PRO GROW EVO 2.8 µmol/J

Model Z 780 W EVO **Grow Channel 1**

Lightsource Test Report

Product Infomation

Product Category: L7969-3030-395-A4.05 230V B Product Type: S4000K252+4000K70EVO+Y4000K38+O660NM16
Product Spec: L 3030B16+730NM8R+UVA48+UVB7 Product Number: 2300738

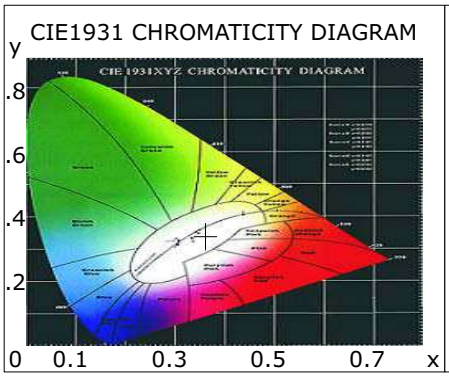
CIE Colorimetric Parameters

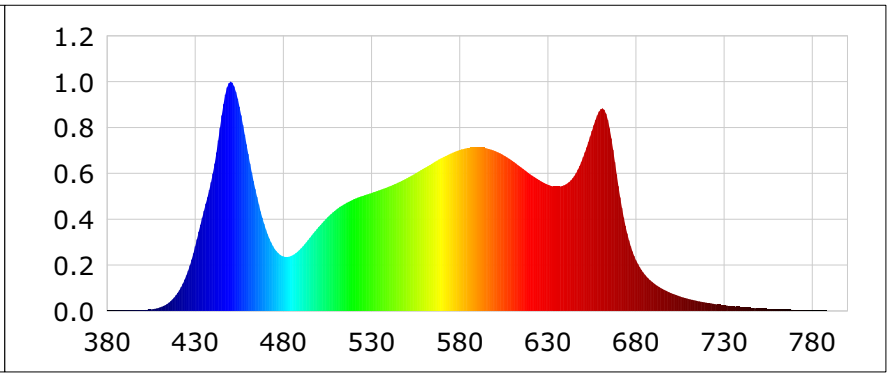
Chromaticity coordinates: x=0.3620 y=0.3405 u(u')=0.2276 v=0.3211 v'=0.4817
CCT: Tc=4305K (duv=-0.01217) Color Ratio: R=0.189 G=0.768 B=0.042
Peak Wavelength: 450.1nm Half Bandwidth: 27.8nm
Dominant Wavelength: 594.3nm Color Purity: 0.108
Central Wave: 451.0nm Gravity Wave: 450.7nm
CRI: Ra= 91.0, avgR(1~14)= 88.3, avgR(1~15)= 88.7 TM30: Rf= 86, Rg= 102
GAI: GAI_BB_8=112.3, GAI_BB_15=115.8, GAI_EES=93.7

R1 =92	R2 =94	R3 =92	R4 =90	R5 =92	R6 =89	R7 =91	R8 =87
R9 =71	R10=85	R11=90	R12=75	R13=92	R14=96	R15=94	

Color Quality Scale: Qa= 85.3, Qf= 83.3, Qp= 89.9, Qg=102.1

Q1 =94	Q2 =95	Q3 =75	Q4 =75	Q5 =84	Q6 =89	Q7 =88	Q8 =93
Q9 =94	Q10=85	Q11=82	Q12=81	Q13=84	Q14=88	Q15=91	





Photometric Parameters

Luminous Flux: 117514 lm Efficiency: 174.02 lm/W Radiant Power: 410.946 W
Total mains efficacy: 174.02 lm/W Energy Efficiency Class: C (EU 2019/2015)
Auxiliary lamp correction factor: 1.54

Electric Parameters

Voltage: 228.20V Current: 3.0060A Power: 675.30W
Power Factor: 0.9850 Frequency: 59.99Hz

Test Infomation
Scan Range: 380~800:1nm Photometric Method: sphere-photometer (spec_rev)
Stabilization Time: 15 Sec ALC.: 1.5422 Photometric Condition: Sphere diameter: 2.00m, 4∏
Max of Signal: 41622 (2839) CCD Integration Time: 12.35 ms

Condition: Tx:32.3'C, Ti:33.4'C, R.H.:60% Test Device: CMS-3000S
Test Lab: Test Time: 2023-06-10 20:15:48
Operator: Inspector:

PRO GROW EVO 2.8 μmol/J

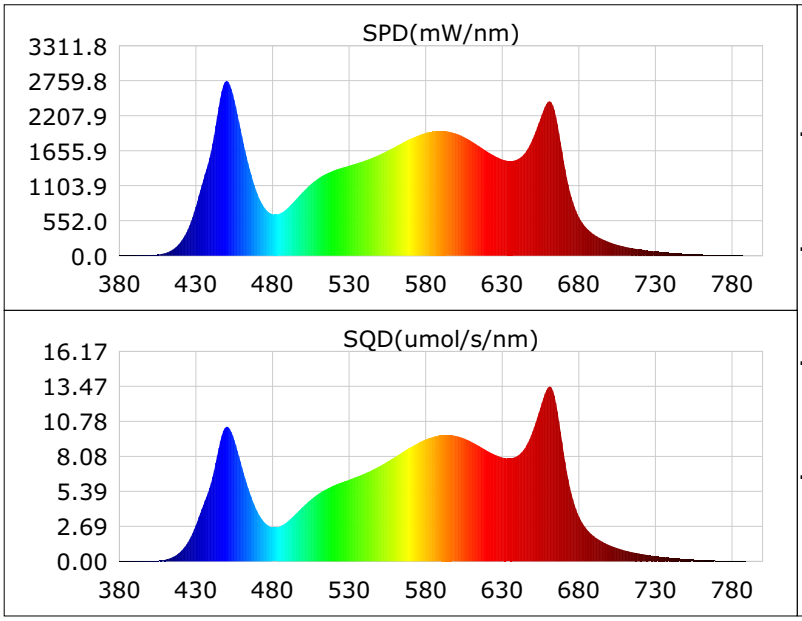
Model Z 780 W EVO

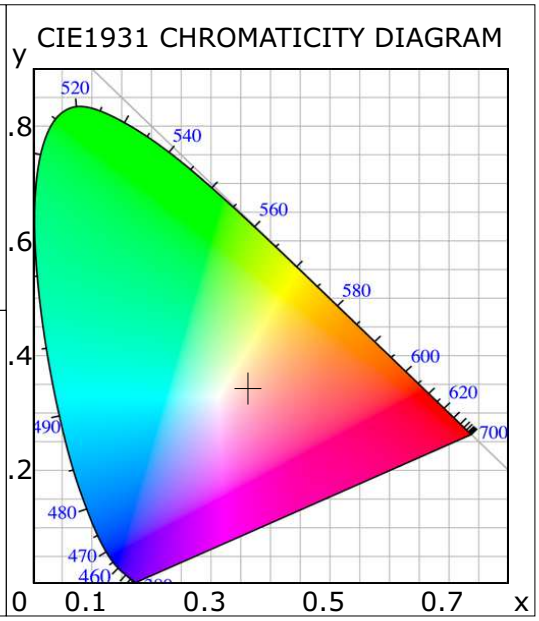
Grow Channel 1

Plant optical param data

CIE Colorimetric Parameters

Chromaticity coordinates: x=0.3620 y=0.3405 u(u')=0.2276 v=0.3211 v'=0.4817
CCT: Tc=4305K (duv=-0.01217) Color Ratio: R=0.189 G=0.768 B=0.042
Peak Wavelength: 450.1nm Half Bandwidth: 27.8nm
Dominant Wavelength: 594.3nm Color Purity: 0.108
CRI: Ra= 91.0





Plant Optical Param

v(lm): 117514.05 Qv(lm.s): 117514.05

Φ
Φe,λ(W/nm): 410.95 Qe(J): 410.95
Φe(W): 405.71 Φfr(W): 5.36
ηe: 0.60 ηfr: 0.01
PPE(umol/s/w): 2.82 Kfr: 0.05
Erb_Ratio: 1.38 PPF(umol/s): 1901.80
PFuv(360-400)(umol/s): 0.47 PPF(400-500)(umol/s): 392.82
PPF(500-600)(umol/s): 746.97 PPF(600-700)(umol/s): 761.99
PFfr(700-800)(umol/s): 31.08 PPF.t(umol): 1901.80
Φch-A.t(J): 42.62 Φch-A(W): 42.62
Φch-B.t(J): 21.57 Φch-B(W): 21.57
Φb.t(J): 102.80 Φb(W): 102.80
Φy.t(J): 161.89 Φy(W): 161.89
Φr.t(J): 143.95 Φr(W): 143.95

Electric Parameters

Voltage: 228.20V Current: 3.0060A Power: 675.30W
Power Factor: 0.9850 Frequency: 59.99Hz

Condition: Tx:32.3'C, Ti:33.4'C, R.H.:60% Test Device: CMS-3000S
Test Lab: Test Time: 2023-06-10 20:15:48
Operator: Inspector:

PRO GROW EVO 2.8 µmol/J

Model Z 780 W EVO

Early Bloom Channel 2

Lightsource Test Report

Product Infomation

Product Category: L7969-3030-395-A4.05 230V R Product Type: S4000K252+4000K70EVO+Y4000K38+O660NM16
Product Spec: L 3030B16+730NM8R+UVA48+UVB7 Product Number: 2300738

CIE Colorimetric Parameters

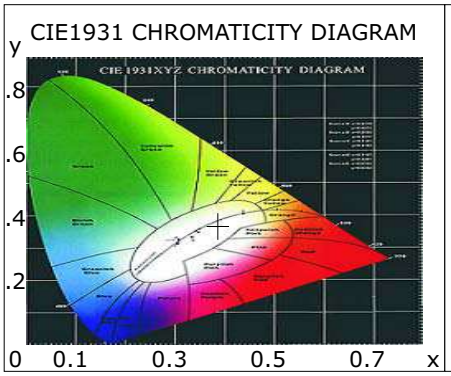
Chromaticity coordinates: x=0.3870 y=0.3706 u(u')=0.2320 v=0.3332 v'=0.4998
CCT: Tc=3774K (duv=-0.00476) Color Ratio: R=0.197 G=0.769 B=0.034
Peak Wavelength: 661.9nm Half Bandwidth: 134.6nm
Dominant Wavelength: 582.6nm Color Purity: 0.274
Central Wave: 605.7nm Gravity Wave: 624.4nm
CRI: Ra= 89.4, avgR(1~14)= 86.5, avgR(1~15)= 86.7 TM30: Rf= 87, Rg= 103
GAI: GAI_BB_8=107.2, GAI_BB_15=110.2, GAI_EES=80.4

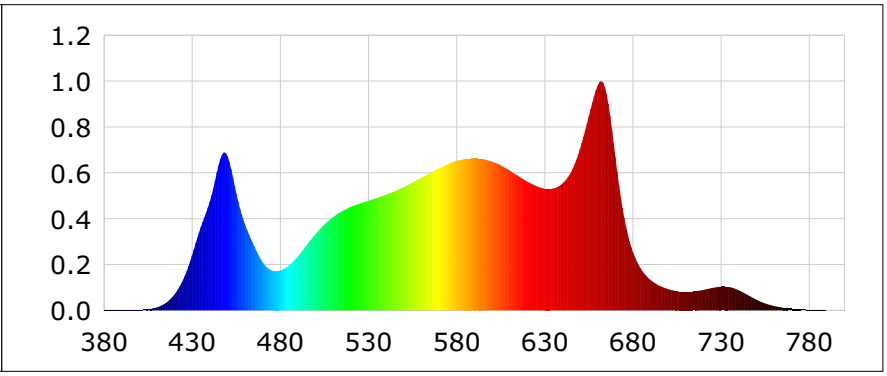
R1 =89	R2 =91	R3 =92	R4 =89	R5 =89	R6 =87	R7 =92	R8 =86
R9 =67	R10=80	R11=89	R12=76	R13=89	R14=95	R15=89	

Color Quality Scale: Qa= 87.7, Qf= 86.1, Qp= 91.2, Qg=101.5

Q1 =92	Q2 =95	Q3 =80	Q4 =82	Q5 =87	Q6 =87	Q7 =87	Q8 =92
Q9 =96	Q10=88	Q11=86	Q12=86	Q13=88	Q14=89	Q15=90	

CIE1931 CHROMATICITY DIAGRAM





Photometric Parameters

Luminous Flux: 116765 lm Efficiency: 168.81 lm/W Radiant Power: 410.319 W
Total mains efficacy: 168.81 lm/W Energy Efficiency Class: C (EU 2019/2015)
Auxiliary lamp correction factor: 1.54

Electric Parameters

Voltage: 228.20V Current: 3.0760A Power: 691.70W
Power Factor: 0.9850 Frequency: 59.99Hz

Test Infomation
Scan Range: 380~800:1nm Photometric Method: sphere-photometer (spec_rev)
Stabilization Time: 15 Sec ALC.: 1.5422 Photometric Condition: Sphere diameter: 2.00m, 4∏
Max of Signal: 40564 (2862) CCD Integration Time: 16.40 ms

Condition: Tx:32.2'C, Ti:33.5'C, R.H.:60% Test Device: CMS-3000S
Test Lab: Test Time: 2023-06-10 20:17:14
Operator: Inspector:

PRO GROW EVO 2.8 μmol/J

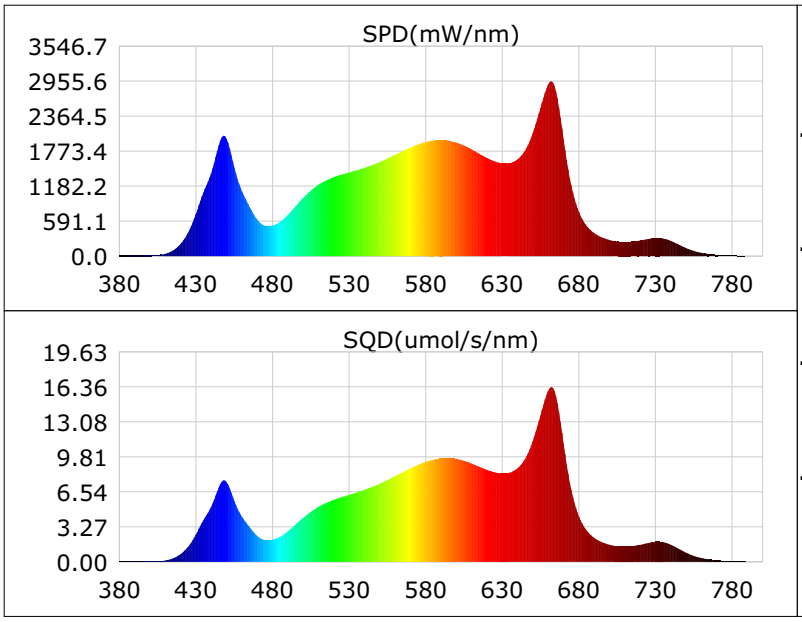
Model Z 780 W EVO

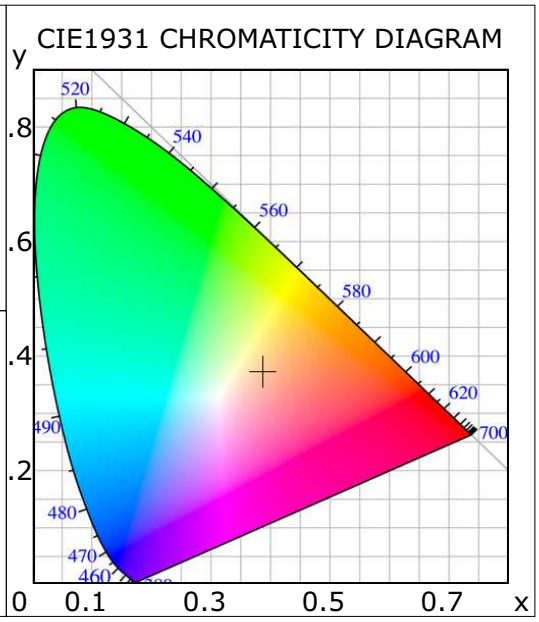
Early Bloom Channel 2

Plant optical param data

CIE Colorimetric Parameters

Chromaticity coordinates: x=0.3870 y=0.3706 u(u')=0.2320 v=0.3332 v'=0.4998
CCT: Tc=3774K (duv=-0.00476) Color Ratio: R=0.197 G=0.769 B=0.034
Peak Wavelength: 661.9nm Half Bandwidth: 134.6nm
Dominant Wavelength: 582.6nm Color Purity: 0.274
CRI: Ra= 89.4





Plant Optical Param

v(lm): 116765.58 Qv(lm.s): 116765.58

Φ

Φe,λ(W/nm): 410.32	Qe(J): 410.32
Φe(W): 396.08	Φfr(W): 14.47
ηe: 0.57	ηfr: 0.02
PPE(umol/s/w): 2.73	Kfr: 0.12
Erb_Ratio: 2.02	PPF(umol/s): 1891.64
PFuv(360-400)(umol/s): 0.37	PPF(400-500)(umol/s): 298.44
PPF(500-600)(umol/s): 742.83	PPF(600-700)(umol/s): 850.35
PFfr(700-800)(umol/s): 86.43	PPF.t(umol): 1891.64
Φch-A.t(J): 42.72	Φch-A(W): 42.72
Φch-B.t(J): 18.73	Φch-B(W): 18.73
Φb.t(J): 78.12	Φb(W): 78.12
Φy.t(J): 160.96	Φy(W): 160.96
Φr.t(J): 159.90	Φr(W): 159.90

Electric Parameters

Voltage: 228.20V Current: 3.0760A Power: 691.70W
Power Factor: 0.9850 Frequency: 59.99Hz

Condition: Tx:32.2'C, Ti:33.5'C, R.H.:60% Test Device: CMS-3000S
Test Lab: Test Time: 2023-06-10 20:17:14
Operator: Inspector:

PRO GROW EVO 2.8 µmol/J

Model Z 780 W EVO

Late Bloom Channel 3

Lightsource Test Report

Product Infomation

Product Category: L7969-3030-395-A4.05 230V R+UV Product Type: S4000K252+4000K70EVO+Y4000K38+O660NM16
Product Spec: L 3030B16+730NM8R+UVA48+UVB7 Product Number: 2300738

CIE Colorimetric Parameters

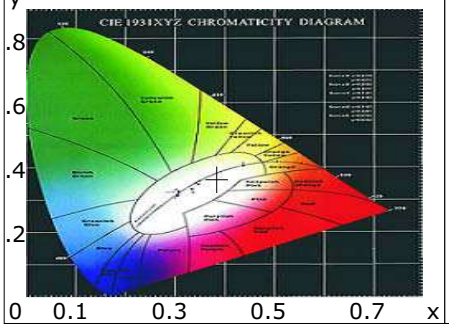
Chromaticity coordinates: x=0.3847 y=0.3672 u(u')=0.2319 v=0.3319 v'=0.4979
CCT: Tc=3807K (duv=-0.00578) Color Ratio: R=0.196 G=0.769 B=0.034
Peak Wavelength: 662.2nm Half Bandwidth: 136.6nm
Dominant Wavelength: 583.3nm Color Purity: 0.256
Central Wave: 605.0nm Gravity Wave: 624.0nm
CRI: Ra= 89.4, avgR(1~14)= 86.7, avgR(1~15)= 86.9 TM30: Rf= 87, Rg= 103
GAI: GAI_BB_8=108.7, GAI_BB_15=111.0, GAI_EES=82.2

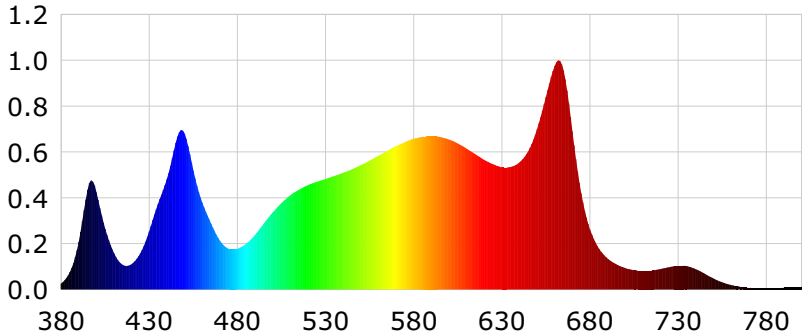
R1 =89	R2 =91	R3 =91	R4 =89	R5 =90	R6 =87	R7 =91	R8 =87
R9 =67	R10=80	R11=89	R12=77	R13=89	R14=95	R15=90	

Color Quality Scale: Qa= 87.4, Qf= 85.6, Qp= 91.3, Qg=101.9

Q1 =91	Q2 =95	Q3 =80	Q4 =82	Q5 =87	Q6 =87	Q7 =86	Q8 =92
Q9 =95	Q10=87	Q11=85	Q12=85	Q13=88	Q14=89	Q15=90	

CIE1931 CHROMATICITY DIAGRAM





Photometric Parameters

Luminous Flux: 116409 lm Efficiency: 147.02 lm/W Radiant Power: 434.620 W
Total mains efficacy: 147.02 lm/W Energy Efficiency Class: D (EU 2019/2015)
Auxiliary lamp correction factor: 1.54

Electric Parameters

Voltage: 228.20V Current: 3.5210A Power: 791.80W
Power Factor: 0.9860 Frequency: 59.99Hz

Test Infomation
Scan Range: 380~800:1nm
Stabilization Time: 15 Sec ALC.: 1.5422
Max of Signal: 40787 (2852)
Photometric Method: sphere-photometer (spec_rev)
Photometric Condition: Sphere diameter: 2.00m, 4∏
CCD Integration Time: 16.47 ms

Condition: Tx:32.1'C, Ti:33.4'C, R.H.:60%
Test Lab:
Operator:
Test Device: CMS-3000S
Test Time: 2023-06-10 20:19:56
Inspector:

PRO GROW EVO 2.8 μmol/J

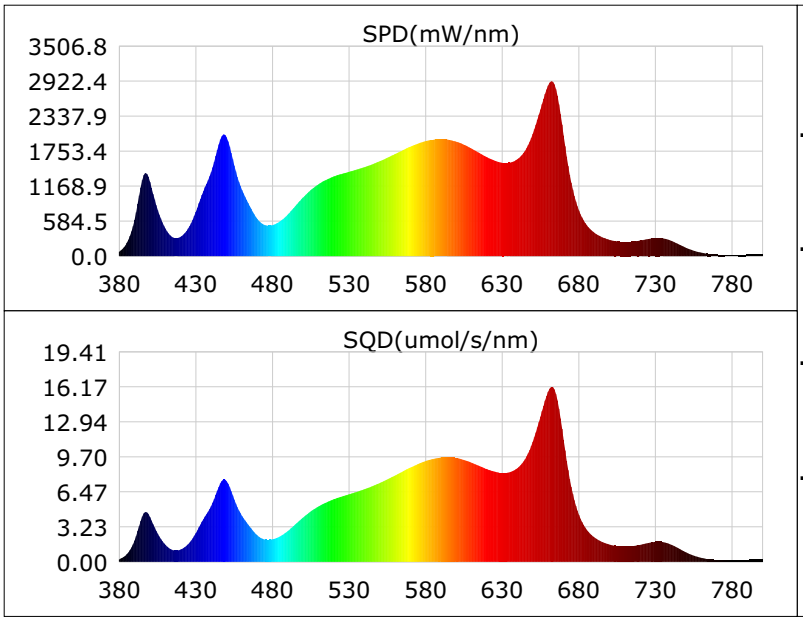
Model Z 780 W EVO

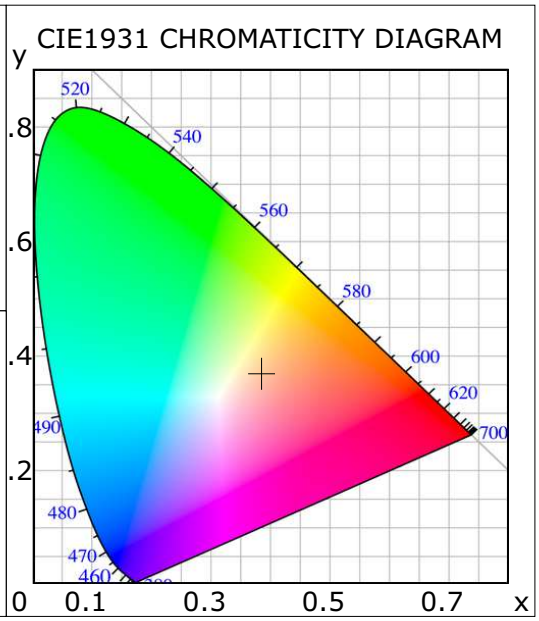
Bloom Channel 3

Plant optical param data

CIE Colorimetric Parameters

Chromaticity coordinates: x=0.3847 y=0.3672 u(u')=0.2319 v=0.3319 v'=0.4979
CCT: Tc=3807K (duv=-0.00578) Color Ratio: R=0.196 G=0.769 B=0.034
Peak Wavelength: 662.2nm Half Bandwidth: 136.6nm
Dominant Wavelength: 583.3nm Color Purity: 0.256
CRI: Ra= 89.4





Plant Optical Param v(lm): 116409.64 Qv(lm.s): 116409.64

Φ

Φe,λ(W/nm): 434.62	Qe(J): 434.62
Φe(W): 406.91	Φfr(W): 14.99
ηe: 0.51	ηfr: 0.02
PPE(umol/s/w): 2.43	Kfr: 0.11
Erb_Ratio: 1.77	PPF(umol/s): 1927.10
PFuv(360-400)(umol/s): 48.66	PPF(400-500)(umol/s): 334.81
PPF(500-600)(umol/s): 740.66	PPF(600-700)(umol/s): 847.48
PFfr(700-800)(umol/s): 89.93	PPF.t(umol): 1927.10
Φch-A.t(J): 46.43	Φch-A(W): 46.43
Φch-B.t(J): 19.45	Φch-B(W): 19.45
Φb.t(J): 89.98	Φb(W): 89.98
Φy.t(J): 160.49	Φy(W): 160.49
Φr.t(J): 159.34	Φr(W): 159.34

Electric Parameters

Voltage: 228.20V Current: 3.5210A Power: 791.80W
Power Factor: 0.9860 Frequency: 59.99Hz

Condition: Tx:32.1'C, Ti:33.4'C, R.H.:60% Test Device: CMS-3000S
Test Lab: Test Time: 2023-06-10 20:19:56
Operator: Inspector:

PRO GROW EVO 2.8 µmol/J

Model Z 780 W EVO — UVA & UVB Channel 4

Lightsource Test Report

Product Infomation

Product Category: L7969-3030-395-A4.05 230V UV Product Type: S4000K252+4000K70EVO+Y4000K38+O660NM16
Product Spec: L 3030B16+730NM8R+UVA48+UVB7 Product Number: 2300738

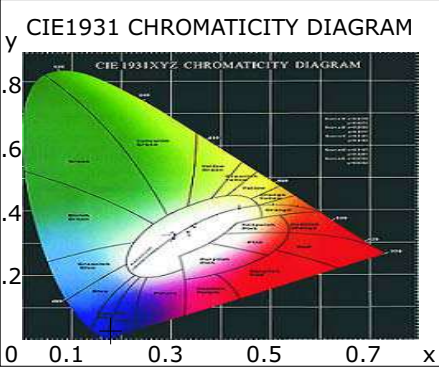
CIE Colorimetric Parameters

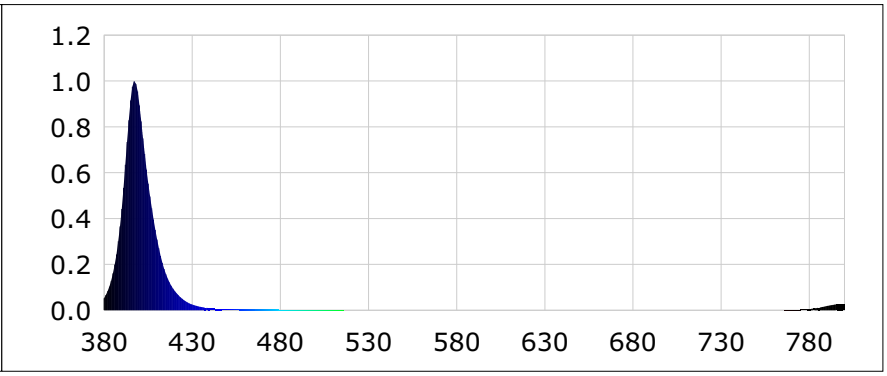
Chromaticity coordinates: x=0.1781 y=0.0263 u(u')=0.2407 v=0.0533 v'=0.0799
CCT: Tc=100000K (duv=-0.22099) Color Ratio: R=0.104 G=0.583 B=0.312
Peak Wavelength: 397.2nm Half Bandwidth: 15.4nm
Dominant Wavelength: 431.2nm Color Purity: 0.942
Central Wave: 398.3nm Gravity Wave: 397.9nm
CRI: Ra= 18.4, avgR(1~14)= 15.3, avgR(1~15)= 16.8 TM30: Rf= 0, Rg= -29
GAI: GAI_BB_8=18.4, GAI_BB_15=23.2, GAI_EES=20.0

R1 =74	R2 =0	R3 =0	R4 =0	R5 =73	R6 =0	R7 =0	R8 =0
R9 =42	R10=0	R11=0	R12=0	R13=24	R14=0	R15=39	

Color Quality Scale: Qa= -1.$, Qf= -1.$, Qp= -1.$, Qg= -1.$

Q1 =0	Q2 =0	Q3 =0	Q4 =13	Q5 =10	Q6 =0	Q7 =0	Q8 =0
Q9 =0	Q10=0	Q11=0	Q12=0	Q13=0	Q14=45	Q15=0	





Photometric Parameters

Luminous Flux: 75.674 lm Efficiency: 0.74 lm/W Radiant Power: 24.599 W
Total mains efficacy: 0.74 lm/W Energy Efficiency Class: G (EU 2019/2015)
Auxiliary lamp correction factor: 1.54

Electric Parameters

Voltage: 228.50V Current: 0.5200A Power: 102.40W
Power Factor: 0.8620 Frequency: 59.99Hz

Test Infomation
Scan Range: 380~800:1nm
Stabilization Time: 15 Sec ALC.: 1.5422
Max of Signal: 42316 (2818)
Photometric Method: sphere-photometer (spec_rev)
Photometric Condition: Sphere diameter: 2.00m, 4∏
CCD Integration Time: 50.00 ms

Condition: Tx:31.9'C, Ti:32.3'C, R.H.:60% Test Device: CMS-3000S
Test Lab: Test Time: 2023-06-10 20:22:05
Operator: Inspector:

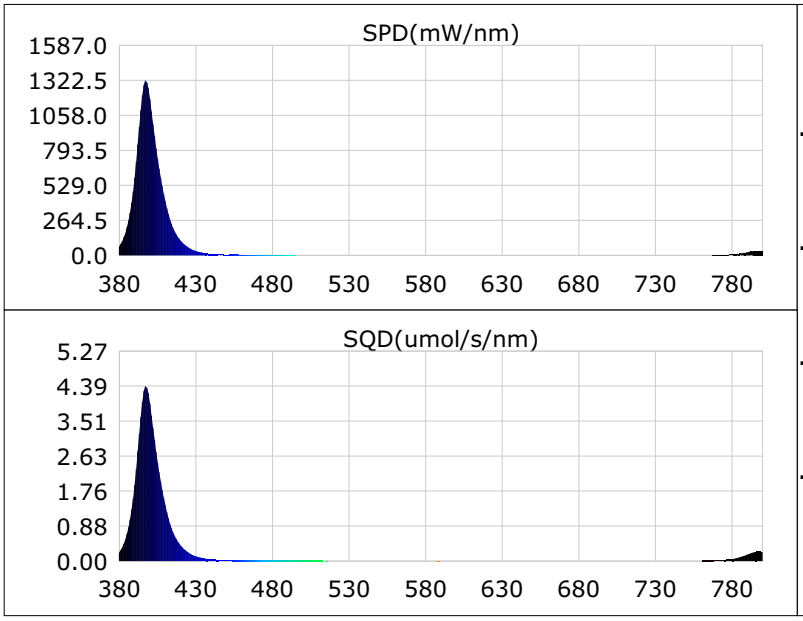
PRO GROW EVO 2.8 µmol/J

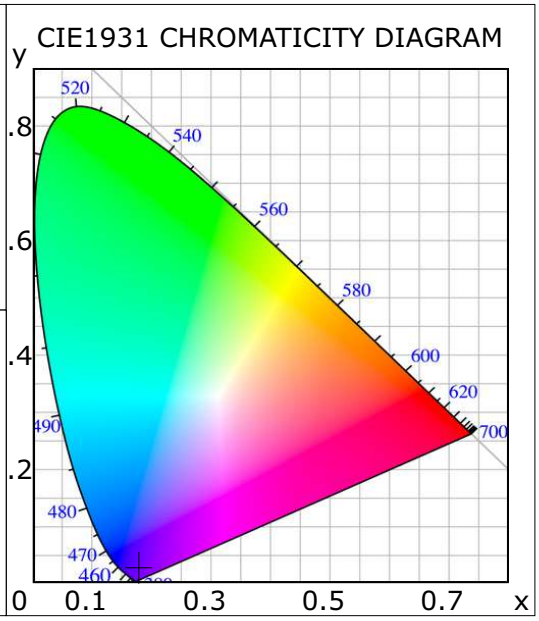
Model Z 780 W EVO — UVA & UVB Channel 4

Plant optical param data

CIE Colorimetric Parameters

Chromaticity coordinates: x=0.1781 y=0.0263 u(u')=0.2407 v=0.0533 v'=0.0799
CCT: Tc=100000K (duv=-0.22099) Color Ratio: R=0.104 G=0.583 B=0.312
Peak Wavelength: 397.2nm Half Bandwidth: 15.4nm
Dominant Wavelength: 431.2nm Color Purity: 0.942
CRI: Ra= 18.4





Plant Optical Param

v(lm): 75.67 Qv(lm.s): 75.67

Φ
Φe,λ(W/nm): 24.60 Qe(J): 24.60
Φe(W): 11.64 Φfr(W): 0.57
ηe: 0.11 ηfr: 0.01
PPE(umol/s/w): 0.39 Kfr: 0.04
Erb_Ratio: 0.00 PPF(umol/s): 39.93
PFuv(360-400)(umol/s): 46.34 PPF(400-500)(umol/s): 35.37
PPF(500-600)(umol/s): 0.37 PPF(600-700)(umol/s): 0.23
PFfr(700-800)(umol/s): 3.76 PPF.t(umol): 39.93
Φch-A.t(J): 3.81 Φch-A(W): 3.81
Φch-B.t(J): 0.77 Φch-B(W): 0.77
Φb.t(J): 11.52 Φb(W): 11.52
Φy.t(J): 0.08 Φy(W): 0.08
Φr.t(J): 0.04 Φr(W): 0.04

Electric Parameters

Voltage: 228.50V Current: 0.5200A Power: 102.40W
Power Factor: 0.8620 Frequency: 59.99Hz

Condition: Tx:31.9'C, Ti:32.3'C, R.H.:60% Test Device: CMS-3000S
Test Lab: Test Time: 2023-06-10 20:22:05
Operator: Inspector: