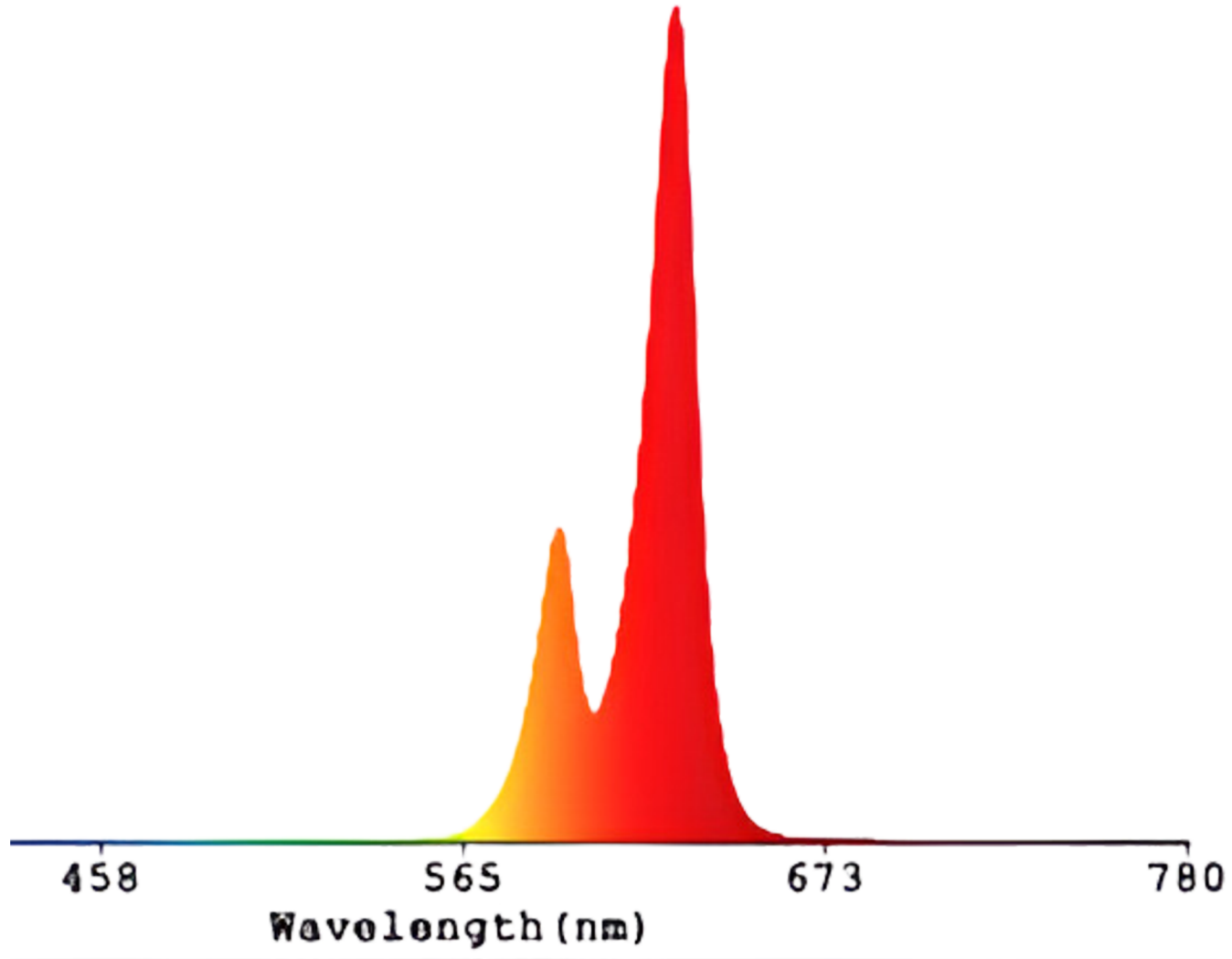


UPTA / EPTA

590nm AMBER AND RED SPECTRUM



Tested at 160w

UPTA AND EPTA 160 590NM AMBER AND RED - FIXTURE TEST REPORT - CLEAR GLASS LENS



Floodlight Summary:

Report based on lamp delivering 1000 lumens.

Maximum Intensity
(Luminaire orientation as tested.)

342.4 cd per klm.
0.0 degrees vertical
0.0 degrees horizontal

Beam Spread

At 10% of I _{max}	156.2V x 155.5H
At 50% of I _{max}	118.4V x 116.2H
At 90% of I _{max}	51.8V x 50.4H

Beam Flux

Total	999.9 lumens per klm.
To 10% of I _{max}	985.8 lumens per klm.
To 50% of I _{max}	789.1 lumens per klm.
To 90% of I _{max}	201.1 lumens per klm.

Upward LOR 0.0 %
Downward LOR 100.0 %

Luminaire Efficiency (Light Output Ratio) 100.0 %

Light Output Ratio:	100.0%
Luminaire Power:	153.4 W
90% Beam Spread	51.8V x 50.4H
50% Beam Lumens	789.1 lumens per klm.

H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG Test
Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-02

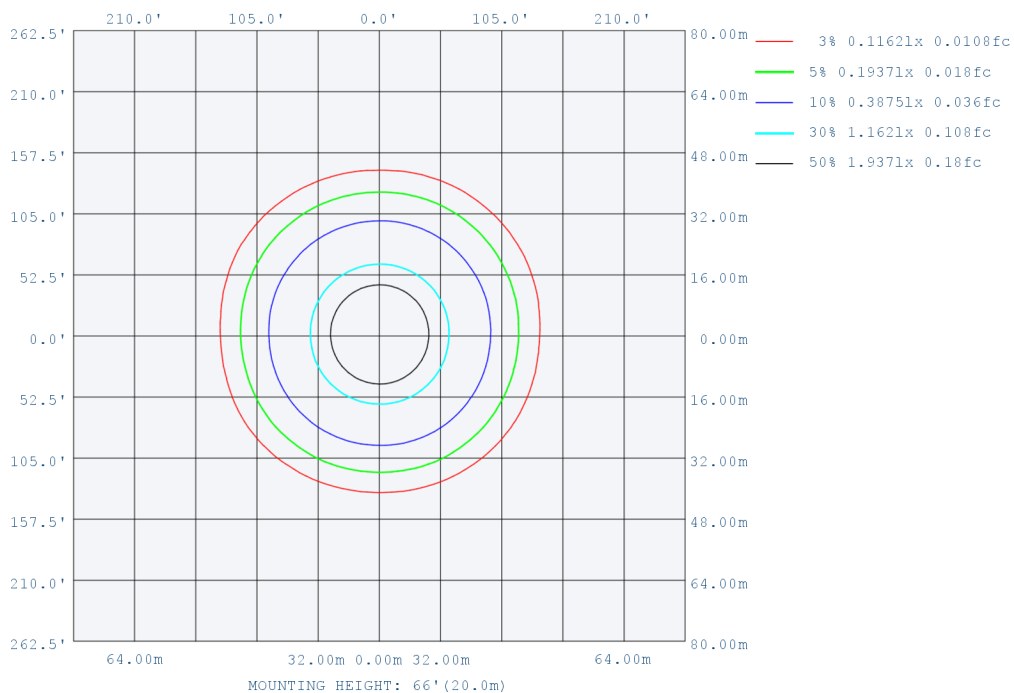
V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
Humidity:65.0%
TestDistance:8.365m [K=1.0000]
Remarks:

H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG Test
Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-02

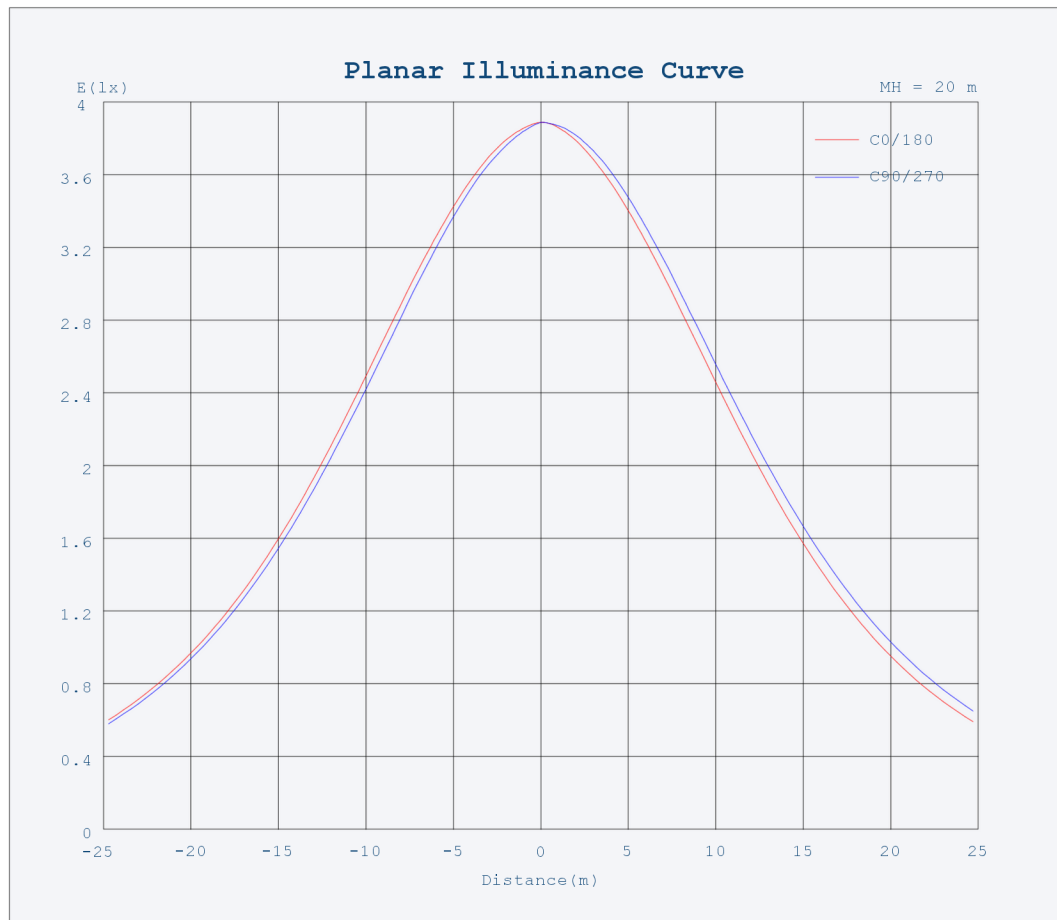
V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
Humidity:65.0%
TestDistance:8.365m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

Test:U:235.8V I:0.6820A P:153.4W PF:0.954 Freq:50.03Hz Lamp Flux:4542.64x1 lm		
NAME: AF88X160-amber 590nm-red-clear glass	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



Planar Illuminance Curve



H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-02

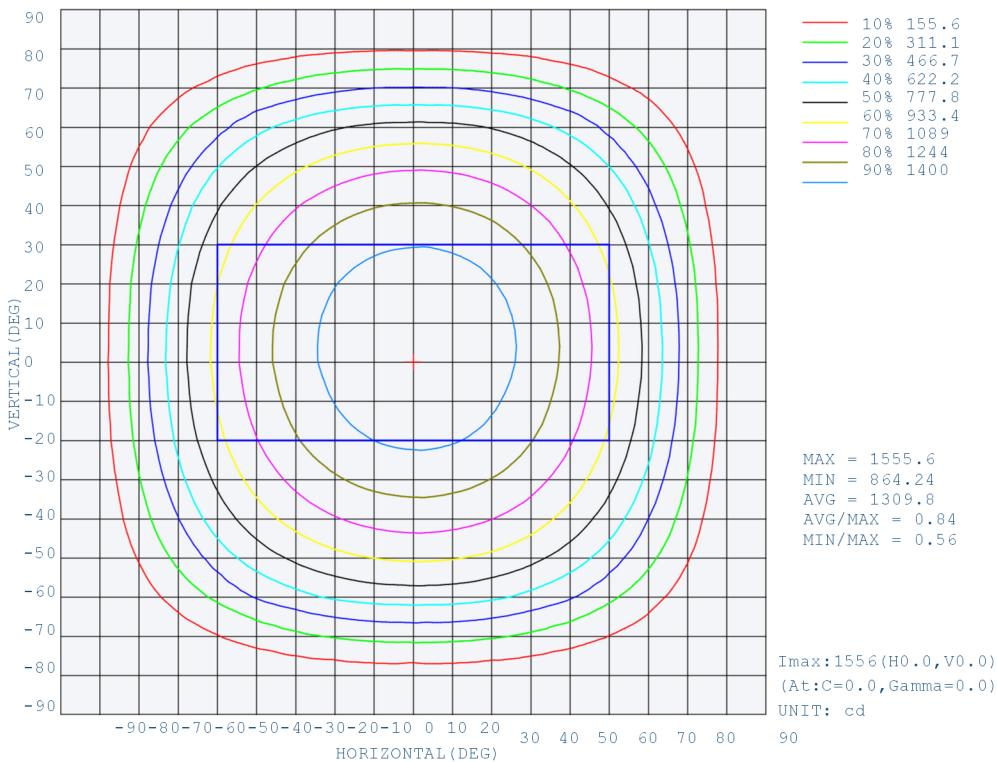
V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
Humidity:65.0%
TestDistance:8.365m [K=1.0000]
Remarks:

H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-02

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
Humidity:65.0%
TestDistance:8.365m [K=1.0000]
Remarks:

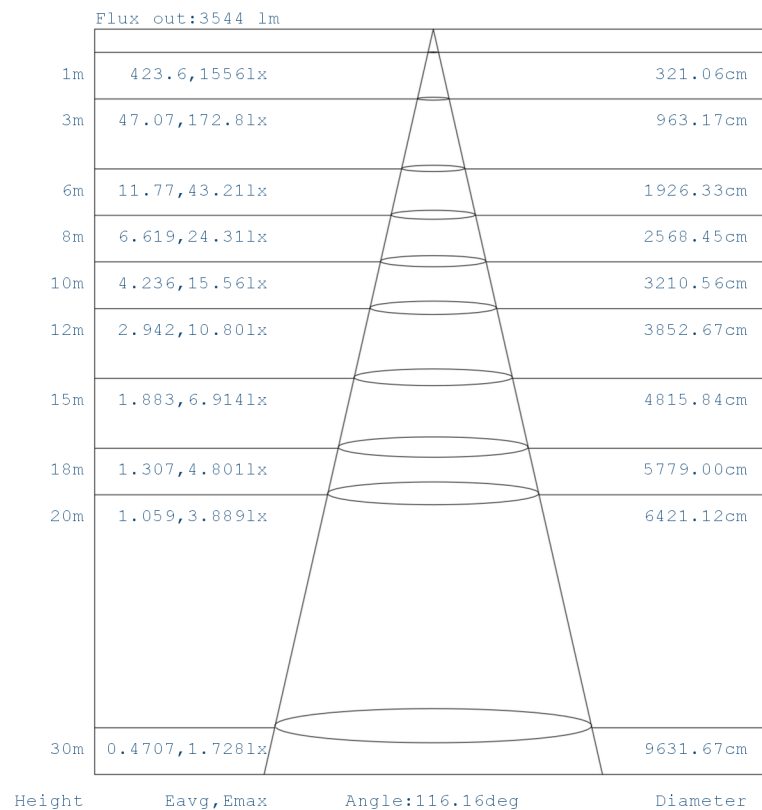
ISOCANDELA DIAGRAM

Test:U:235.8V I:0.6820A P:153.4W PF:0.954 Freq:50.03Hz Lamp Flux:4542.64x1 lm		
NAME:AF88X160-amber 590nm-red-clear glass	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



AAI Figure

Test:U:235.8V I:0.6820A P:153.4W PF:0.954 Freq:50.03Hz Lamp Flux:4542.64x1 lm		
NAME:AF88X160-amber 590nm-red-clear glass	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

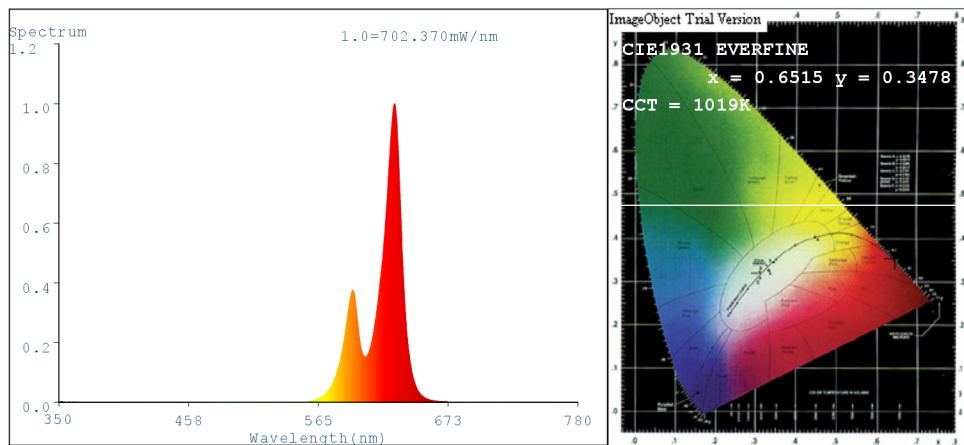
H(□) Range:-90 - 90DEG
 H(□) Interval:1.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Guohong
 Test Date:2024-01-02

V(B) Range:-90 - 90DEG
 V(B) Interval: 2.0DEG
 TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
 Humidity:65.0%
 TestDistance:8.365m [K=1.0000]
 Remarks:

H(□) Range:-90 - 90DEG
 H(□) Interval:1.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Guohong
 Test Date:2024-01-02

V(B) Range:-90 - 90DEG
 V(B) Interval: 2.0DEG
 TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
 Humidity:65.0%
 TestDistance:8.365m [K=1.0000]
 Remarks:

SPECTRUM TEST REPORT - UPTA and EPTA 120 590NM AMBER AND RED - Clear Glass



Color Parameters:

Chromaticity Coordinate:x=0.6515 y=0.3478/u'=0.4439
v'=0.5332 CCT=1019K(Duv=-0.0005) Dominant WL:Ld =605.9nm
Purity=99.9% Ratio:R=60.7% G=39.3% B=0.0% Peak
WL:Lp=628.2nm FWHM=16.2nm Render Index:Ra=41.1 CRI=42.8
AvgR=41.3
R1=33 R2=79 R3=53 R4=6 R5=27 R6=8 9R7=41 R8=0 R9=0 R10=71
R11=4 R12=79 R13=41 R14=76 R15=21

Photo Parameters:

Flux = 5223 lm Eff. : 42.87 lm/W Fe = 17.99 W

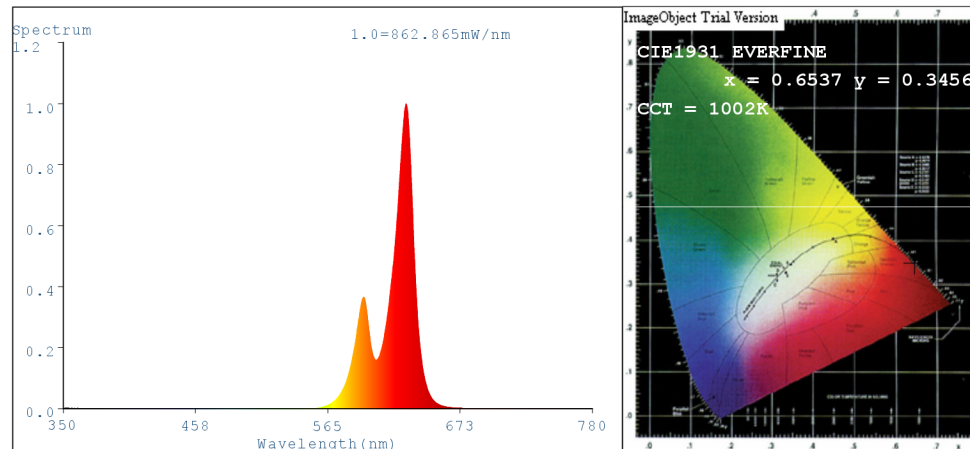
Electrical parameters:

V = 219.64 V I = 0.5648 A P = 121.8 W PF = 0.9822

LEVEL:OUT WHITE:OUT

Status: Integral T = 10 ms Ip = 43901 (67%)

SPECTRUM TEST REPORT - UPTA and EPTA 160 590NM AMBER AND RED - Clear Glass



Color Parameters:

Chromaticity Coordinate:x=0.6537 y=0.3456/u'=0.4477 v'=0.5326
CCT=1002K(Duv=-0.0004) Dominant WL:Ld =606.5nm Purity=99.9%
Ratio:R=62.1% G=37.9% B=0.0% Peak WL:Lp=628.5nm FWHM=16.9nm
Render Index:Ra=42.2 CRI=44.0 AvgR=42.5
R1=35 R2=80 R3=55 R4=8 R5=29 R6=90 R7=41 R8=0 R9=0 R10=72
R11=8 R12=78 R13=43 R14=77 R15=21

Photo Parameters:

Flux = 6396 lm Eff. : 39.36 lm/W Fe = 22.55 W

Electrical parameters:

V = 219.69 V I = 0.7483 A P = 162.5 W PF = 0.9885

LEVEL:OUT WHITE:OUT

Status: Integral T = 10 ms Ip = 54056 (82%)

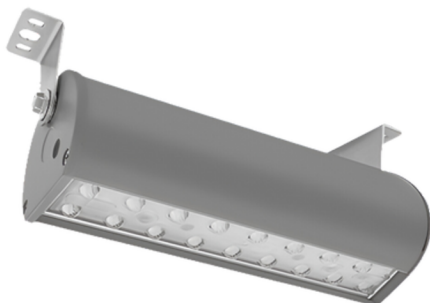
Model:LIGHT
Tester:DAMIN
Temperature:25.3Deg
Manufacturer:EVERFINE

Number:N-00006
Date:2024-01-03 10:41
Humidity:65.0%
Remarks:---

Model:LIGHT
Tester:DAMIN
Temperature:25.3Deg
Manufacturer:EVERFINE

Number:N-00007
Date:2024-01-03 10:42
Humidity:65.0%
Remarks:---

UPTA AND EPTA 160 590NM AMBER AND RED - FIXTURE TEST REPORT - CLEAR POLYCARBONATE LENS



Light Output Ratio:	100.0%
Luminaire Power:	153.4 W
90% Beam Spread	51.2V x 49.0H
50% Beam Lumens	785 lumens per klm.

Floodlight Summary:

Report based on lamp delivering 1000 lumens.

Maximum Intensity (Luminaire orientation as tested.) 345.2 cd per klm.
0.0 degrees vertical
0.0 degrees horizontal

Beam Spread 156.2V x 155.6H
118.3V x 115.7H
51.2V x 49.0H

Beam Flux Total 999.9 lumens per klm.
To 10% of I_{max} 985.8 lumens per klm.
To 50% of I_{max} 785.0 lumens per klm.
To 90% of I_{max} 195.3 lumens per klm.

Upward LOR 0.0 %
Downward LOR 100.0 %
Luminaire Efficiency (Light Output Ratio) 100.0 %

H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG Test
Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-02

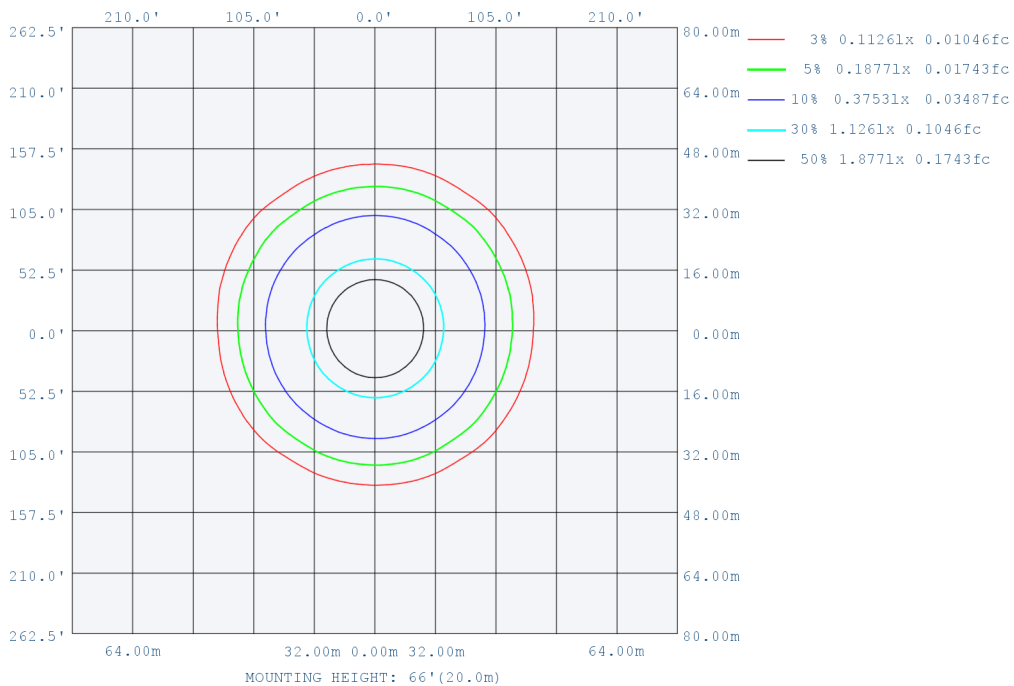
V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
Humidity:65.0%
TestDistance:8.365m [K=1.0000]
Remarks:

H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG Test
Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-02

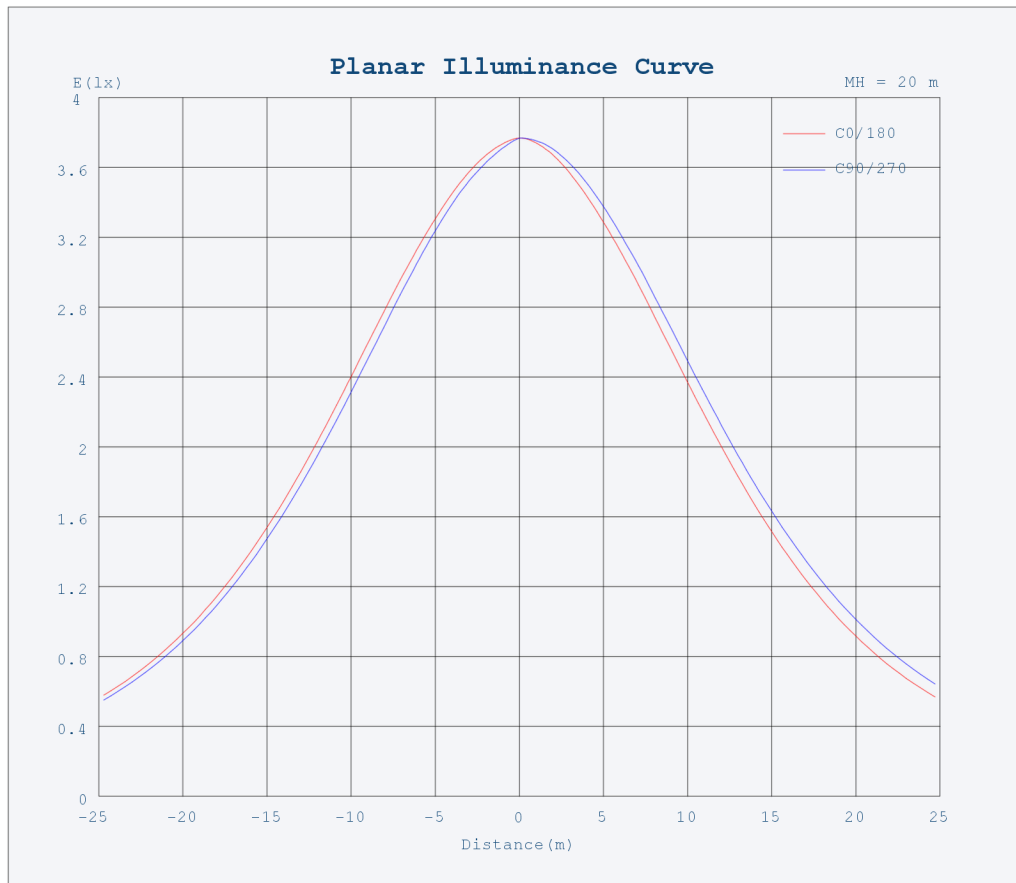
V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
Humidity:65.0%
TestDistance:8.365m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

Test:U:234.2V I:0.6696A P:153.4W PF:0.978 Freq:50.00Hz Lamp Flux:4367.03x1 lm		
NAME: AF88X160-amber 590nm-red-clear PC	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



Planar Illuminance Curve



H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-02

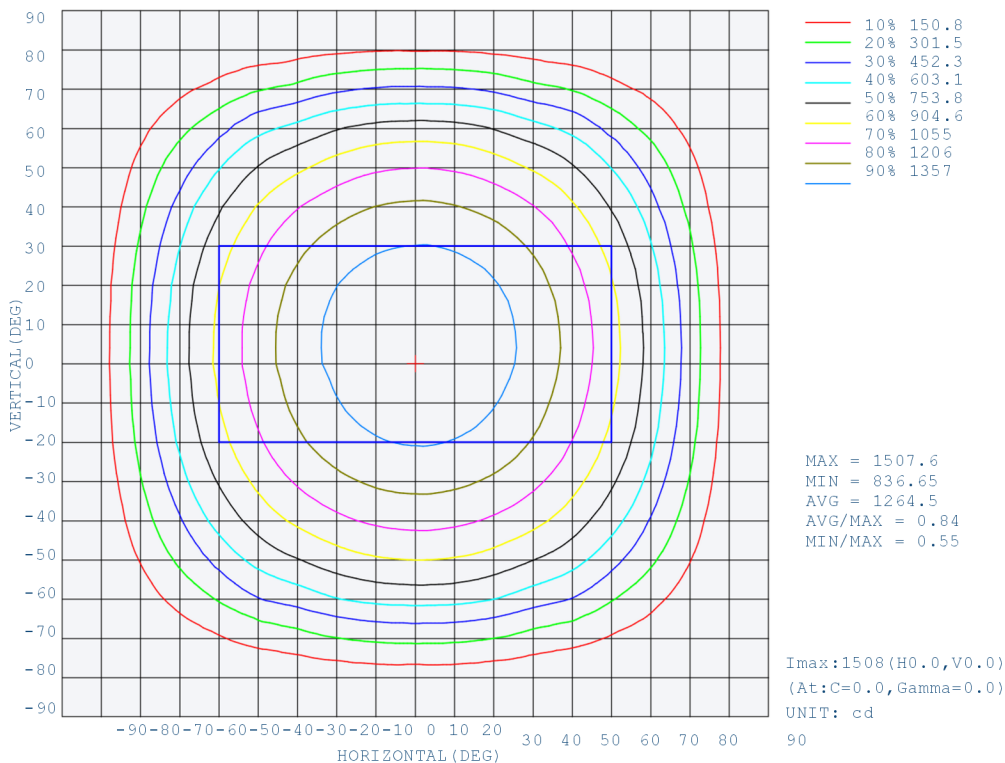
V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
Humidity:65.0%
TestDistance:8.365m [K=1.0000]
Remarks:

H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-02

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
Humidity:65.0%
TestDistance:8.365m [K=1.0000]
Remarks:

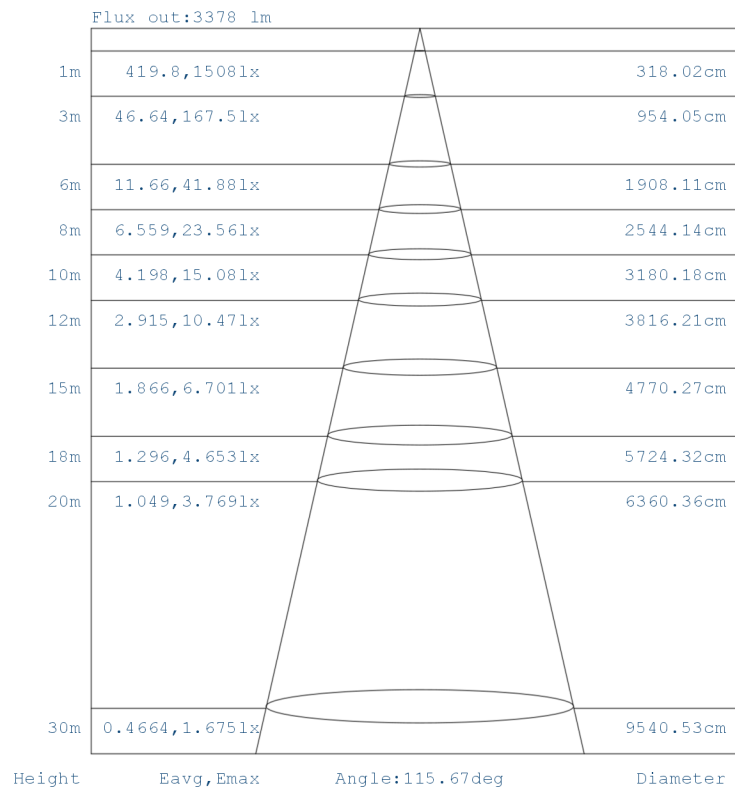
ISOCANDELA DIAGRAM

Test:U:234.2V I:0.6696A P:153.4W PF:0.978 Freq:50.00Hz Lamp Flux:4367.03x1 lm		
NAME: AF88X160-amber 590nm-red-clear PC	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



AAI Figure

Test:U:234.2V I:0.6696A P:153.4W PF:0.978 Freq:50.00Hz Lamp Flux:4367.03x1 lm		
NAME: AF88X160-amber 590nm-red-clear PC	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

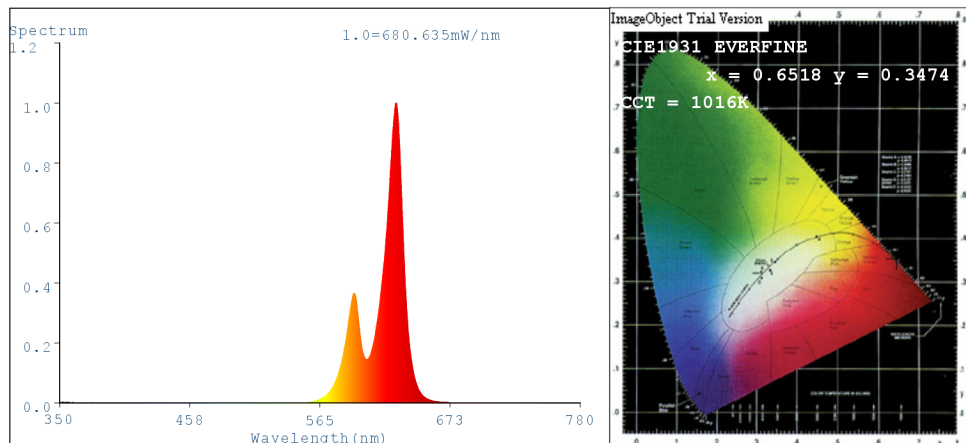
H(□) Range:-90 - 90DEG
 H(□) Interval:1.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Guohong
 Test Date:2024-01-02

V(B) Range:-90 - 90DEG
 V(B) Interval: 2.0DEG
 TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
 Humidity:65.0%
 TestDistance:8.365m [K=1.0000]
 Remarks:

H(□) Range:-90 - 90DEG
 H(□) Interval:1.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Guohong
 Test Date:2024-01-02

V(B) Range:-90 - 90DEG
 V(B) Interval: 2.0DEG
 TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
 Humidity:65.0%
 TestDistance:8.365m [K=1.0000]
 Remarks:

**SPECTRUM TEST REPORT - UPTA and EPTA 120 590NM AMBER AND RED -
Clear POLYCARBONATE LENS**



Color Parameters:

Chromaticity Coordinate:x=0.6518 y=0.3474/u'=0.4445 v'=0.5331
CCT=1016K(Duv=-0.0005) Dominant WL:Ld =606.0nm Purity=99.9%
Ratio:R=60.9% G=39.1% B=0.0% Peak WL:Lp=627.6nm FWHM=16.0nm
Render Index:Ra=41.5 CRI=43.3 AvgR=41.8
R1=34 R2=79 R3=54 R4=7 R5=28 R6=89 R7=41 R8=0 R9=0 R10=71 R11=5
R12=79 R13=42 R14=76 R15=21

Photo Parameters:

Flux = 4980 lm Eff. : 40.79 lm/W Fe = 17.21 W

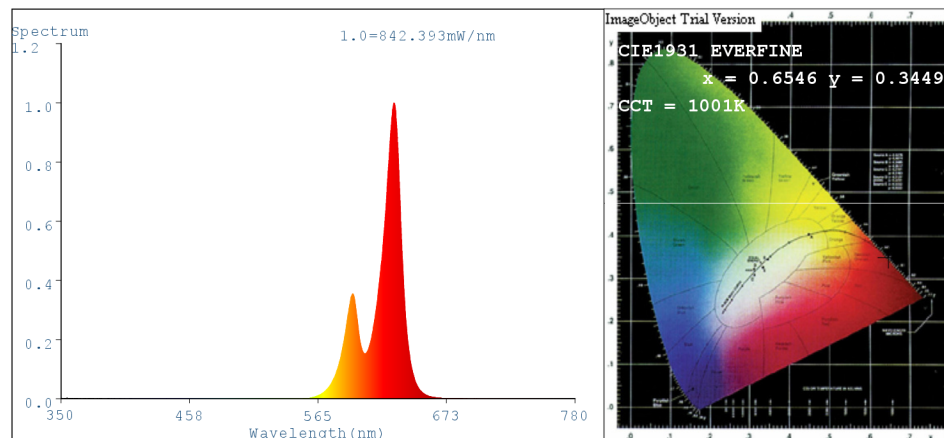
Electrical parameters:

V = 219.73 V I = 0.5656 A P = 122.1 W PF = 0.9822

LEVEL:OUT WHITE:OUT

Status: Integral T = 11 ms Ip = 46787 (71%)

**SPECTRUM TEST REPORT - UPTA and EPTA 160 590NM AMBER AND RED -
Clear POLYCARBONATE LENS**



Color Parameters:

Chromaticity Coordinate:x=0.6546 y=0.3449/u'=0.4491 v'=0.5325
CCT=1001K(Duv=-0.0013) Dominant WL:Ld =606.8nm Purity=99.9%
Ratio:R=62.6% G=37.4% B=0.0% Peak WL:Lp=628.5nm FWHM=16.7nm
Render Index:Ra=42.2 CRI=44.0 AvgR=42.5
R1=35 R2=80 R3=55 R4=9 R5=29 R6=89 R7=42 R8=0 R9=0 R10=72 R11=8
R12=78 R13=43 R14=77 R15=21

Photo Parameters:

Flux = 6119 lm Eff. : 37.64 lm/W Fe = 21.68 W

Electrical parameters:

V = 219.68 V I = 0.7486 A P = 162.6 W PF = 0.9885

LEVEL:OUT WHITE:OUT

Status: Integral T = 8 ms Ip = 42286 (65%)

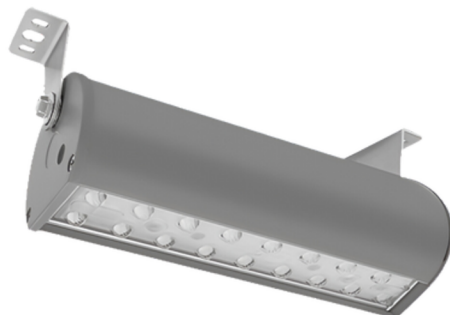
Model:LIGHT
Tester:DAMIN
Temperature:25.3Deg
Manufacturer:EVERFINE

Number:3
Date:2024-01-03 11:17
Humidity:65.0%
Remarks:---

Model:LIGHT
Tester:DAMIN
Temperature:25.3Deg
Manufacturer:EVERFINE

Number:4
Date:2024-01-03 11:19
Humidity:65.0%
Remarks:---

UPTA AND EPTA 160 590NM AMBER AND RED - FIXTURE TEST REPORT - FROSTED POLYCARBONATE LENS



Floodlight Summary:

Report based on lamp delivering 1000 lumens.

Maximum Intensity (Luminaire orientation as tested.) 368.3 cd per klm.
0.0 degrees vertical
0.0 degrees horizontal

Beam Spread At 10% of Imax 158.3V x 157.5H
At 50% of Imax 109.4V x 108.0H
At 90% of Imax 45.1V x 44.3H

Beam Flux Total 999.9 lumens per klm.
To 10% of Imax 983.6 lumens per klm.
To 50% of Imax 716.7 lumens per klm.
To 90% of Imax 164.4 lumens per klm.

Upward LOR 0.0 %
Downward LOR 100.0 %
Luminaire Efficiency(Light Output Ratio) 100.0 %

Light Output Ratio:	100.0%
Luminaire Power:	153.1 W
90% Beam Spread	45.1V x 44.3H
50% Beam Lumens	716.7 lumens per klm.

H(□) Range:-90 - 90DEG H() Interval:1.0DEG Test Speed: HIGH Temperature:25.3DEG Operators:Guohong Test Date:2024-01-02

V(B) Range:-90 - 90DEG V(B) Interval: 2.0DEG TestSystem:EVERFINEGO-2000B_V1 Humidity:65.0% TestDistance:8.365m [K=1.0000] Remarks:

SYSTEM V2.0.404.7

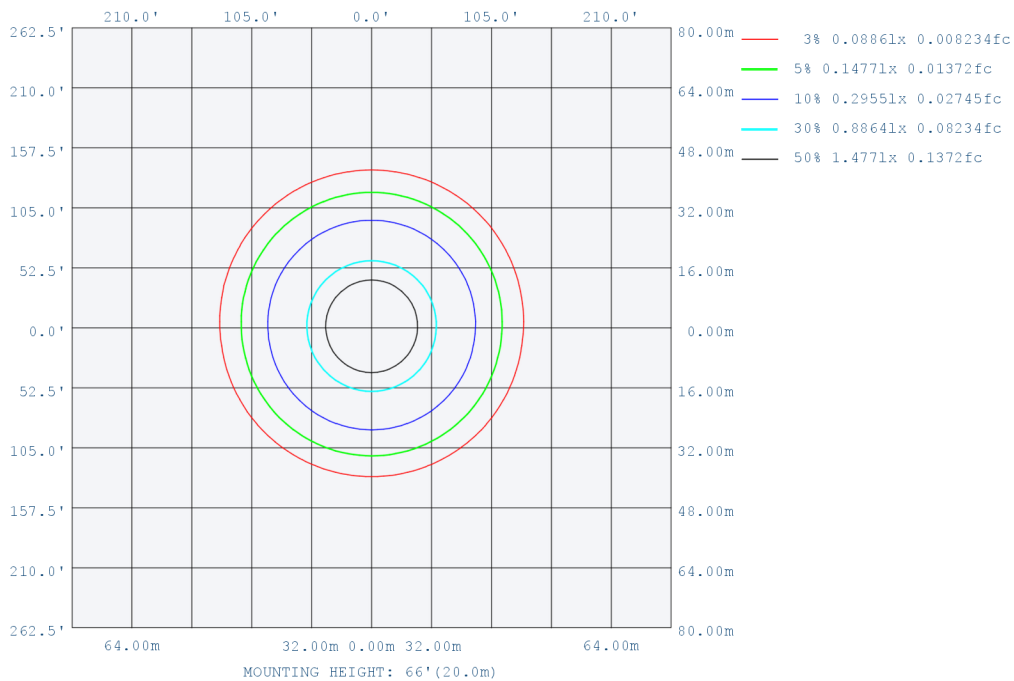
H(□) Range:-90 - 90DEG H() Interval:1.0DEG Test Speed: HIGH Temperature:25.3DEG Operators:Guohong Test Date:2024-01-02

V(B) Range:-90 - 90DEG V(B) Interval: 2.0DEG TestSystem:EVERFINEGO-2000B_V1 Humidity:65.0% TestDistance:8.365m [K=1.0000] Remarks:

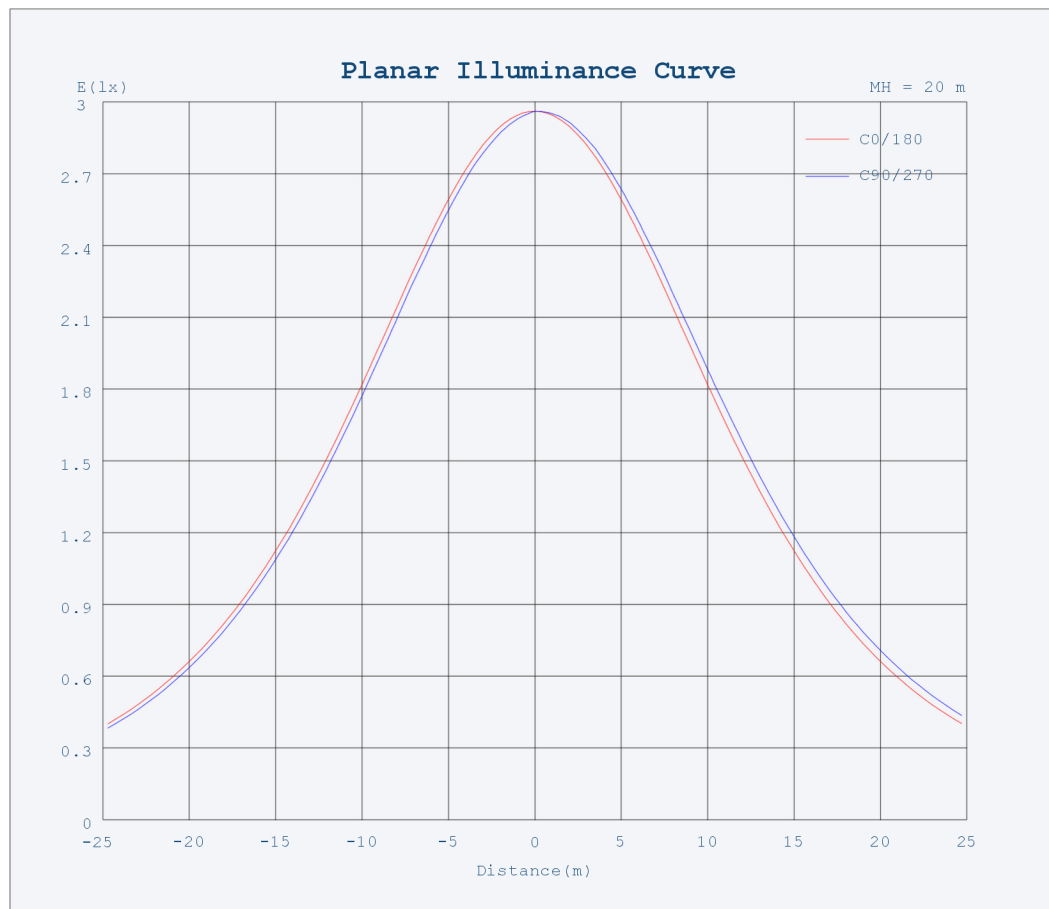
SYSTEM V2.0.404.7

ISOLUX DIAGRAM

Test:U:233.5V I:0.6663A P:153.1W PF:0.984 Freq:49.96Hz Lamp Flux:3218.12x1 lm		
NAME:AF88X160-amber 590nm-red-frosted PC	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



Planar Illuminance Curve



H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-02

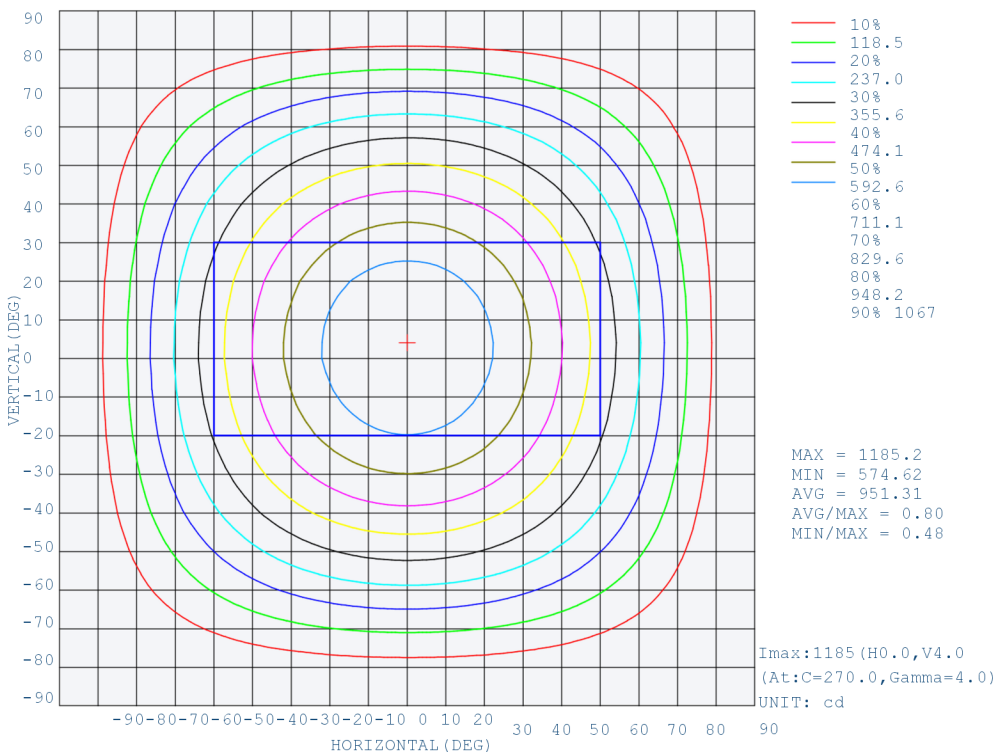
V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
Humidity:65.0%
TestDistance:8.365m [K=1.0000]
Remarks:

H(□) Range:-90 - 90DEG H(
) Interval:1.0DEG Test
Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-02

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
Humidity:65.0%
TestDistance:8.365m [K=1.0000]
Remarks:

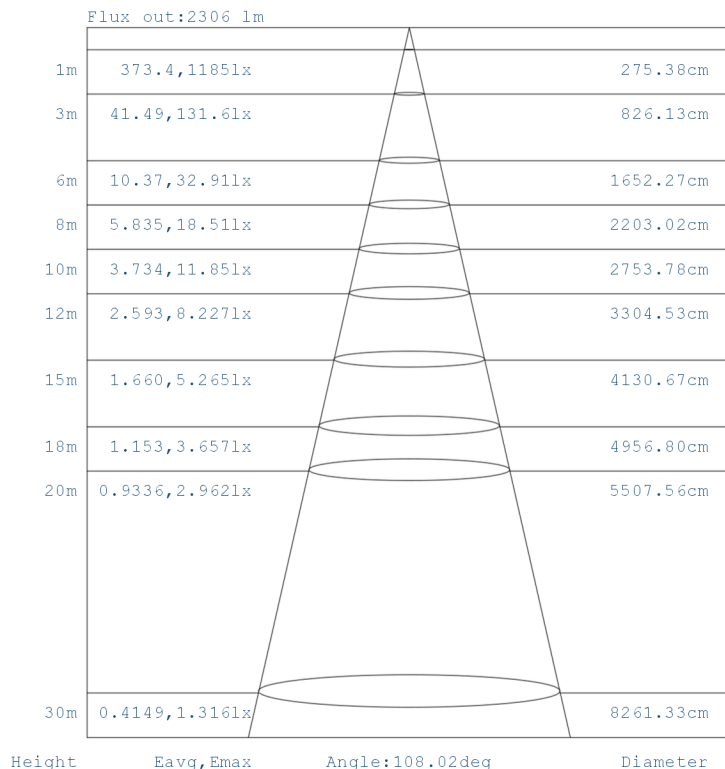
ISOCANDELA DIAGRAM

Test:U:233.5V I:0.6663A P:153.1W PF:0.984 Freq:49.96Hz Lamp Flux:3218.12x1 lm		
NAME:AF88X160-amber 590nm-red-frosted PC	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



AAI Figure

Test:U:233.5V I:0.6663A P:153.1W PF:0.984 Freq:49.96Hz Lamp Flux:3218.12x1 lm		
NAME:AF88X160-amber 590nm-red-frosted PC	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

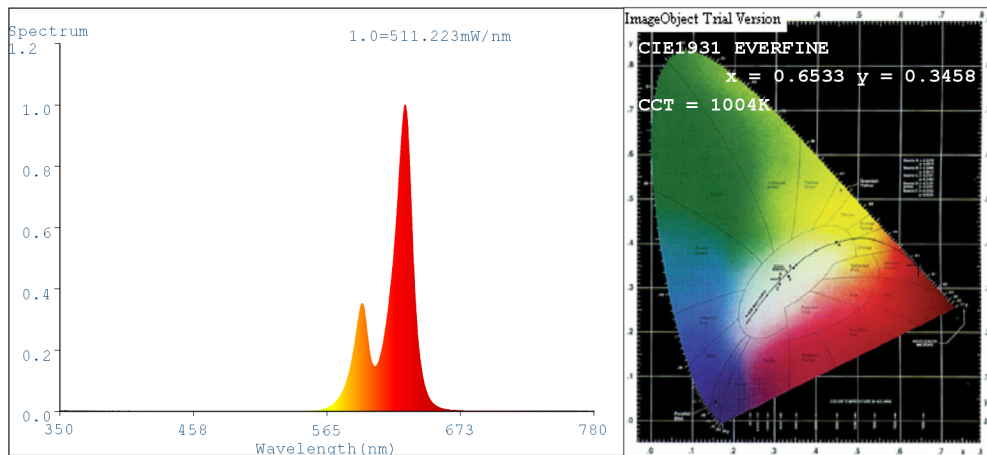
H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-02

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
Humidity:65.0%
TestDistance:8.365m [K=1.0000]
Remarks:

H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-02

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
Humidity:65.0%
TestDistance:8.365m [K=1.0000]
Remarks:

SPECTRUM TEST REPORT - UPTA and EPTA 590NM AMBER AND RED - FROSTED POLYCARBONATE LENS



Color Parameters:

Chromaticity Coordinate: $x=0.6533$ $y=0.3458$ / $u'=0.4472$ $v'=0.5327$
 CCT=1004K (Duv=-0.0004) Dominant WL:Ld =606.5nm Purity=99.8%
 Ratio:R=62.2% G=37.8% B=0.0% Peak WL:Lp=628.2nm FWHM=16.2nm
 Render Index:Ra=42.3 CRI=44.1 AvgR=42.6
 R1=35 R2=80 R3=55 R4=9 R5=29 R6=90 R7=41 R8=0 R9=0 R10=7 R11=8
 R12=78 R13=43 R14=77 R15=22

Photo Parameters:

Flux = 3696 lm Eff. : 30.28 lm/W Fe = 12.97 W

Electrical parameters:

V = 219.61 V I = 0.5659 A P = 122.1 W PF = 0.9823

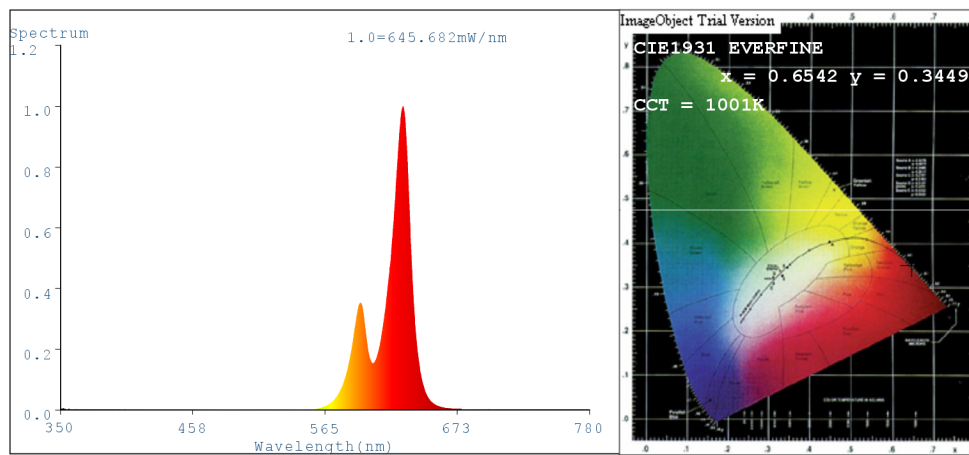
LEVEL:OUT WHITE:OUT

Status: Integral T = 11 ms Ip = 35150 (54%)

Model:LIGHT
 Tester:DAMIN
 Temperature:25.3Deg
 Manufacturer:EVERFINE

Number:2
 Date:2024-01-03 11:15
 Humidity:65.0%
 Remarks:---

SPECTRUM TEST REPORT - UPTA and EPTA 160 590NM AMBER AND RED - FROSTED POLYCARBONATE LENS



Color Parameters:

Chromaticity Coordinate: $x=0.6542$ $y=0.3449$ / $u'=0.4488$ $v'=0.5324$
 CCT=1001K (Duv=-0.0010) Dominant WL:Ld =606.7nm Purity=99.8%
 Ratio:R=62.7% G=37.2% B=0.0% Peak WL:Lp=628.5nm FWHM=16.7nm
 Render Index:Ra=42.4 CRI=44.2 AvgR=42.7
 R1=35 R2=8 R3=5 R4=9 R5=30 R6=90 R7=41 R8=0 R9=0 R10=73 R11=9
 R12=78 R13=43 R14=77 R15=21

Photo Parameters:

Flux = 4702 lm Eff. : 28.84 lm/W Fe = 16.69 W

Electrical parameters:

V = 219.67 V I = 0.7507 A P = 163.0 W PF = 0.9886

LEVEL:OUT WHITE:OUT

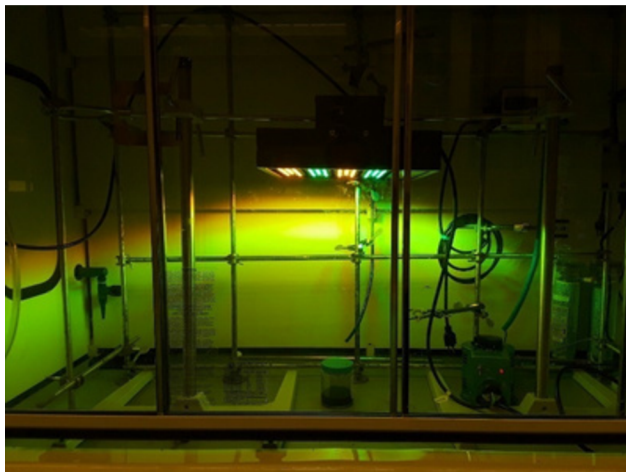
Status: Integral T = 11 ms Ip = 44375 (68%)

Model:LIGHT
 Tester:DAMIN
 Temperature:25.3Deg
 Manufacturer:EVERFINE

Number:1
 Date:2024-01-03 11:12
 Humidity:65.0%
 Remarks:---

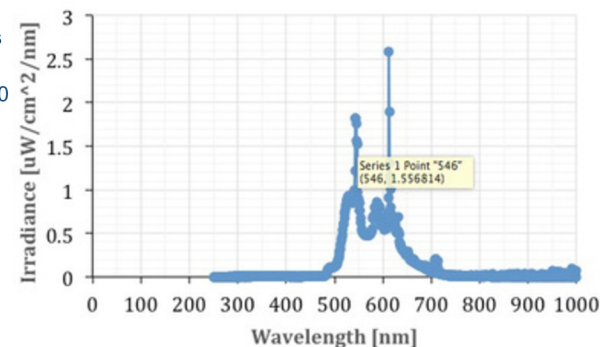
The Fixture's are is independently lab tested and prototypes have been tested by Fortune 500 companies.

The lab of a Fortune 500 company conducted the test. An Access Fixtures No UV LED luminaire equipped with 590nm Amber and Green LEDs was installed in the fume hood of R&D lab. The light wavelength and intensity were measured by spectroradiometer (ILT 950) and light meter (RDI-AR 823) (Fig2). A solution that can be impacted by UV and light under 450nm was placed under the light in the fume hood. The solution was daily inspected visually to see any gel formation caused by LED light.

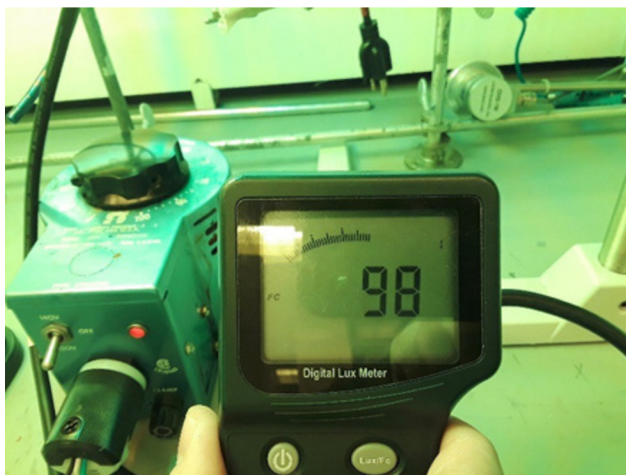


The wavelength of LED light exposed to the solution used in this study using 590nm Amber and Green LEDs ranged from 480 to 710 nm.

As shown in the table below, the sample remained free of gel over the entire 12-day study.



The electric voltage was controlled by a voltage controller and was set to 20% so that the LED light intensity would register 98fc on the light meter. The test was at a much higher footcandle level than their typical production facility targets of 40-70 fc.



The study confirmed that the wavelength of LED light used for solution gel formation ranged from 480 to 710 nm and no gel formation or change in appearance was observed visually at 98 fc light intensity, suggesting that the Access Fixtures LED light fixtures used with a target, 40-70 fc would have no impact on production.

Date inspected	Observation	Exposure time
4/25/2018	started	0 day
4/26/2018	No gel	1 day
4/27/2018	No gel	2 days
4/30/2018	No gel	5 days
5/7/2018	No gel	12 days