



Shenzhen Belling Efficiency Testing Lab Co., Ltd



Report No.:BL201013012-9

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Version 1.0

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-110-H-EX39-850-BYP-SB-G2

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-110-H-EX39-850-BYP-SB-G2
Rated Inputs	AC 100-277V 50/60Hz
Rated Power	110 W
Nominal CCT	5000K
Date of Receipt Samples	2020-07-06
Date of test	2020-07-07 to 2020-07-16
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 Measurer	XUYAO	HS-1	N/A	2021-04-08
Environment Measurer	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-110-H-EX39-850-BYP-SB-G2 are the same to the product in the report BL200717014-9 and is authorized by original applicant to use their test data.
- Note: All the data in previous report BL200717014-9 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-110-H-EX39-850-BYP-SB-G2	119.97	60	0.899	106.79	0.990
	277.05	60	0.442	110.54	0.902

3.1.2 Photometric data

Model Number	Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
HID-110-H-EX39-850-BYP-SB-G2	16552.45	155.0	4998	84.4	18
	16691.54	151.0	5060	85.0	19

3.1.3 Chromaticity Coordinate

Model Number	Duv	x	y	u'	v'
HID-110-H-EX39-850-BYP-SB-G2	+0.00098	0.3454	0.3538	0.2108	0.4858
	+0.00038	0.3435	0.3511	0.2105	0.4842



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-110-H-EX39-850-BYP-S B-G2	120.04	60	0.888	105.61	0.9908
	276.88	60	0.442	110.34	0.9012

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	16432.60	155.60	79.28	98.98
277	16672.28	151.10	79.32	98.99



4 Test Data

HID-110-H-EX39-850-BYP-SB-G2 Tested at 120V

Test Condition

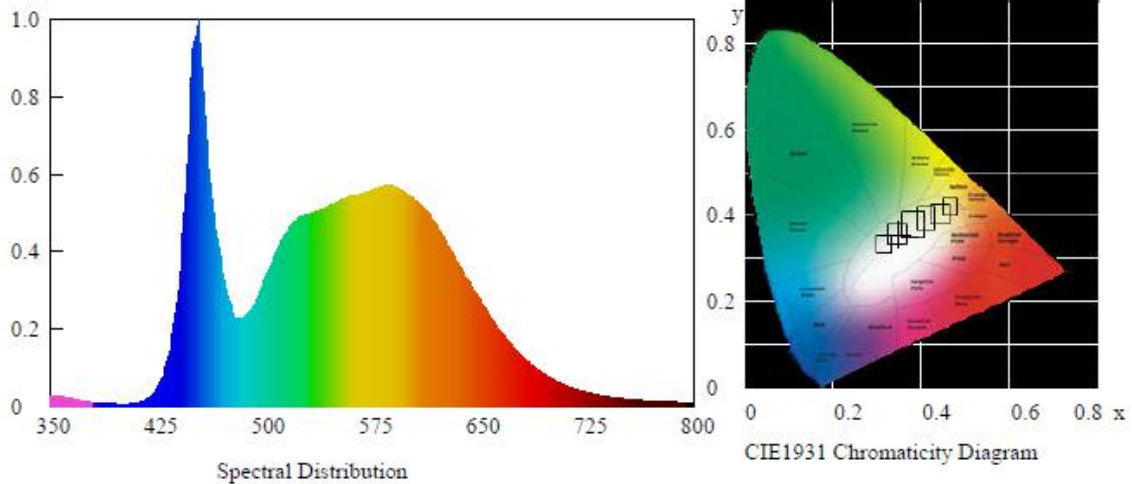
Temperature: 25°C

RH: 58%

Spectrum Range: 350-800 nm

Scan Step: 5 nm

Spectroradiometric Parameters

Chromaticity Coordinates: $x=0.3454$ $y=0.3538$ $u'=0.2108$ $v'=0.4858$

Correlated Color Temperature: 4998 K

Dominant Wavelength: 570.0 nm(E)

Colour Fidelity Index: $R_f=81$ Gamut Index: $R_g=94$

Luminous Flux: 16552.45 lm

Purity: 0.0973

Chromaticity Difference: +0.00098Duv

Peak Wavelength: 455.0 nm

Color Ratio: $K_r=34.2\%$ $K_g=54.6\%$ $K_b=11.2\%$

Bandwidth: 16nm

Radiant Flux: 56.263 W

Rendering Index: $R_a=84.4$ $R_1=83$ $R_2=90$ $R_3=94$ $R_4=83$ $R_5=82$ $R_6=84$ $R_7=88$ $R_8=70$ $R_9=18$ $R_{10}=75$ $R_{11}=82$ $R_{12}=54$ $R_{13}=86$ $R_{14}=96$ $R_{15}=79$ $R_e=78$

Electric Parameters

Voltage: 119.97 V

Current: 0.899 A

Power Factor: 0.990

Power: 106.79 W

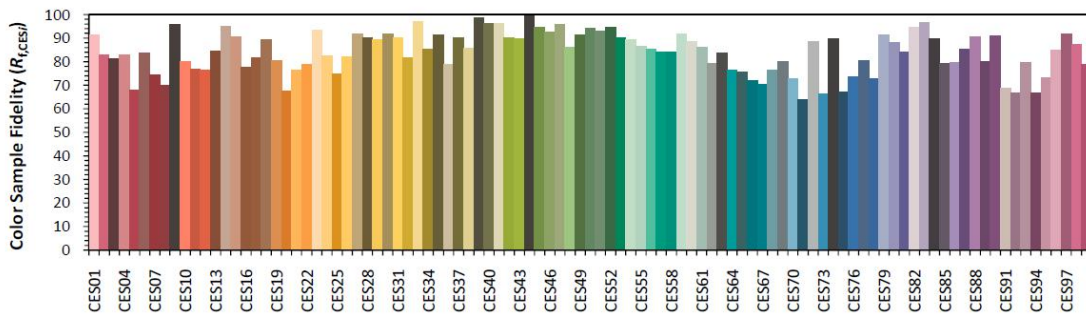
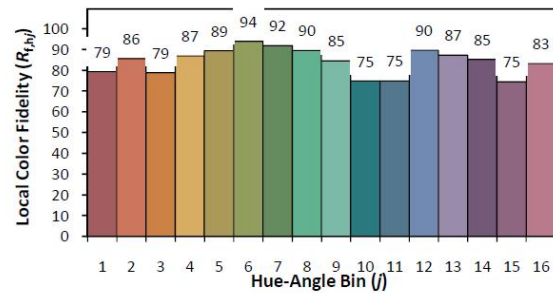
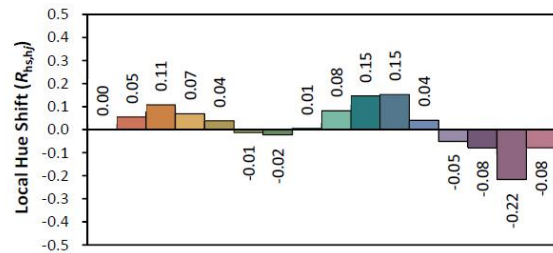
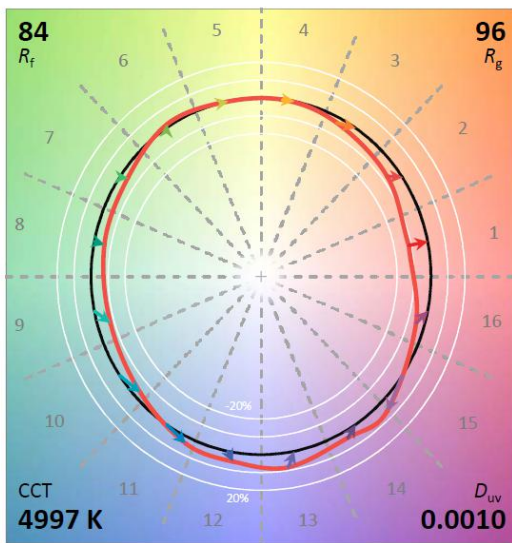
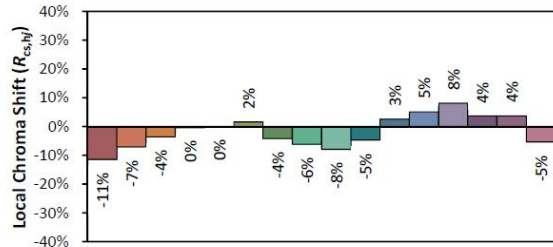
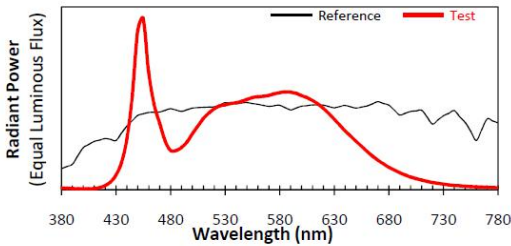
Luminous Efficacy: 155.0 lm/W



ANSI/IES TM-30-18 Color Rendition Report

Source: BL201013012-9
 Date: 2020/10/13

Manufacturer: RAB Lighting Inc
 Model: HID-110-H-EX39-850-BYP-SB-G2



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

x 0.3454
 y 0.3538
 u' 0.2108
 v' 0.4858

CIE 13.3-1995 (CRI)	
R_a	84
R_g	18

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



Zonal Flux Diagram

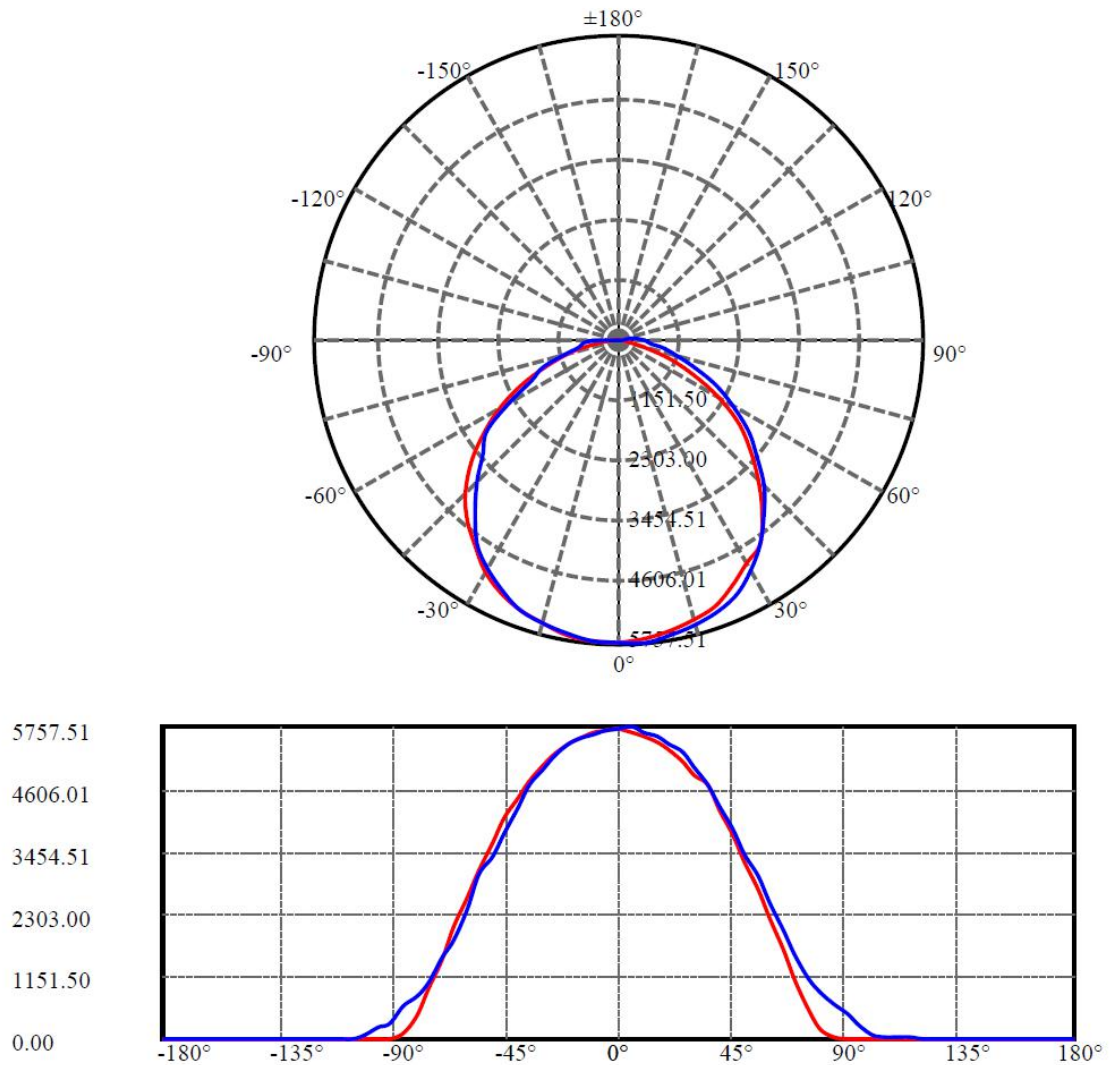
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5712.935	0.000	0	0.00%	0.00%
5.0	5691.911	136.342	136.342	0.00%	0.83%
10.0	5628.292	404.959	541.301	0.00%	3.29%
15.0	5525.935	661.661	1202.962	0.00%	7.32%
20.0	5386.115	899.306	2102.268	0.00%	12.79%
25.0	5197.661	1110.043	3212.311	0.00%	19.55%
30.0	4956.049	1284.960	4497.271	0.00%	27.37%
35.0	4684.140	1419.585	5916.857	0.00%	36.01%
40.0	4306.044	1499.944	7416.801	0.00%	45.13%
45.0	3887.020	1517.012	8933.813	0.00%	54.37%
50.0	3410.979	1474.667	10408.481	0.00%	63.34%
55.0	2939.744	1380.859	11789.339	0.00%	71.74%
60.0	2416.879	1238.168	13027.508	0.00%	79.28%
65.0	1873.840	1043.082	14070.59	0.00%	85.63%
70.0	1357.803	818.273	14888.863	0.00%	90.61%
75.0	912.950	593.538	15482.401	0.00%	94.22%
80.0	547.040	390.653	15873.054	0.00%	96.59%
85.0	349.892	243.718	16116.772	0.00%	98.08%
90.0	188.963	147.543	16264.314	0.00%	98.98%
95.0	102.201	79.723	16344.037	0.00%	99.46%
100.0	37.069	37.843	16381.88	0.00%	99.69%
105.0	16.880	14.435	16396.315	0.00%	99.78%
110.0	8.186	6.552	16402.867	0.00%	99.82%
115.0	7.465	3.963	16406.83	0.00%	99.84%
120.0	5.189	3.076	16409.906	0.00%	99.86%
125.0	5.910	2.565	16412.471	0.00%	99.88%
130.0	6.616	2.724	16415.195	0.00%	99.89%
135.0	7.252	2.802	16417.997	0.00%	99.91%
140.0	7.832	2.793	16420.79	0.00%	99.93%
145.0	8.002	2.642	16423.432	0.00%	99.94%
150.0	8.171	2.382	16425.813	0.00%	99.96%
155.0	8.214	2.074	16427.887	0.00%	99.97%
160.0	8.129	1.714	16429.601	0.00%	99.98%
165.0	7.875	1.319	16430.92	0.00%	99.99%
170.0	7.762	0.928	16431.848	0.00%	100.00%
175.0	7.804	0.557	16432.404	0.00%	100.00%
180.0	8.183	0.191	16432.595	0.00%	100.00%



Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]



C0/C180: —

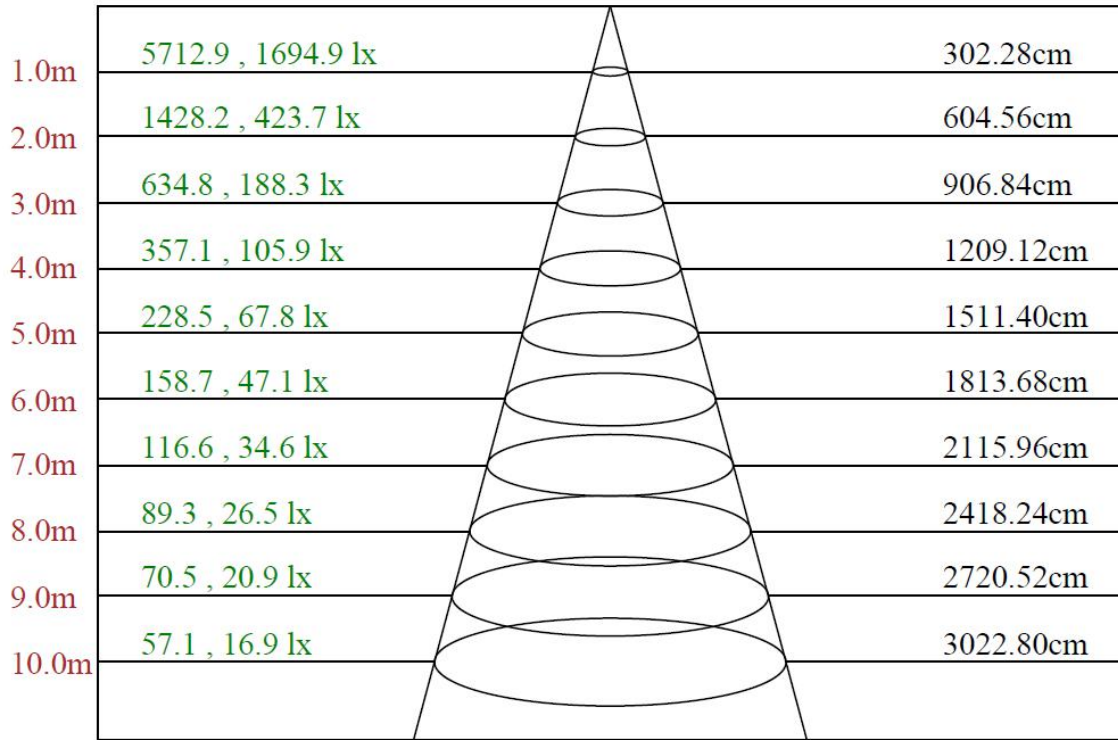
C90/C270: —

Field angle(10%Imax):C0/180Left:78.6 Right:74.7
:C90/270Left:85.7 Right:86.9

Beam Angle(50%Imax):C0/180Left:57.6 Right:54.0
:C90/270Left:56.2 Right:56.2



Lux distance Curve



Max , Ave Beam angle of C90 plane 113.02

**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	5712.94	5653.46	5594.64	5472.50	5327.73	5112.84	4857.23	4678.53	4211.87
22.5	5712.94	5671.55	5581.07	5458.92	5291.53	5090.22	4843.66	4505.94	4197.85
45.0	5712.94	5667.03	5581.07	5458.92	5307.37	5106.05	4852.70	4508.88	4161.21
67.5	5712.94	5657.98	5569.76	5461.19	5327.73	5106.05	4814.25	4504.35	4104.20
90.0	5712.94	5757.51	5657.98	5562.98	5452.14	5293.80	5022.35	4685.31	4278.15
112.5	5712.94	5725.84	5689.65	5587.86	5443.09	5271.18	5044.97	4732.82	4357.32
135.0	5712.94	5707.75	5667.03	5576.55	5431.78	5257.60	5031.40	4753.17	4418.40
157.5	5712.94	5694.17	5642.15	5556.19	5420.47	5237.25	5011.04	4748.65	4436.49
180.0	5712.94	5696.44	5655.72	5551.67	5422.73	5250.82	5026.88	4753.17	4431.97
202.5	5712.94	5698.70	5648.93	5551.67	5418.21	5248.56	5031.40	4778.06	4465.90
225.0	5712.94	5680.60	5635.36	5542.62	5427.26	5264.39	5038.19	4762.22	4445.54
247.5	5712.94	5689.65	5642.15	5560.71	5431.78	5268.91	5040.45	4755.44	4407.09
270.0	5712.94	5694.17	5621.79	5560.71	5424.99	5212.36	4970.33	4687.58	4241.51
292.5	5712.94	5712.27	5646.67	5522.26	5370.71	5176.17	4940.92	4728.29	4241.73
315.0	5712.94	5685.13	5619.53	5504.16	5352.61	5139.98	4886.63	4694.36	4270.46
337.5	5712.94	5678.34	5599.17	5486.07	5327.73	5126.41	4884.37	4669.48	4227.03
360.0	5712.94	5653.46	5594.64	5472.50	5327.73	5112.84	4857.23	4678.53	4211.87
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	3755.17	3258.43	2756.95	2218.59	1630.24	1055.46	542.88	186.62	41.62
22.5	3752.46	3242.60	2720.75	2158.87	1599.92	1083.05	592.87	271.67	117.63
45.0	3721.02	3204.15	2684.33	2172.67	1593.82	1176.48	741.72	428.20	312.38
67.5	3633.48	3195.55	2766.67	2230.35	1747.63	1250.67	864.77	680.41	492.89
90.0	3877.77	3391.44	3006.90	2488.90	2004.83	1532.06	1120.38	860.02	638.12
112.5	3920.75	3441.21	3000.11	2504.73	2007.09	1536.59	1129.43	721.36	589.03
135.0	4013.50	3547.52	3029.52	2497.94	1966.37	1373.72	973.57	582.02	331.61
157.5	4058.74	3608.59	3131.31	2581.64	2020.66	1457.42	925.84	447.43	171.46
180.0	4074.57	3615.38	3117.74	2611.05	2077.21	1464.20	918.15	432.27	121.02
202.5	4083.62	3647.05	3158.45	2608.78	2029.71	1477.78	963.17	518.91	227.33
225.0	4074.57	3608.59	3077.02	2592.95	2124.71	1556.95	1136.21	684.94	409.88
247.5	3993.14	3524.90	3106.43	2753.55	2117.93	1622.54	1265.15	839.43	655.31
270.0	3794.31	3350.95	3033.59	2402.26	1826.80	1504.47	1032.38	781.53	621.38
292.5	3804.49	3322.68	2881.81	2384.84	1845.35	1377.12	962.04	641.28	542.21
315.0	3843.17	3331.95	2777.08	2228.54	1720.49	1177.15	825.18	418.70	247.01
337.5	3791.59	3284.67	2787.26	2234.42	1668.69	1079.21	613.46	257.87	79.40
360.0	3755.17	3258.43	2756.95	2218.59	1630.24	1055.46	542.88	186.62	41.62
C/ γ (°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	2.49	2.04	2.26	2.71	3.39	3.85	5.20	5.43	5.88
22.5	32.12	9.95	3.85	3.39	3.39	4.52	5.88	6.79	6.33
45.0	143.64	117.63	28.28	10.63	5.43	4.75	5.66	6.56	7.69
67.5	371.88	129.84	26.24	22.39	5.88	5.88	5.66	6.33	7.47
90.0	474.57	254.02	56.32	29.86	29.41	31.22	4.98	5.88	7.01
112.5	331.84	242.04	56.10	25.56	3.62	13.80	5.43	6.11	7.01
135.0	140.70	74.19	38.91	19.45	4.98	4.30	5.20	6.11	7.24
157.5	55.87	11.31	4.07	2.94	3.62	4.30	4.75	5.43	5.66
180.0	17.87	2.04	2.49	2.71	2.94	3.85	4.30	5.43	5.88
202.5	92.06	25.11	8.60	4.30	3.17	4.07	4.98	6.33	6.11
225.0	240.00	158.34	37.32	39.59	19.91	5.20	4.75	5.43	6.56
247.5	435.44	211.05	147.26	68.54	3.62	13.12	5.43	5.66	6.33
270.0	294.51	200.64	88.45	14.25	17.19	5.88	4.75	5.20	6.11
292.5	252.67	134.82	71.48	3.17	16.51	5.66	5.20	5.88	7.01
315.0	116.72	56.32	18.55	17.42	4.52	4.75	5.43	6.56	7.92
337.5	21.04	5.88	2.94	3.17	3.39	4.30	5.43	5.43	5.66
360.0	2.49	2.04	2.26	2.71	3.39	3.85	5.20	5.43	5.88



C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	6.56	7.01	7.47	7.92	8.14	8.14	7.92	7.69	8.14
22.5	7.01	7.47	7.47	7.92	8.14	8.14	7.92	7.92	7.92
45.0	8.37	7.92	7.92	8.37	8.60	8.37	8.14	7.92	8.14
67.5	7.92	8.82	8.82	8.82	8.82	8.37	7.92	7.92	8.14
90.0	7.92	9.05	8.82	8.60	8.60	8.14	7.92	7.47	7.24
112.5	7.92	8.37	8.14	8.37	8.37	8.37	7.92	7.92	7.69
135.0	8.60	8.82	8.37	8.14	8.14	8.14	8.14	7.92	7.69
157.5	6.56	7.24	7.69	8.14	8.14	8.14	7.92	7.92	7.69
180.0	6.11	6.79	7.47	7.92	8.14	8.37	8.14	7.92	7.69
202.5	6.11	7.01	7.47	7.92	7.69	8.14	7.69	7.69	7.69
225.0	7.24	8.37	8.14	8.14	7.92	8.14	7.92	7.92	7.69
247.5	6.79	7.47	8.60	8.37	8.60	8.37	7.92	7.92	7.69
270.0	7.01	7.69	7.92	7.92	7.47	7.24	6.79	6.56	7.01
292.5	7.24	7.92	8.37	8.37	8.37	7.92	7.92	7.92	8.14
315.0	8.14	8.37	7.92	8.14	8.37	8.14	7.92	7.69	8.14
337.5	6.56	7.01	7.47	7.69	7.92	7.92	7.92	7.92	8.14
360.0	6.56	7.01	7.47	7.92	8.14	8.14	7.92	7.69	8.14
C/γ(°)	180.0								
0.0	8.18								
22.5	8.18								
45.0	8.18								
67.5	8.18								
90.0	8.18								
112.5	8.18								
135.0	8.18								
157.5	8.18								
180.0	8.18								
202.5	8.18								
225.0	8.18								
247.5	8.18								
270.0	8.18								
292.5	8.18								
315.0	8.18								
337.5	8.18								
360.0	8.18								

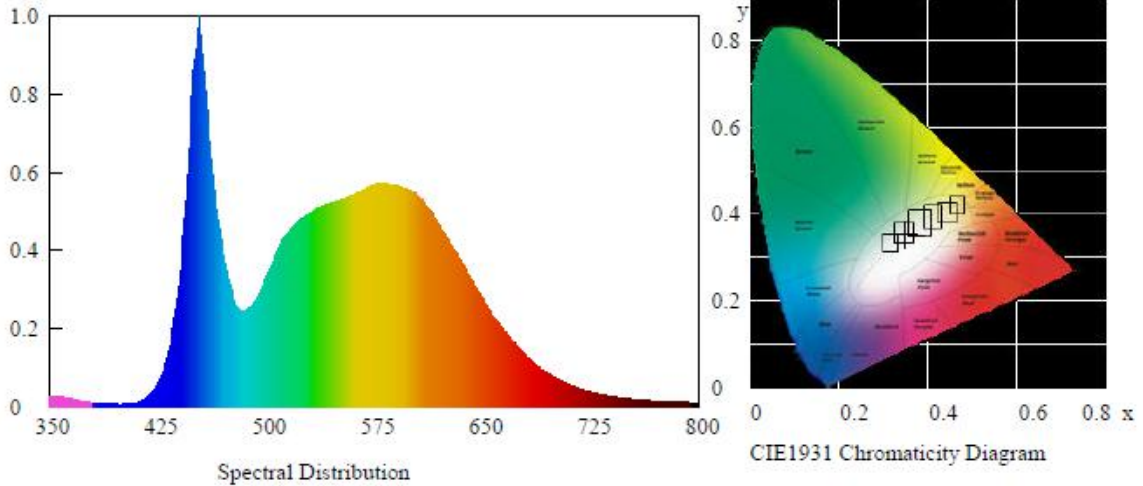
**HID-110-H-EX39-850-BYP-SB-G2 Tested at 277V****Test Condition**

Temperature: 25°C

RH: 58%

Spectrum Range: 350-800 nm

Scan Step: 5 nm

Spectroradiometric ParametersChromaticity Coordinates: $x=0.3435$ $y=0.3511$ $u'=0.2105$ $v'=0.4842$

Correlated Color Temperature: 5060 K

Dominant Wavelength: 570.0 nm(E)

Colour Fidelity Index: $R_f=81$ Gamut Index: $R_g=94$

Luminous Flux: 16691.54 lm

Purity: 0.0838

Chromaticity Difference: +0.00038Duv

Peak Wavelength: 455.0 nm

Color Ratio: $K_r=34.2\%$ $K_g=54.5\%$ $K_b=11.4\%$

Bandwidth: 23.4nm

Radiant Flux: 56.758 W

Rendering Index: $R_a=85.0$ $R_1=84$ $R_2=91$ $R_3=94$ $R_4=84$ $R_5=84$ $R_6=86$ $R_7=87$ $R_8=70$ $R_9=19$ $R_{10}=77$ $R_{11}=83$ $R_{12}=61$ $R_{13}=87$ $R_{14}=97$ $R_{15}=80$ $R_e=79$ **Electric Parameters**

Voltage: 277.05 V

Current: 0.442 A

Power Factor: 0.902

Power: 110.54 W

Luminous Efficacy: 151.0 lm/W



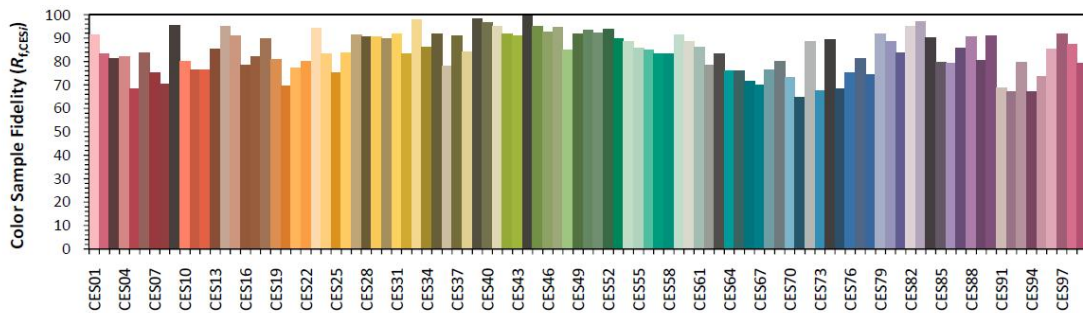
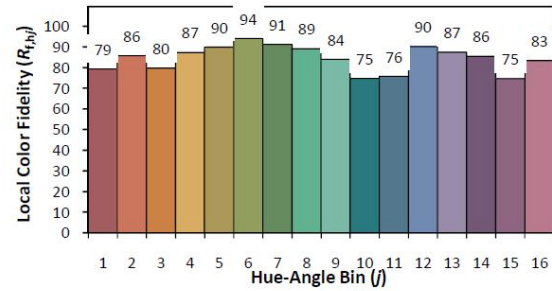
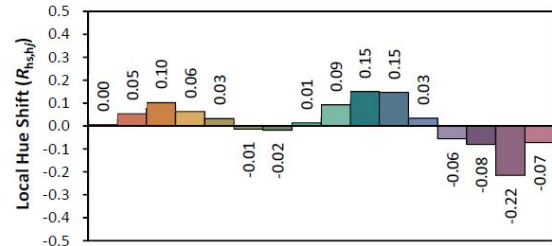
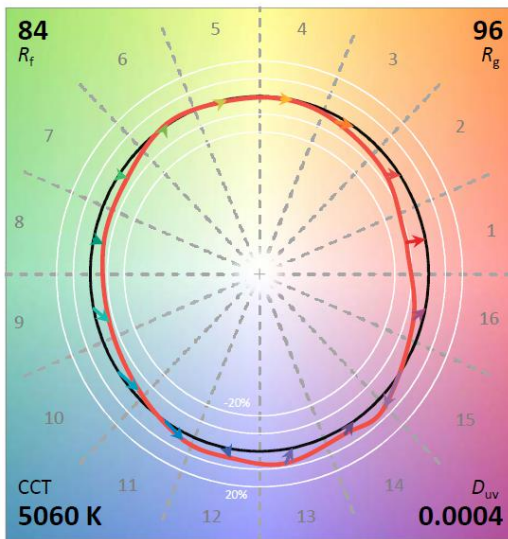
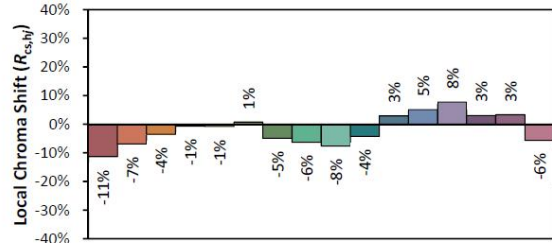
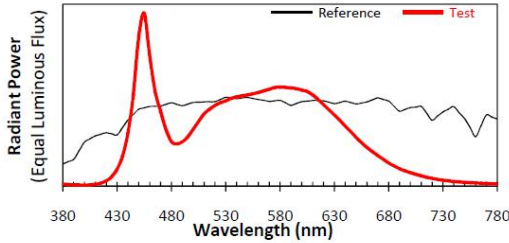
ANSI/IES TM-30-18 Color Rendition Report

Source: BL201013012-9

Manufacturer: RAB Lighting Inc

Date: 2020/10/13

Model: HID-110-H-EX39-850-BYP-SB-G2



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

x 0.3435
 y 0.3511
 u' 0.2105
 v' 0.4842

CIE 13.3-1995 (CRI)	
R_a	85
R_g	18

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



Zonal Flux Diagram

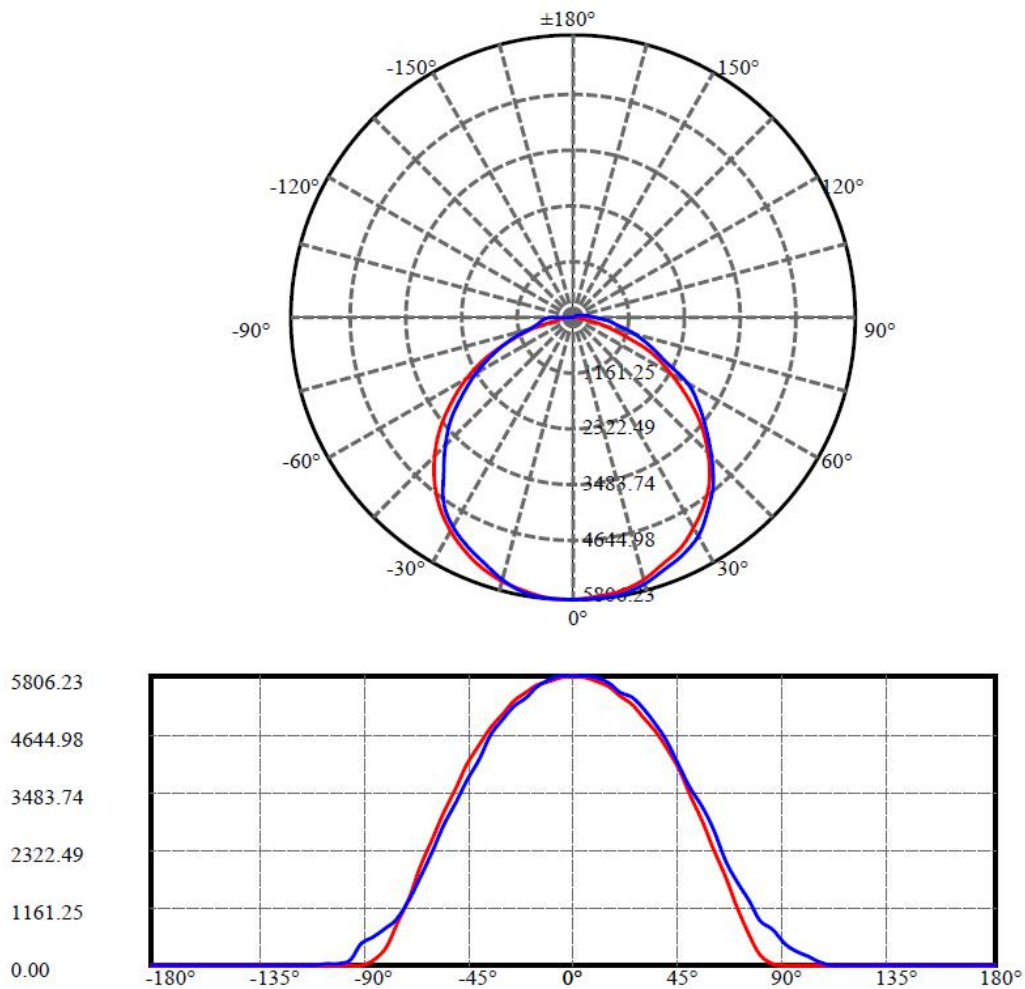
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5791.601	0.000	0	0.00%	0.00%
5.0	5779.447	138.329	138.329	0.00%	0.83%
10.0	5725.471	411.567	549.896	0.00%	3.30%
15.0	5614.189	672.661	1222.557	0.00%	7.33%
20.0	5459.198	912.603	2135.159	0.00%	12.81%
25.0	5272.155	1125.521	3260.68	0.00%	19.56%
30.0	5032.384	1304.048	4564.728	0.00%	27.38%
35.0	4739.053	1438.912	6003.64	0.00%	36.01%
40.0	4378.814	1521.247	7524.888	0.00%	45.13%
45.0	3951.473	1542.420	9067.308	0.00%	54.39%
50.0	3469.142	1499.444	10566.752	0.00%	63.38%
55.0	2978.958	1402.032	11968.783	0.00%	71.79%
60.0	2454.764	1255.990	13224.773	0.00%	79.32%
65.0	1895.563	1057.573	14282.346	0.00%	85.67%
70.0	1377.364	828.726	15111.072	0.00%	90.64%
75.0	926.281	602.136	15713.208	0.00%	94.25%
80.0	552.930	395.796	16109.003	0.00%	96.62%
85.0	352.025	245.898	16354.901	0.00%	98.10%
90.0	191.886	148.927	16503.828	0.00%	98.99%
95.0	96.172	78.873	16582.701	0.00%	99.46%
100.0	40.822	37.225	16619.925	0.00%	99.69%
105.0	19.343	16.098	16636.023	0.00%	99.78%
110.0	6.230	6.684	16642.708	0.00%	99.82%
115.0	6.619	3.253	16645.961	0.00%	99.84%
120.0	5.356	2.911	16648.872	0.00%	99.86%
125.0	6.063	2.639	16651.512	0.00%	99.88%
130.0	6.910	2.821	16654.332	0.00%	99.89%
135.0	7.576	2.927	16657.259	0.00%	99.91%
140.0	8.020	2.888	16660.147	0.00%	99.93%
145.0	8.200	2.706	16662.853	0.00%	99.94%
150.0	8.408	2.446	16665.299	0.00%	99.96%
155.0	8.450	2.133	16667.432	0.00%	99.97%
160.0	8.353	1.762	16669.195	0.00%	99.98%
165.0	8.172	1.362	16670.556	0.00%	99.99%
170.0	7.937	0.956	16671.512	0.00%	100.00%
175.0	8.048	0.572	16672.084	0.00%	100.00%
180.0	8.436	0.197	16672.281	0.00%	100.00%



Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]



C0/C180: 

C90/C270: 

Field angle(10%Imax):C0/180Left:77.8 Right:75.6

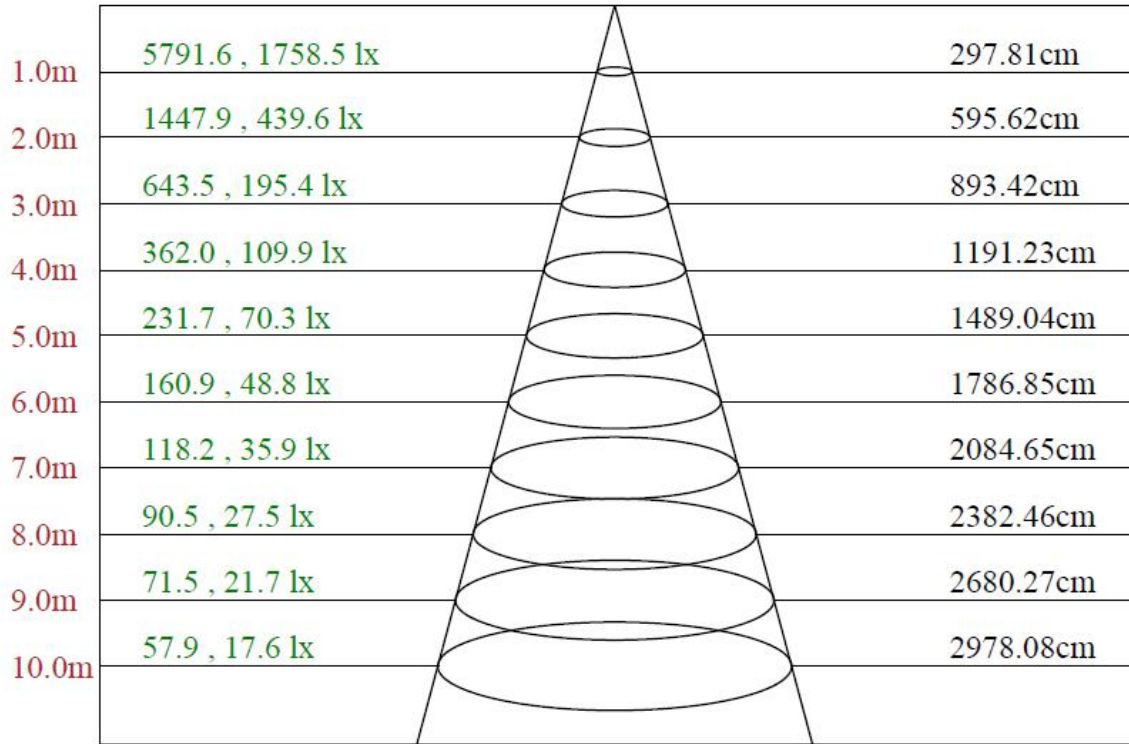
:C90/270Left:85.2 Right:87.6

Beam Angle(50%Imax):C0/180Left:56.7 Right:55.1

:C90/270Left:54.0 Right:58.1



Lux distance Curve



Max , Ave Beam angle of C90 plane 112.23

**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	5791.60	5761.83	5699.66	5577.56	5411.05	5222.34	4987.01	4702.84	4356.06
22.5	5791.60	5759.61	5699.66	5595.32	5451.01	5251.20	5002.55	4713.94	4370.49
45.0	5791.60	5772.93	5726.30	5621.96	5457.67	5264.52	5024.75	4733.92	4389.14
67.5	5791.60	5788.47	5732.96	5601.98	5446.57	5257.86	5024.75	4713.94	4314.76
90.0	5791.60	5806.23	5786.25	5675.24	5495.41	5379.97	5157.96	4844.92	4498.59
112.5	5791.60	5799.57	5748.51	5659.70	5535.38	5351.11	5115.78	4849.36	4489.71
135.0	5791.60	5781.81	5732.96	5639.72	5510.95	5331.13	5104.68	4818.28	4489.71
157.5	5791.60	5761.83	5708.54	5608.64	5475.43	5286.72	5055.83	4791.64	4471.95
180.0	5791.60	5775.15	5715.20	5617.52	5466.55	5291.16	5062.49	4778.32	4447.53
202.5	5791.60	5781.81	5739.63	5639.72	5508.73	5304.49	5060.27	4771.66	4451.97
225.0	5791.60	5795.13	5735.18	5626.40	5482.09	5295.61	5058.05	4769.44	4409.79
247.5	5791.60	5777.37	5746.29	5639.72	5482.09	5300.04	5055.83	4742.80	4358.72
270.0	5791.60	5790.69	5728.52	5579.78	5357.77	5177.94	4938.17	4629.58	4140.71
292.5	5791.60	5772.93	5704.10	5586.44	5422.15	5202.36	4929.29	4611.81	4212.86
315.0	5791.60	5779.59	5704.10	5575.34	5422.15	5215.68	4964.81	4665.10	4317.21
337.5	5791.60	5766.27	5699.66	5582.00	5422.15	5222.34	4975.91	4687.30	4341.85
360.0	5791.60	5761.83	5699.66	5577.56	5411.05	5222.34	4987.01	4702.84	4356.06
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	3919.81	3422.28	2901.23	2361.74	1778.74	1177.76	630.06	233.11	50.62
22.5	3955.33	3466.91	2927.42	2323.78	1749.22	1202.18	701.11	360.54	143.20
45.0	3945.12	3423.62	2894.79	2380.61	1806.50	1369.14	899.36	530.16	345.67
67.5	3856.31	3389.21	2999.80	2456.54	1864.00	1481.03	1017.47	745.51	607.86
90.0	4016.83	3579.47	3166.53	2735.83	2078.68	1679.06	1288.32	915.57	731.08
112.5	4054.57	3561.71	3113.25	2718.07	2136.40	1590.26	1215.06	770.38	564.35
135.0	4110.07	3637.19	3077.73	2524.92	2000.98	1428.19	1097.40	619.41	327.47
157.5	4072.33	3588.35	3093.27	2571.54	1996.54	1412.65	865.40	420.71	167.17
180.0	4043.47	3557.27	3068.84	2558.22	1992.10	1381.57	836.98	372.31	99.24
202.5	4041.25	3561.71	3048.86	2498.28	1932.15	1388.23	846.30	441.58	173.61
225.0	4001.29	3510.64	2988.92	2484.96	1907.73	1399.33	1063.65	570.34	367.43
247.5	3923.58	3452.92	3008.90	2489.40	2032.06	1525.88	1101.84	774.15	618.52
270.0	3724.22	3277.53	2809.54	2293.14	1784.07	1337.61	954.87	756.61	587.88
292.5	3761.29	3278.64	2837.07	2273.83	1827.59	1327.62	844.97	636.28	468.66
315.0	3866.97	3362.12	2822.41	2264.95	1675.51	1165.11	782.14	422.04	289.50
337.5	3931.13	3436.72	2904.78	2340.43	1766.76	1172.21	675.58	278.18	90.14
360.0	3919.81	3422.28	2901.23	2361.74	1778.74	1177.76	630.06	233.11	50.62
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	2.89	2.66	3.11	3.55	3.77	4.22	5.55	5.99	6.22
22.5	44.62	13.99	5.99	3.55	4.00	4.88	5.99	6.44	6.44
45.0	209.58	83.92	34.41	31.30	11.99	4.88	5.33	6.22	7.33
67.5	273.07	173.83	87.69	3.77	18.21	6.88	5.55	5.99	7.10
90.0	443.13	279.96	173.17	76.15	4.44	13.10	5.99	5.77	6.88
112.5	384.74	168.95	110.34	59.72	4.00	9.99	5.55	5.77	6.66
135.0	150.52	101.46	27.09	18.43	15.10	4.22	5.11	5.77	7.10
157.5	48.40	11.77	3.33	2.89	2.89	3.77	4.66	5.55	5.77
180.0	14.43	1.78	2.00	2.66	2.66	3.55	4.44	5.11	5.77
202.5	62.83	19.09	5.99	3.11	3.11	3.77	4.88	6.44	6.66
225.0	174.28	117.22	53.28	16.65	6.66	4.22	5.33	5.77	7.33
247.5	381.86	245.32	52.39	25.31	4.00	19.98	5.11	5.77	6.88
270.0	429.37	111.01	36.63	29.31	4.88	7.10	5.55	6.88	7.99
292.5	329.91	140.09	24.42	20.87	5.33	5.55	5.77	6.88	7.55
315.0	98.79	61.72	29.97	8.44	4.44	4.88	5.77	6.88	8.88
337.5	21.76	5.99	3.33	3.77	4.22	4.88	5.11	5.77	5.99
360.0	2.89	2.66	3.11	3.55	3.77	4.22	5.55	5.99	6.22



C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	6.66	7.55	7.99	8.21	8.21	8.44	8.21	7.99	8.21
22.5	7.10	7.77	7.99	8.21	8.21	8.44	8.21	7.99	8.21
45.0	8.21	8.44	8.44	8.21	8.44	8.44	8.21	7.99	8.44
67.5	7.55	7.99	8.88	8.88	8.66	8.44	8.21	7.99	8.21
90.0	7.77	8.44	8.88	9.32	9.10	8.44	8.21	7.99	7.77
112.5	7.55	7.77	8.44	8.66	8.66	8.44	7.99	7.77	7.99
135.0	7.99	8.44	8.21	8.21	7.99	8.44	8.44	7.99	7.77
157.5	6.44	7.10	7.55	7.55	8.21	8.21	7.77	7.55	7.77
180.0	5.99	6.88	7.33	7.77	7.99	8.44	8.21	7.77	7.77
202.5	6.66	6.88	7.33	7.77	7.77	8.21	7.99	7.77	7.77
225.0	7.99	8.44	7.99	8.21	8.66	8.21	7.99	7.99	7.99
247.5	7.77	8.44	8.44	9.10	9.10	8.44	8.21	8.21	7.77
270.0	9.10	9.55	9.10	9.10	8.88	8.44	8.44	7.99	8.44
292.5	8.44	8.44	8.44	8.66	8.44	8.21	8.44	7.99	8.44
315.0	8.88	8.66	8.21	8.44	8.44	8.21	8.21	7.99	7.99
337.5	7.10	7.55	7.99	8.21	8.44	8.21	7.99	7.99	8.21
360.0	6.66	7.55	7.99	8.21	8.21	8.44	8.21	7.99	8.21
C/γ(°)	180.0								
0.0	8.44								
22.5	8.44								
45.0	8.44								
67.5	8.44								
90.0	8.44								
112.5	8.44								
135.0	8.44								
157.5	8.44								
180.0	8.44								
202.5	8.44								
225.0	8.44								
247.5	8.44								
270.0	8.44								
292.5	8.44								
315.0	8.44								
337.5	8.44								
360.0	8.44								



Photo Document



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