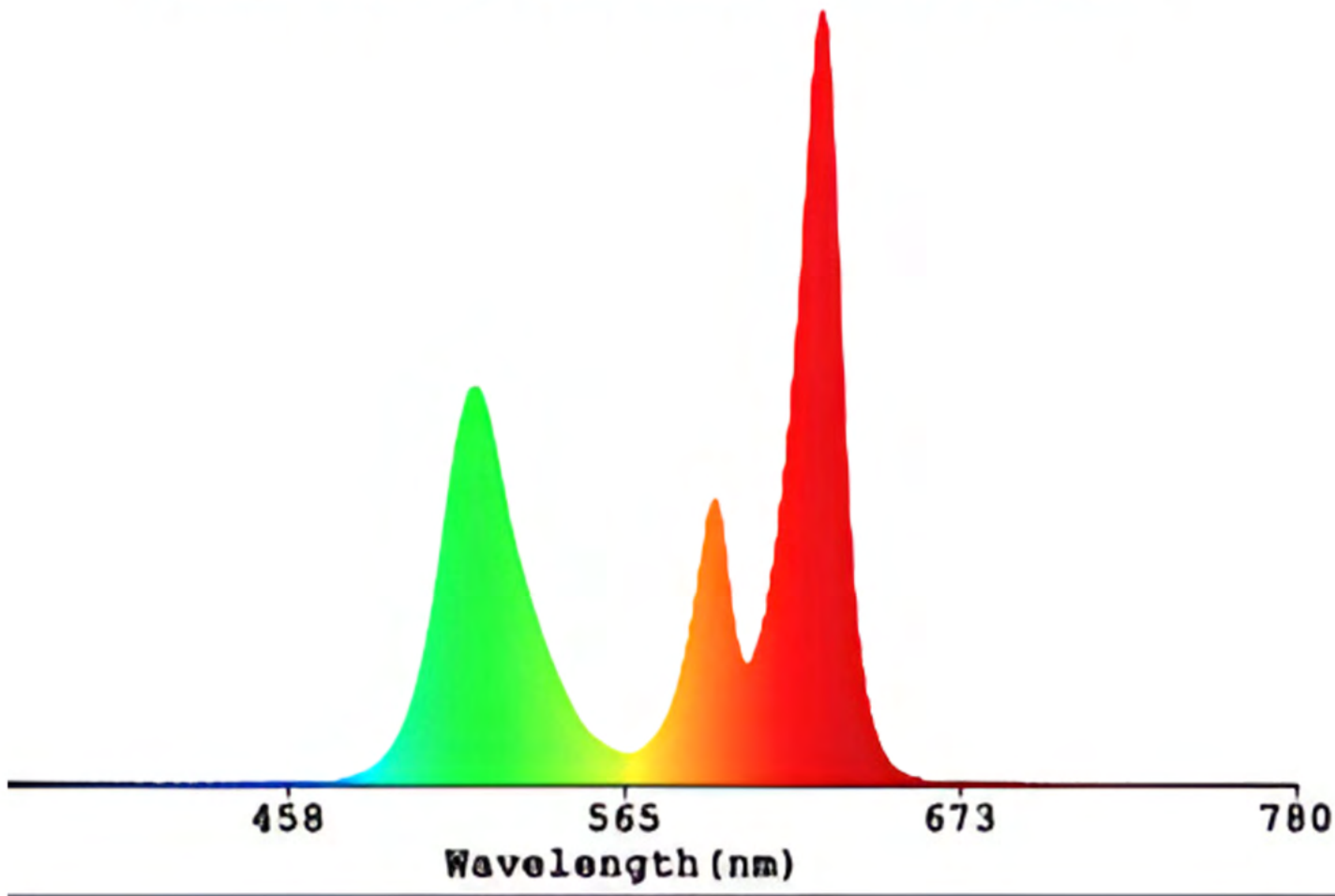


UPTA / EPTA

590nm AMBER, GREEN AND RED SPECTRUM



590nm Amber , Green and Red LEDs provides the most broad No UV light spectrum

Tested at 160w

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



Floodlight Summary:

Report based on lamp delivering 1000 lumens.

Maximum Intensity	339.7 cd per klm.
(Luminaire orientation as tested.)	0.0 degrees vertical
	0.0 degrees horizontal

Beam Spread	At 10% of Imax	156.3V x 155.8H
	At 50% of Imax	118.8V x 117.7H
	At 90% of Imax	51.5V x 51.1H

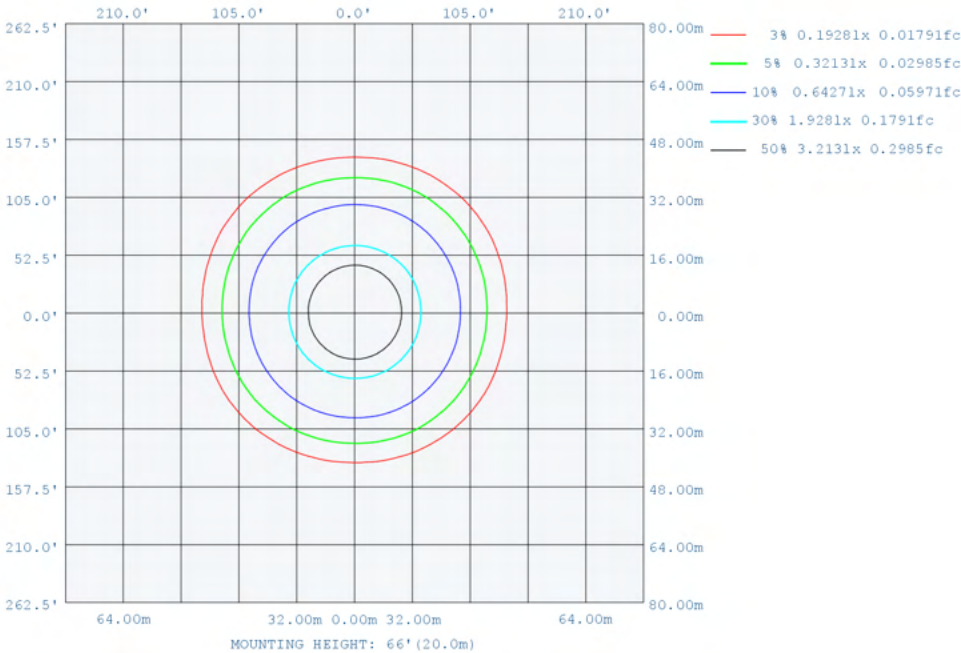
Beam Flux	Total	999.9 lumens per klm.
	To 10% of Imax	986.2 lumens per klm.
	To 50% of Imax	794.0 lumens per klm.
	To 90% of Imax	201.6 lumens per klm.

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

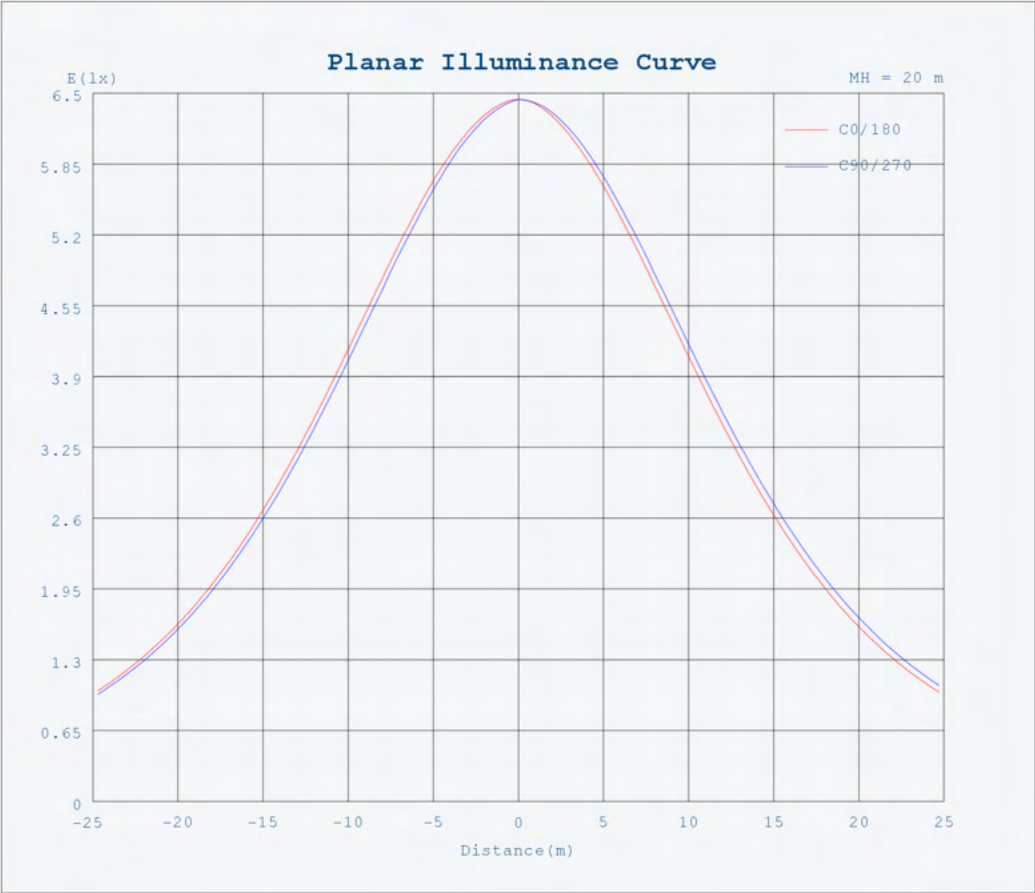
Light Output Ratio:	100.0%
Luminaire Power:	157.1 W
90% Beam Spread	51.5V x 51.1H
50% Beam Lumens	794 lumens per klm.

ISOLUX DIAGRAM

Test:U:234.0V I:0.6819A P:157.1W PF:0.985 Freq:49.99Hz Lamp Flux:7590.18x1 lm		
NAME: AF88X160-amber 590nm-red-green-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:2024-01-03

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

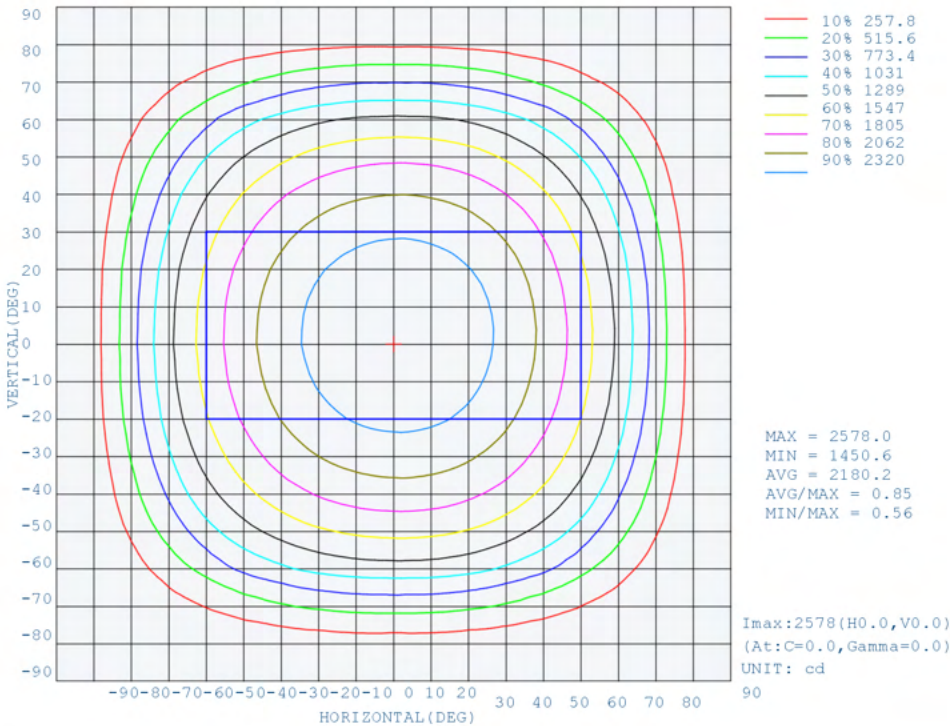
H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG
Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-03

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

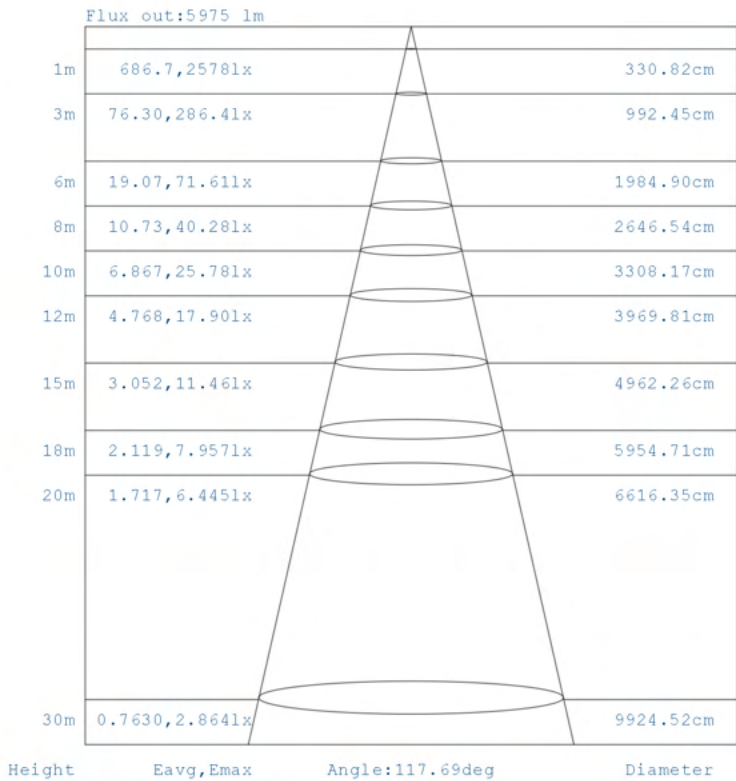
ISOCANDELA DIAGRAM

Test:U:234.0V I:0.6819A P:157.1W PF:0.985 Freq:49.99Hz Lamp Flux:7590.18x1 lm		
NAME: CML160-amber 590nm-red-green-clear glass	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



AAI Figure

Test:U:234.0V I:0.6819A P:157.1W PF:0.985 Freq:49.99Hz Lamp Flux:7590.18x1 lm		
NAME: CML160-amber 590nm-red-green-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.

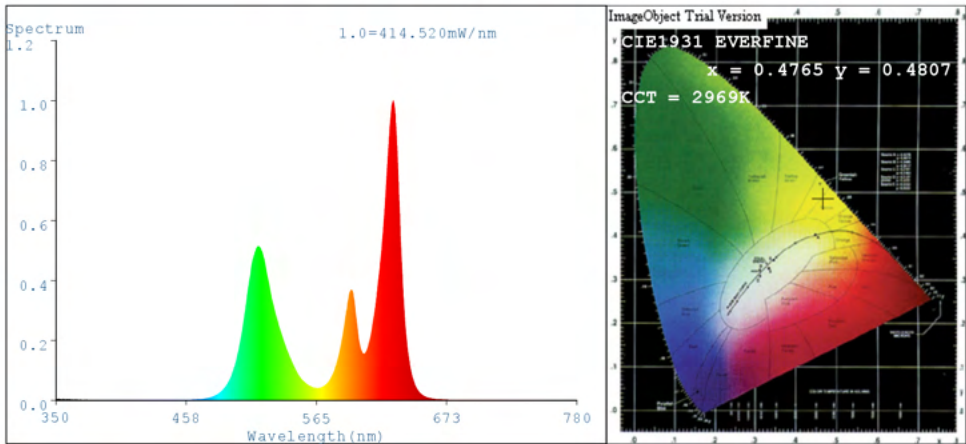
H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-03

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:2024-01-03

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, GREEN AND RED
- Clear Glass



Color Parameters:

Chromaticity Coordinate: $x=0.4765$ $y=0.4807$ $u'=0.2438$ $v'=0.5536$
CCT=2969K (Duv=0.0224) Dominant WL:Ld =577.7nm Purity=87.4%
Ratio:R=29.0% G=69.8% B=1.2% Peak WL:Lp=628.5nm FWHM=16.2nm
Render Index:Ra=49.2 CRI=43.4 AvgR=45.5
R1=52 R2=68 R3=54 R4=29 R5=51 R6=38 R7=52 R8=49 R9=36 R10=29
R11=5 R12=14 R13=54 R14=76 R15=74

Photo Parameters:

Flux = 6441 lm Eff. : 53.26 lm/W Fe = 17.86 W

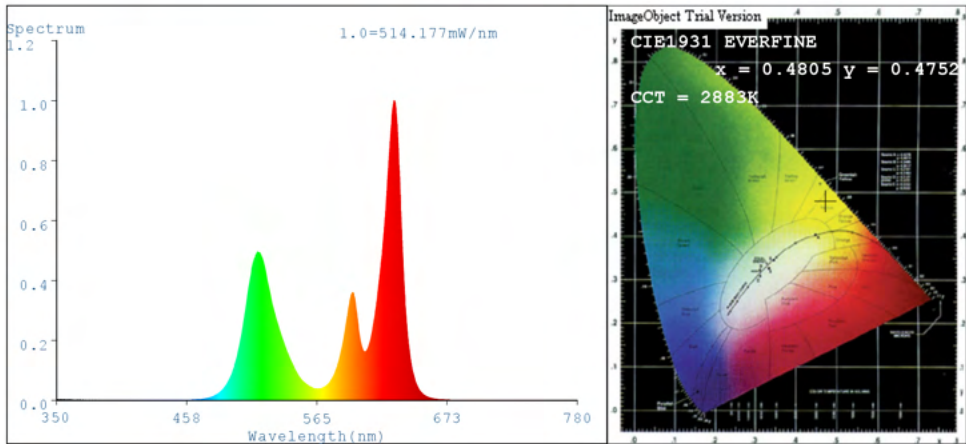
Electrical parameters:

V = 219.61 V I = 0.5608 A P = 120.9 W PF = 0.9820

LEVEL:OUT WHITE:OUT

Status: Integral T = 17 ms Ip = 44025
(67%)

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



Color Parameters:

Chromaticity Coordinate: $x=0.4805$ $y=0.4752$ $u'=0.2483$ $v'=0.5525$
CCT=2883K (Duv=0.0202) Dominant WL:Ld =578.5nm Purity=86.9%
Ratio:R=30.1% G=68.6% B=1.3% Peak WL:Lp=628.6nm FWHM=16.8nm
Render Index:Ra=48.0 CRI=41.3 AvgR=43.3
R1=49 R2=68 R3=57 R4=26 R5=46 R6=35 R7=55 R8=48 R9=29 R10=26
R11=0 R12=10 R13=51 R14=78 R15=71

Photo Parameters:

Flux = 7869 lm Eff. : 48.46 lm/W Fe = 22.31 W

Electrical parameters:

V = 219.65 V I = 0.7479 A P = 162.4 W PF = 0.9885

LEVEL:OUT WHITE:OUT

Status: Integral T = 17 ms Ip = 54967
(84%)

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

Number:4
Date:2024-01-03 10:19
Humidity:65.0%
Remarks:---

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

Number:5
Date:2024-01-03 10:22
Humidity:65.0%
Remarks:---

FLAT & FLYT 160 590NM AMBER GRREN AND RED - FIXTURE TEST REPORT - CLEAR POLYCARBONATE LENS



Floodlight Summary:

Report based on lamp delivering 1000 lumens.

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

Beam Spread
At 10% of Imax 156.4V x 155.9H
At 50% of Imax 118.6V x 117.0H
At 90% of Imax 51.4V x 50.0H

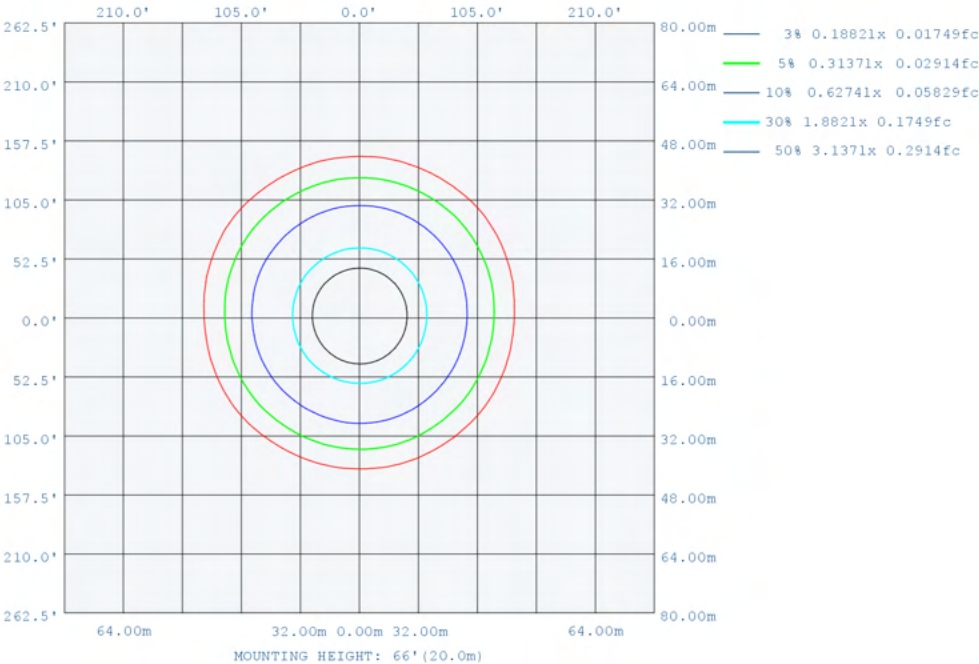
Beam Flux
Total 999.9 lumens per klm.
To 10% of Imax 986.0 lumens per klm.
To 50% of Imax 789.9 lumens per klm.
To 90% of Imax 196.9 lumens per klm.

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

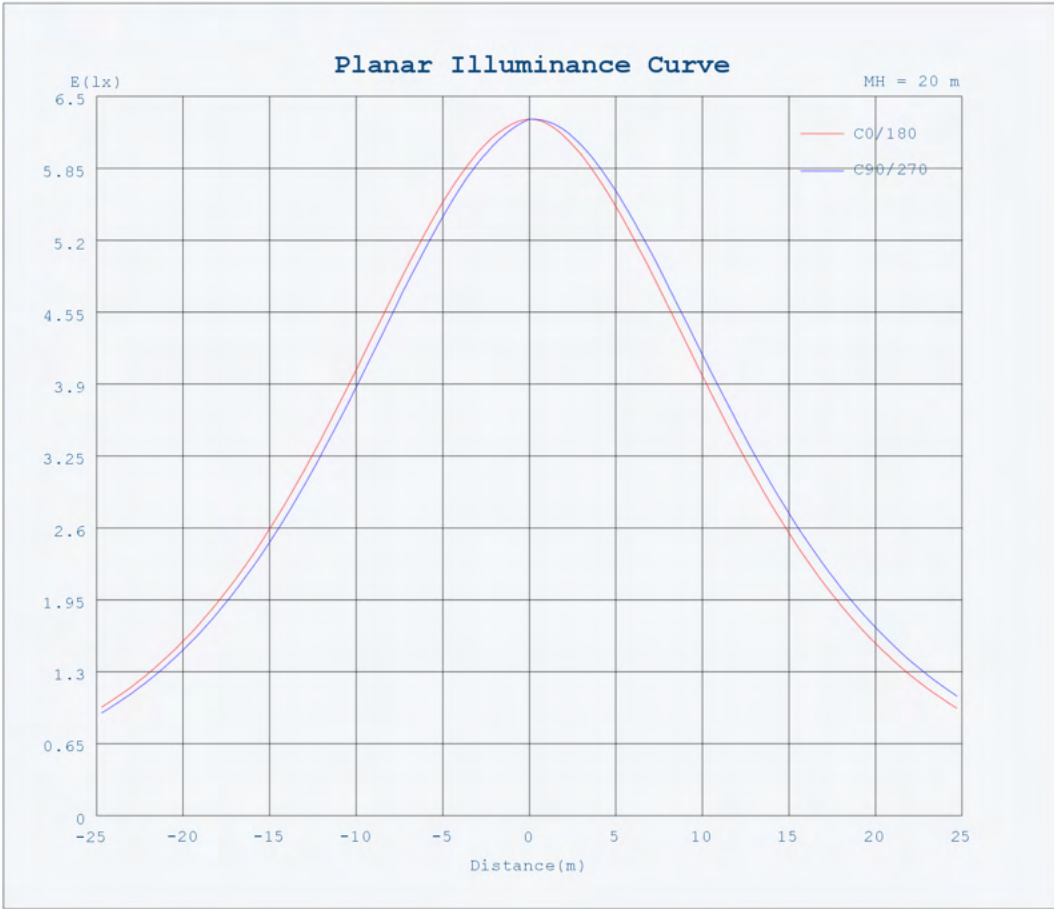
Light Output Ratio:	100.0%
Luminaire Power:	157.8 W
90% Beam Spread	51.4V x 50.0H
50% Beam Lumens	789.9 lumens per klm.

ISOLUX DIAGRAM

Test:U:235.8V I:0.6804A P:157.8W PF:0.984 Freq:50.04Hz Lamp Flux:7364.77x1 lm		
NAME: AF88X160-amber 590nm-red-green-clear PC	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



Planar Illuminance Curve

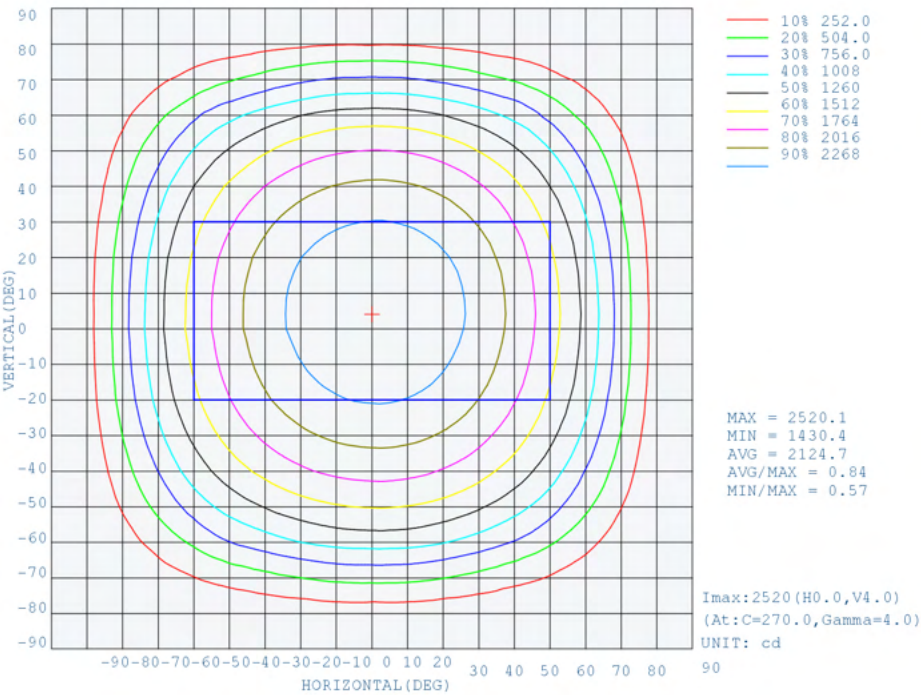


H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-03
V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
TestSystem:EVERFINEGO-2000B_V1 SYSTEM V2.0.404.7
Humidity:65.0%
TestDistance:8.365m [K=1.0000]
Remarks:

H(□) Range:-90 - 90DEG
H(□) Interval:1.0DEG Test
Speed: HIGH
Temperature:25.3DEG
Operators:Guohong
Test Date:2024-01-03
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:

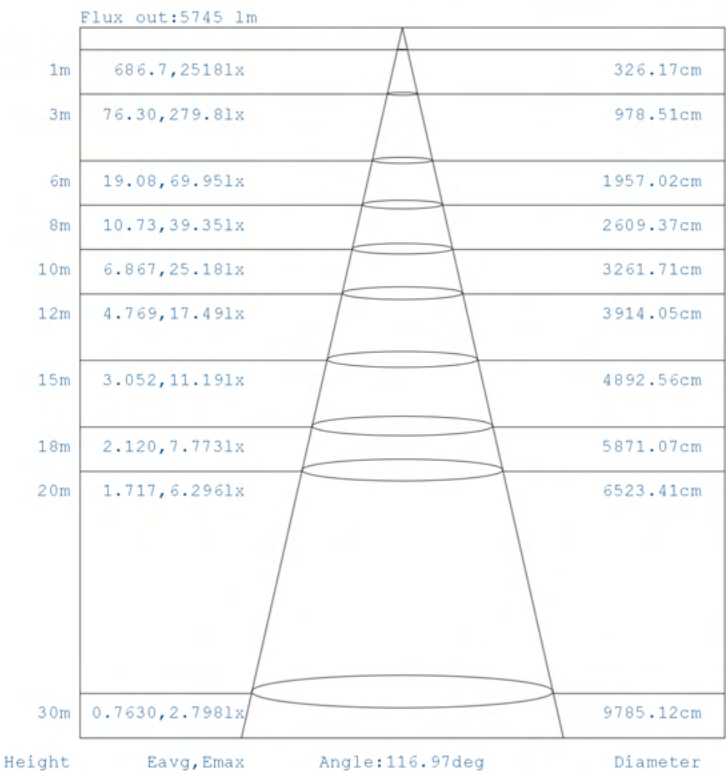
ISOCANDELA DIAGRAM

Test:U:235.8V I:0.6804A P:157.8W PF:0.984 Freq:50.04Hz Lamp Flux:7364.77x1 lm		
NAME: AF88X160-amber 590nm-red-green-clear PC	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



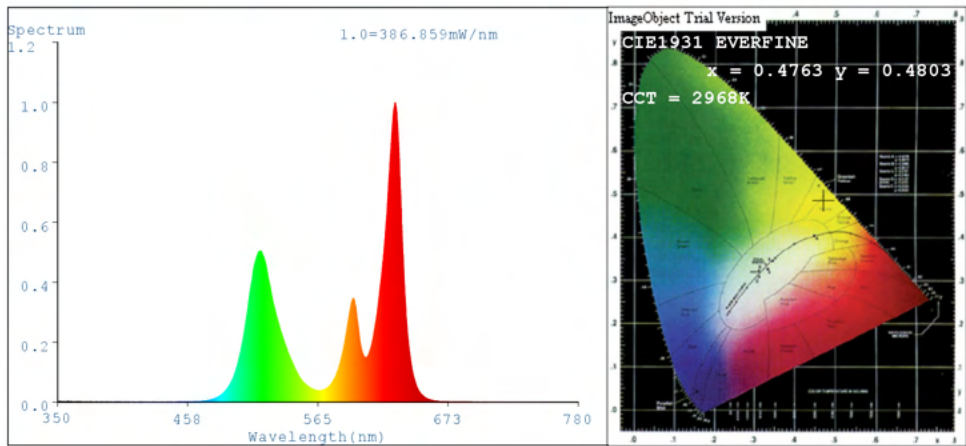
AAI Figure

Test:U:235.8V I:0.6804A P:157.8W PF:0.984 Freq:50.04Hz Lamp Flux:7364.77x1 lm		
NAME: AF88X160-amber 590nm-red-green-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.

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



Color Parameters:

Chromaticity Coordinate: $x=0.4763$ $y=0.4803$ / $u'=0.2439$ $v'=0.5534$
 $CCT=2968K$ ($Duv=0.0223$) Dominant WL: $L_d=577.7nm$ Purity= 87.2%
 Ratio: $R=29.4\%$ $G=69.4\%$ $B=1.2\%$ Peak WL: $L_p=628.5nm$ FWHM= $16.2nm$
 Render Index: $Ra=47.4$ CRI= 41.0 AvgR= 43.0
 $R1=49$ $R2=67$ $R3=54$ $R4=27$ $R5=49$ $R6=37$ $R7=51$ $R8=45$ $R9=25$ $R10=27$
 $R11=2$ $R12=13$ $R13=52$ $R14=76$ $R15=71$

Photo Parameters:

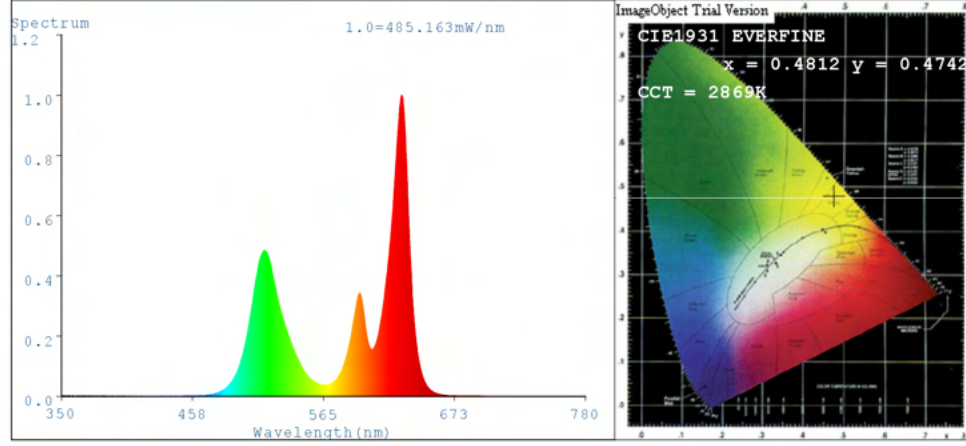
Flux = 5864 lm Eff. : 48.65 lm/W Fe = 16.43 W

Electrical parameters:

$V = 219.59$ V $I = 0.5591$ A $P = 120.5$ W $PF = 0.9819$
 LEVEL:OUT WHITE:OUT

Status: Integral $T = 17$ ms $I_p = 41226$ (63%)

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



Color Parameters:

Chromaticity Coordinate: $x=0.4812$ $y=0.4742$ / $u'=0.2491$ $v'=0.5522$
 $CCT=2869K$ ($Duv=0.0199$) Dominant WL: $L_d=578.7nm$ Purity= 86.9%
 Ratio: $R=30.5\%$ $G=68.1\%$ $B=1.4\%$ Peak WL: $L_p=629.2nm$ FWHM= $16.7nm$
 Render Index: $Ra=46.6$ CRI= 39.5 AvgR= 41.5
 $R1=46$ $R2=67$ $R3=58$ $R4=24$ $R5=44$ $R6=34$ $R7=54$ $R8=45$ $R9=21$ $R10=25$
 $R11=0$ $R12=8$ $R13=49$ $R14=78$ $R15=69$

Photo Parameters:

Flux = 7236 lm Eff. : 44.62 lm/W Fe = 20.69 W

Electrical parameters:

$V = 219.65$ V $I = 0.7468$ A $P = 162.1$ W $PF = 0.9885$
 LEVEL:OUT WHITE:OUT

Status: Integral $T = 17$ ms $I_p = 51992$ (79%)

Model:LIGHT	Number:3	Model:LIGHT	Number:2
Tester:DAMIN	Date:2024-01-03 10:16	Tester:DAMIN	Date:2024-01-03 10:15
Temperature:25.3Deg	Humidity:65.0%	Temperature:25.3Deg	Humidity:65.0%
Manufacturer:EVERFINE	Remarks:---	Manufacturer:EVERFINE	Remarks:---

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



Light Output Ratio:	
Luminaire Power:	100.0%
	157 W
90% Beam Spread	45.0V x 44.6H
50% Beam Lumens	717.3 lumens per klm.

Floodlight Summary:

Report based on lamp delivering 1000 lumens.

Maximum Intensity (Luminaire orientation as tested.)	368.0 cd per klm.
	0.0 degrees vertical
	0.0 degrees horizontal

Beam Spread	At 10% of I _{max}	158.1V x 157.7H
	At 50% of I _{max}	109.3V x 108.5H
	At 90% of I _{max}	45.0V x 44.6H

Beam Flux	Total	999.9 lumens per klm.
	To 10% of I _{max}	983.6 lumens per klm.
	To 50% of I _{max}	717.3 lumens per klm.
	To 90% of I _{max}	165.3 lumens per klm.

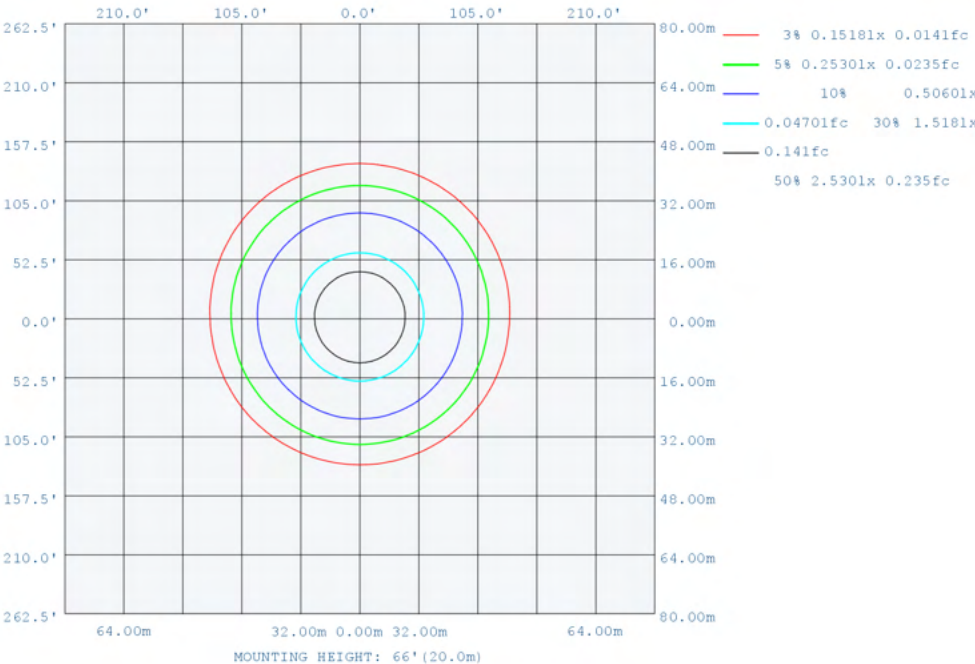
Upward LOR 0.0 %

Downward LOR 100.0 %

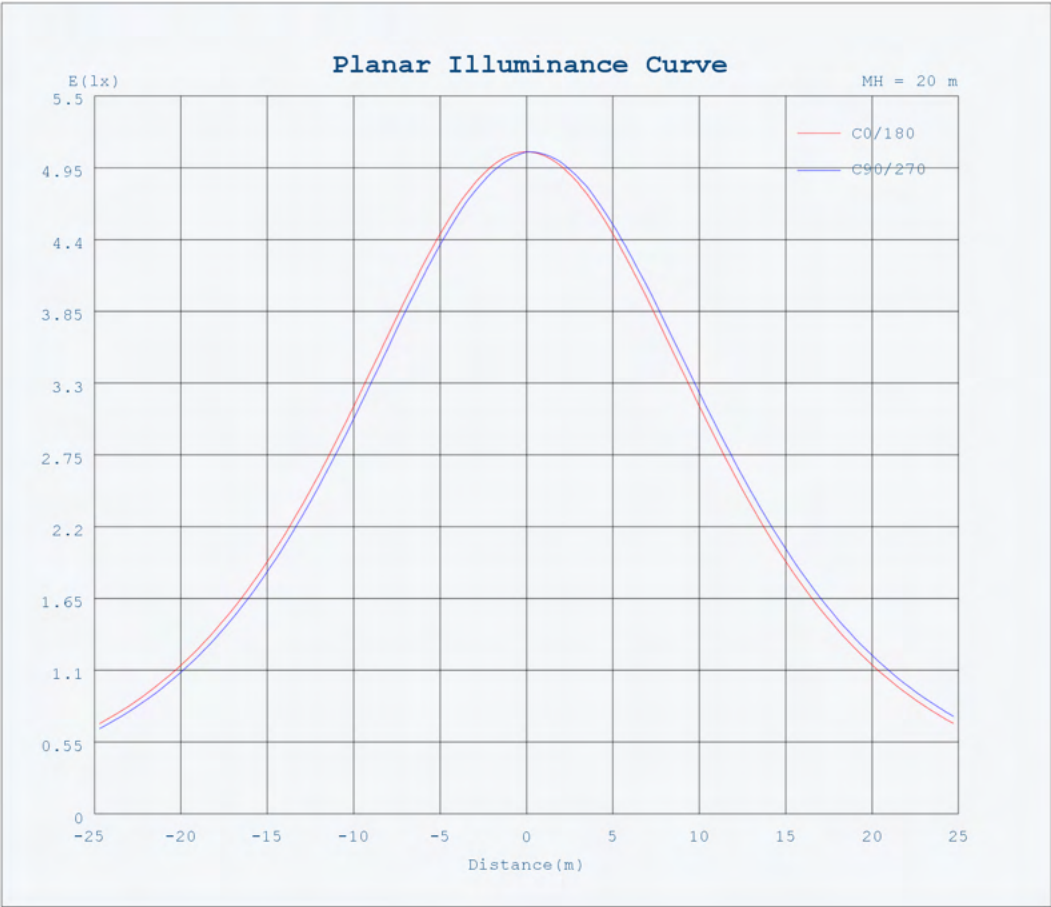
Luminaire Efficiency(Light Output Ratio) 100.0 %

ISOLUX DIAGRAM

Test:U:236.8V I:0.6737A P:157.0W PF:0.984 Freq:49.99Hz Lamp Flux:5515.47x1 lm		
NAME: AF88X160-amber 590nm-red-green-frosted PC	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

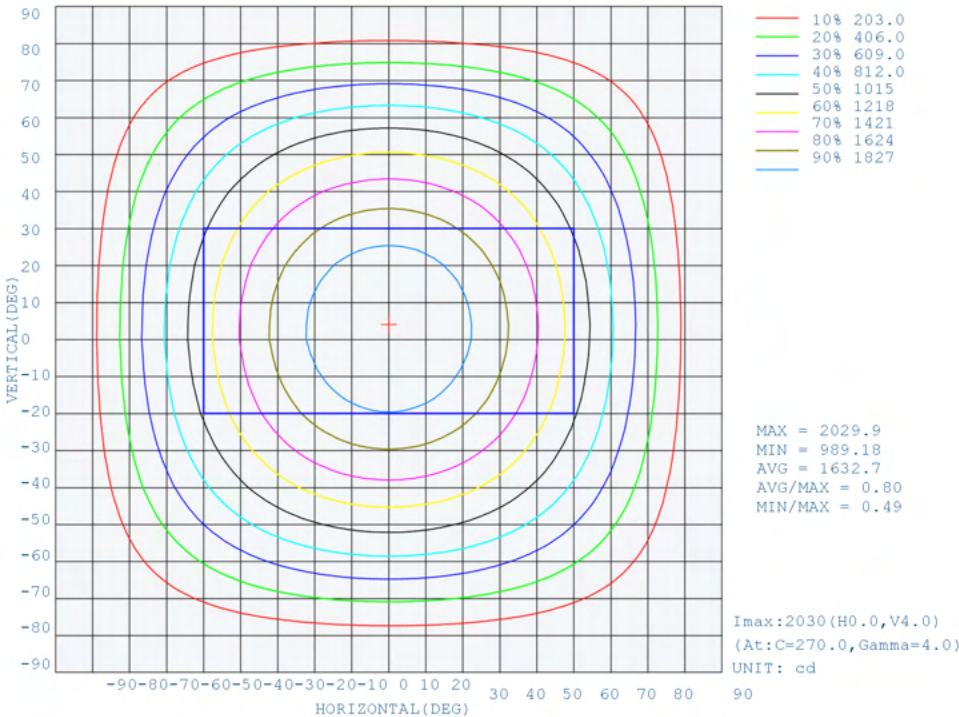


Planar Illuminance Curve



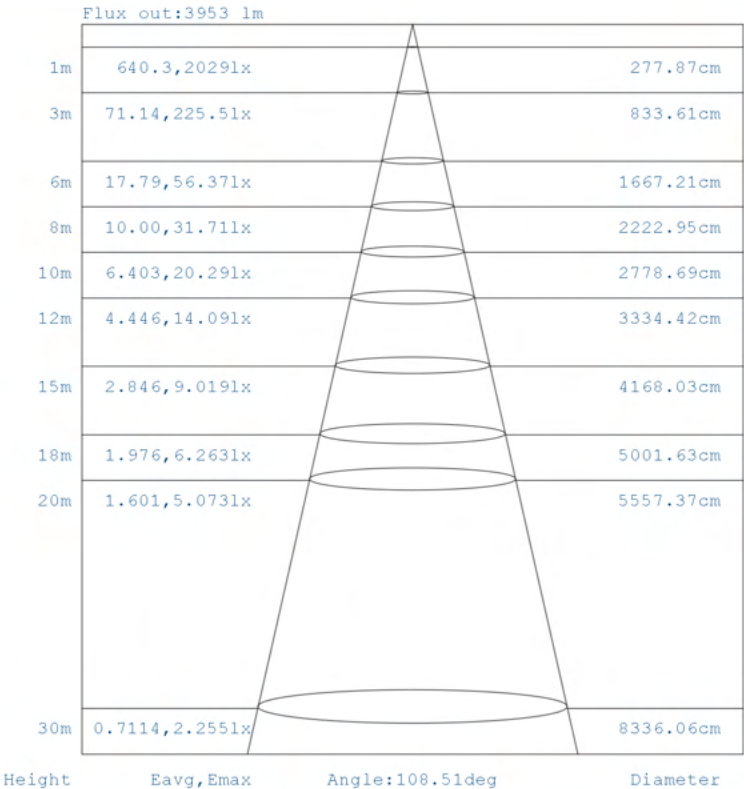
ISOCANDELA DIAGRAM

Test:U:236.8V I:0.6737A P:157.0W PF:0.984 Freq:49.99Hz Lamp Flux:5515.47x1 lm		
NAME: AF88X160-amber 590nm-red-green-frosted PC	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



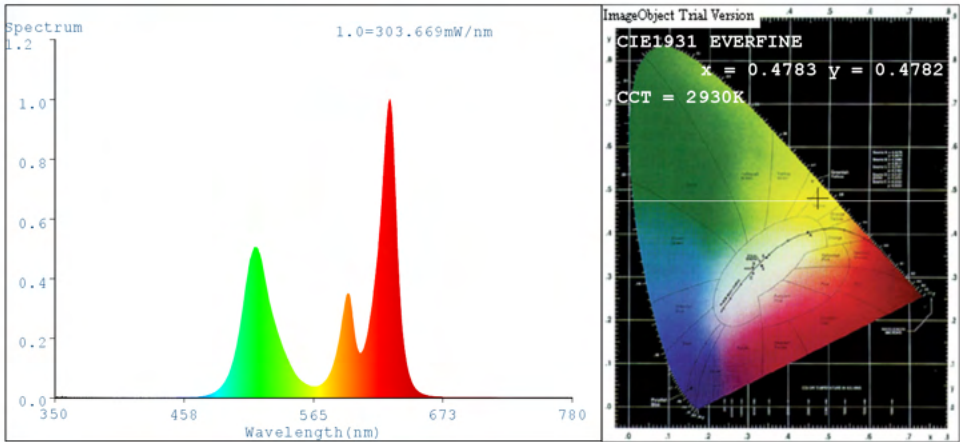
AAI Figure

Test:U:236.8V I:0.6737A P:157.0W PF:0.984 Freq:49.99Hz Lamp Flux:5515.47x1 lm		
NAME: AF88X160-amber 590nm-red-green-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.

SPECTRUM TEST REPORT - UPTA and EPTA 120 590NM AMBER, GREEN AND RED
- FROSTED POLYCARBONATE LENS



Color Parameters:

Chromaticity Coordinate: $x=0.4783$ $y=0.4782$ $u'=0.2459$ $v'=0.5531$
 CCT=2930K(Duv=0.0214) Dominant WL:Ld =578.1nm Purity=87.2%
 Ratio:R=29.7% G=69.0% B=1.2% Peak WL:Lp=628.5nm FWHM=16.2nm
 Render Index:Ra=47.6 CRI=41.1 AvgR=43.2
 R1=49 R2=67 R3=55 R4=26 R5=47 R6=35 R7=53 R8=47 R9=30 R10=26
 R11=0 R12=10 R13=52 R14=77 R15=72

Photo Parameters:

Flux = 4581 lm Eff. : 37.82 lm/W Fe = 12.88 W

Electrical parameters:

V = 219.59 V I = 0.5617 A P = 121.1 W PF = 0.9820

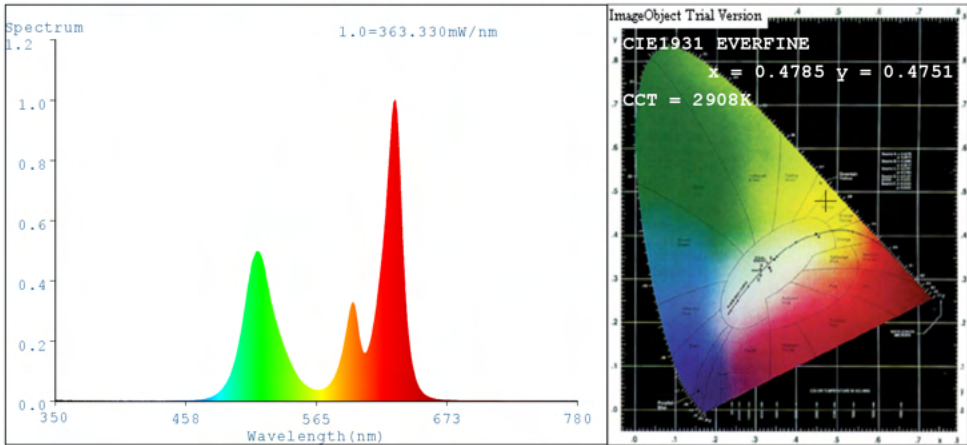
LEVEL:OUT WHITE:OUT

Status: Integral T = 28 ms Ip = 53116
(81%)

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

Number:N-00006
 Date:2024-01-03 10:07
 Humidity:65.0%
 Remarks:---

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



Color Parameters:

Chromaticity Coordinate: $x=0.4785$ $y=0.4751$ $u'=0.2471$ $v'=0.5521$
 CCT=2908K(Duv=0.0204) Dominant WL:Ld =578.3nm Purity=86.3%
 Ratio:R=30.7% G=67.8% B=1.4% Peak WL:Lp=629.5nm FWHM=17.1nm
 Render Index:Ra=44.4 CRI=37.0 AvgR=38.9
 R1=43 R2=66 R3=57 R4=22 R5=41 R6=33 R7=53 R8=40 R9=10 R10=22
 R11=0 R12=7 R13=47 R14=78 R15=65

Photo Parameters:

Flux = 5441 lm Eff. : 33.64 lm/W Fe = 15.76 W

Electrical parameters:

V = 219.56 V I = 0.7454 A P = 161.8 W PF = 0.9884

LEVEL:OUT WHITE:OUT

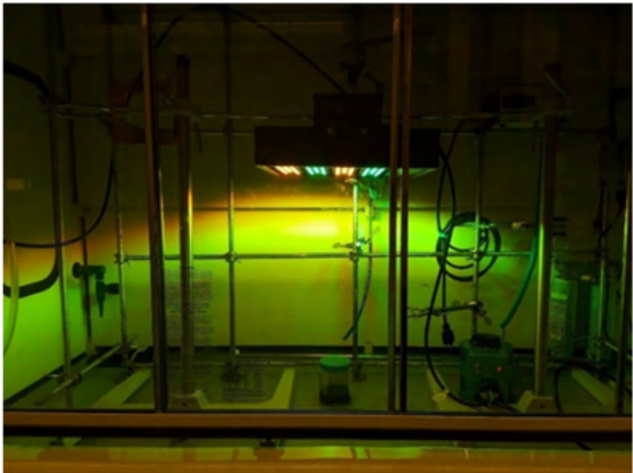
Status: Integral T = 22 ms Ip = 50409
(77%)

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

Number:1
 Date:2024-01-03 10:12
 Humidity:65.0%
 Remarks:---

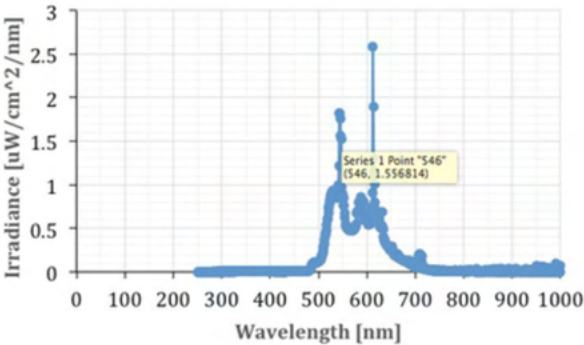
The Fixture's are is independently lab tested and prototypes have been tested by Fortune 500 companies.

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