



Shenzhen Belling Efficiency Testing Lab Co., Ltd



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Total pages 22

Test report of

IES LM-79-08

Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Applicant:

RAB Lighting Inc

Address:

Northvale, New Jersey, 07647, USA

For Product:

LED Corn Lamp

Model No.:

HID-80-V-EX39-850-BYP-HB-ECO

Test laboratory: Shenzhen Belling Efficiency Testing Lab Co., Ltd, 1Floor, No.1 Building, Meibaohe Industrial Park, Dalang Street, Longhua District, Shenzhen, Guangdong Prov.518101 China.

Complied by: Jarvis zhang

Review by: Jason zhou

Project Engineer

Technical Manager

Note: The test data was only valid for the test sample(s). This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Shenzhen Belling Efficiency Testing Lab Co., Ltd. This report must not be used by the customer to claim product certification, approval, or endorsement By NVLAP, NIST, or any agency of the U.S. Government.



1 General

1.1 Product Information

Manufacturer	RAB Lighting Inc
Manufacturer Address	Northvale, New Jersey, 07647, USA
Brand Name	/
Luminaire Type	LED Corn Lamp
Model Number	HID-80-V-EX39-850-BYP-HB-ECO
Rated Inputs	AC 100-277V 50/60Hz
Rated Power	80 W
Nominal CCT	5000K
Date of Receipt Samples	2020-07-20
Date of test	2020-07-21 to 2020-07-28
Burning Time Before Test	0hour(For New Products)

1.2 Standards or methods

- ANSI C78.377-2017: Specifications for the Chromaticity of Solid State Lighting Products
- ANSI C82.77-10:2014: Harmonic Emission Limits - Related Power Quality Requirements for Lighting Equipment - Solid State
- CIE Publication No.13.3-1995: Method of Measuring and Specifying Color Rendering of Light Sources
- IESNA LM-79-08 Approved Method: Electric & Photometric Measurement of Solid-state Lighting Products



1.3 Equipment list

Device	Manufacture	Model No.	Serial No.	Calibration due date
Goniophotometric System	SENSING	GMS-3000	N.A	2021-04-02
AC Power Source	ALL POWER	APW-110N	992257	2021-04-02
Total Luminous Flux Standard Lamp	SENSING	110V/100W	S1510065	2021-04-08
Total Spectral Radiant Flux Standard Lamp	SENSING	12V/20W	LSD12201731	2021-04-08
Digital Power Meter	YOKOGAWA	WT310	C2QM02030V	2021-04-02
Integral Sphere	SENSING	SPR-600M	N.A	2021-04-02
Digital Power Meter	YOKOGAWA	WT210	91L929742	2021-04-02
Optical Color and Electrical Measurement System	SENSING	SPR-3000	S1101108	2021-04-02
Environment Mesurer	XUYAO	HS-1	N/A	2021-04-08
Environment Mesurer	XUYAO	HS-1	N/A	2021-04-08
Stop watch	KISLO	K610	N/A	2021-04-27
Digital Anemometer	TECMAN	TD8901	026141	2020-09-10

Statement of Traceability: Shenzhen Belling Efficiency Testing Lab Co., Ltd attests that all calibration has been performed using suitable standards traceable to national primary standards and International System of Unit (SI).

1.4 Description

- Declaration: RAB Lighting Inc declare that their product with model HID-80-V-EX39-850-BYP-HB-ECO are the same to the product in the report BL200728003-9 and is authorized by original applicant to use their test data.
- Note: All the data in previous report BL200728003-9 is shared in report.



2 Test conducted and method

2.1 Ambient Condition

The ambient temperature in which measurements are being taken was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, the air flow around the sample(s) being tested did not affect the performance.

2.2 Power Supply Characteristics

The AC power supply had a sinusoidal voltage wave shape at the prescribed frequency (60 Hz) such that the RMS summation of the harmonic components does not exceed 3 percent of the fundamental during operation of the test item.

The voltage of AC power supply (RMS voltage) applied to the device under test was regulated to within ± 0.2 percent under load.

2.3 Seasoning and Stabilization

No seasoning was performed in accordance with IESNA LM-79-08. And before the measurement, the sample was stabilized until the light output and power variations were less than 0.5% in 30 minutes intervals (3 readings, 15 minutes apart).

2.4 Integrating Sphere System

The system includes AC power source, digital power meter, DC power supply, spectrophotometer, and integrating sphere. The integrating sphere system is calibrated by standard light source before measurement. The system and standard light source has been calibrated regularly and traceable to the National Primary Standards. 4π geometry was used during measurement. The product was operated in its intended orientation in application and was recorded in this report.

Integrating Sphere Uncertainty: The uncertainty of the light output (luminous flux) measurements is $U=1.8\%$ ($K=2$), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is $U=20\text{K}$ ($K=2$), at the 95% confidence level. The uncertainty of the CRI is $U=1.8$ ($K=2$), at the 95% confidence level. The uncertainty of power meter AC current $U=0.18\%$ of rdg, AC Voltage $U=0.16\%$ of rdg, Power $U=0.20\%$ ($K=2$), at the 95% confidence level.



2.5 Goniophotometer System

The goniophotometer system is calibrated by standard light source before measurement. The standard light source has been calibrated regularly and traceable to the National Primary Standards.

Type C goniophotometer was used for measuring total luminous flux, luminous intensity distribution, and color spatial uniformity. The product was operated in its intended orientation in application and was recorded in this report. The method according to IESNA LM-79-08 following chapter.

Goniophotometer Uncertainty :The uncertainty of the luminous intensity is $U=1.6\%$ ($K=2$), at the 95% confidence level.



3 Test Result Summary

3.1 Integrating Sphere System (Total operating time for integrating sphere test: 1.0 hour)

3.1.1 Electrical data

Model Number	Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
HID-80-V-EX39-850-BYP-HB-ECO	120.10	60	0.677	80.72	0.993
	277.07	60	0.304	80.86	0.961

3.1.2 Photometric data

Model Number	Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
HID-80-V-EX39-850-BYP-HB-ECO	11099.00	137.5	4932	83.6	15
	10940.35	135.3	4949	83.7	16

3.1.3 Chromaticity Coordinate

Model Number	Duv	x	y	u'	v'
HID-80-V-EX39-850-BYP-HB-ECO	+0.00039	0.3471	0.3540	0.2119	0.4861
	+0.00022	0.3466	0.3533	0.2118	0.4857



3.2 Goniophotometer System (Total operating time for luminous intensity distribution: 1.0 hour)

3.2.1 Electrical data

Model Number	Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
HID-80-V-EX39-850-BYP-HB -ECO	119.97	60	0.6640	79.04	0.9925
	277.15	60	0.2990	79.41	0.9582

3.2.2 Photometric data

Input Voltage(V)	Luminous Flux (lm)	Efficacy (lm/W)	Zonal Lumen in 0-60°(%lm)	Zonal Lumen in 0-90°(%lm)
120	10859.09	137.39	80.15	99.08
277	10785.80	135.82	80.19	99.08



4 Test Data

HID-80-V-EX39-850-BYP-HB-ECO Tested at 120V

Test Condition

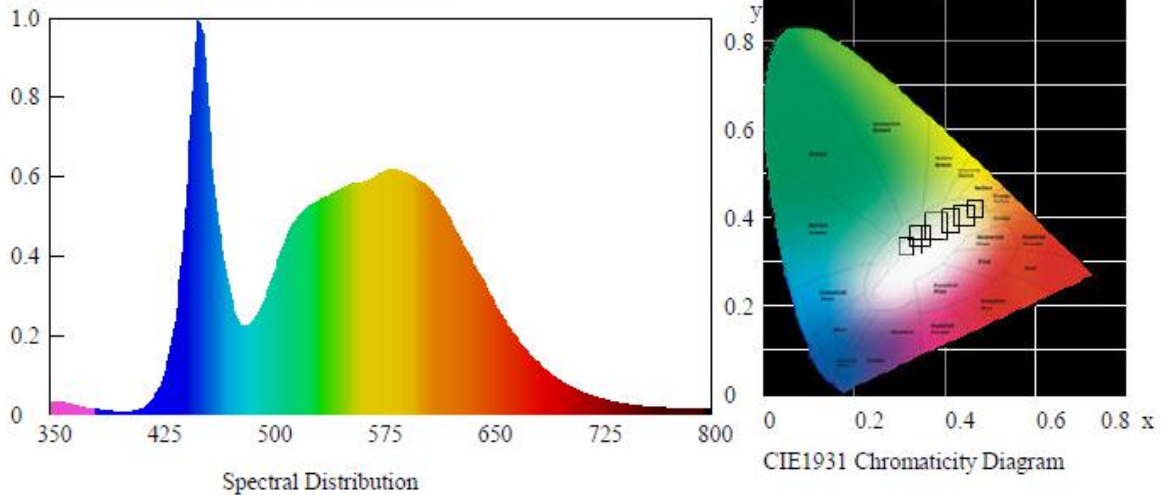
Temperature: 25°C

RH: 58%

Spectrum Range: 350-800 nm

Scan Step: 5 nm

Spectroradiometric Parameters

Chromaticity Coordinates: $x=0.3471$ $y=0.3540$ $u'=0.2119$ $v'=0.4861$

Correlated Color Temperature: 4932 K

Dominant Wavelength: 572.0 nm(E)

Colour Fidelity Index: $R_f=81$ Gamut Index: $R_g=96$

Luminous Flux: 11099.00 lm

Purity: 0.1035

Chromaticity Difference: +0.00039Duv

Peak Wavelength: 450.0 nm

Color Ratio: $K_r=34.4\%$ $K_g=54.8\%$ $K_b=10.8\%$

Bandwidth: 19nm

Radiant Flux: 31.438 W

Rendering Index: $R_a=83.6$ $R_1=82$ $R_2=89$ $R_3=92$ $R_4=83$ $R_5=82$ $R_6=83$ $R_7=88$ $R_8=70$ $R_9=15$ $R_{10}=71$ $R_{11}=82$ $R_{12}=55$ $R_{13}=85$ $R_{14}=95$ $R_{15}=78$ $R_e=77$

Electric Parameters

Voltage: 120.10 V

Current: 0.677 A

Power Factor: 0.993

Power: 80.72 W

Luminous Efficacy: 137.5 lm/W



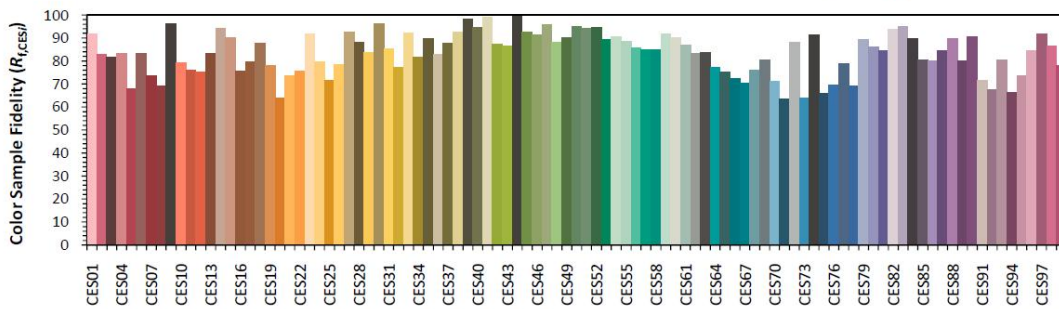
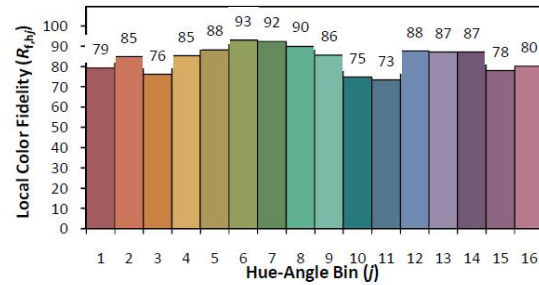
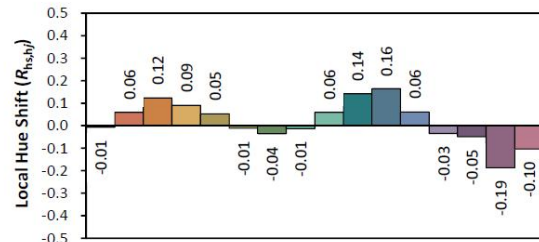
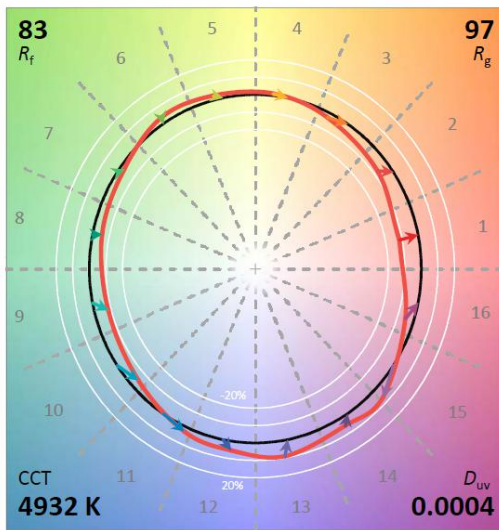
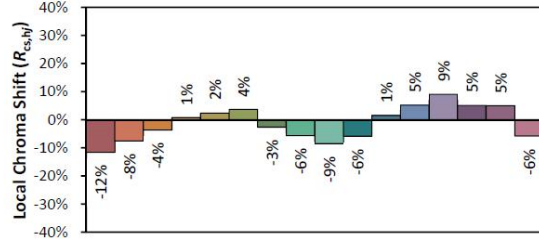
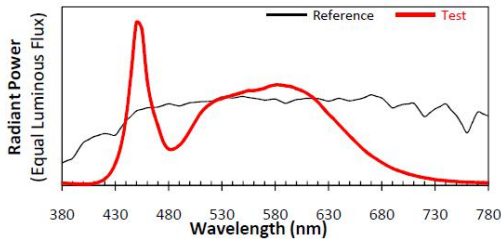
ANSI/IES TM-30-18 Color Rendition Report

Source: BL201013008-9

Manufacturer: RAB Lighting Inc

Date: 2020/10/13

Model: HID-80-V-EX39-850-BYP-HB-ECO



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3471
 y 0.3540
 u' 0.2119
 v' 0.4861

CIE 13.3-1995 (CRI)	
R_a	84
R_9	15

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.



Zonal Flux Diagram

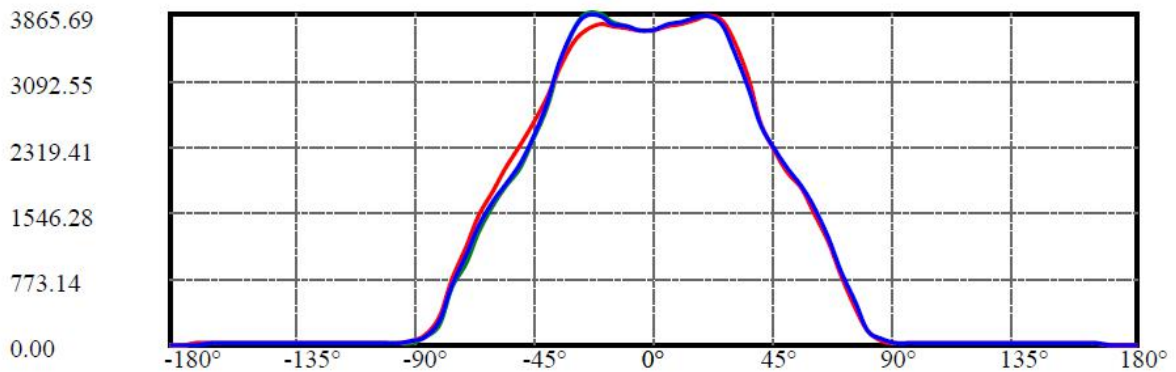
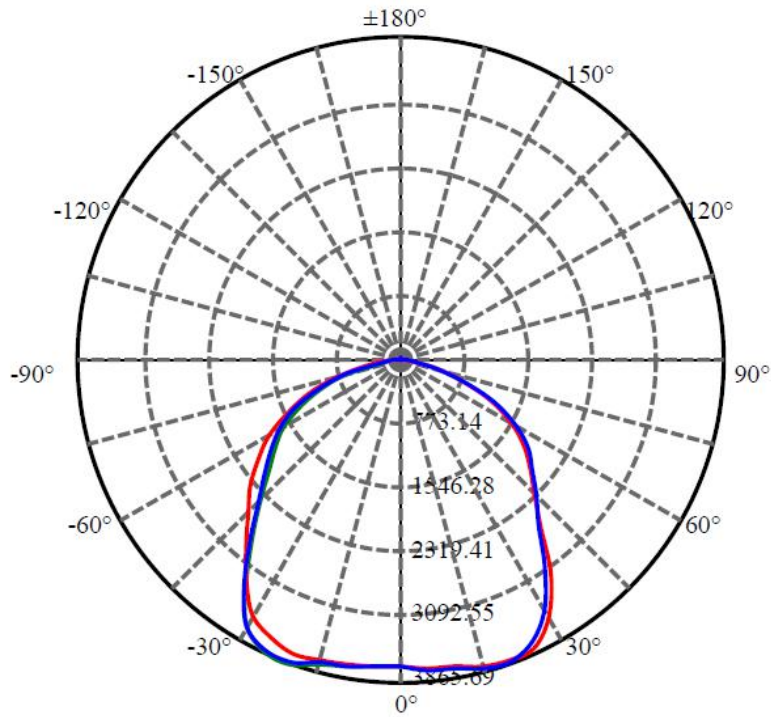
Zonal flux distribution table


$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3673.912	0.000	0	0.00%	0.00%
5.0	3699.699	88.138	88.138	0.00%	0.81%
10.0	3729.431	265.693	353.831	0.00%	3.26%
15.0	3772.537	444.846	798.677	0.00%	7.35%
20.0	3816.976	625.134	1423.81	0.00%	13.11%
25.0	3755.905	793.628	2217.438	0.00%	20.42%
30.0	3545.171	923.434	3140.872	0.00%	28.92%
35.0	3143.856	985.383	4126.255	0.00%	38.00%
40.0	2713.455	979.215	5105.47	0.00%	47.02%
45.0	2390.751	948.511	6053.981	0.00%	55.75%
50.0	2139.042	919.322	6973.302	0.00%	64.22%
55.0	1912.213	884.790	7858.092	0.00%	72.36%
60.0	1664.807	830.540	8688.632	0.00%	80.01%
65.0	1323.532	730.810	9419.442	0.00%	86.74%
70.0	958.876	582.993	10002.435	0.00%	92.11%
75.0	597.478	412.292	10414.728	0.00%	95.91%
80.0	231.406	226.182	10640.909	0.00%	97.99%
85.0	79.504	86.527	10727.436	0.00%	98.79%
90.0	32.151	31.280	10758.716	0.00%	99.08%
95.0	20.233	14.626	10773.341	0.00%	99.21%
100.0	16.316	10.021	10783.362	0.00%	99.30%
105.0	14.323	8.239	10791.601	0.00%	99.38%
110.0	13.045	7.179	10798.779	0.00%	99.44%
115.0	12.770	6.535	10805.314	0.00%	99.50%
120.0	13.196	6.292	10811.606	0.00%	99.56%
125.0	13.952	6.248	10817.854	0.00%	99.62%
130.0	14.804	6.224	10824.078	0.00%	99.68%
135.0	15.642	6.124	10830.203	0.00%	99.73%
140.0	16.495	5.928	10836.13	0.00%	99.79%
145.0	17.113	5.593	10841.724	0.00%	99.84%
150.0	16.990	5.015	10846.738	0.00%	99.89%
155.0	16.440	4.229	10850.967	0.00%	99.93%
160.0	15.477	3.348	10854.315	0.00%	99.96%
165.0	13.677	2.404	10856.72	0.00%	99.98%
170.0	11.505	1.497	10858.216	0.00%	99.99%
175.0	8.069	0.703	10858.92	0.00%	100.00%
180.0	6.131	0.170	10859.09	0.00%	100.00%



Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]



C292.5(Max): 

C0/C180: 

C90/C270: 

Field angle(10%Imax):C0/180Left:79.5 Right:75.7

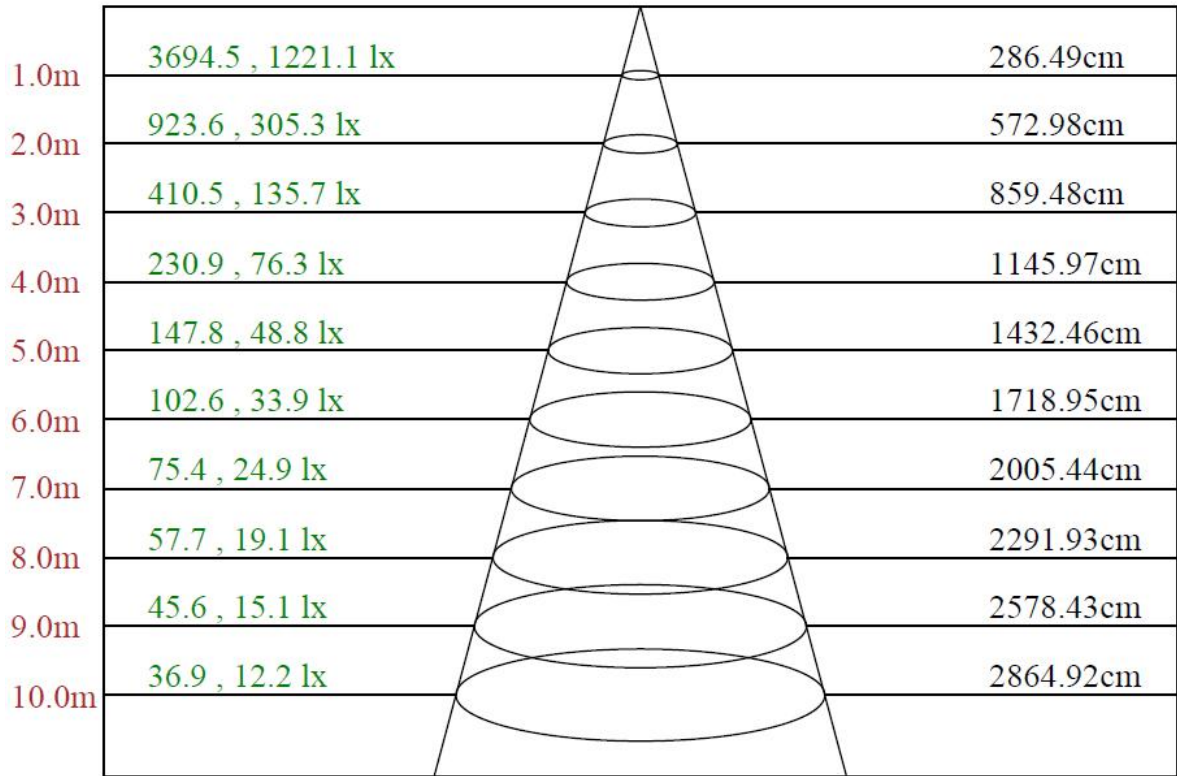
:C90/270Left:78.8 Right:76.7

Beam Angle(50%Imax):C0/180Left:57.9 Right:52.5

:C90/270Left:54.1 Right:53.3



Lux distance Curve



Max , Ave Beam angle of C292.5 plane 110.16

**Luminous Intensity Distribution Data**

C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	3675.01	3713.06	3737.47	3785.86	3832.70	3790.47	3553.61	3112.87	2597.58
22.5	3669.29	3722.74	3744.73	3795.97	3834.46	3782.56	3528.98	3073.73	2599.56
45.0	3676.55	3730.87	3748.25	3797.29	3810.05	3767.16	3467.18	3057.23	2613.64
67.5	3679.41	3727.79	3759.24	3823.46	3818.63	3736.81	3440.35	3030.40	2613.20
90.0	3676.99	3737.03	3761.44	3825.00	3845.46	3733.73	3441.45	3009.95	2568.77
112.5	3675.45	3724.94	3759.46	3816.21	3847.00	3744.95	3462.12	3034.80	2618.91
135.0	3670.61	3714.60	3738.35	3781.46	3824.34	3734.83	3490.05	3065.81	2630.79
157.5	3667.97	3695.47	3719.66	3755.73	3772.66	3702.94	3500.83	3103.42	2709.96
180.0	3675.01	3682.05	3705.58	3728.45	3754.63	3676.99	3534.92	3213.38	2874.25
202.5	3669.29	3677.87	3699.42	3722.08	3739.45	3659.40	3533.16	3238.23	2905.04
225.0	3676.55	3674.79	3703.38	3720.76	3762.54	3682.93	3545.69	3221.08	2875.79
247.5	3679.41	3675.45	3708.44	3735.71	3810.27	3766.94	3615.85	3231.86	2826.53
270.0	3676.99	3674.57	3716.80	3757.49	3849.64	3843.70	3675.67	3280.24	2807.61
292.5	3675.45	3676.77	3718.56	3771.78	3865.69	3856.89	3670.17	3234.71	2749.77
315.0	3670.61	3679.19	3726.48	3775.74	3863.27	3829.62	3630.59	3202.82	2717.66
337.5	3667.97	3687.99	3723.62	3767.60	3840.84	3784.54	3632.13	3191.17	2706.23
360.0	3675.01	3713.06	3737.47	3785.86	3832.70	3790.47	3553.61	3112.87	2597.58
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	2263.95	2020.05	1815.73	1546.10	1192.89	813.30	421.82	157.25	51.24
22.5	2283.74	2042.92	1824.53	1523.23	1136.15	796.36	410.83	150.65	52.12
45.0	2305.95	2034.78	1790.66	1540.38	1204.33	815.06	416.33	152.19	52.34
67.5	2325.31	2068.87	1835.09	1561.72	1174.64	835.07	443.16	164.51	56.74
90.0	2289.24	2064.69	1853.12	1599.98	1251.18	873.56	493.52	177.92	62.24
112.5	2346.20	2097.68	1892.93	1622.64	1228.74	892.03	575.55	201.89	71.26
135.0	2358.52	2138.37	1929.00	1694.55	1357.40	978.02	610.96	213.55	73.90
157.5	2444.29	2238.44	2024.23	1780.76	1374.56	969.67	668.36	232.90	81.37
180.0	2579.33	2339.82	2071.73	1805.40	1504.75	1142.53	764.25	340.45	108.86
202.5	2583.50	2351.92	2108.02	1836.63	1470.00	1094.15	763.37	326.81	113.26
225.0	2563.27	2311.01	2052.82	1813.31	1506.95	1147.15	750.62	346.17	111.72
247.5	2448.47	2217.98	2023.13	1778.57	1446.03	1074.35	729.28	295.58	103.59
270.0	2389.31	2115.50	1883.69	1670.80	1401.61	1062.26	688.16	283.93	94.57
292.5	2370.39	2070.41	1844.32	1627.03	1309.68	965.71	667.70	247.64	91.27
315.0	2351.70	2060.73	1818.59	1620.88	1328.81	967.69	601.51	219.49	77.20
337.5	2348.84	2051.50	1827.83	1614.94	1288.78	915.12	554.22	191.56	70.38
360.0	2263.95	2020.05	1815.73	1546.10	1192.89	813.30	421.82	157.25	51.24
C/ γ (°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	21.11	18.03	15.18	13.86	13.20	13.64	14.30	15.40	16.05
22.5	20.23	17.15	14.52	12.98	12.54	12.98	13.86	14.74	15.61
45.0	21.11	17.15	14.52	12.98	12.54	12.98	13.86	14.52	15.40
67.5	21.77	17.81	14.96	12.98	12.32	12.54	13.42	14.30	15.40
90.0	22.87	18.03	14.96	13.20	12.54	12.32	13.20	14.30	14.96
112.5	26.39	18.69	16.27	13.64	12.98	12.76	13.20	13.86	14.96
135.0	32.99	20.23	17.37	14.30	12.98	12.54	12.76	14.08	14.96
157.5	37.83	22.21	18.47	15.61	13.42	12.76	12.98	13.64	14.52
180.0	46.19	25.95	17.81	16.05	14.08	12.54	12.76	13.20	14.08
202.5	47.06	26.17	17.59	15.83	14.08	12.76	12.76	12.98	14.08
225.0	44.87	24.85	17.37	15.61	13.86	12.76	12.54	13.42	14.08
247.5	42.89	22.87	17.59	15.61	13.42	12.76	12.76	13.42	14.08
270.0	40.03	20.23	17.15	14.96	12.98	12.76	12.98	13.64	14.52
292.5	33.65	19.13	16.27	14.30	12.76	12.54	13.20	13.86	14.52
315.0	29.91	18.03	15.61	13.64	12.54	12.76	13.20	13.86	14.74
337.5	25.51	17.15	15.40	13.64	12.54	12.98	13.42	14.08	14.96
360.0	21.11	18.03	15.18	13.86	13.20	13.64	14.30	15.40	16.05

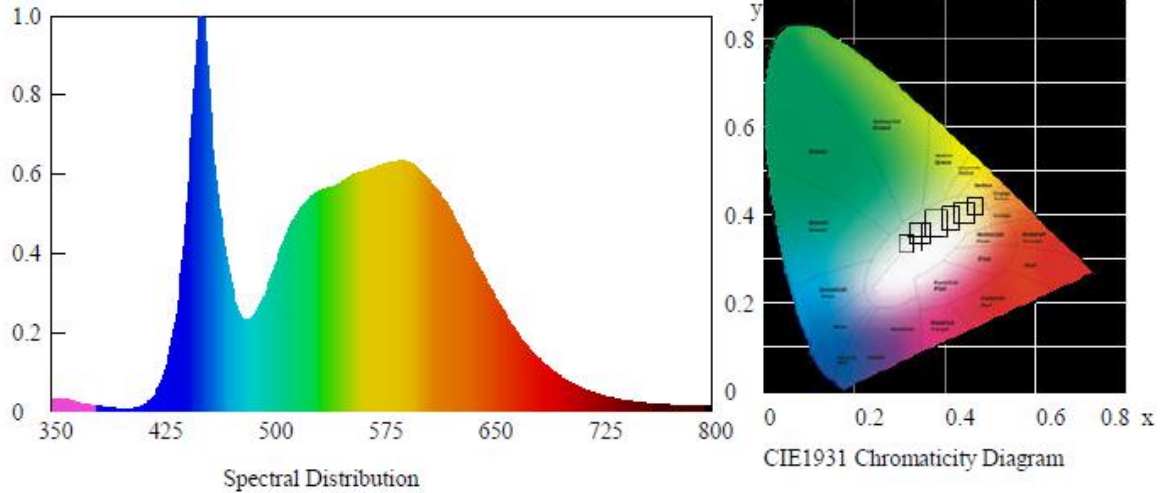


C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	17.15	17.59	18.25	17.81	17.15	15.83	13.86	11.44	7.70
22.5	16.27	16.93	17.59	16.93	16.27	15.18	13.20	11.22	7.04
45.0	16.05	16.49	16.49	16.05	15.61	14.52	12.54	10.78	6.82
67.5	16.27	16.93	17.37	16.05	15.18	14.30	12.54	10.78	7.04
90.0	15.83	16.93	16.71	16.49	15.40	14.74	12.54	10.78	7.48
112.5	15.61	16.71	17.59	16.71	16.27	15.18	13.42	11.00	7.70
135.0	15.83	16.93	17.59	17.59	16.93	15.61	13.42	11.00	7.70
157.5	15.83	16.93	17.59	17.37	16.71	15.83	13.86	11.22	7.92
180.0	14.74	16.05	17.15	17.37	17.15	16.05	14.30	12.54	9.24
202.5	15.18	15.83	16.93	17.37	16.93	16.27	14.52	12.10	9.24
225.0	14.74	15.83	16.71	17.37	16.71	15.83	14.52	12.10	8.80
247.5	15.18	15.83	16.49	16.93	16.27	16.05	14.08	12.32	8.80
270.0	14.96	16.27	16.71	17.15	16.71	15.40	14.52	11.88	8.36
292.5	15.40	16.05	16.93	16.93	16.71	16.05	14.08	12.10	8.80
315.0	15.40	16.27	16.71	16.93	16.71	15.40	14.08	11.44	8.36
337.5	15.83	16.27	16.93	16.71	16.27	15.40	13.42	11.44	8.14
360.0	17.15	17.59	18.25	17.81	17.15	15.83	13.86	11.44	7.70
C/γ(°)	180.0								
0.0	6.38								
22.5	5.94								
45.0	6.16								
67.5	5.94								
90.0	6.16								
112.5	6.16								
135.0	6.16								
157.5	6.16								
180.0	6.38								
202.5	5.94								
225.0	6.16								
247.5	5.94								
270.0	6.16								
292.5	6.16								
315.0	6.16								
337.5	6.16								
360.0	6.38								

**HID-80-V-EX39-850-BYP-HB-ECO Tested at 277V****Test Condition**

Temperature: 25°C
Spectrum Range: 350-800 nm

RH: 58%
Scan Step: 5 nm

Spectroradiometric Parameters

Chromaticity Coordinates: $x=0.3466$ $y=0.3533$ $u'=0.2118$ $v'=0.4857$

Correlated Color Temperature: 4949 K

Dominant Wavelength: 572.0 nm(E)

Colour Fidelity Index: $R_f=81$

Gamut Index: $R_g=95$

Luminous Flux: 10940.35 lm

Purity: 0.0999

Chromaticity Difference: +0.00022Duv

Peak Wavelength: 450.0 nm

Color Ratio: $K_r=34.3\%$ $K_g=54.8\%$ $K_b=10.8\%$

Bandwidth: 28nm

Radiant Flux: 30.998 W

Rendering Index: $R_a=83.7$

$R_1=83$ $R_2=89$ $R_3=92$ $R_4=83$ $R_5=82$ $R_6=83$ $R_7=88$ $R_8=70$

$R_9=16$ $R_{10}=72$ $R_{11}=81$ $R_{12}=56$ $R_{13}=85$ $R_{14}=95$ $R_{15}=78$ $R_e=77$

Electric Parameters

Voltage: 277.07 V

Current: 0.304 A

Power Factor: 0.961

Power: 80.86 W

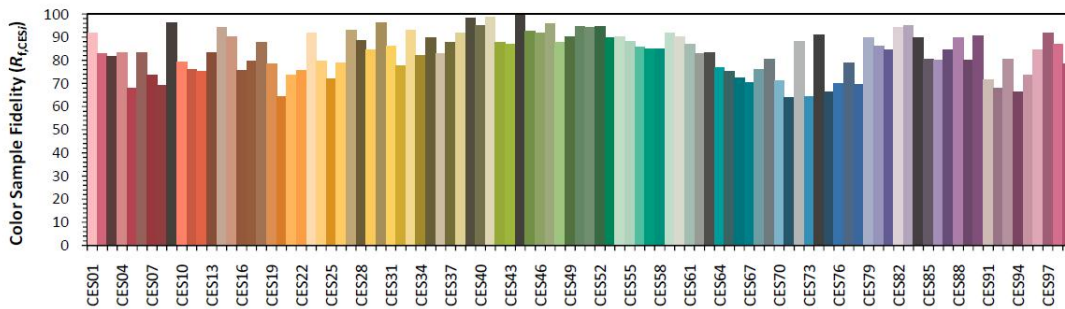
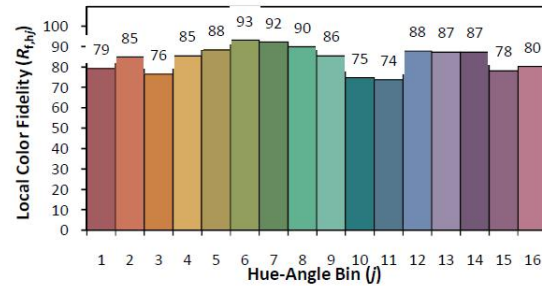
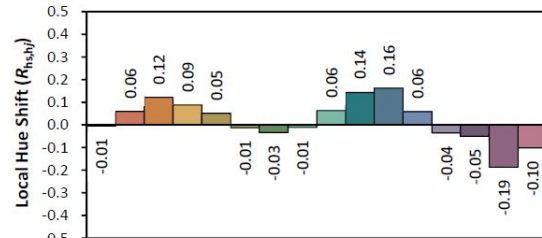
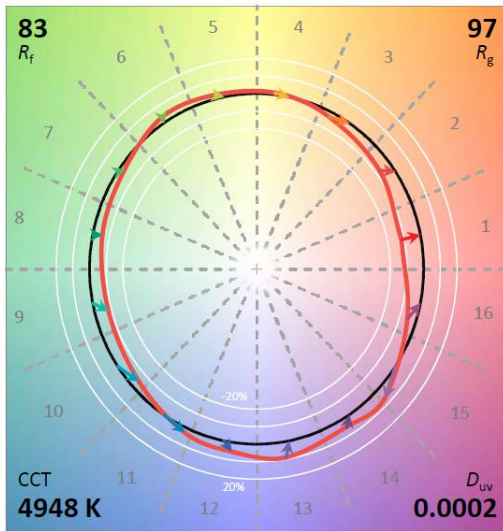
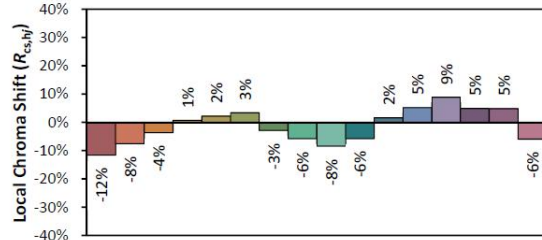
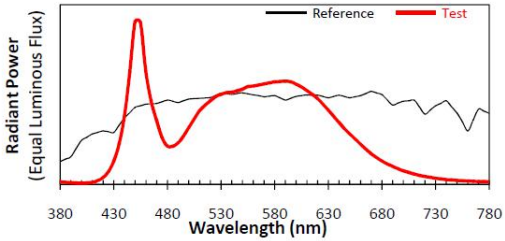
Luminous Efficacy: 135.3 lm/W



ANSI/IES TM-30-18 Color Rendition Report

Source: BL201013008-9
 Date: 2020/10/13

Manufacturer: RAB Lighting Inc
 Model: HID-80-V-EX39-850-BYP-HB-ECO



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3466
 y 0.3533
 u' 0.2118
 v' 0.4857

CIE 13.3-1995 (CRI)	
R_a	84
R_g	16

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.



Zonal Flux Diagram

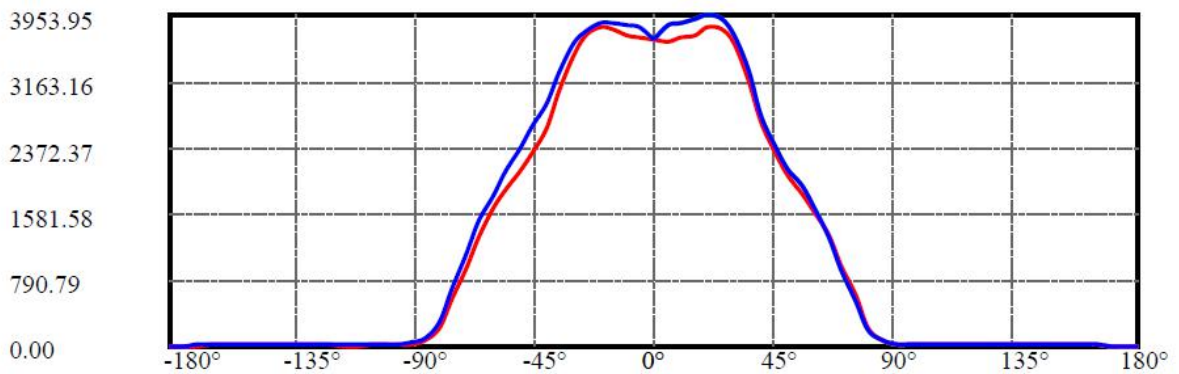
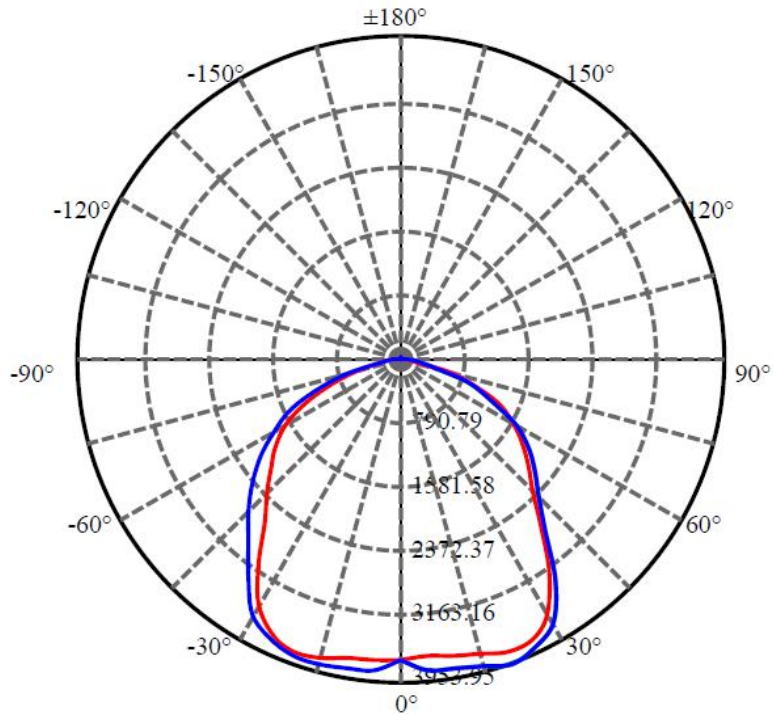
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3665.166	0.000	0	0.00%	0.00%
5.0	3693.243	87.968	87.968	0.00%	0.82%
10.0	3722.129	265.271	353.239	0.00%	3.28%
15.0	3762.377	443.976	797.215	0.00%	7.39%
20.0	3807.771	623.886	1421.101	0.00%	13.18%
25.0	3744.379	792.081	2213.182	0.00%	20.52%
30.0	3549.057	922.990	3136.173	0.00%	29.08%
35.0	3141.593	985.245	4121.418	0.00%	38.21%
40.0	2697.213	974.161	5095.578	0.00%	47.24%
45.0	2381.458	940.357	6035.935	0.00%	55.96%
50.0	2130.937	911.796	6947.731	0.00%	64.42%
55.0	1905.605	877.679	7825.41	0.00%	72.55%
60.0	1658.646	823.867	8649.276	0.00%	80.19%
65.0	1321.644	724.514	9373.79	0.00%	86.91%
70.0	953.141	575.990	9949.781	0.00%	92.25%
75.0	597.992	405.441	10355.222	0.00%	96.01%
80.0	223.639	219.846	10575.067	0.00%	98.05%
85.0	77.192	81.743	10656.81	0.00%	98.80%
90.0	31.012	29.627	10686.437	0.00%	99.08%
95.0	19.799	13.912	10700.35	0.00%	99.21%
100.0	16.413	9.840	10710.189	0.00%	99.30%
105.0	14.192	8.189	10718.379	0.00%	99.37%
110.0	12.974	7.101	10725.479	0.00%	99.44%
115.0	12.757	6.515	10731.995	0.00%	99.50%
120.0	13.190	6.308	10738.302	0.00%	99.56%
125.0	13.949	6.273	10744.576	0.00%	99.62%
130.0	14.734	6.237	10750.812	0.00%	99.68%
135.0	15.642	6.138	10756.95	0.00%	99.73%
140.0	16.495	5.950	10762.9	0.00%	99.79%
145.0	17.104	5.606	10768.506	0.00%	99.84%
150.0	16.996	5.021	10773.527	0.00%	99.89%
155.0	16.346	4.219	10777.747	0.00%	99.93%
160.0	15.411	3.331	10781.078	0.00%	99.96%
165.0	13.542	2.386	10783.464	0.00%	99.98%
170.0	11.389	1.479	10784.943	0.00%	99.99%
175.0	7.990	0.693	10785.636	0.00%	100.00%
180.0	6.016	0.167	10785.803	0.00%	100.00%




Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]



C90(Max): 

C0/C180: 

C90/C270: 

Field angle(10%Imax):C0/180Left:77.7 Right:78.0

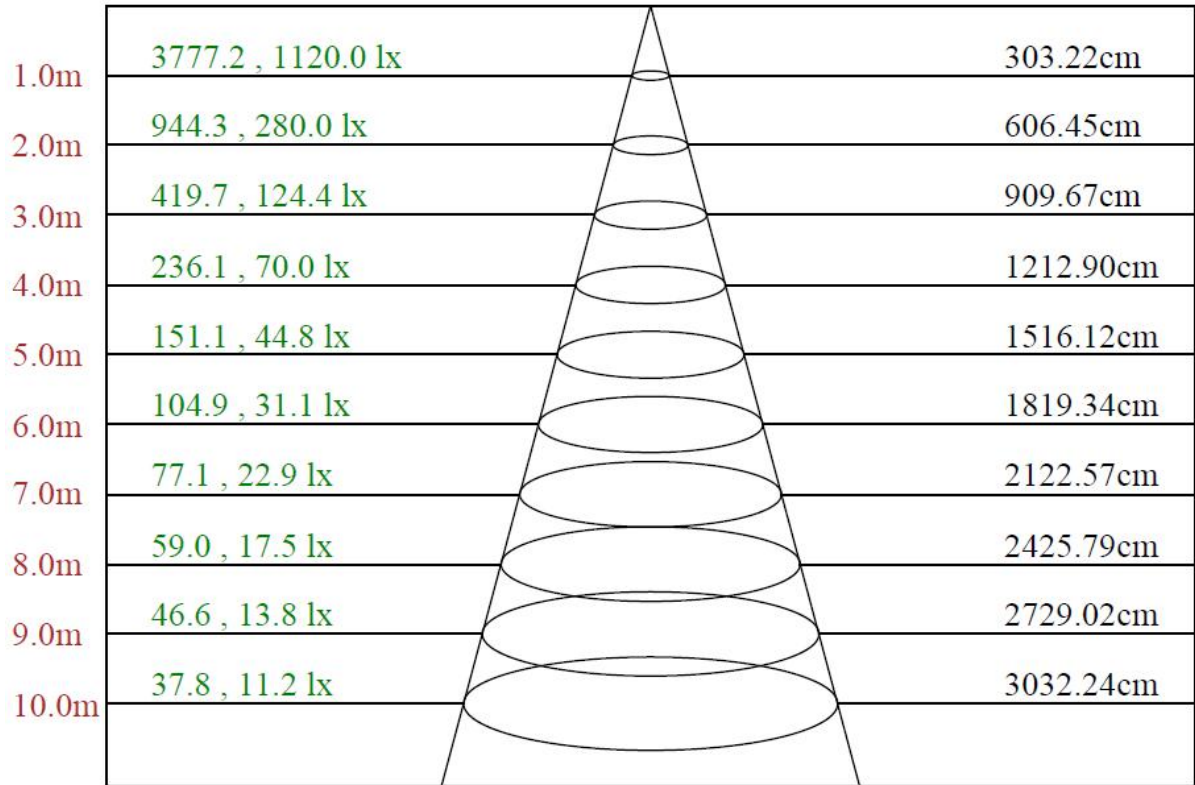
:C90/270Left:78.6 Right:77.0

Beam Angle(50%Imax):C0/180Left:54.2 Right:52.8

:C90/270Left:56.9 Right:53.4



Lux distance Curve



Max , Ave Beam angle of C90 plane 113.18

**Luminous Intensity Distribution Data**

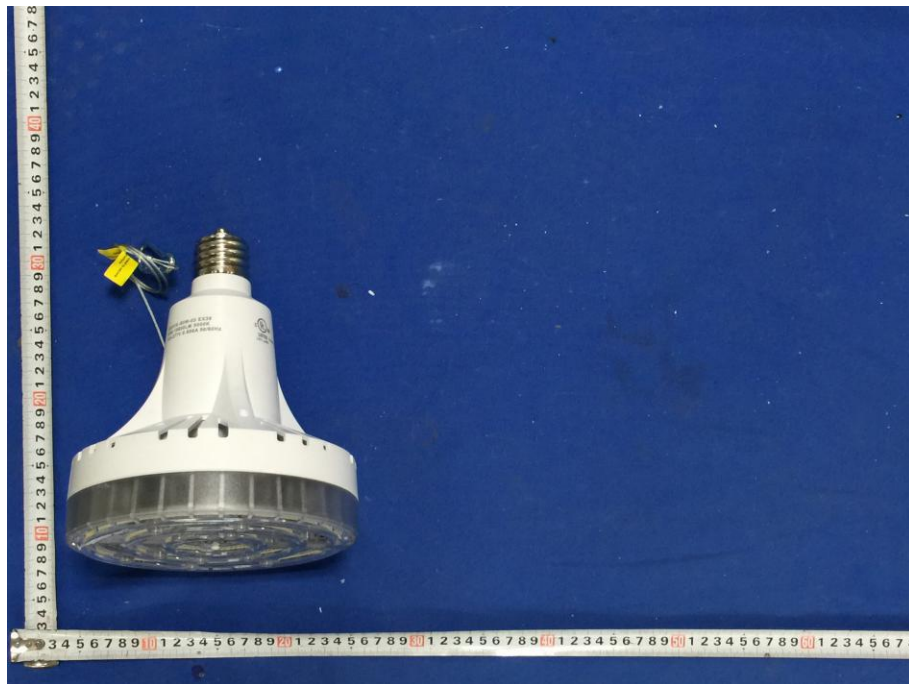
C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	3665.17	3638.90	3683.10	3719.72	3807.47	3785.81	3600.55	3158.96	2669.26
22.5	3665.17	3633.48	3670.97	3722.97	3811.59	3781.91	3586.46	3108.69	2617.04
45.0	3665.17	3629.58	3670.53	3715.82	3798.37	3741.39	3526.66	3056.68	2587.57
67.5	3665.17	3635.86	3664.68	3709.75	3770.85	3711.92	3523.84	3063.83	2566.12
90.0	3665.17	3820.69	3848.64	3892.84	3953.95	3902.60	3715.60	3291.13	2741.63
112.5	3665.17	3766.52	3792.52	3838.02	3881.36	3840.84	3639.33	3206.41	2699.38
135.0	3665.17	3729.47	3750.70	3802.71	3823.94	3775.84	3534.24	3140.75	2682.26
157.5	3665.17	3707.58	3729.69	3790.57	3807.04	3721.02	3480.94	3099.59	2656.69
180.0	3665.17	3687.22	3719.07	3772.15	3808.99	3712.57	3468.37	3050.40	2603.39
202.5	3665.17	3672.05	3712.13	3756.55	3806.82	3721.24	3471.19	3077.48	2662.54
225.0	3665.17	3643.23	3677.68	3711.48	3768.04	3704.12	3484.62	3096.33	2668.83
247.5	3665.17	3624.60	3654.07	3684.18	3721.45	3662.52	3478.56	3118.65	2728.20
270.0	3665.17	3811.59	3823.72	3852.11	3855.79	3769.55	3607.48	3260.14	2892.87
292.5	3665.17	3738.14	3754.60	3770.42	3775.40	3683.32	3550.49	3220.06	2864.27
315.0	3665.17	3690.25	3708.88	3732.29	3753.30	3675.08	3535.11	3172.61	2810.97
337.5	3665.17	3662.73	3693.07	3726.44	3779.96	3720.37	3581.48	3143.79	2704.36
360.0	3665.17	3638.90	3683.10	3719.72	3807.47	3785.81	3600.55	3158.96	2669.26
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	2297.23	2030.28	1805.15	1603.64	1322.17	967.47	610.38	230.98	76.92
22.5	2268.62	1986.29	1772.21	1550.98	1219.47	897.48	586.12	202.16	70.64
45.0	2253.02	1967.22	1746.00	1558.35	1238.97	869.31	509.41	174.64	60.67
67.5	2239.16	1958.77	1747.30	1539.28	1194.98	835.73	451.56	152.33	55.25
90.0	2386.71	2120.85	1907.85	1634.62	1290.54	917.85	535.41	193.06	64.79
112.5	2358.54	2111.96	1888.79	1592.15	1216.43	856.31	501.39	185.04	64.14
135.0	2365.70	2095.28	1841.33	1591.72	1270.17	886.00	501.83	183.31	62.62
157.5	2359.84	2102.65	1873.19	1592.59	1228.78	889.25	535.85	190.68	69.99
180.0	2315.86	2082.06	1869.94	1634.41	1300.94	934.75	575.93	215.16	77.14
202.5	2358.54	2112.18	1915.65	1666.91	1271.69	928.03	640.94	234.45	86.02
225.0	2369.38	2155.73	1942.09	1712.19	1407.11	1037.02	664.77	260.23	89.49
247.5	2447.82	2239.16	2038.51	1804.06	1426.18	1017.09	715.47	281.68	101.19
270.0	2619.86	2365.70	2085.10	1800.16	1499.63	1105.06	683.40	283.42	92.31
292.5	2559.62	2338.83	2087.48	1796.70	1425.96	1040.27	711.57	268.25	92.31
315.0	2515.20	2267.32	2006.01	1760.30	1454.56	1073.43	683.84	283.42	89.06
337.5	2388.23	2160.72	1963.11	1700.28	1378.73	995.20	660.00	239.43	82.55
360.0	2297.23	2030.28	1805.15	1603.64	1322.17	967.47	610.38	230.98	76.92
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	34.02	20.58	17.55	14.73	13.43	13.00	13.43	14.08	14.73
22.5	28.39	19.28	16.03	14.30	13.22	13.00	13.65	14.30	14.95
45.0	24.70	18.42	15.38	13.65	13.00	13.00	13.43	14.30	15.17
67.5	22.10	17.98	15.17	13.65	13.00	13.22	13.65	14.52	15.17
90.0	23.40	17.33	15.17	13.22	12.57	13.43	13.87	14.73	15.60
112.5	21.02	16.25	14.52	12.57	12.35	12.57	13.43	14.30	14.95
135.0	21.45	16.25	14.30	12.35	11.92	12.35	13.22	13.87	14.73
157.5	23.19	16.90	14.52	12.57	11.70	12.35	12.78	13.65	14.73
180.0	26.22	16.90	14.73	12.78	11.92	11.92	12.57	13.43	14.30
202.5	31.42	17.98	15.60	13.65	11.92	12.35	12.35	13.00	14.08
225.0	37.49	19.50	16.68	14.08	11.92	11.92	12.13	13.00	13.87
247.5	42.04	23.40	17.33	15.17	13.00	11.92	12.35	13.00	13.65
270.0	41.82	25.57	19.50	16.90	14.95	13.65	14.08	14.73	15.38
292.5	42.25	25.35	18.85	16.25	14.73	13.43	13.43	14.30	14.95
315.0	39.00	23.62	18.85	15.82	14.30	13.00	13.22	13.87	14.73
337.5	37.70	21.45	18.42	15.38	13.65	13.00	13.43	14.08	14.73
360.0	34.02	20.58	17.55	14.73	13.43	13.00	13.43	14.08	14.73



C/ γ (°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	15.60	16.47	17.12	17.33	16.90	15.17	13.87	11.05	7.80
22.5	15.82	16.47	17.55	17.12	16.47	15.82	13.22	11.05	8.23
45.0	15.82	16.90	17.33	17.33	16.68	15.38	13.22	10.83	7.80
67.5	16.47	16.90	17.12	16.68	16.03	15.17	13.00	10.83	7.37
90.0	16.47	17.33	17.77	17.55	16.90	15.60	14.08	11.70	8.02
112.5	15.60	16.47	16.90	16.90	16.03	15.38	13.43	11.70	7.58
135.0	15.82	16.03	16.03	15.82	15.38	14.52	12.78	11.27	7.37
157.5	15.38	16.03	16.47	15.60	14.73	14.30	12.35	10.62	7.37
180.0	15.17	15.82	16.25	16.03	15.17	14.30	12.57	11.05	7.80
202.5	14.95	15.60	16.47	16.03	16.03	15.17	13.43	11.27	8.02
225.0	14.73	16.03	16.47	16.90	16.47	15.60	13.65	11.27	8.23
247.5	14.73	15.82	16.47	16.68	16.03	14.95	13.87	11.48	8.23
270.0	16.68	17.98	18.63	19.07	18.20	17.12	14.95	12.78	9.32
292.5	16.03	17.12	18.20	17.98	16.90	16.25	14.30	11.92	8.45
315.0	15.60	16.47	17.55	17.77	16.90	16.03	14.30	11.70	8.23
337.5	15.38	16.47	17.33	17.12	16.68	15.82	13.65	11.70	8.02
360.0	15.60	16.47	17.12	17.33	16.90	15.17	13.87	11.05	7.80
C/ γ (°)	180.0								
0.0	6.02								
22.5	6.02								
45.0	6.02								
67.5	6.02								
90.0	6.02								
112.5	6.02								
135.0	6.02								
157.5	6.02								
180.0	6.02								
202.5	6.02								
225.0	6.02								
247.5	6.02								
270.0	6.02								
292.5	6.02								
315.0	6.02								
337.5	6.02								
360.0	6.02								



Photo Document



****End of test report****