



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-115-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-115-V-EX39-850-BYP-HB-ECO
Rated Inputs	AC 100-277V 50/60Hz
Rated Power	115 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 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-115-V-EX39-850-BYP-HB-ECO are the same to the product in the report BL200728005-9 and is authorized by original applicant to use their test data.
- Note: All the data in previous report BL200728005-9 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-115-V-EX39-850-BYP-HB-EC	119.93	60	0.925	109.72	0.989
○	276.89	60	0.410	109.09	0.962

3.1.2 Photometric data

Model Number	Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
HID-115-V-EX39-850-BYP-HB-EC	15075.52	137.4	4913	83.6	15
○	14967.14	134.2	4896	83.4	15

3.1.3 Chromaticity Coordinate

Model Number	Duv	x	y	u'	v'
HID-115-V-EX39-850-BYP-HB-EC	+0.00064	0.3477	0.3550	0.2119	0.4867
○	+0.0009	0.3483	0.3560	0.2119	0.4873



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-115-V-EX39-850-BYP-H B-ECO	120.08	60	0.9260	109.78	0.9871
	277.00	60	0.4130	109.49	0.9579

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	15042.64	137.03	81.59	99.10
277	14698.10	134.24	81.56	99.09



4 Test Data

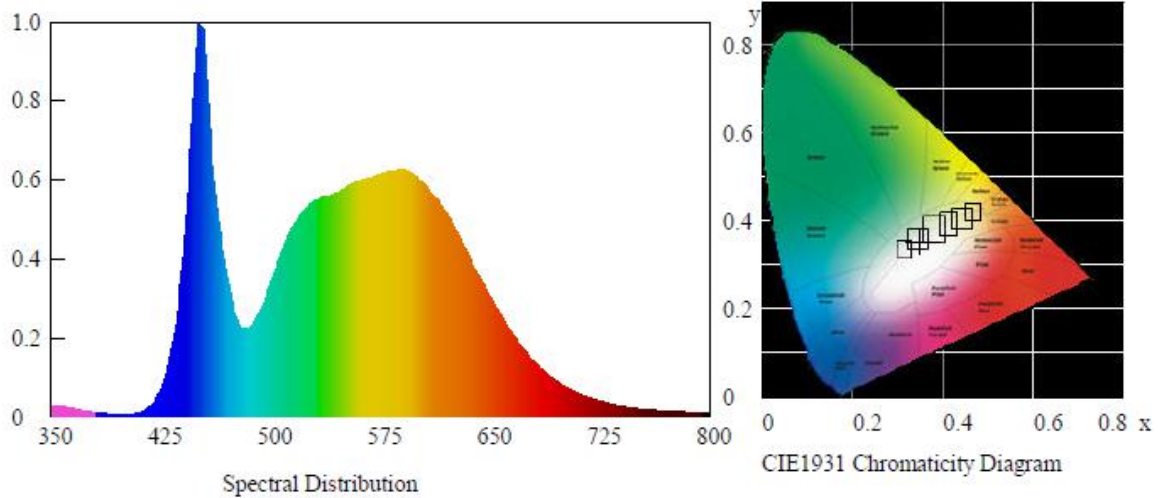
HID-115-V-EX39-850-BYP-HB-ECO Tested at 120V

Test Condition

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

RH: 58%
Scan Step: 5 nm

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.3477$ $y=0.3550$ $u'=0.2119$ $v'=0.4867$

Correlated Color Temperature: 4913 K

Dominant Wavelength: 572.0 nm(E)

Colour Fidelity Index: $R_f=81$

Gamut Index: $R_g=95$

Luminous Flux: 15075.52 lm

Purity: 0.1083

Chromaticity Difference: +0.00064Duv

Peak Wavelength: 450.0 nm

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

Bandwidth: 18.4nm

Radiant Flux: 43.942 W

Rendering Index: $R_a=83.6$

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

$R_9=15$ $R_{10}=72$ $R_{11}=82$ $R_{12}=55$ $R_{13}=85$ $R_{14}=95$ $R_{15}=78$ $R_e=77$

Electric Parameters

Voltage: 119.93 V

Current: 0.925 A

Power Factor: 0.989

Power: 109.72 W

Luminous Efficacy: 137.4 lm/W



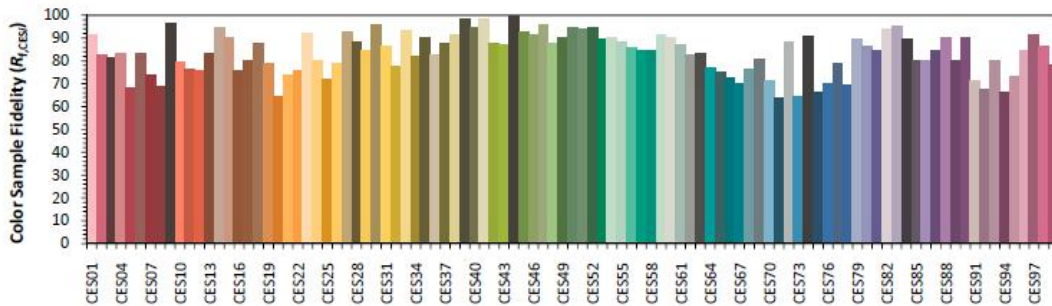
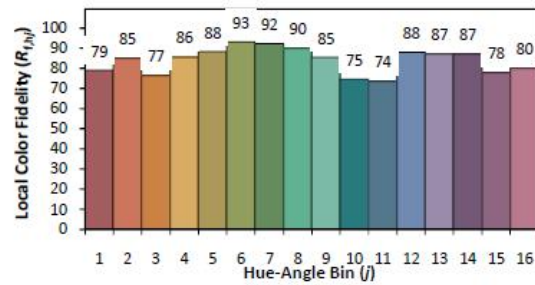
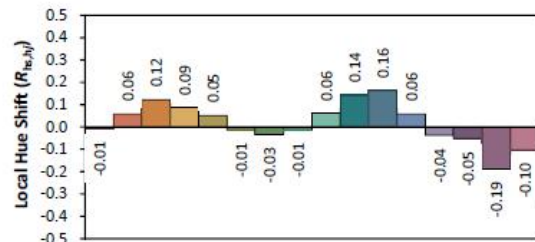
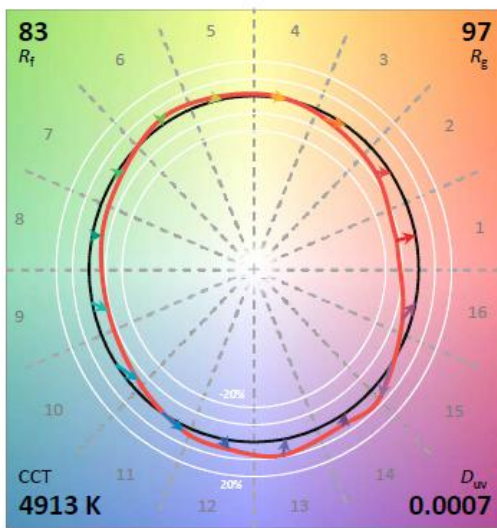
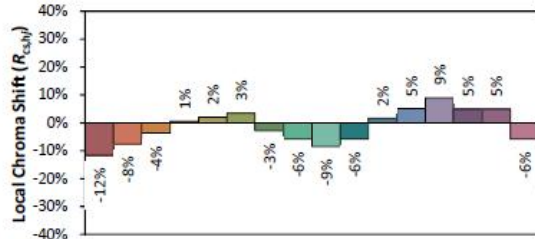
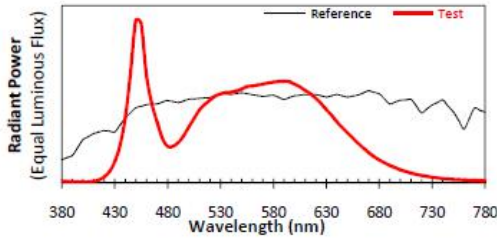
ANSI/IES TM-30-18 Color Rendition Report

Source: BL201013010-9

Manufacturer: RAB Lighting Inc

Date: 2020/10/13

Model: HID-115-V-EX39-850-BYP-HB-ECO



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

x 0.3477
 y 0.3550
 u' 0.2119
 v' 0.4867

CIE 13.3-1995 (CRI)	
R_a	84
R_g	15

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

**Zonal Flux Diagram**

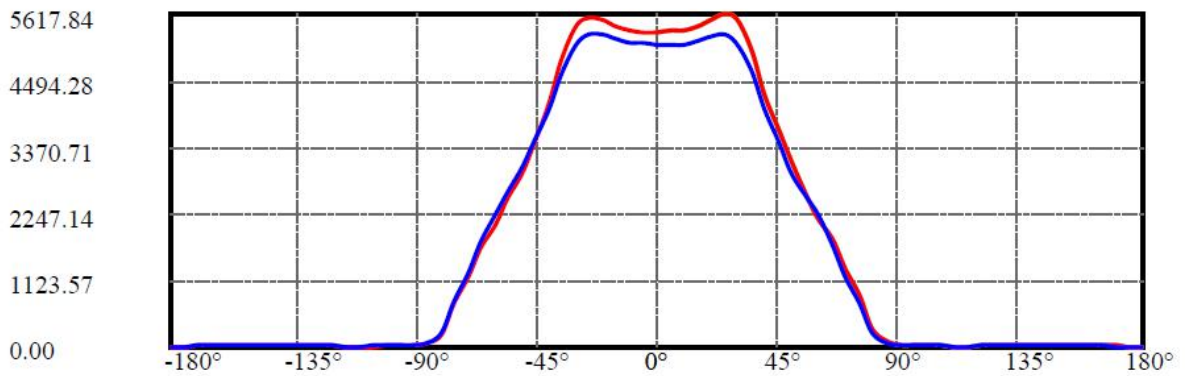
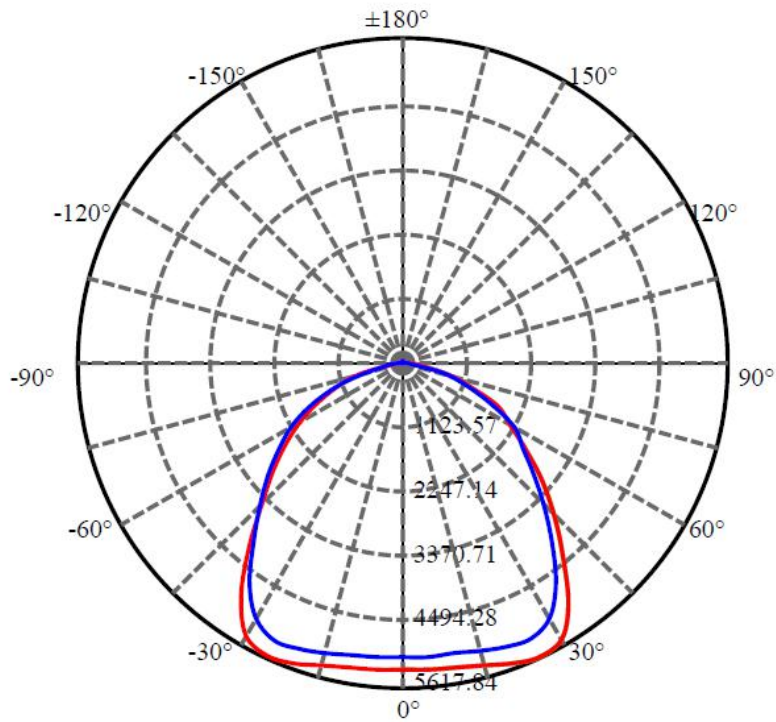
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5133.179	0.000	0	0.00%	0.00%
5.0	5143.198	122.845	122.845	0.00%	0.82%
10.0	5163.904	368.674	491.519	0.00%	3.27%
15.0	5216.405	615.682	1107.201	0.00%	7.36%
20.0	5311.789	867.627	1974.828	0.00%	13.13%
25.0	5362.954	1119.387	3094.215	0.00%	20.57%
30.0	5154.687	1330.416	4424.631	0.00%	29.41%
35.0	4653.937	1443.336	5867.967	0.00%	39.01%
40.0	3985.505	1440.015	7307.982	0.00%	48.58%
45.0	3439.749	1372.741	8680.723	0.00%	57.71%
50.0	2976.671	1293.792	9974.515	0.00%	66.31%
55.0	2571.879	1204.562	11179.076	0.00%	74.32%
60.0	2191.227	1099.779	12278.855	0.00%	81.63%
65.0	1753.586	957.213	13236.069	0.00%	87.99%
70.0	1248.361	757.924	13993.993	0.00%	93.03%
75.0	757.123	521.956	14515.948	0.00%	96.50%
80.0	253.194	268.422	14784.37	0.00%	98.28%
85.0	84.643	90.749	14875.12	0.00%	98.89%
90.0	31.527	31.441	14906.56	0.00%	99.10%
95.0	24.086	15.132	14921.693	0.00%	99.20%
100.0	21.014	12.228	14933.92	0.00%	99.28%
105.0	17.754	10.350	14944.27	0.00%	99.35%
110.0	16.338	8.895	14953.166	0.00%	99.41%
115.0	16.966	8.429	14961.595	0.00%	99.46%
120.0	18.235	8.554	14970.149	0.00%	99.52%
125.0	19.905	8.810	14978.959	0.00%	99.58%
130.0	21.976	9.102	14988.061	0.00%	99.64%
135.0	24.033	9.297	14997.358	0.00%	99.70%
140.0	25.649	9.200	15006.558	0.00%	99.76%
145.0	26.571	8.716	15015.274	0.00%	99.82%
150.0	26.878	7.875	15023.148	0.00%	99.87%
155.0	26.237	6.723	15029.871	0.00%	99.92%
160.0	24.220	5.291	15035.162	0.00%	99.95%
165.0	21.361	3.754	15038.917	0.00%	99.98%
170.0	17.794	2.321	15041.237	0.00%	99.99%
175.0	13.466	1.116	15042.353	0.00%	100.00%
180.0	10.634	0.287	15042.64	0.00%	100.00%



Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]



C0(Max): 

C0/C180: 

C90/C270: 

Field angle(10%Imax):C0/180Left:76.6 Right:77.7

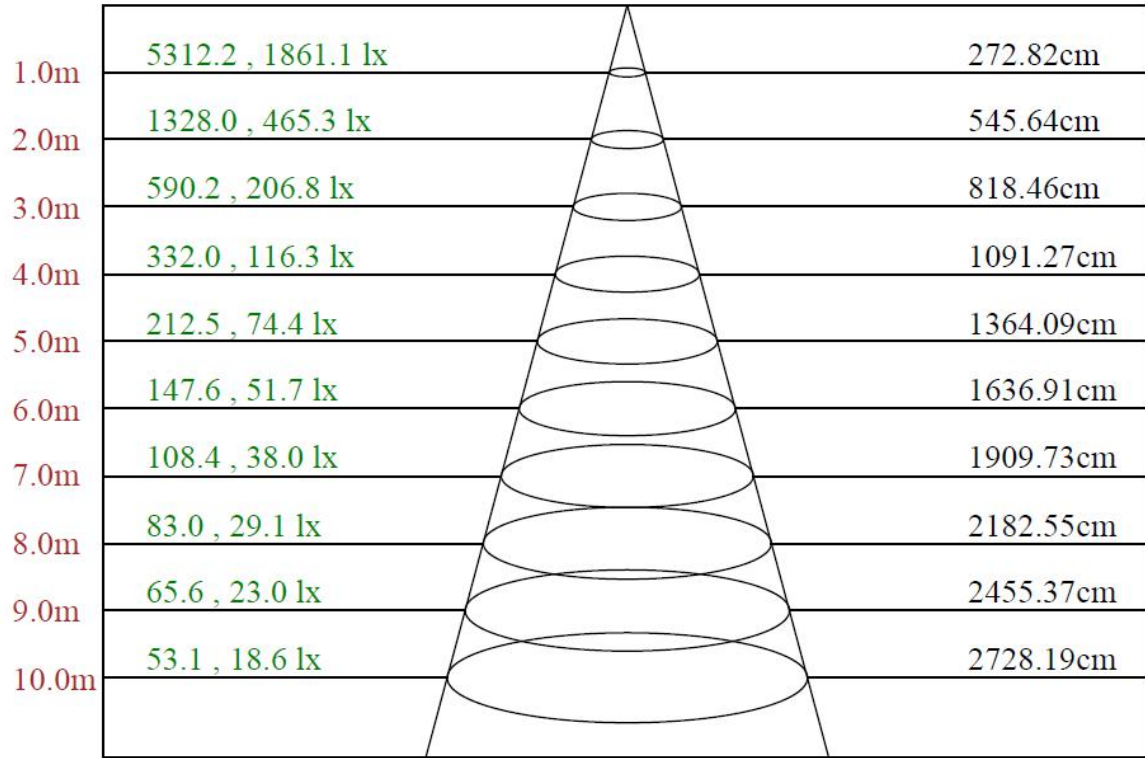
:C90/270Left:77.4 Right:77.1

Beam Angle(50%Imax):C0/180Left:51.4 Right:52.9

:C90/270Left:54.8 Right:53.8



Lux distance Curve



Max , Ave Beam angle of C0 plane 107.51

**Luminous Intensity Distribution Data**

<i>C/h</i> (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	5312.19	5331.43	5346.39	5410.51	5513.11	5617.84	5504.56	5004.40	4261.85
22.5	5218.14	5222.42	5237.38	5280.13	5380.59	5474.64	5350.66	4944.55	4243.68
45.0	5156.16	5162.57	5171.12	5201.04	5292.95	5376.31	5209.59	4801.34	4126.34
67.5	5111.27	5126.23	5136.92	5177.53	5265.17	5331.43	5147.61	4685.92	4020.75
90.0	5085.62	5087.76	5100.58	5149.74	5230.97	5256.62	5079.21	4630.34	4010.91
112.5	5072.80	5072.80	5074.93	5128.37	5228.83	5224.55	5004.40	4534.16	3833.93
135.0	5057.83	5053.56	5079.21	5141.19	5233.10	5258.75	4908.21	4257.57	3694.57
157.5	5051.42	5045.01	5070.66	5139.06	5241.65	5288.68	4950.96	4258.43	3635.36
180.0	5312.19	5314.33	5325.01	5393.41	5513.11	5558.00	5412.65	4867.60	4128.05
202.5	5218.14	5222.42	5254.48	5299.36	5395.55	5461.81	5216.00	4720.12	4008.35
225.0	5156.16	5164.71	5194.63	5233.10	5329.29	5367.76	5059.97	4551.26	3858.73
247.5	5111.27	5132.64	5158.29	5205.32	5288.68	5286.54	5055.70	4551.26	3965.60
270.0	5085.62	5115.54	5134.78	5190.36	5271.58	5275.85	5085.62	4608.97	4010.49
292.5	5072.80	5100.58	5121.96	5190.36	5275.85	5318.60	5111.27	4553.40	3905.75
315.0	5057.83	5079.21	5117.68	5181.81	5275.85	5357.08	5145.47	4666.68	3954.91
337.5	5051.42	5059.97	5098.45	5141.19	5252.34	5352.80	5233.10	4826.99	4108.81
360.0	5312.19	5331.43	5346.39	5410.51	5513.11	5617.84	5504.56	5004.40	4261.85
<i>C/h</i> (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	3674.05	3134.99	2578.18	2167.58	1810.42	1331.63	865.88	303.73	105.80
22.5	3570.17	3018.93	2586.52	2209.48	1832.64	1329.92	813.30	315.49	98.11
45.0	3550.08	3013.58	2559.59	2226.79	1820.25	1307.69	803.89	270.60	90.84
67.5	3419.06	2937.70	2591.01	2293.48	1865.99	1269.64	735.92	256.28	86.35
90.0	3454.32	2926.59	2545.70	2217.60	1696.49	1181.58	739.77	227.00	80.15
112.5	3304.70	2893.03	2599.77	2210.12	1715.94	1166.83	640.59	211.61	73.74
135.0	3270.29	2887.47	2544.41	2128.47	1577.86	1124.51	640.59	188.10	66.90
157.5	3193.77	2810.10	2451.43	2082.51	1561.40	1054.83	575.40	167.36	64.34
180.0	3444.06	2931.08	2505.73	2073.96	1669.98	1195.47	727.16	213.96	72.03
202.5	3403.45	2918.25	2552.75	2159.46	1693.50	1182.65	692.96	212.46	71.60
225.0	3416.28	2990.93	2550.61	2170.15	1736.25	1223.26	714.76	216.95	76.95
247.5	3469.71	3050.77	2642.52	2217.17	1751.21	1253.18	751.31	236.19	78.87
270.0	3478.26	3031.54	2625.42	2236.41	1787.54	1266.01	780.17	254.57	86.99
292.5	3437.65	3065.74	2672.45	2306.94	1888.00	1334.41	830.82	303.30	94.90
315.0	3501.77	3059.32	2593.36	2208.62	1838.84	1357.92	887.25	316.98	100.67
337.5	3448.34	2956.73	2550.61	2150.91	1811.06	1394.25	914.18	356.53	106.02
360.0	3674.05	3134.99	2578.18	2167.58	1810.42	1331.63	865.88	303.73	105.80
<i>C/h</i> (°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	36.34	25.22	21.80	18.60	16.67	17.10	18.81	20.52	22.44
22.5	35.70	25.86	21.80	19.02	16.46	17.10	18.17	20.09	22.23
45.0	33.77	25.86	22.02	18.60	16.46	16.89	17.95	19.66	21.80
67.5	31.21	25.22	21.59	17.95	16.24	16.89	17.95	19.66	21.59
90.0	29.07	24.79	21.37	17.74	16.46	16.67	18.38	19.66	22.02
112.5	28.86	23.94	20.52	17.53	16.24	17.10	18.17	19.88	22.23
135.0	28.00	22.87	20.09	16.67	16.03	17.10	18.17	19.88	22.23
157.5	27.15	22.87	19.66	16.46	16.03	16.89	18.17	20.09	22.23
180.0	27.15	23.30	20.52	17.10	16.24	17.10	18.38	20.09	22.23
202.5	28.00	23.73	20.52	17.10	16.24	16.89	18.38	20.09	22.23
225.0	28.00	23.94	20.95	17.10	16.24	17.10	18.60	19.88	22.23
247.5	29.50	23.94	21.37	17.53	16.46	17.10	18.60	20.31	22.23
270.0	30.99	23.30	20.95	17.95	16.89	17.31	18.60	20.09	21.80
292.5	33.34	23.30	20.95	17.74	16.67	16.89	18.38	19.88	21.80
315.0	37.19	23.51	20.95	18.38	16.03	16.89	17.74	19.45	21.37
337.5	40.18	23.73	21.16	18.60	16.03	16.46	17.31	19.24	20.95
360.0	36.34	25.22	21.80	18.60	16.67	17.10	18.81	20.52	22.44

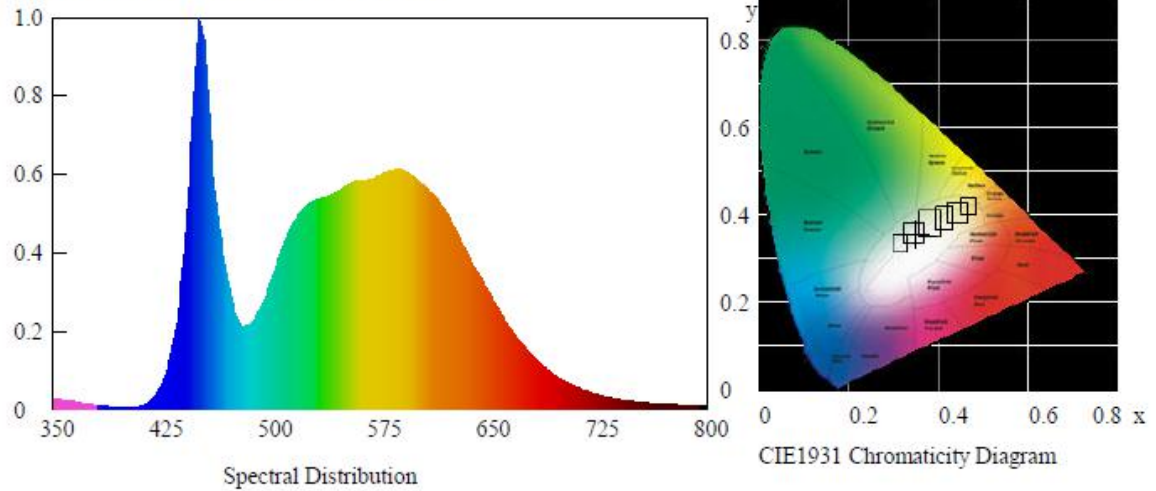


C/ γ (°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	24.58	26.29	26.72	27.15	26.72	25.01	22.23	18.60	14.75
22.5	24.37	26.08	27.15	27.36	26.93	25.22	21.80	18.17	14.11
45.0	23.73	25.44	26.08	26.50	26.08	24.15	21.59	17.95	13.89
67.5	23.51	25.44	26.29	26.50	26.08	23.94	21.16	17.53	13.68
90.0	23.73	25.44	26.08	25.86	25.44	23.73	20.73	17.10	13.04
112.5	23.94	25.65	26.29	26.50	25.65	23.51	20.52	17.10	12.40
135.0	24.15	25.44	26.29	26.29	25.22	23.08	19.88	16.46	12.40
157.5	24.37	25.65	26.50	26.50	25.65	23.30	20.09	16.24	12.18
180.0	24.79	26.29	27.36	27.36	26.72	24.79	21.59	18.17	12.82
202.5	24.58	26.50	27.57	28.21	27.36	24.58	21.59	18.17	13.04
225.0	24.58	25.86	27.15	27.57	26.29	24.37	21.80	17.95	13.47
247.5	24.15	25.86	26.93	27.57	26.93	24.58	21.59	17.95	13.89
270.0	23.94	25.65	26.29	26.50	26.08	24.37	21.80	18.38	13.68
292.5	23.94	25.65	26.50	27.15	26.50	24.79	21.80	18.38	14.11
315.0	23.30	24.79	25.86	26.50	25.86	23.73	21.80	18.17	13.89
337.5	22.87	24.37	26.08	26.50	26.29	24.37	21.80	18.38	14.11
360.0	24.58	26.29	26.72	27.15	26.72	25.01	22.23	18.60	14.75
C/ γ (°)	180.0								
0.0	10.47								
22.5	10.26								
45.0	10.47								
67.5	10.69								
90.0	10.90								
112.5	10.47								
135.0	10.90								
157.5	10.90								
180.0	10.47								
202.5	10.26								
225.0	10.47								
247.5	10.69								
270.0	10.90								
292.5	10.47								
315.0	10.90								
337.5	10.90								
360.0	10.47								

**HID-115-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: $x=0.3483$ $y=0.3560$ $u'=0.2119$ $v'=0.4873$

Correlated Color Temperature: 4896 K

Dominant Wavelength: 572.0 nm(E)

Colour Fidelity Index: $R_f=81$

Gamut Index: $R_g=95$

Luminous Flux: 14967.14 lm

Purity: 0.1132

Chromaticity Difference: +0.0009Duv

Peak Wavelength: 450.0 nm

Color Ratio: $K_r=34.4\%$ $K_g=54.9\%$ $K_b=10.8\%$

Bandwidth: 19.4nm

Radiant Flux: 44.266 W

Rendering Index: $R_a=83.4$

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

$R_9=15$ $R_{10}=71$ $R_{11}=82$ $R_{12}=55$ $R_{13}=84$ $R_{14}=95$ $R_{15}=78$ $R_e=76$

Electric Parameters

Voltage: 276.89 V

Current: 0.410 A

Power Factor: 0.962

Power: 109.09 W

Luminous Efficacy: 134.2 lm/W



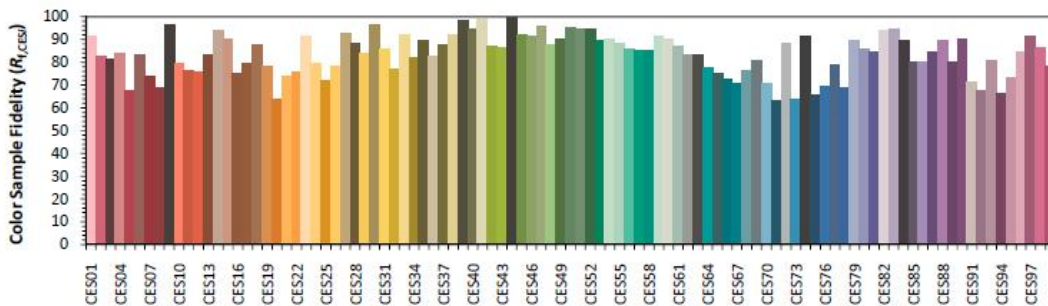
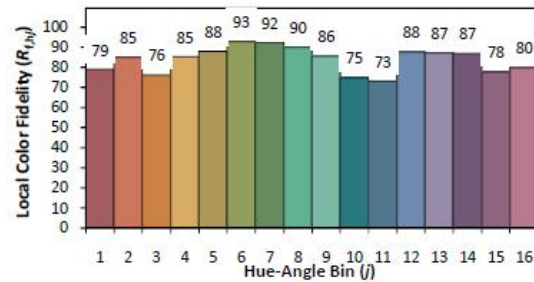
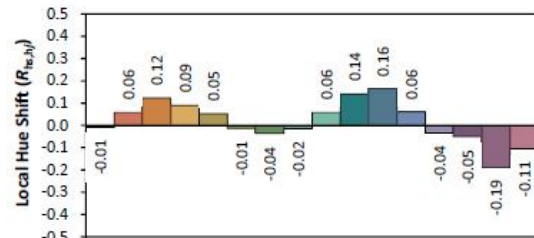
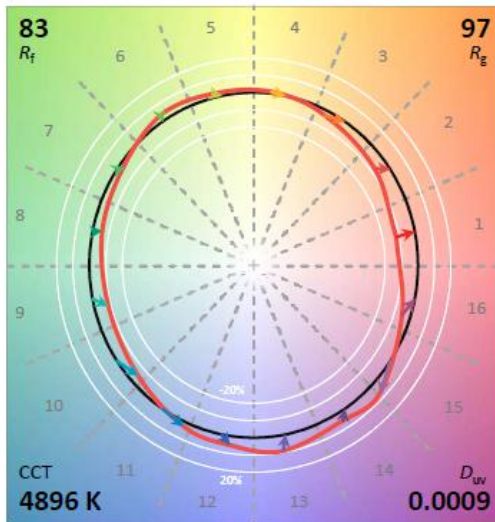
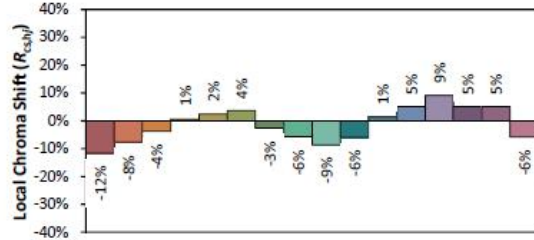
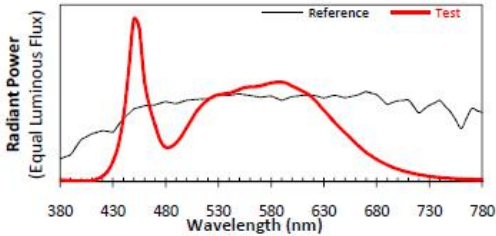
ANSI/IES TM-30-18 Color Rendition Report

Source: BL201013010-9

Manufacturer: RAB Lighting Inc

Date: 2020/10/13

Model: HID-115-V-EX39-850-BYP-HB-ECO



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

x 0.3483
 y 0.3560
 u' 0.2119
 v' 0.4873

CIE 13.3-1995 (CRI)	
R_a	83
R_g	15

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



Zonal Flux Diagram

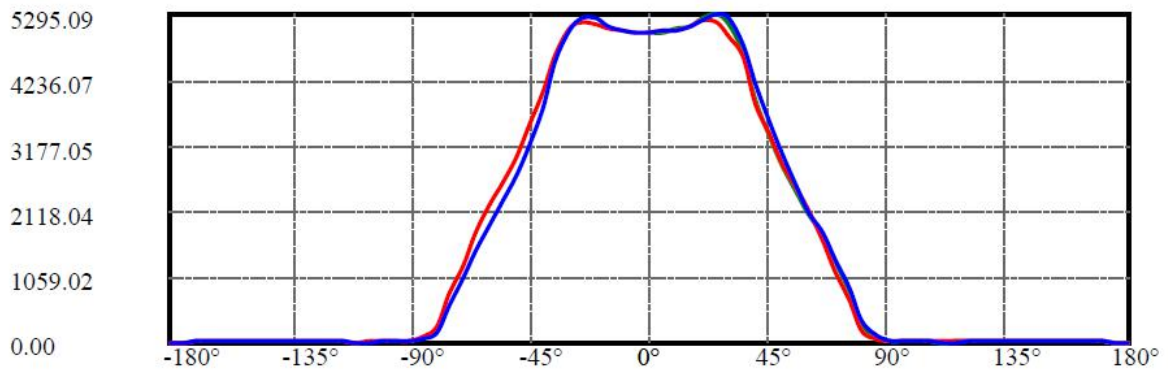
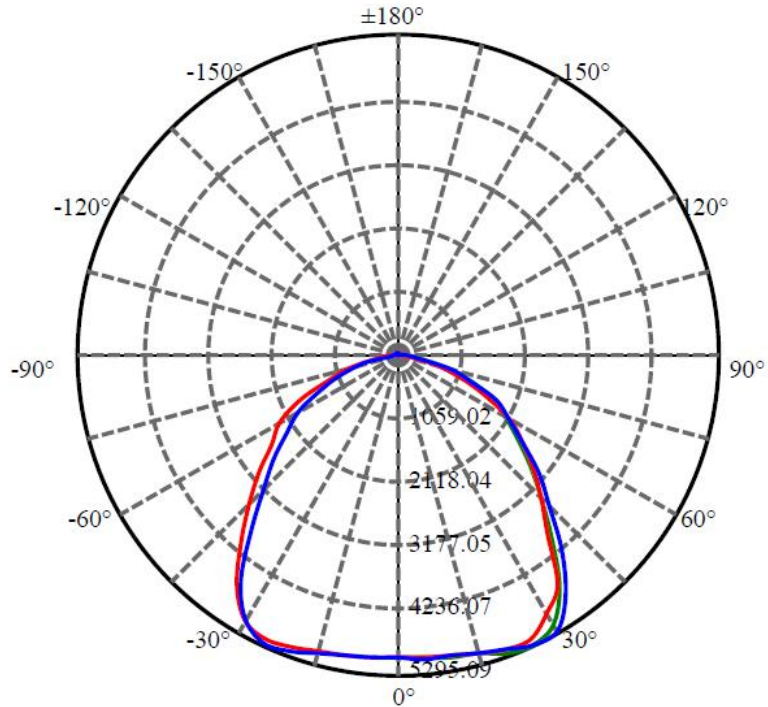
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5001.505	0.000	0	0.00%	0.00%
5.0	5011.879	119.707	119.707	0.00%	0.81%
10.0	5036.860	359.475	479.182	0.00%	3.26%
15.0	5090.430	600.744	1079.926	0.00%	7.35%
20.0	5181.271	846.532	1926.459	0.00%	13.11%
25.0	5224.822	1091.407	3017.866	0.00%	20.53%
30.0	5024.169	1297.018	4314.884	0.00%	29.36%
35.0	4536.591	1407.889	5722.773	0.00%	38.94%
40.0	3894.543	1406.671	7129.444	0.00%	48.51%
45.0	3358.312	1342.925	8472.369	0.00%	57.64%
50.0	2903.010	1265.192	9737.56	0.00%	66.25%
55.0	2507.917	1176.515	10914.076	0.00%	74.25%
60.0	2137.417	1073.756	11987.832	0.00%	81.56%
65.0	1714.056	936.301	12924.132	0.00%	87.93%
70.0	1221.950	743.416	13667.548	0.00%	92.99%
75.0	733.557	511.138	14178.686	0.00%	96.47%
80.0	251.123	263.473	14442.159	0.00%	98.26%
85.0	83.921	91.040	14533.199	0.00%	98.88%
90.0	31.434	31.585	14564.784	0.00%	99.09%
95.0	23.405	15.015	14579.799	0.00%	99.20%
100.0	20.506	11.932	14591.731	0.00%	99.28%
105.0	17.314	10.119	14601.85	0.00%	99.35%
110.0	15.991	8.705	14610.556	0.00%	99.40%
115.0	16.579	8.247	14618.802	0.00%	99.46%
120.0	17.848	8.369	14627.171	0.00%	99.52%
125.0	19.598	8.655	14635.827	0.00%	99.58%
130.0	21.548	8.946	14644.773	0.00%	99.64%
135.0	23.458	9.094	14653.867	0.00%	99.70%
140.0	25.008	8.974	14662.841	0.00%	99.76%
145.0	25.903	8.494	14671.336	0.00%	99.82%
150.0	26.224	7.676	14679.012	0.00%	99.87%
155.0	25.716	6.573	14685.585	0.00%	99.91%
160.0	23.712	5.184	14690.769	0.00%	99.95%
165.0	20.933	3.679	14694.448	0.00%	99.98%
170.0	17.407	2.274	14696.723	0.00%	99.99%
175.0	13.265	1.097	14697.82	0.00%	100.00%
180.0	10.473	0.284	14698.104	0.00%	100.00%



Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]



C67.5(Max): 

C0/C180: 

C90/C270: 

Field angle(10%Imax):C0/180Left:77.7 Right:76.7

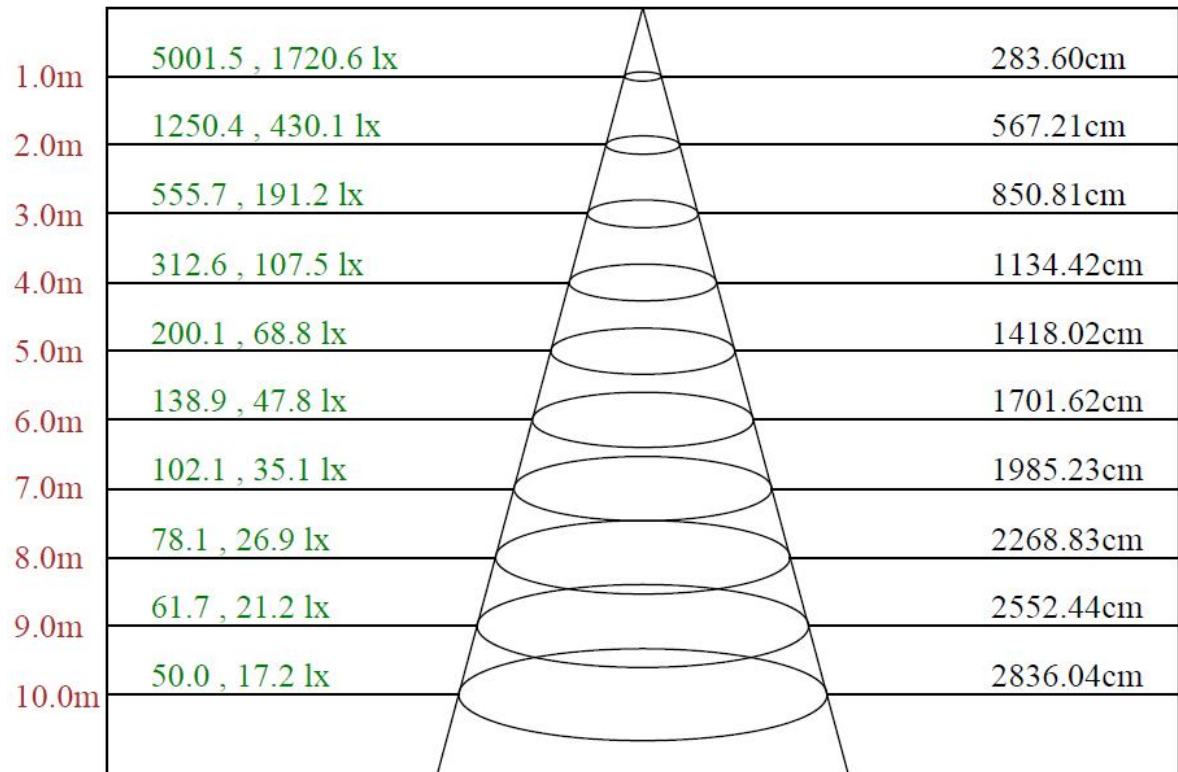
:C90/270Left:75.6 Right:78.4

Beam Angle(50%Imax):C0/180Left:54.7 Right:53.9

:C90/270Left:50.6 Right:53.8



Lux distance Curve



Max , Ave

Beam angle of C67.5 plane 109.62

**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	5001.51	5021.50	5047.15	5107.00	5183.94	5158.29	4923.18	4606.83	3840.99
22.5	5001.51	5021.50	5059.97	5130.51	5213.87	5228.83	4959.51	4247.32	3740.53
45.0	5001.51	5027.91	5068.52	5147.61	5241.65	5292.95	5000.12	4544.85	3818.54
67.5	5001.51	5012.95	5055.70	5113.41	5226.69	5295.09	5121.96	4664.54	3923.49
90.0	5001.51	5030.05	5045.01	5094.17	5181.81	5288.68	5243.79	4805.62	4192.17
112.5	5001.51	5017.22	5025.77	5064.25	5143.33	5245.93	5190.36	4829.13	4187.89
135.0	5001.51	5010.81	5019.36	5042.87	5124.09	5216.01	5119.82	4760.73	4115.22
157.5	5001.51	5000.12	5012.95	5055.70	5136.92	5207.46	5111.27	4679.51	4078.88
180.0	5001.51	4997.99	5017.22	5055.70	5139.06	5173.26	5055.70	4643.17	4059.65
202.5	5001.51	4995.85	5012.95	5059.97	5160.43	5177.53	5008.67	4561.95	3924.99
225.0	5001.51	5000.12	5027.91	5087.76	5181.81	5239.52	4970.20	4446.53	3749.72
247.5	5001.51	4993.71	5021.50	5081.35	5181.81	5269.44	5000.12	4474.31	3711.24
270.0	5001.51	5015.09	5034.32	5109.13	5216.01	5241.65	5036.46	4546.99	3783.28
292.5	5001.51	5012.95	5040.73	5100.58	5194.63	5224.56	4944.55	4262.28	3737.54
315.0	5001.51	5015.09	5051.42	5096.31	5196.77	5190.36	4824.85	4255.01	3664.65
337.5	5001.51	5017.22	5049.28	5100.58	5177.53	5147.61	4876.15	4256.72	3783.92
360.0	5001.51	5021.50	5047.15	5107.00	5183.94	5158.29	4923.18	4606.83	3840.99
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	3342.96	2886.62	2510.64	2130.18	1649.89	1151.01	679.07	211.61	70.96
22.5	3332.06	2956.94	2565.36	2187.25	1782.20	1226.89	715.83	238.33	79.51
45.0	3385.50	2916.76	2481.36	2117.78	1724.06	1259.81	794.92	253.72	81.86
67.5	3328.43	2864.82	2447.37	2064.77	1736.03	1303.84	805.82	275.30	90.20
90.0	3538.11	3052.91	2520.69	2097.47	1783.27	1332.27	896.87	362.08	121.83
112.5	3518.87	2975.96	2554.89	2170.15	1817.47	1357.92	879.13	369.35	109.01
135.0	3523.15	2995.20	2561.30	2210.76	1838.84	1372.88	855.62	340.50	110.72
157.5	3433.38	2952.45	2593.36	2302.67	1915.79	1347.23	813.51	321.69	99.61
180.0	3491.09	2988.79	2569.85	2251.37	1787.54	1255.32	802.18	268.89	94.48
202.5	3360.70	2926.80	2629.70	2279.16	1791.82	1244.63	740.62	266.11	87.21
225.0	3309.41	2918.25	2586.95	2189.38	1678.54	1206.16	723.31	218.02	77.38
247.5	3238.87	2837.03	2512.14	2146.64	1648.61	1142.04	677.14	206.05	71.82
270.0	3165.77	2692.75	2280.44	1900.19	1491.30	1061.88	576.26	172.06	57.50
292.5	3193.13	2744.91	2390.95	2013.26	1543.02	1050.34	546.76	162.02	59.42
315.0	3248.49	2826.34	2415.31	2046.82	1604.37	1105.27	604.26	169.29	63.27
337.5	3323.08	2911.63	2506.37	2090.85	1632.15	1133.70	625.63	182.97	67.97
360.0	3342.96	2886.62	2510.64	2130.18	1649.89	1151.01	679.07	211.61	70.96
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	27.15	23.30	20.31	17.53	16.67	17.53	18.60	20.73	22.66
22.5	28.21	23.51	20.09	17.31	16.67	17.10	18.60	20.52	22.44
45.0	29.92	23.73	20.09	17.96	15.82	16.67	18.17	19.66	22.02
67.5	33.34	23.94	20.73	17.74	15.82	16.46	17.74	19.24	21.37
90.0	40.61	23.08	21.16	17.96	15.82	15.82	17.31	18.81	20.52
112.5	42.96	23.94	21.59	18.38	16.03	16.03	17.10	18.81	20.52
135.0	39.54	24.15	21.80	18.60	16.03	16.03	17.31	18.81	20.52
157.5	35.91	24.15	21.37	17.96	15.82	16.03	17.31	18.60	20.31
180.0	32.92	24.15	20.95	17.53	16.03	16.46	17.31	18.81	20.52
202.5	29.28	23.73	20.52	17.10	15.60	16.03	17.53	19.45	21.16
225.0	27.79	23.08	20.09	16.46	15.60	16.46	17.53	19.45	21.16
247.5	26.50	22.66	19.45	16.03	15.60	16.25	17.53	19.24	21.16
270.0	26.29	22.02	19.24	16.25	16.03	16.89	18.17	20.09	22.23
292.5	27.36	22.44	19.66	16.25	15.82	16.89	18.38	20.31	22.66
315.0	27.36	23.08	20.31	16.89	16.03	17.31	18.38	20.31	22.66
337.5	27.79	23.51	20.73	17.10	16.46	17.31	18.60	20.73	22.87
360.0	27.15	23.30	20.31	17.53	16.67	17.53	18.60	20.73	22.66



C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	24.58	25.44	26.08	26.08	25.44	23.73	21.16	17.74	13.04
22.5	24.15	25.65	26.29	26.72	26.08	24.37	21.16	17.53	13.47
45.0	23.51	25.01	25.65	25.86	25.44	23.51	21.16	17.53	13.68
67.5	23.30	25.01	26.08	26.50	25.86	24.15	21.59	17.74	13.25
90.0	22.23	24.15	25.22	25.65	25.44	23.94	21.37	18.38	14.54
112.5	22.44	24.37	25.44	26.50	26.29	24.15	21.37	18.60	14.54
135.0	22.23	24.15	25.22	25.86	25.65	24.15	21.37	17.96	14.11
157.5	22.44	24.15	25.65	26.08	25.86	23.73	21.16	17.96	13.89
180.0	22.44	24.37	25.44	25.65	25.01	23.30	21.16	17.31	13.25
202.5	23.08	25.01	25.86	25.86	25.65	23.30	20.52	17.53	13.04
225.0	23.30	24.58	25.65	26.08	25.65	23.30	19.88	16.67	12.61
247.5	23.51	25.01	25.65	26.08	25.65	23.08	20.52	16.89	13.04
270.0	24.37	25.65	26.29	26.08	25.86	23.30	20.52	16.67	12.18
292.5	24.79	26.29	26.93	27.36	26.08	23.73	20.52	16.46	12.40
315.0	24.58	25.65	26.50	26.50	25.65	23.73	20.73	16.46	12.40
337.5	24.37	25.65	26.50	26.72	25.86	23.94	20.73	17.10	12.83
360.0	24.58	25.44	26.08	26.08	25.44	23.73	21.16	17.74	13.04
C/γ(°)	180.0								
0.0	10.47								
22.5	10.47								
45.0	10.47								
67.5	10.47								
90.0	10.47								
112.5	10.47								
135.0	10.47								
157.5	10.47								
180.0	10.47								
202.5	10.47								
225.0	10.47								
247.5	10.47								
270.0	10.47								
292.5	10.47								
315.0	10.47								
337.5	10.47								
360.0	10.47								



Photo Document



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