB-C1000-K237
		55,5	19,4		FAR RED	727	7950	4,80	0,25			
		55,5	19,4		FAR RED	727	7950	4,80	2,36			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,04			
	500	58,5	29,3	131,3	FAR RED	727	11210	6,77	2,89	118,30	0,90	LO-278053-FFFB-C1000-K237
		58,5	29,3		FAR RED	727	11210	6,77	0,23			
		58,5	29,3		FAR RED	727	11210	6,77	2,25			
		87,0	43,5		DEEP BLUE	455	26480	98,00	1,84			
	700	62,1	43,5	192,8	FAR RED	727	15185	9,17	2,62	148,76	0,77	LO-278053-FFFB-C1000-K237
		62,1	43,5		FAR RED	727	15185	9,17	0,21			
		62,1	43,5		FAR RED	727	15185	9,17	1,94			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,65			
	800	63,3	50,6	223,7	FAR RED	727	17331	10,46	2,53	165,34	0,74	LO-278053-FFFB-C1000-K237
		63,3	50,6		FAR RED	727	17331	10,46	0,21			
		63,3	50,6		FAR RED	727	17331	10,46	1,87			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.



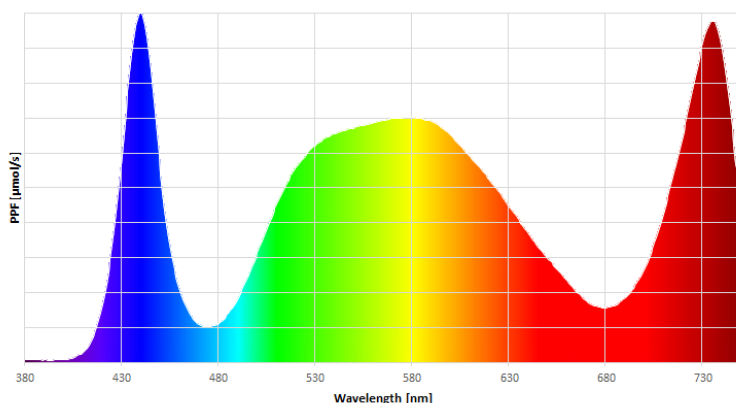
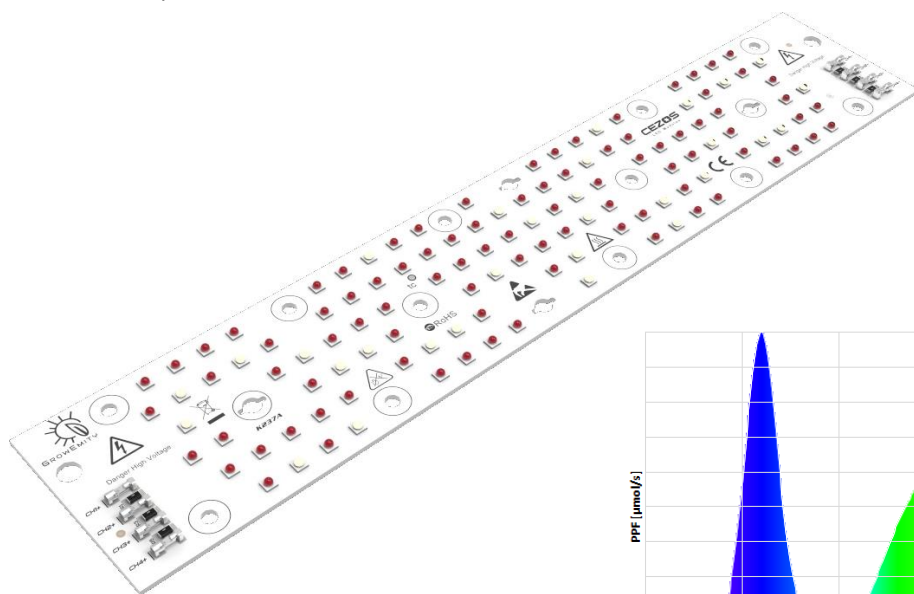
GROWEMITY 120 FFFW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 FFFW - K237	350	55,5	19,4	87,2	FAR RED	727	7950	4,80	3,06	73,20	0,84	L0-278053-FFFW-C1000-K237
		55,5	19,4		FAR RED	727	7950	4,80	0,25			
		55,5	19,4		FAR RED	727	7950	4,80	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	58,5	29,3	130,5	FAR RED	727	11210	6,77	2,89	98,90	0,76	L0-278053-FFFW-C1000-K237
		58,5	29,3		FAR RED	727	11210	6,77	0,23			
		58,5	29,3		FAR RED	727	11210	6,77	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	62,1	43,5	192,4	FAR RED	727	15185	9,17	2,62	129,50	0,67	L0-278053-FFFW-C1000-K237
		62,1	43,5		FAR RED	727	15185	9,17	0,21			
		62,1	43,5		FAR RED	727	15185	9,17	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	63,3	50,6	223,4	FAR RED	727	17331	10,46	2,53	143,59	0,64	L0-278053-FFFW-C1000-K237
		63,3	50,6		FAR RED	727	17331	10,46	0,21			
		63,3	50,6		FAR RED	727	17331	10,46	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.

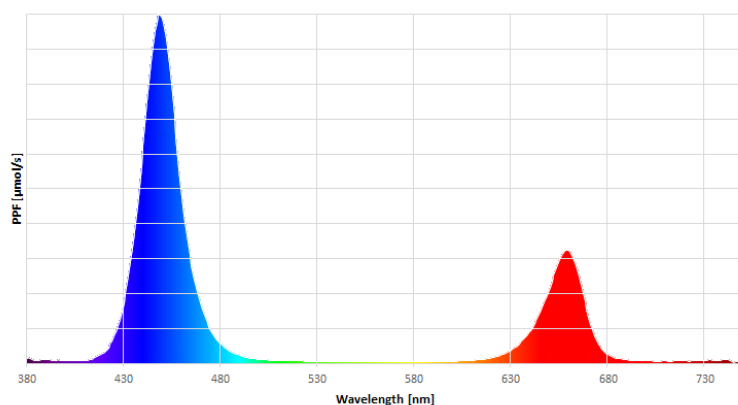
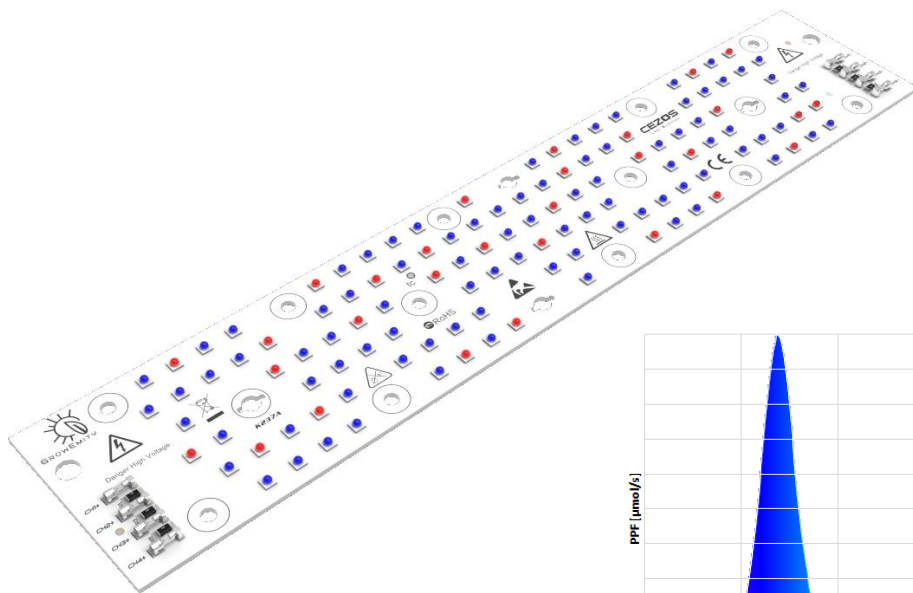


GROWEMITY 120 RBBB - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 RBBB - K237	350	64,5	22,6	112,4	RED	657	12750	69,15	3,06	280,65	2,50	L0-278053-RBBB-C1000-K237
		85,5	29,9		DEEP BLUE	455	19050	70,50	0,25			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,36			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,04			
	500	67,5	33,8	164,3	RED	657	17978	97,50	2,89	391,49	2,38	L0-278053-RBBB-C1000-K237
		87,0	43,5		DEEP BLUE	455	26480	98,00	0,23			
		87,0	43,5		DEEP BLUE	455	26480	98,00	2,25			
		87,0	43,5		DEEP BLUE	455	26480	98,00	1,84			
	700	72,0	50,4	237,5	RED	657	24353	132,08	2,62	495,86	2,09	L0-278053-RBBB-C1000-K237
		89,1	62,4		DEEP BLUE	455	32766	121,26	0,21			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,94			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,65			
	800	74,4	59,5	274,8	RED	657	27795	150,75	2,53	552,60	2,01	L0-278053-RBBB-C1000-K237
		89,7	71,8		DEEP BLUE	455	36195	133,95	0,21			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,87			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,57			

Parameters were calculated for temperatures $T_j = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.

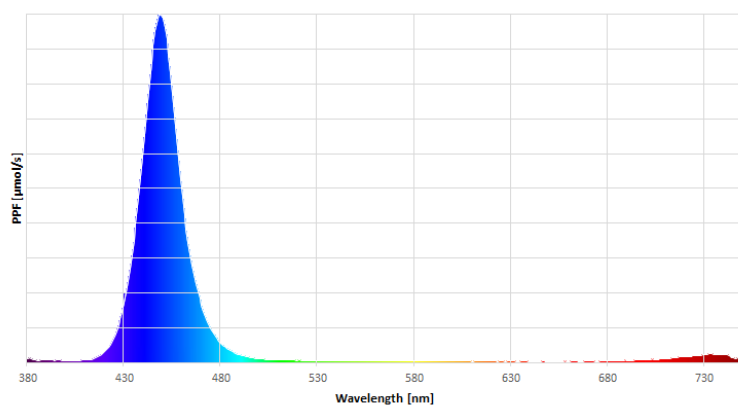
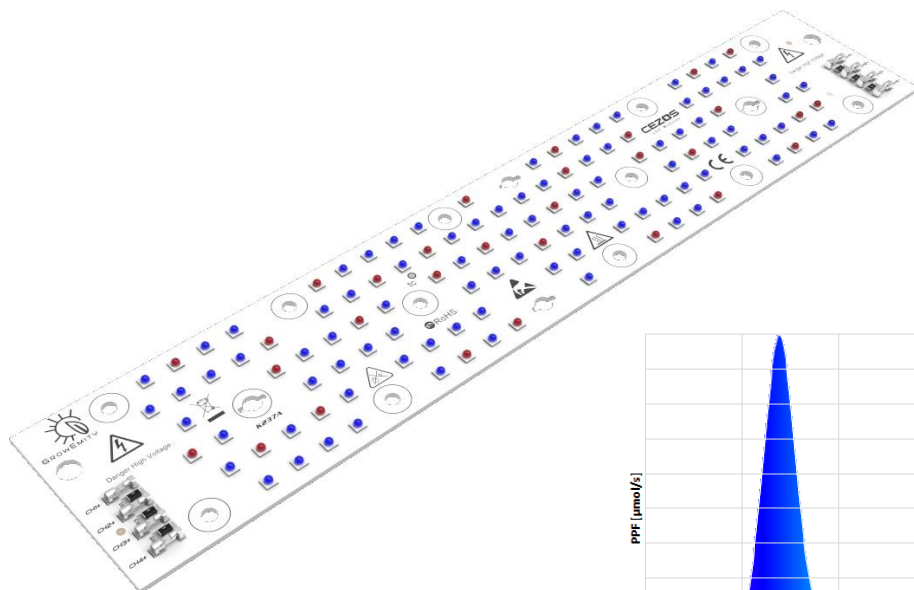


GROWEMITY 120 FB8B - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 FB8B - K237	350	55,5	19,4	109,2	FAR RED	727	7950	4,80	3,06	216,30	1,98	LO-278053-FB8B-C1000-K237
		85,5	29,9		DEEP BLUE	455	19050	70,50	0,25			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,36			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,04			
	500	58,5	29,3	159,8	FAR RED	727	11210	6,77	2,89	300,75	1,88	LO-278053-FB8B-C1000-K237
		87,0	43,5		DEEP BLUE	455	26480	98,00	0,23			
		87,0	43,5		DEEP BLUE	455	26480	98,00	2,25			
		87,0	43,5		DEEP BLUE	455	26480	98,00	1,84			
	700	62,1	43,5	230,6	FAR RED	727	15185	9,17	2,62	372,95	1,62	LO-278053-FB8B-C1000-K237
		89,1	62,4		DEEP BLUE	455	32766	121,26	0,21			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,94			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,65			
	800	63,3	50,6	265,9	FAR RED	727	17331	10,46	2,53	412,31	1,55	LO-278053-FB8B-C1000-K237
		89,7	71,8		DEEP BLUE	455	36195	133,95	0,21			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,87			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,57			

Parameters were calculated for temperatures $T_j = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.



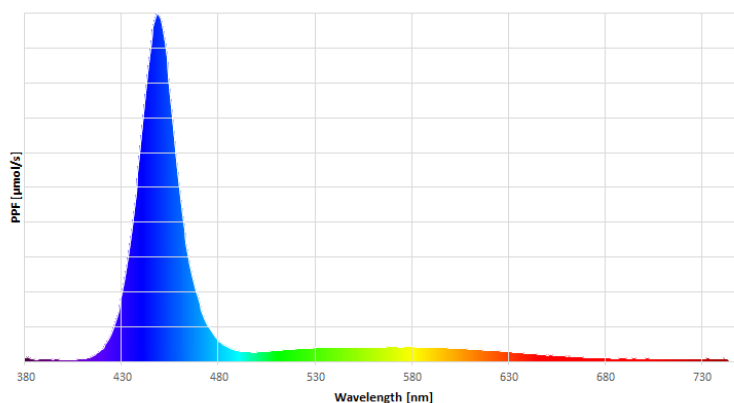
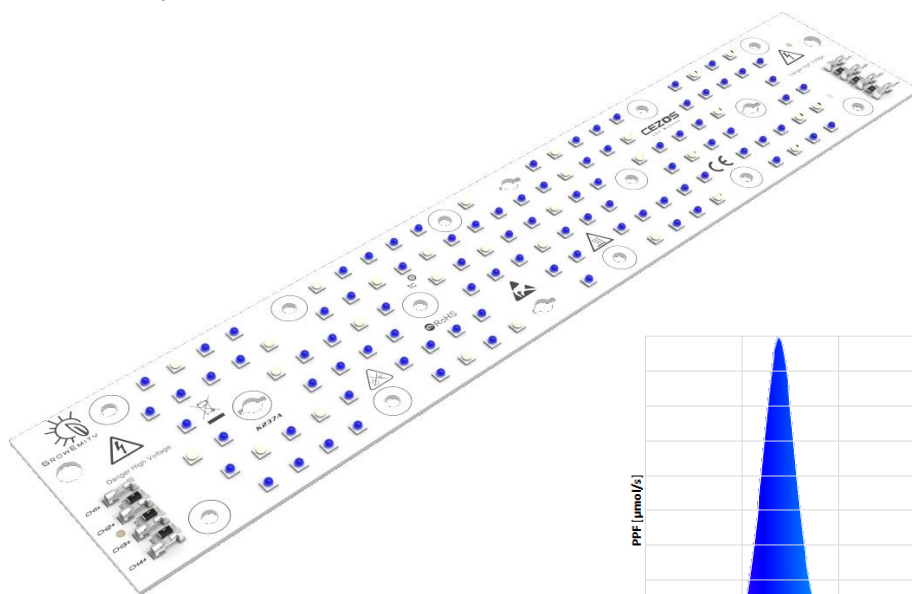
GROWEMITY 120 BBBW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 BBBW - K237	350	85,5	29,9	118,7	DEEP BLUE	455	19050	70,50	3,06	270,30	2,28	LO-278053-BBBW-C1000-K237
		85,5	29,9		DEEP BLUE	455	19050	70,50	0,25			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	87,0	43,5	173,3	DEEP BLUE	455	26480	98,00	2,89	372,59	2,15	LO-278053-BBBW-C1000-K237
		87,0	43,5		DEEP BLUE	455	26480	98,00	0,23			
		87,0	43,5		DEEP BLUE	455	26480	98,00	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	89,1	62,4	249,1	DEEP BLUE	455	32766	121,26	2,62	465,78	1,87	LO-278053-BBBW-C1000-K237
		89,1	62,4		DEEP BLUE	455	32766	121,26	0,21			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	89,7	71,8	286,8	DEEP BLUE	455	36195	133,95	2,53	514,05	1,79	LO-278053-BBBW-C1000-K237
		89,7	71,8		DEEP BLUE	455	36195	133,95	0,21			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.



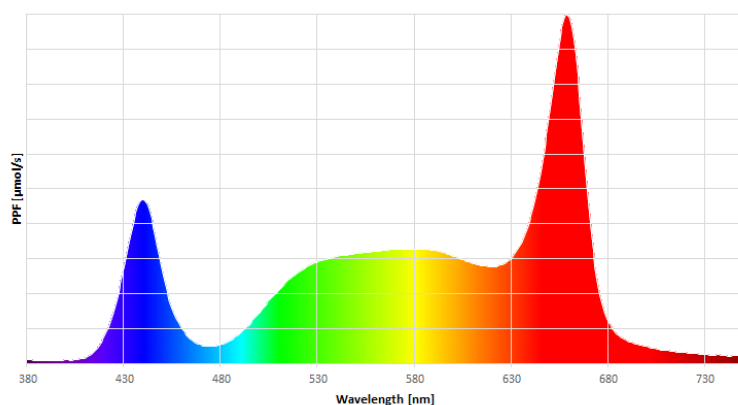
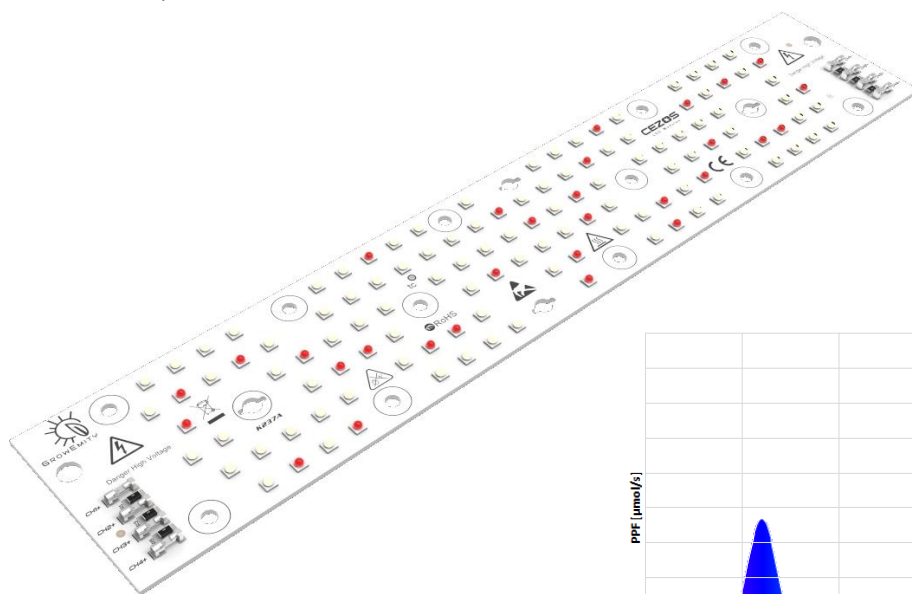
GROWEMITY 120 RWWW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 RWWW - K237	350	64,5	22,6	109,2	RED	657	12750	69,15	3,06	245,55	2,25	LO-278053-RWWW-C1000-K237
		82,5	28,9		WHITE	5000	4437	58,80	0,25			
		82,5	28,9		WHITE	5000	4437	58,80	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	67,5	33,8	162,0	RED	657	17978	97,50	2,89	333,30	2,06	LO-278053-RWWW-C1000-K237
		85,5	42,8		WHITE	5000	6079	78,60	0,23			
		85,5	42,8		WHITE	5000	6079	78,60	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	72,0	50,4	217,1	RED	657	24353	132,08	2,62	414,68	1,91	LO-278053-RWWW-C1000-K237
		85,5	42,8		WHITE	5000	6079	78,60	0,21			
		88,5	62,0		WHITE	5000	7987	102,00	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	74,4	59,5	274,1	RED	657	27795	150,75	2,53	487,35	1,78	LO-278053-RWWW-C1000-K237
		89,4	71,5		WHITE	5000	8785	112,20	0,21			
		89,4	71,5		WHITE	5000	8785	112,20	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

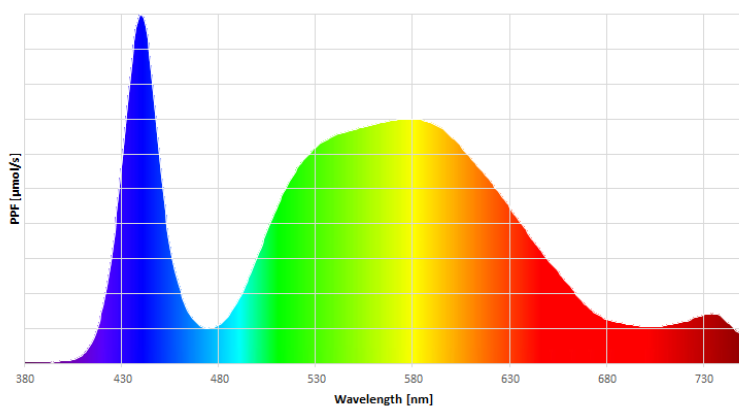
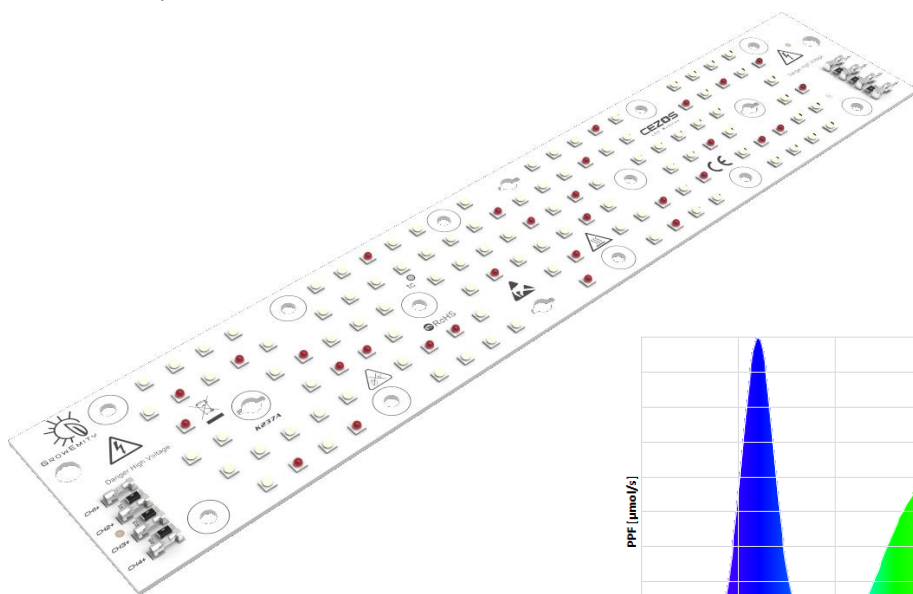
Values of these parameters were calculated for default bin and with tolerances of 15%.



GROWEMITY 120 FWWW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 FWWW - K237	350	55,5	19,4	106,1	FAR RED	727	7950	4,80	3,06	181,20	1,71	LO-278053-FWWW-C1000-K237
		82,5	28,9		WHITE	5000	4437	58,80	0,25			
		82,5	28,9		WHITE	5000	4437	58,80	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	58,5	29,3	157,5	FAR RED	727	11210	6,77	2,89	242,57	1,54	LO-278053-FWWW-C1000-K237
		85,5	42,8		WHITE	5000	6079	78,60	0,23			
		85,5	42,8		WHITE	5000	6079	78,60	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	62,1	43,5	229,3	FAR RED	727	15185	9,17	2,62	315,17	1,37	LO-278053-FWWW-C1000-K237
		88,5	62,0		WHITE	5000	7987	102,00	0,21			
		88,5	62,0		WHITE	5000	7987	102,00	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	63,3	50,6	265,2	FAR RED	727	17331	10,46	2,53	347,06	1,31	LO-278053-FWWW-C1000-K237
		89,4	71,5		WHITE	5000	8785	112,20	0,21			
		89,4	71,5		WHITE	5000	8785	112,20	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$
 Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.
 Values of these parameters were calculated for default bin and with tolerances of 15%.



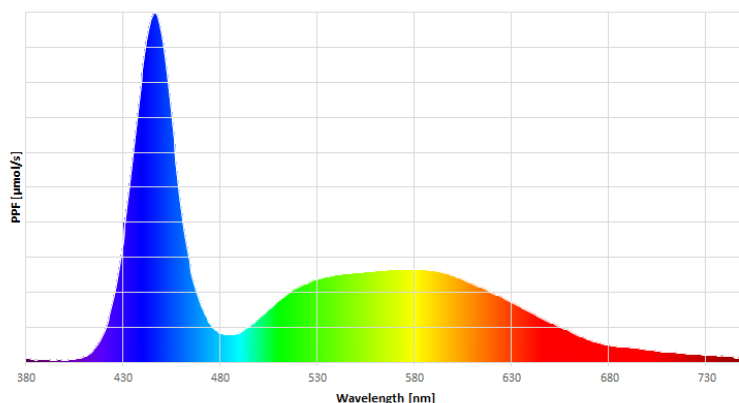
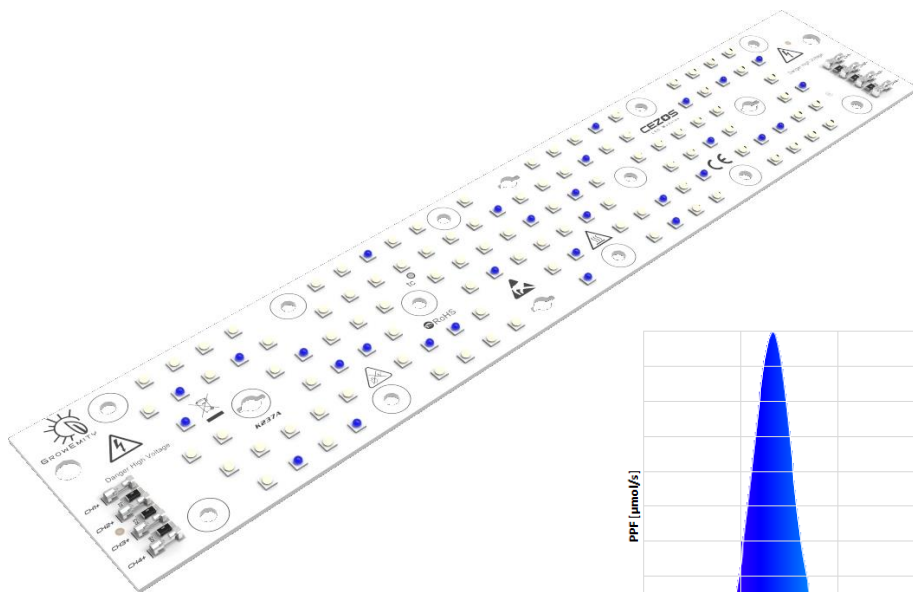
GROWEMITY 120 BWWW - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm] / CCT [K]	Radiant Power [mW] / Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 BWWW - K237	350	85,5	29,9	116,6	DEEP BLUE	455	19050	70,50	3,06	246,90	2,12	LO-278053-BWWW-C1000-K237
		82,5	28,9		WHITE	5000	4437	58,80	0,25			
		82,5	28,9		WHITE	5000	4437	58,80	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	87,0	43,5	171,8	DEEP BLUE	455	26480	98,00	2,89	333,80	1,94	LO-278053-BWWW-C1000-K237
		85,5	42,8		WHITE	5000	6079	78,60	0,23			
		85,5	42,8		WHITE	5000	6079	78,60	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	89,1	62,4	248,2	DEEP BLUE	455	32766	121,26	2,62	427,26	1,72	LO-278053-BWWW-C1000-K237
		88,5	62,0		WHITE	5000	7987	102,00	0,21			
		88,5	62,0		WHITE	5000	7987	102,00	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	89,7	71,8	286,3	DEEP BLUE	455	36195	133,95	2,53	470,55	1,64	LO-278053-BWWW-C1000-K237
		89,4	71,5		WHITE	5000	8785	112,20	0,21			
		89,4	71,5		WHITE	5000	8785	112,20	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Radiant power and wavelength for color LEDs; Luminous flux and color temperature for white LEDs.

Values of these parameters were calculated for default bin and with tolerances of 15%.

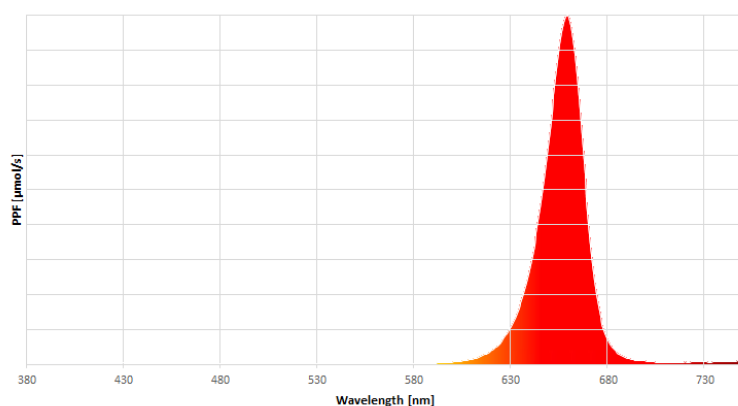
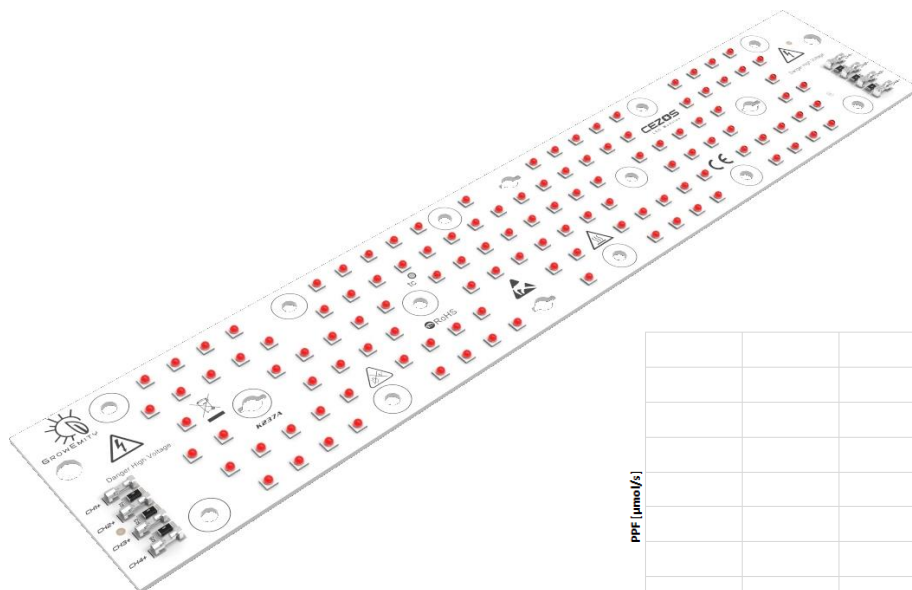


GROWEMITY 120 RRRR - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 RRRR - K237	350	64,5	22,6	90,3	RED	657	12750	69,15	3,06	276,60	3,06	L0-278053-RRRR-C1000-K237
		64,5	22,6		RED	657	12750	69,15	0,25			
		64,5	22,6		RED	657	12750	69,15	2,36			
		64,5	22,6		RED	657	12750	69,15	2,04			
	500	67,5	33,8	135,0	RED	657	17978	97,50	2,89	390,01	2,89	L0-278053-RRRR-C1000-K237
		67,5	33,8		RED	657	17978	97,50	0,23			
		67,5	33,8		RED	657	17978	97,50	2,25			
		67,5	33,8		RED	657	17978	97,50	1,84			
	700	72,0	50,4	201,6	RED	657	24353	132,08	2,62	528,31	2,62	L0-278053-RRRR-C1000-K237
		72,0	50,4		RED	657	24353	132,08	0,21			
		72,0	50,4		RED	657	24353	132,08	1,94			
		72,0	50,4		RED	657	24353	132,08	1,65			
	800	74,4	59,5	238,1	RED	657	27795	150,75	2,53	602,99	2,53	L0-278053-RRRR-C1000-K237
		74,4	59,5		RED	657	27795	150,75	0,21			
		74,4	59,5		RED	657	27795	150,75	1,87			
		74,4	59,5		RED	657	27795	150,75	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.

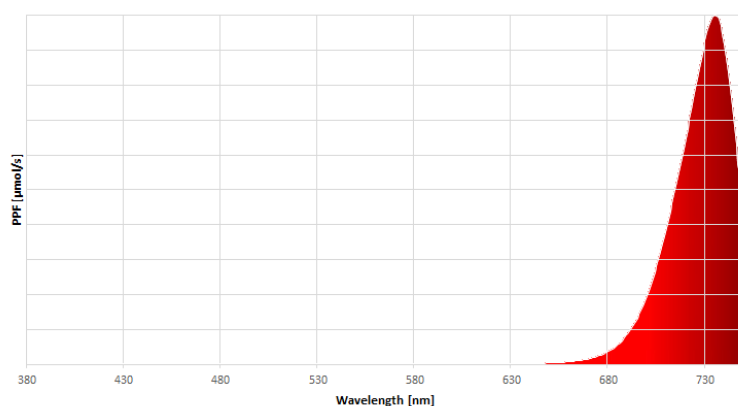
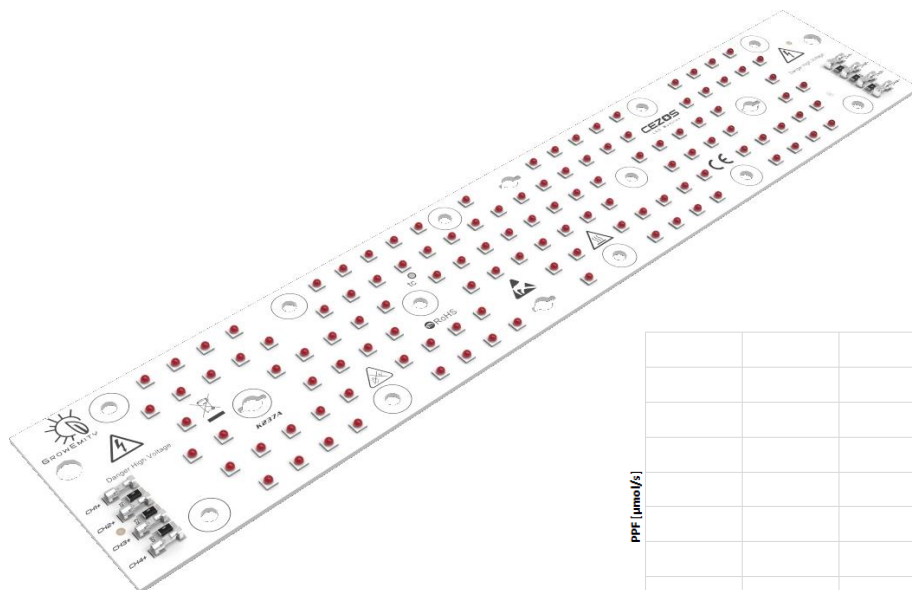


GROWEMITY 120 FFFF- K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 FFFF- K237	350	55,5	19,4	77,7	FAR RED	727	7950	4,80	3,06	19,20	0,25	LO-278053-FFFF-C1000-K237
		55,5	19,4		FAR RED	727	7950	4,80	0,25			
		55,5	19,4		FAR RED	727	7950	4,80	2,36			
		55,5	19,4		FAR RED	727	7950	4,80	2,04			
	500	58,5	29,3	117,0	FAR RED	727	11210	6,77	2,89	27,07	0,23	LO-278053-FFFF-C1000-K237
		58,5	29,3		FAR RED	727	11210	6,77	0,23			
		58,5	29,3		FAR RED	727	11210	6,77	2,25			
		58,5	29,3		FAR RED	727	11210	6,77	1,84			
	700	62,1	43,5	173,9	FAR RED	727	15185	9,17	2,62	36,67	0,21	LO-278053-FFFF-C1000-K237
		62,1	43,5		FAR RED	727	15185	9,17	0,21			
		62,1	43,5		FAR RED	727	15185	9,17	1,94			
		62,1	43,5		FAR RED	727	15185	9,17	1,65			
	800	63,3	50,6	202,6	FAR RED	727	17331	10,46	2,53	41,86	0,21	LO-278053-FFFF-C1000-K237
		63,3	50,6		FAR RED	727	17331	10,46	0,21			
		63,3	50,6		FAR RED	727	17331	10,46	1,87			
		63,3	50,6		FAR RED	727	17331	10,46	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.

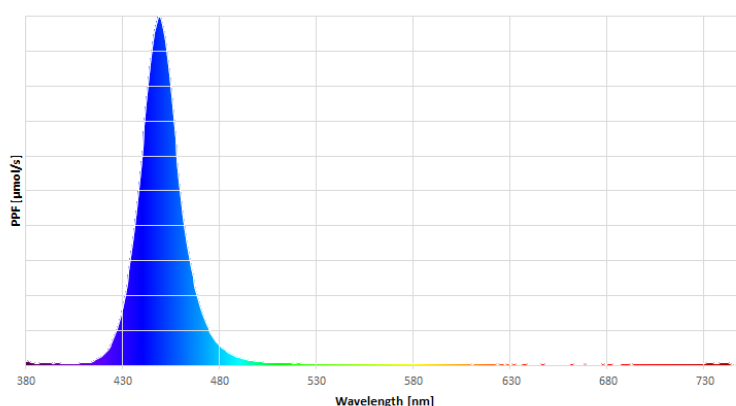
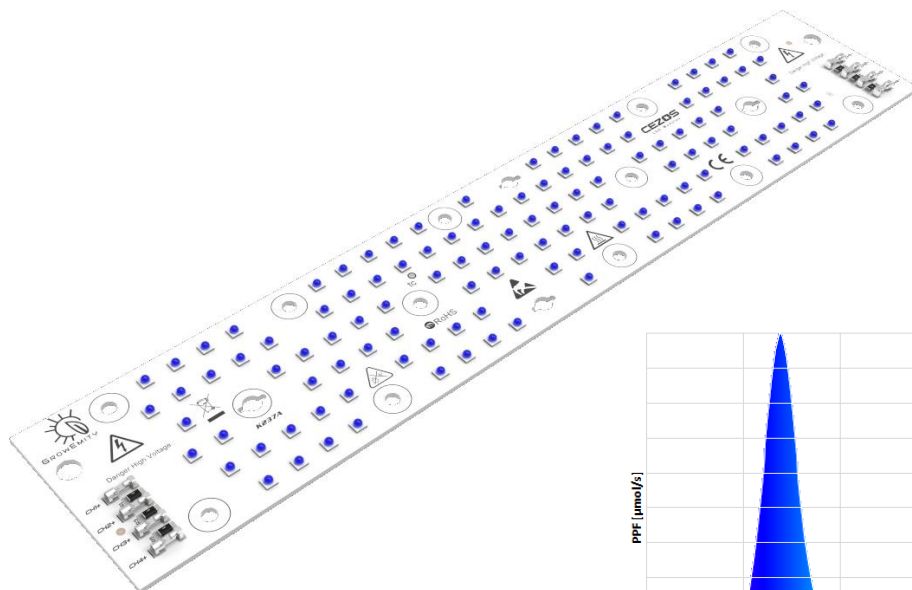


GROWEMITY 120 BBBB - K237

	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	λ [nm]	Radiant Power [mW]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 BBBB - K237	350	85,5	29,9	119,7	DEEP BLUE	455	19050	70,50	3,06	282,00	2,36	L0-278053-BBBB-C1000-K237
		85,5	29,9		DEEP BLUE	455	19050	70,50	0,25			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,36			
		85,5	29,9		DEEP BLUE	455	19050	70,50	2,04			
	500	87,0	43,5	174,0	DEEP BLUE	455	26480	98,00	2,89	391,98	2,25	L0-278053-BBBB-C1000-K237
		87,0	43,5		DEEP BLUE	455	26480	98,00	0,23			
		87,0	43,5		DEEP BLUE	455	26480	98,00	2,25			
		87,0	43,5		DEEP BLUE	455	26480	98,00	1,84			
	700	89,1	62,4	249,5	DEEP BLUE	455	32766	121,26	2,62	485,04	1,94	L0-278053-BBBB-C1000-K237
		89,1	62,4		DEEP BLUE	455	32766	121,26	0,21			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,94			
		89,1	62,4		DEEP BLUE	455	32766	121,26	1,65			
	800	89,7	71,8	287,0	DEEP BLUE	455	36195	133,95	2,53	535,80	1,87	L0-278053-BBBB-C1000-K237
		89,7	71,8		DEEP BLUE	455	36195	133,95	0,21			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,87			
		89,7	71,8		DEEP BLUE	455	36195	133,95	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.

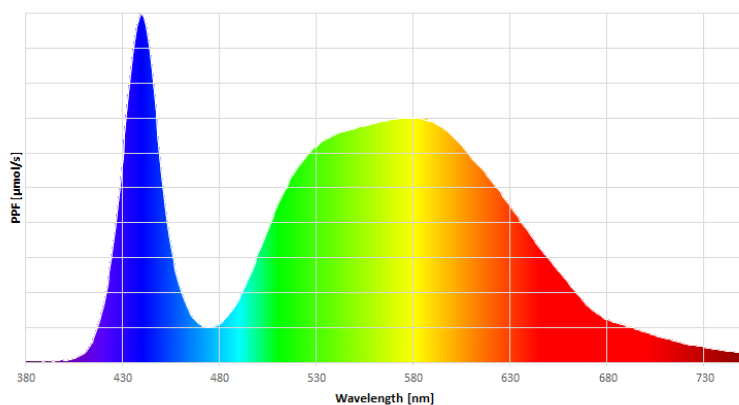
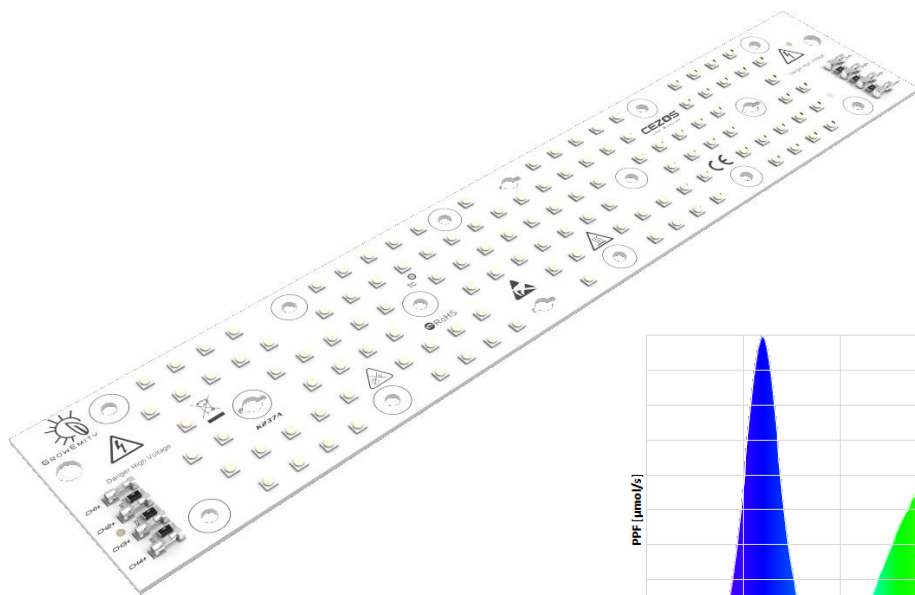


GROWEMITY 120 MONO - K237

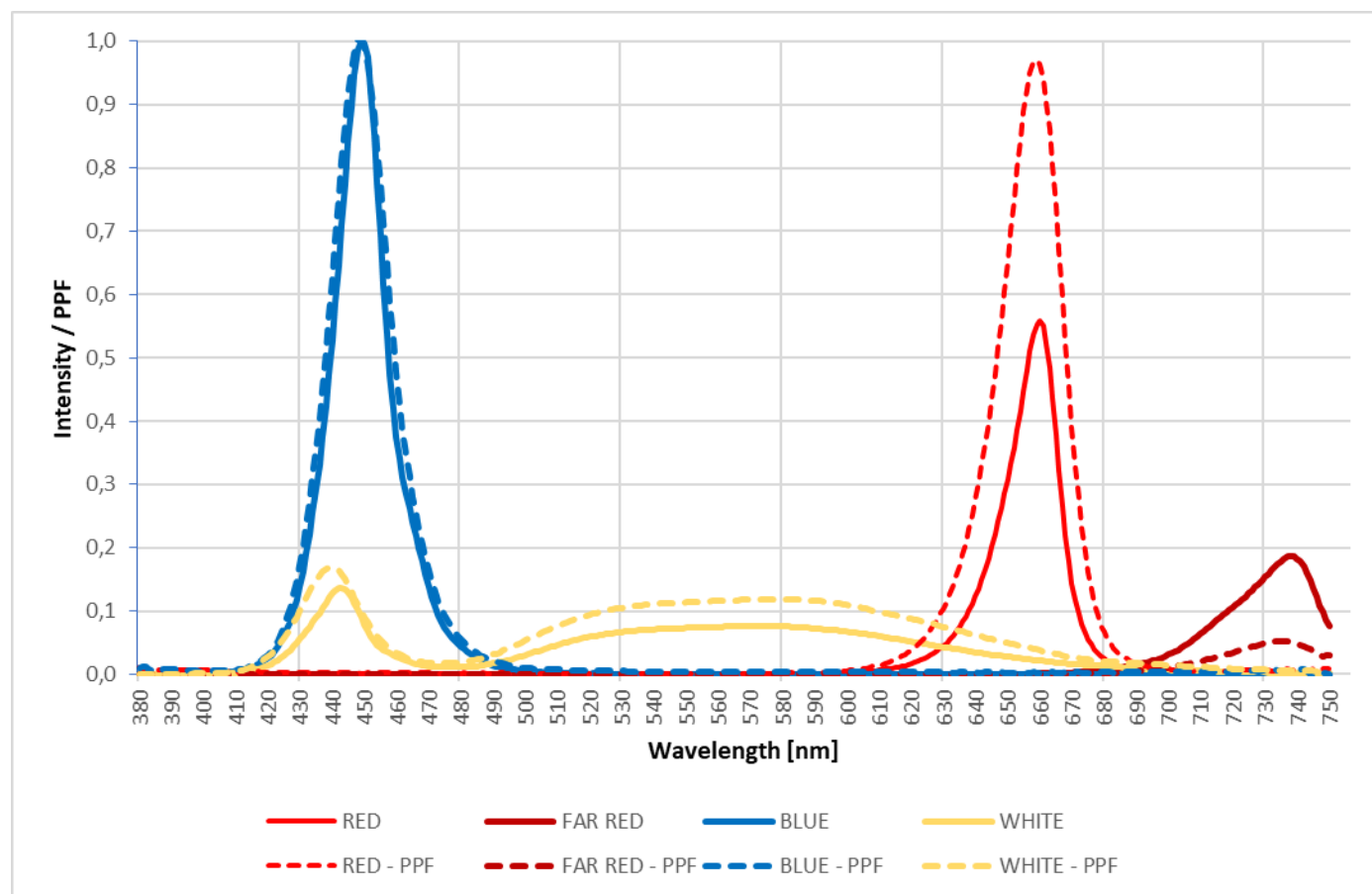
	Input Current [mA]	Forward Voltage [V]	Power [W]	Total Power [W]	Colour	CCT [K]	Luminous Flux [lm]	PPF [$\mu\text{mol/s}$]	PPF/W [$\mu\text{mol/J}$]	Total PPF [$\mu\text{mol/s}$]	Total PPF/W [$\mu\text{mol/J}$]	Article Number
GrowEmity 3x11 MONO - K237	350	82,5	28,9	115,5	WHITE	5000	4437	58,80	3,06	235,20	2,04	LO-278053-MONO-C1000-K237
		82,5	28,9		WHITE	5000	4437	58,80	0,25			
		82,5	28,9		WHITE	5000	4437	58,80	2,36			
		82,5	28,9		WHITE	5000	4437	58,80	2,04			
	500	85,5	42,8	171,0	WHITE	5000	6079	78,60	2,89	314,40	1,84	LO-278053-MONO-C1000-K237
		85,5	42,8		WHITE	5000	6079	78,60	0,23			
		85,5	42,8		WHITE	5000	6079	78,60	2,25			
		85,5	42,8		WHITE	5000	6079	78,60	1,84			
	700	88,5	62,0	247,8	WHITE	5000	7987	102,00	2,62	408,00	1,65	LO-278053-MONO-C1000-K237
		88,5	62,0		WHITE	5000	7987	102,00	0,21			
		88,5	62,0		WHITE	5000	7987	102,00	1,94			
		88,5	62,0		WHITE	5000	7987	102,00	1,65			
	800	89,4	71,5	286,1	WHITE	5000	8785	112,20	2,53	448,80	1,57	LO-278053-MONO-C1000-K237
		89,4	71,5		WHITE	5000	8785	112,20	0,21			
		89,4	71,5		WHITE	5000	8785	112,20	1,87			
		89,4	71,5		WHITE	5000	8785	112,20	1,57			

Parameters were calculated for temperatures $T_J = 25^\circ\text{C}$

Values of these parameters were calculated for default bin and with tolerances of 15%.



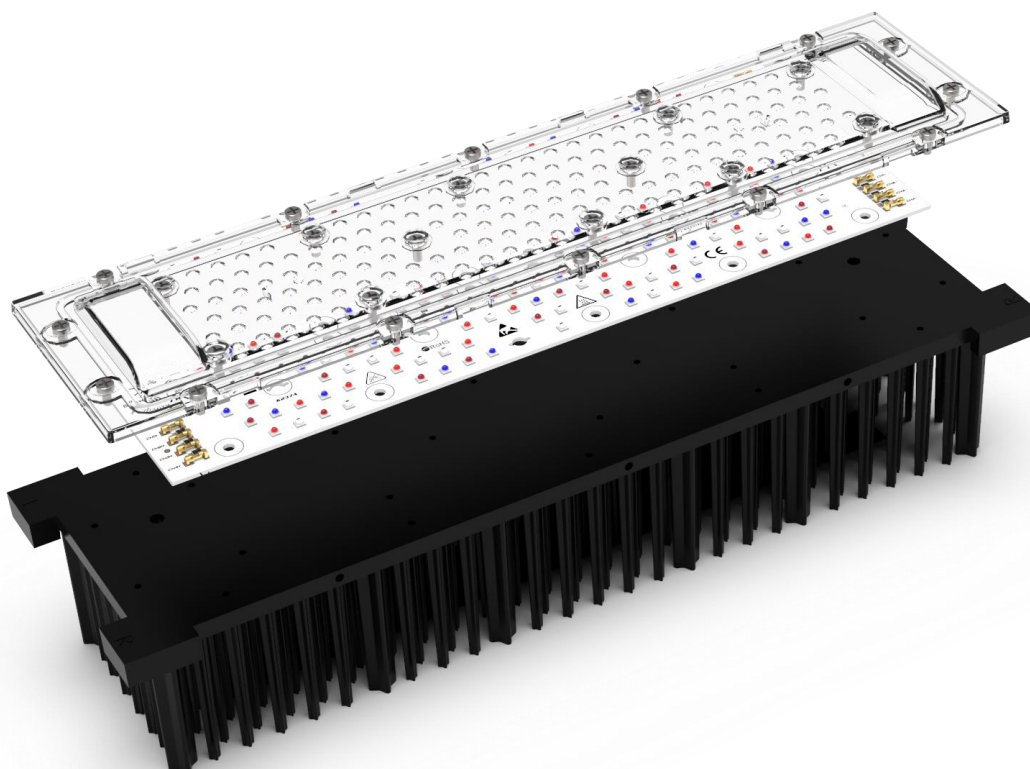
SPECTRUM OF LEDs



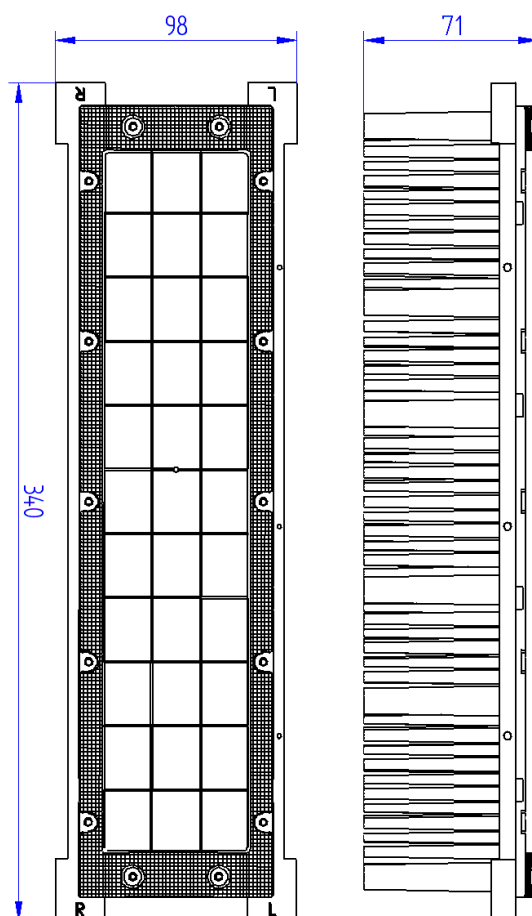
Spectrum graph of the red, far red, blue and white LEDs at 350 mA current. Spectrum can be changed by choosing LEDs and power output.

GrowEmity modules can be ordered as ready unit with heat-sink and optic. Couple of units can be mounted together, to create the GrowEmity light source with the same or different type of LEDs configuration. It ensures better efficiency and flexibility of GrowEmity lighting system. For the GrowEmity 3x11 – K177 are recommended:

- **COMPATIBLE HEAT-SINK** - COOLBLOCK® HC-01-3x11 MechaTronix (estimated weight 920g)
- **COMPATIBLE OPTIC** - CS16619 DAHLIA-TL110 (estimated weight 97g)



Almost half of the input power is converted to heat, which means that GrowEmity light sources must be mounted to a heat-sink with thermal tape for better heat dissipation.

SIZE

COOLING

GrowEmity light source isn't self-cooling and additional heat-sink is required. The lifetime of the light source depends on the operating temperature and used LEDs. The temperature should be measured in the middle of the board. The temperature can be measured with thermocouple or simple temperature probe. Lifetime of LEDs decreases with the rise of temperature and luminous intensity in higher temperatures may be lower than nominal. Construction of the lamp or any place of installation should ensure correct heat dissipation from LED light sources. Overheat can damage or destroy some elements or entire LED light source. Never use overheated light source again as it may be damaged and can cause losses or even fire. We are not responsible for any loss, or damage resulting from overheating! Guarantee become void in such cases.

SAFETY

LED light source can change light intensity, but even dimmed LEDs generate high-intensity light. Looking into LEDs beam is unhealthy and may cause irreversible injury to eye's retina. Never look into the beam without protection glasses with an appropriate filter. Additionally, they may change LEDs light intensity almost immediately. If people are photosensitive, LEDs light may be a trigger to epileptic seizures and alter the perception, especially when light change very fast.

LED light source can work on high power supply current, so never touch components and wires of LED light source when power supply is on.

PROTECTION MEASURES AGAINST DAMAGE

LED light sources are delicate, even small mechanical stress may damage them. Such stresses should be avoided. If it is impossible, it should be kept to the minimum. Mechanical stresses such as pressure, bending, breaking, drilling, etc. may cause irreversible damage. Damaged LED light source aren't suitable for use.

Electrostatic Discharge (ESD) is a serious threat to electronics devices. The human body can accumulate very high electrostatic charge which can decrease the lifetime of electronics significantly and in worst cases may destroy electronic components. To avoid damages use of electrostatic protection is required. It is needed to follow ESD precautions during manipulation of these devices. Do not touch electronic components directly to avoid damages. Observe the official regulations for electrical devices (like DIN, VDE, EN). It is necessary to isolate components like controllers, LED light sources, power supply, wires etc. from any metal parts which can conduct electrostatic charges or cause a short circuit. LED light source aren't equipped with short circuit protection. During a short circuit, very high current is flowing from a power supply and can destroy it, causing risk of fire. Electronics must not be modified. Any modification causes loss of guarantee. The electric wiring/connection must comply with all current and valid national requirements, be constructed by a certified electrical tradesman, and comply with all the requirements set forth in this manual. We are not responsible for any loss, or damage resulting from electrostatic voltage discharge and a short circuit caused by inappropriate handling or wrong construction of the lamp! Guarantee become void in such cases.

Additionally LED light source can be damaged by some chemical substances. Depends on elements the damage may be different. It is important not to use chemical substances like acids, organic acids, sulphur, alkalis, organic solvents, mineral oils, vegetable oils and synthetic oils, etc. We are not responsible for any loss, or damage resulting from improper use of LED light source! Guarantee become void in such cases.

Do not operate LED light source when they aren't working properly. If LED light source are working incorrectly, turn off a power supply. Damaged LED light source may cause electric shock or short circuit.

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Subject to errors and technical changes.