



Shenzhen Belling Efficiency Testing Lab Co., Ltd



Report No.: BL240412005-9A

Date of issue 2024-07-04

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:

10 Broadway Road Cranbury, NJ 08512 USA

For Product:

LED Work Light

Model No.:

H20046(TEMP17-100);TEMP17-100

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: Sam Chen

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 used 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	10 Broadway Road Cranbury, NJ 08512 USA
Brand Name	RAB
Luminaire Type	LED Work Light
Model Number	H20046(TEMP17-100);TEMP17-100
Rated Inputs	AC 100-277V, 50/60Hz
Rated Power	100W
Nominal CCT	5000K
Date of Receipt Samples	2024-04-12
Date of test	2024-04-15 to 2024-04-17
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 Description

- Declaration: RAB Lighting Inc declare that their product with model H20046(TEMP17-100);TEMP17-100 are the same to the product in the report BL240412003-9 and is authorized by original applicant to use their test data.
- Note: All the data in previous report BL240412003-9 is shared in report.



1.4 Equipment list

Device	Manufacture	Model No.	Serial No.	Calibration due date
Goniophotometric System	SENSING	GMS-3000	M101758514120011	2025-04-09
AC Power Source	ALL POWER	ALL POWER	970780	2025-04-17
Total Luminous Flux Standard Lamp	SENSING	110V/100W	S13100188	2025-04-16
Total Luminous Flux Standard Lamp	OSRAM	12V/20W	LSD12201737	2025-04-16
Total Spectral Radiant Flux Standard Lamp	Everfine	D204	M133806CA1411205	2025-04-16
Digital Power Meter	YOKOGAWA	WT310	C2QM02030V	2025-04-17
Thermostatic stabilized photometric sphere	SENSING	SPR-600M	N.A	2025-04-09
Plant spectral photosynthetically radiometer	Everfine	SP-20	P612946CF1411115	2025-04-09
Digital Power Meter	YOKOGAWA	WT210	91L929742	2025-04-17
Spectral radiometer	SENSING	SPR-3000	S1101108	2025-04-09
Environment Measurer	XUYAO	HS-1	N/A	2025-04-11
Environment Measurer	XUYAO	HS-1	N/A	2025-04-11
Stop watch	KISLO	K610	N/A	2025-04-17
Digital Anemometer	TECMAN	TD8901	026141	2024-09-06

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).

1.5 Report Revision

Original report BL240412005-9 dated at 2024-06-03 was recalled and declared as invalid by Shenzhen Belling Efficiency Testing Lab Co., Ltd. Report BL240412005-9A was issued on to replace report BL240412005-9.

Report Number	Report Date	Contents
BL240412005-9	2024-06-03	Original report
BL240412005-9A	2024-07-04	Updated the model number.



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 Model Number: H20046(TEMP17-100);TEMP17-100, at 120V

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.00	60	0.802	95.51	0.992

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
11394.26	119.3	4460

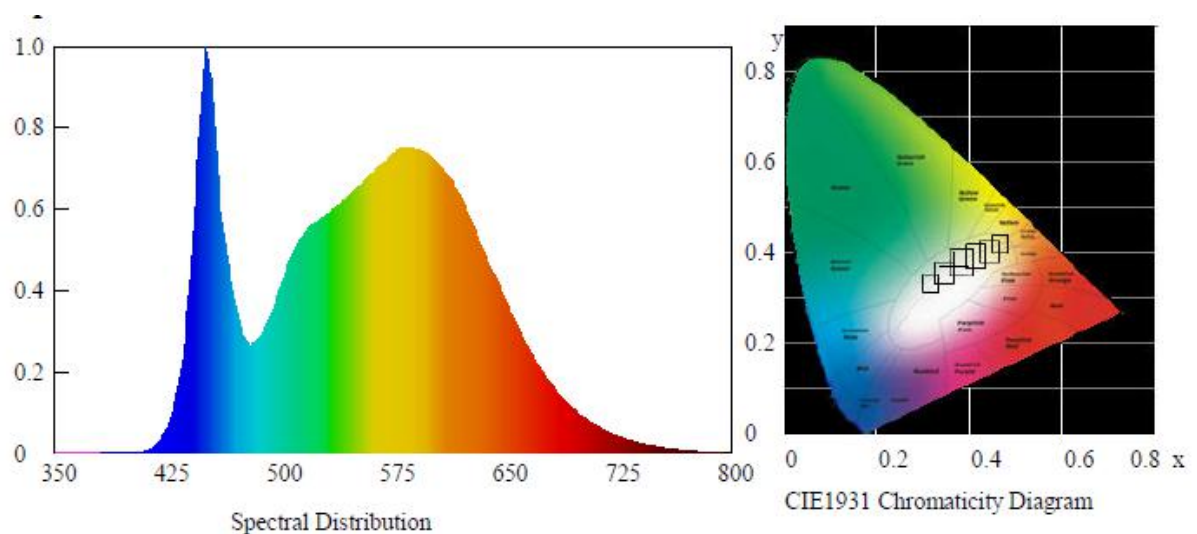
Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00124	0.3628	0.3675	0.2171	0.4948

Color Rendering

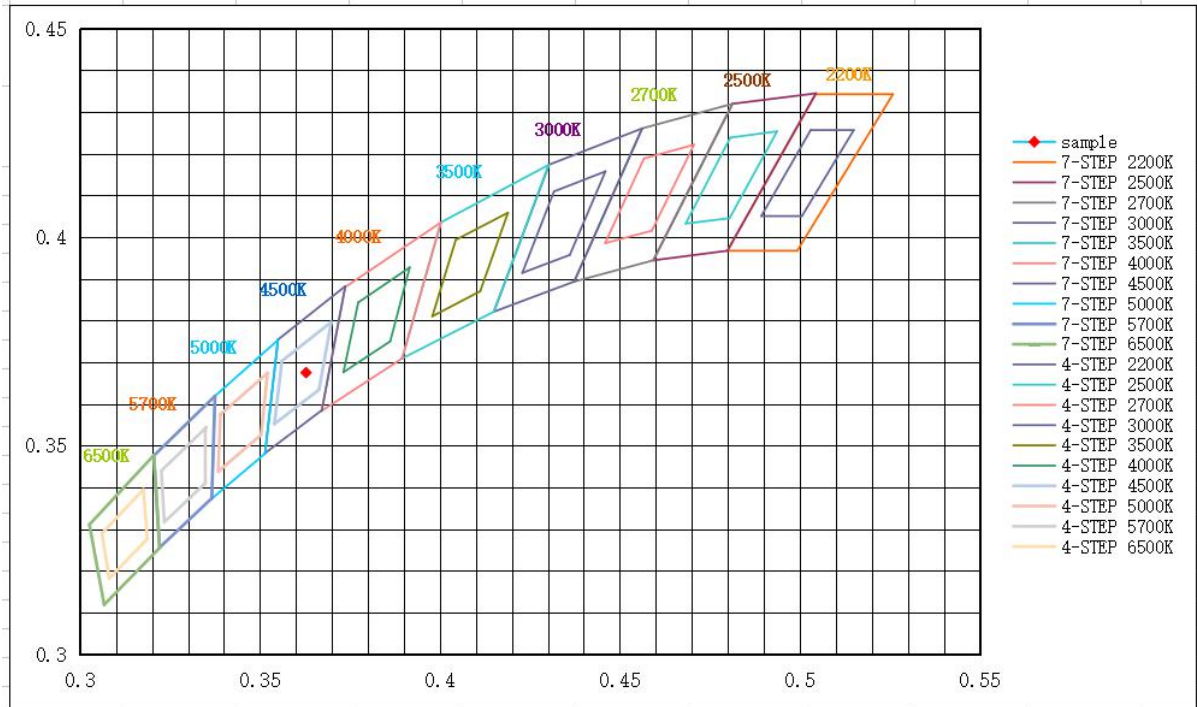
CRI	R9	Rf	Rg	Rcs,h1(%)
83.4	11	84	96	-12

Spectral Distribution





7/4 Step Quadrangle

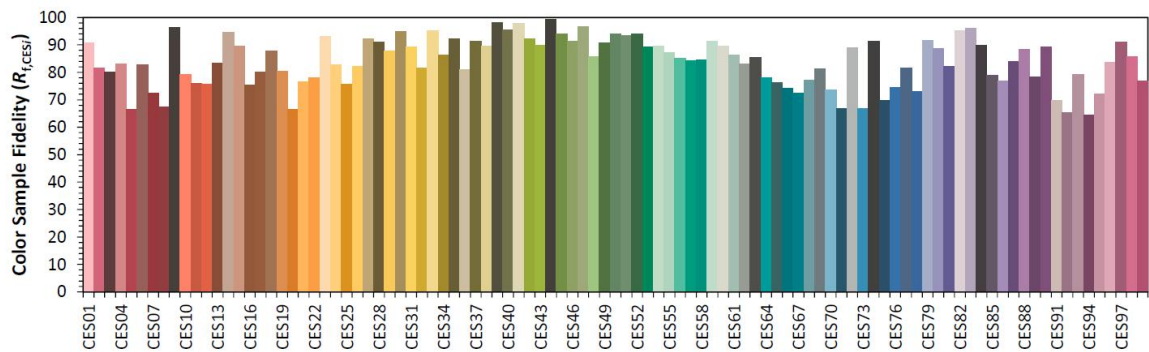
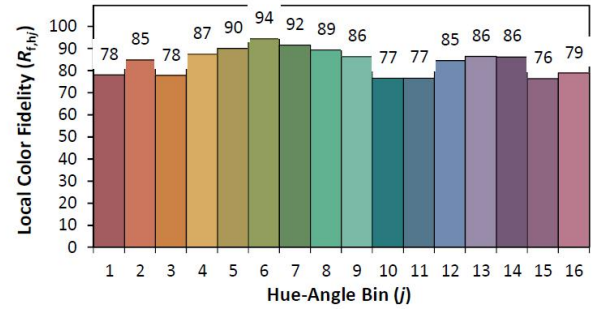
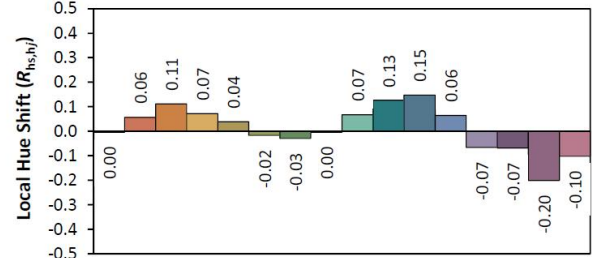
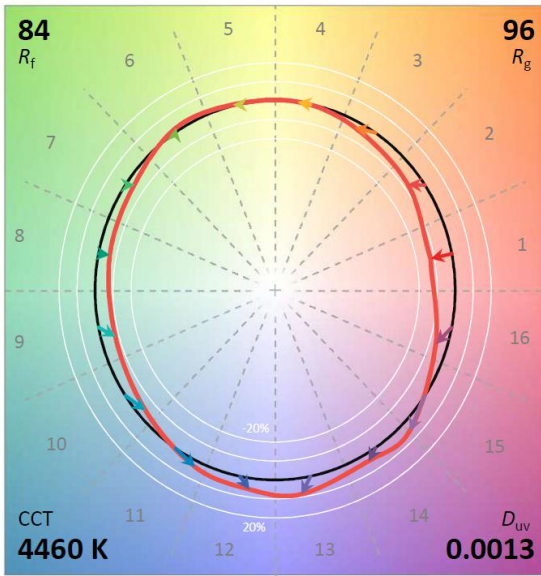
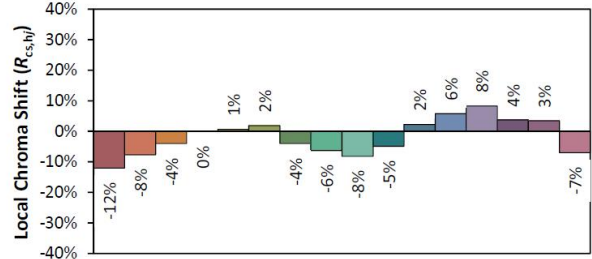
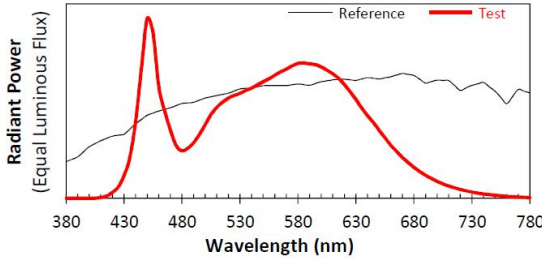




ANSI/IES TM-30-18 Color Rendition Report

Source: BL240412005-9A
Date: 2024-07-04

Manufacturer: RAB Lighting Inc
Model: H20046(TEMP17-100);TEMP17-100, at 120V



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

x 0.3628
 y 0.3675
 u' 0.2171
 v' 0.4948

CIE 13.3-1995 (CRI)	
R_a	83
R_g	11

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



3.1.2 Model Number: H20046(TEMP17-100);TEMP17-100, at 277V

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
277.06	60	0.370	91.49	0.893

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
11198.60	122.4	4464

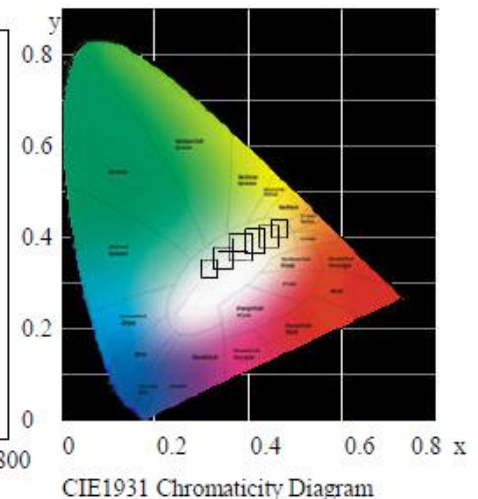
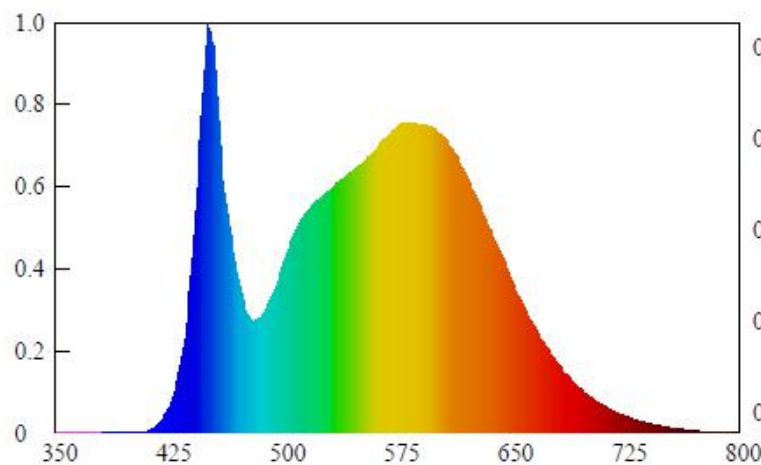
Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00116	0.3626	0.3672	0.2171	0.4947

Color Rendering

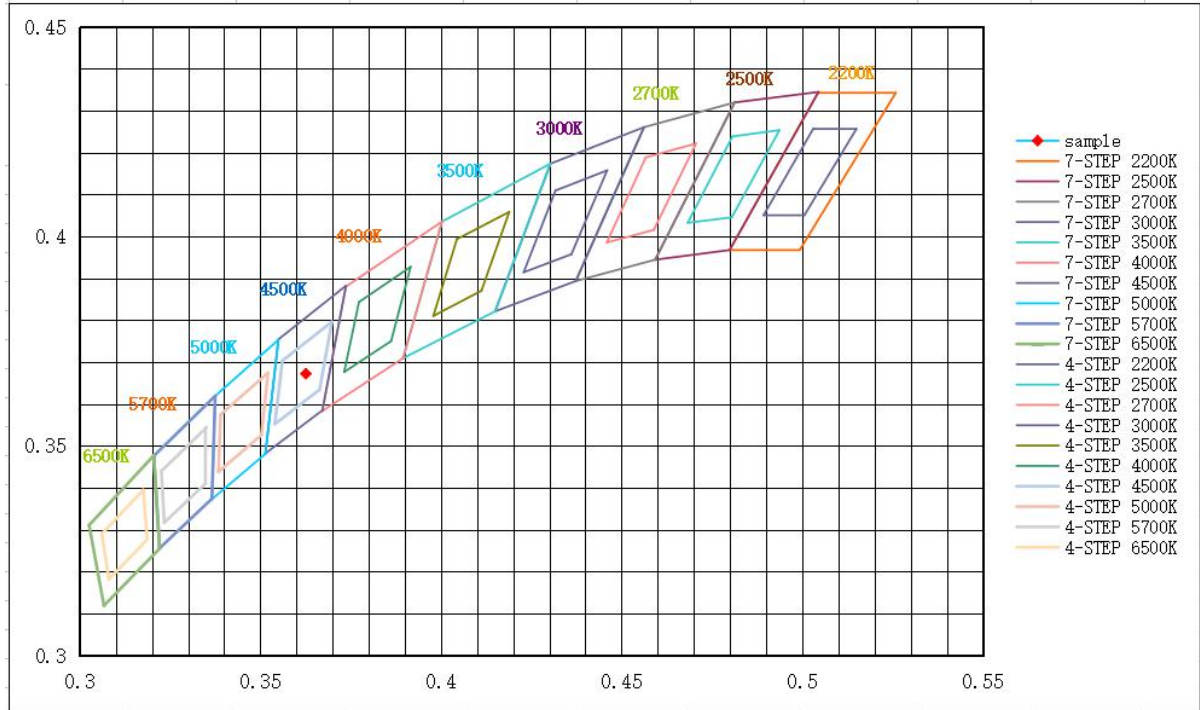
CRI	R9	Rf	Rg	Rcs,h1(%)
83.4	11	84	95	-12

Spectral Distribution





7/4 Step Quadrangle

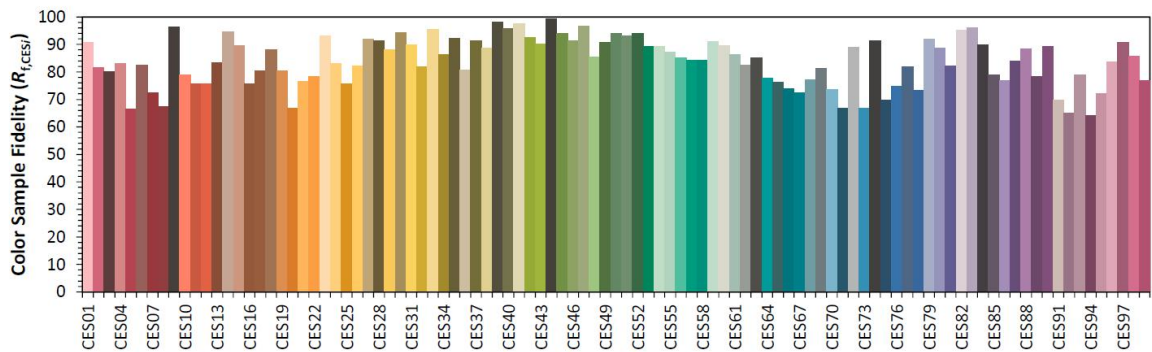
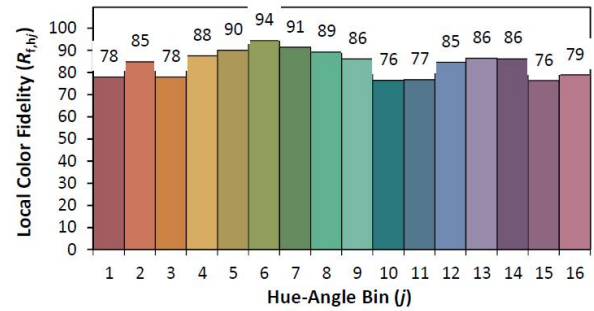
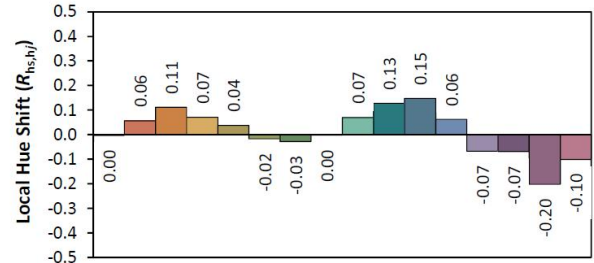
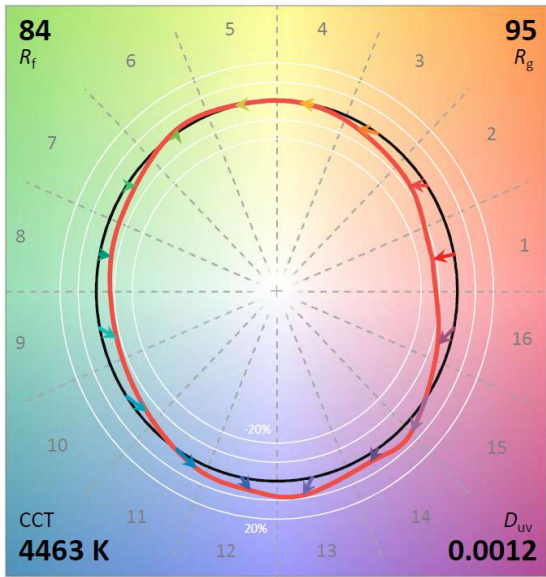
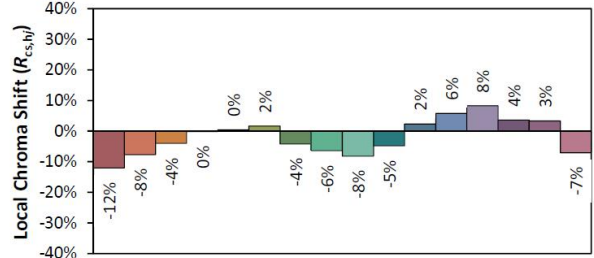
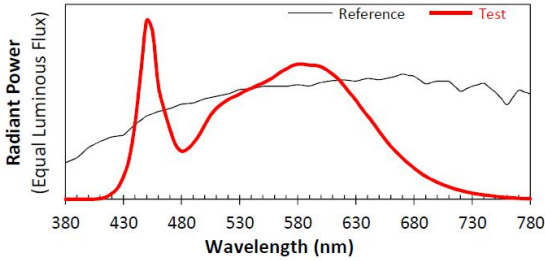




ANSI/IES TM-30-18 Color Rendition Report

Source: BL240412005-9A
Date: 2024-07-04

Manufacturer: RAB Lighting Inc
Model: H20046(TEMP17-100);TEMP17-100, at 277V



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

x 0.3626
 y 0.3672
 u' 0.2171
 v' 0.4947

CIE 13.3-1995 (CRI)	
R_a	83
R_g	11

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



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

3.2.1 Model Number: H20046(TEMP17-100);TEMP17-100, at 120V

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.09	60	0.8010	95.45	0.9919

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	Zonal Lumen in 0-60°(%lm)	Zonal Lumen in 0-90°(%lm)
11397.61	119.41	18.50	52.24



Zonal Flux Diagram

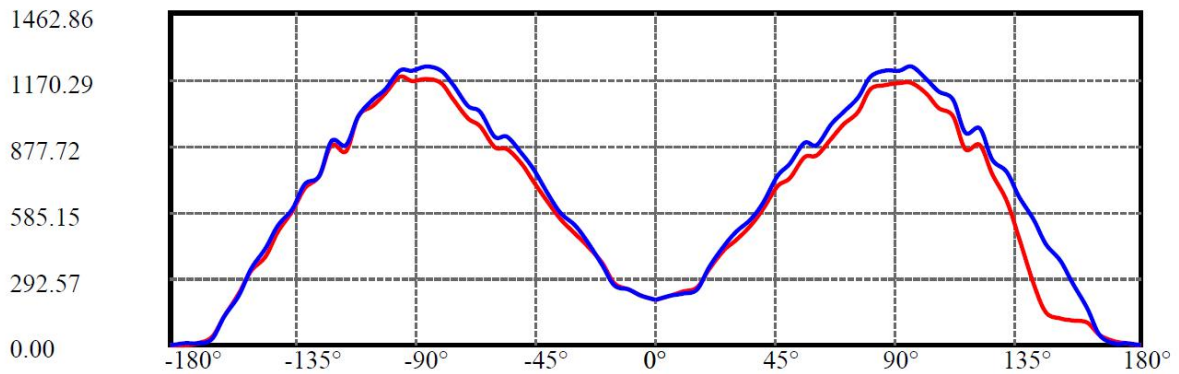
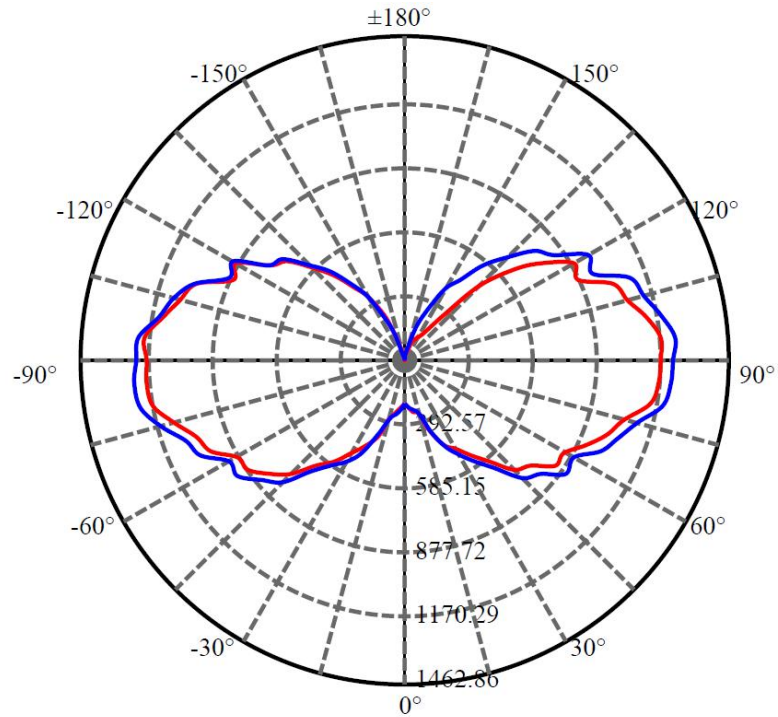
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	196.908	0.000	0	0.00%	0.00%
5.0	216.201	4.939	4.939	0.00%	0.04%
10.0	241.222	16.363	21.302	0.00%	0.19%
15.0	263.040	29.912	51.215	0.00%	0.45%
20.0	346.107	50.202	101.417	0.00%	0.89%
25.0	435.432	81.969	183.386	0.00%	1.61%
30.0	503.349	118.804	302.19	0.00%	2.65%
35.0	578.755	159.347	461.537	0.00%	4.05%
40.0	661.359	206.904	668.441	0.00%	5.86%
45.0	767.752	264.611	933.052	0.00%	8.19%
50.0	867.438	330.414	1263.466	0.00%	11.09%
55.0	951.232	395.439	1658.905	0.00%	14.55%
60.0	994.605	449.775	2108.68	0.00%	18.50%
65.0	1074.615	503.031	2611.711	0.00%	22.91%
70.0	1146.038	562.284	3173.995	0.00%	27.85%
75.0	1225.744	619.946	3793.941	0.00%	33.29%
80.0	1329.809	683.795	4477.736	0.00%	39.29%
85.0	1359.911	730.861	5208.597	0.00%	45.70%
90.0	1363.748	745.759	5954.356	0.00%	52.24%
95.0	1364.912	747.128	6701.485	0.00%	58.80%
100.0	1276.010	717.602	7419.087	0.00%	65.09%
105.0	1211.732	665.651	8084.737	0.00%	70.93%
110.0	1132.344	612.704	8697.441	0.00%	76.31%
115.0	1005.322	541.271	9238.712	0.00%	81.06%
120.0	966.819	479.431	9718.143	0.00%	85.26%
125.0	856.945	421.558	10139.701	0.00%	88.96%
130.0	760.515	351.690	10491.391	0.00%	92.05%
135.0	646.447	284.297	10775.688	0.00%	94.54%
140.0	530.791	217.975	10993.663	0.00%	96.46%
145.0	427.269	159.845	11153.508	0.00%	97.86%
150.0	339.465	112.907	11266.415	0.00%	98.85%
155.0	238.126	73.095	11339.51	0.00%	99.49%
160.0	136.389	39.280	11378.789	0.00%	99.83%
165.0	41.719	14.679	11393.468	0.00%	99.96%
170.0	14.555	3.338	11396.806	0.00%	99.99%
175.0	5.160	0.705	11397.511	0.00%	100.00%
180.0	3.362	0.102	11397.613	0.00%	100.00%



Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]



C0/C180: —

C90/C270: —

Field angle(10%Imax):C0/180Left:160.6 Right:150.0
:C90/270Left:160.3 Right:161.8

Beam Angle(50%Imax):C0/180Left:134.9 Right:131.5
:C90/270Left:134.5 Right:137.1

**Luminous Intensity Distribution Data**

C/ γ ($^{\circ}$)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	196.91	214.03	237.53	254.47	332.80	420.02	464.05	523.96	599.54
22.5	196.91	214.88	246.21	258.49	321.79	417.27	494.96	558.90	634.26
45.0	196.91	216.57	238.80	258.28	338.51	421.08	475.70	558.90	648.87
67.5	196.91	211.28	226.52	252.77	338.72	433.14	511.05	580.49	659.45
90.0	196.91	217.63	229.49	247.69	347.19	436.32	496.02	553.18	626.85
112.5	196.91	217.84	232.45	256.58	354.39	455.16	530.32	612.88	705.60
135.0	196.91	218.90	244.09	270.77	361.16	446.90	518.04	610.97	689.30
157.5	196.91	216.57	248.12	280.93	370.27	461.30	530.10	617.96	715.77
180.0	196.91	218.05	244.09	275.21	364.34	432.30	487.13	553.39	624.73
202.5	196.91	218.69	242.82	269.50	370.48	460.45	525.23	603.56	696.93
225.0	196.91	213.18	247.48	266.75	336.61	413.03	490.52	585.15	666.86
247.5	196.91	209.59	239.44	259.34	327.93	419.81	496.02	578.80	663.69
270.0	196.91	220.81	241.34	266.32	358.62	458.12	528.62	584.93	660.72
292.5	196.91	219.11	245.36	264.63	343.38	440.34	518.46	598.70	676.18
315.0	196.91	218.27	252.14	267.80	339.36	427.85	492.00	576.47	676.18
337.5	196.91	213.82	243.67	259.12	332.16	423.83	495.38	561.86	636.80
360.0	196.91	214.03	237.53	254.47	332.80	420.02	464.05	523.96	599.54
C/ γ ($^{\circ}$)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	695.65	736.30	830.30	832.84	905.66	968.33	1026.55	1124.78	1148.70
22.5	745.62	866.92	936.36	1007.49	1056.40	1157.38	1222.16	1346.64	1384.53
45.0	774.41	840.25	958.80	984.84	1095.98	1155.90	1248.20	1350.24	1401.05
67.5	747.52	879.62	935.94	1013.00	1063.81	1153.36	1233.59	1340.50	1374.80
90.0	746.25	797.48	889.15	879.41	975.53	1022.52	1089.21	1182.57	1204.59
112.5	797.70	934.03	1009.40	1079.89	1135.78	1222.16	1295.20	1417.14	1442.54
135.0	822.68	912.44	1026.12	1040.94	1173.04	1222.37	1325.47	1426.66	1462.86
157.5	798.12	927.68	1003.68	1082.01	1128.80	1223.01	1290.96	1405.49	1433.44
180.0	720.42	795.37	864.38	869.25	965.36	1001.78	1081.38	1156.95	1169.02
202.5	779.07	907.15	981.03	1054.28	1114.40	1204.38	1279.11	1390.89	1417.56
225.0	794.31	887.67	997.75	1015.75	1141.71	1189.13	1286.09	1390.89	1423.28
247.5	765.09	895.08	966.00	1039.67	1091.75	1187.02	1253.07	1375.01	1399.99
270.0	773.77	845.33	917.31	913.71	1022.31	1054.91	1141.29	1211.15	1222.58
292.5	769.33	906.93	974.68	1064.44	1106.78	1207.34	1291.17	1407.19	1435.56
315.0	804.89	876.87	987.17	1018.29	1141.50	1199.08	1301.76	1401.05	1450.80
337.5	749.22	869.89	941.65	1017.87	1075.03	1167.96	1246.72	1349.82	1387.29
360.0	695.65	736.30	830.30	832.84	905.66	968.33	1026.55	1124.78	1148.70
C/ γ ($^{\circ}$)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	1152.93	1155.26	1104.03	1040.94	1006.22	867.13	877.93	755.57	639.77
22.5	1395.97	1388.77	1311.07	1246.08	1135.57	1058.72	966.63	907.57	771.87
45.0	1405.92	1396.60	1308.53	1222.79	1170.93	993.52	992.46	838.34	768.90
67.5	1378.61	1370.77	1275.30	1224.28	1108.26	1022.31	956.68	865.23	754.08
90.0	1209.25	1228.09	1173.26	1117.79	1084.76	933.40	953.30	821.41	767.00
112.5	1447.41	1462.02	1356.17	1300.28	1187.02	1094.08	995.43	929.37	788.17
135.0	1459.05	1459.27	1367.60	1269.37	1220.47	1030.36	1029.30	869.04	801.93
157.5	1436.83	1441.27	1330.97	1280.17	1161.61	1067.19	980.18	900.58	781.39
180.0	1166.90	1179.18	1104.66	1053.43	1005.38	857.82	878.14	740.54	692.69
202.5	1423.06	1426.66	1318.70	1265.13	1146.58	1066.77	963.46	902.70	771.66
225.0	1424.76	1424.33	1336.05	1233.80	1203.32	1003.47	996.48	849.99	777.16
247.5	1409.94	1416.29	1318.06	1259.42	1159.50	1067.19	970.23	911.17	774.83
270.0	1212.42	1208.40	1128.37	1079.05	1012.79	878.35	896.14	746.04	712.17
292.5	1444.02	1438.52	1329.49	1282.49	1158.86	1075.66	1002.62	911.17	789.65
315.0	1455.24	1449.95	1349.60	1266.40	1216.02	1023.16	1035.23	864.81	806.38
337.5	1397.66	1393.21	1304.30	1246.29	1140.23	1046.02	974.89	897.62	770.60
360.0	1152.93	1155.26	1104.03	1040.94	1006.22	867.13	877.93	755.57	639.77



C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	473.37	273.52	149.04	117.92	106.28	96.75	41.71	21.81	8.26
22.5	679.57	560.59	475.06	342.75	251.71	149.46	56.95	23.08	7.62
45.0	647.81	555.51	431.45	360.11	245.15	151.16	41.92	18.63	6.56
67.5	648.02	535.61	446.48	342.32	251.29	134.01	37.47	11.01	5.29
90.0	656.07	553.60	445.21	376.41	276.91	166.61	46.79	12.28	4.87
112.5	684.65	561.44	470.40	367.30	259.97	141.21	44.03	10.16	3.81
135.0	673.00	568.42	449.87	367.94	255.31	143.11	39.17	11.86	3.60
157.5	669.19	544.50	452.62	357.57	250.02	123.00	41.92	9.74	3.39
180.0	587.47	499.41	395.04	329.62	227.37	127.66	40.01	12.49	3.81
202.5	667.08	542.38	453.68	359.05	252.98	122.36	37.68	15.03	4.02
225.0	656.07	539.21	427.64	348.04	194.98	113.26	35.14	13.55	3.39
247.5	675.75	521.64	415.15	336.82	218.05	123.63	32.60	7.62	2.75
270.0	604.20	526.29	422.77	331.95	215.51	128.93	28.37	7.83	4.87
292.5	673.64	565.03	473.16	362.86	266.96	136.13	39.17	12.70	5.72
315.0	673.64	585.99	469.98	380.22	275.85	168.73	44.67	20.75	6.99
337.5	673.64	559.53	458.76	350.58	261.66	156.24	59.91	24.35	7.62
360.0	473.37	273.52	149.04	117.92	106.28	96.75	41.71	21.81	8.26
C/γ(°)	180.0								
0.0	3.36								
22.5	3.36								
45.0	3.36								
67.5	3.36								
90.0	3.36								
112.5	3.36								
135.0	3.36								
157.5	3.36								
180.0	3.36								
202.5	3.36								
225.0	3.36								
247.5	3.36								
270.0	3.36								
292.5	3.36								
315.0	3.36								
337.5	3.36								
360.0	3.36								

**3.2.2 Model Number: H20046(TEMP17-100);TEMP17-100, at 277V****Electrical data**

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
277.06	60	0.3690	91.44	0.8928

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	Zonal Lumen in 0-60°(%lm)	Zonal Lumen in 0-90°(%lm)
11175.32	122.21	18.56	52.29



Zonal Flux Diagram

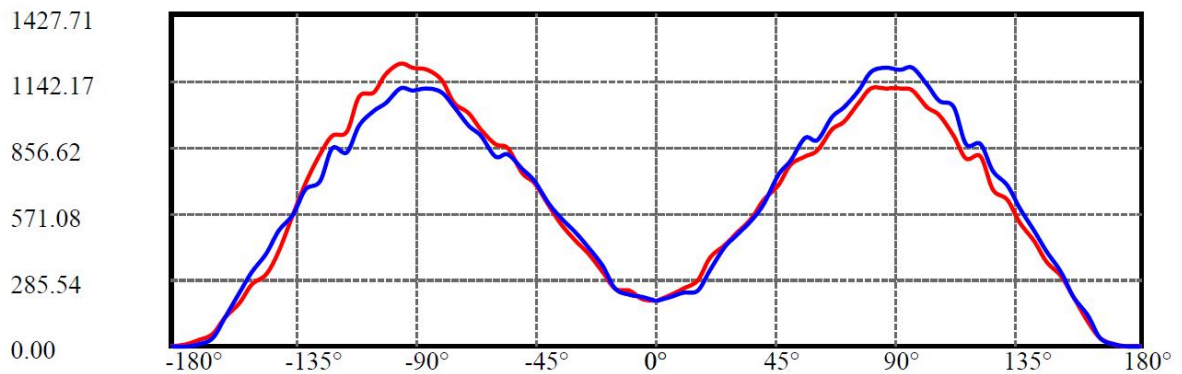
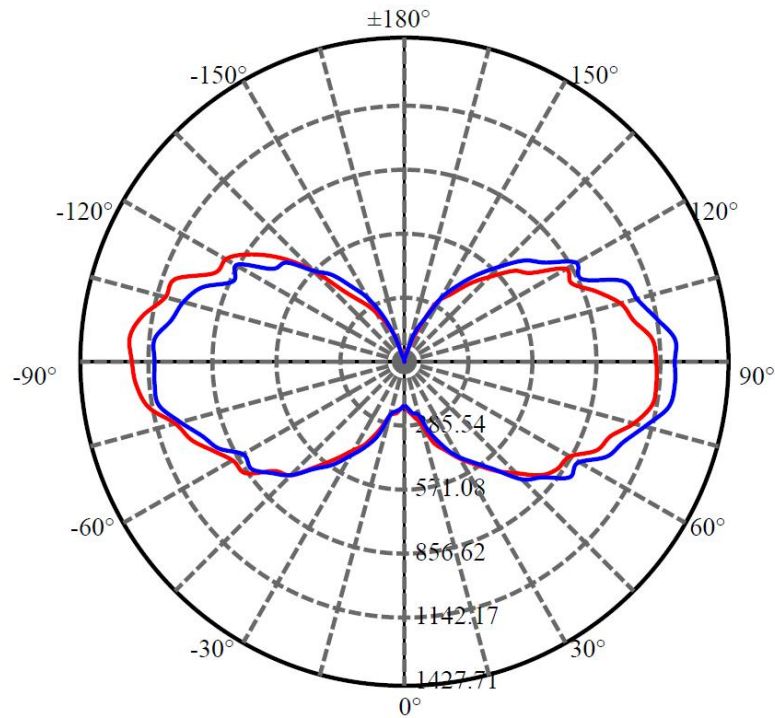
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	193.248	0.000	0	0.00%	0.00%
5.0	212.241	4.848	4.848	0.00%	0.04%
10.0	237.510	16.089	20.937	0.00%	0.19%
15.0	262.428	29.656	50.592	0.00%	0.45%
20.0	339.639	49.619	100.211	0.00%	0.90%
25.0	426.143	80.316	180.528	0.00%	1.62%
30.0	494.725	116.537	297.064	0.00%	2.66%
35.0	571.193	156.964	454.028	0.00%	4.06%
40.0	658.102	205.099	659.127	0.00%	5.90%
45.0	755.734	261.783	920.91	0.00%	8.24%
50.0	850.152	324.493	1245.403	0.00%	11.14%
55.0	931.578	387.407	1632.81	0.00%	14.61%
60.0	978.780	441.574	2074.384	0.00%	18.56%
65.0	1056.221	494.712	2569.096	0.00%	22.99%
70.0	1124.006	552.047	3121.144	0.00%	27.93%
75.0	1201.663	607.892	3729.036	0.00%	33.37%
80.0	1300.862	669.606	4398.642	0.00%	39.36%
85.0	1330.682	715.054	5113.696	0.00%	45.76%
90.0	1335.571	730.041	5843.737	0.00%	52.29%
95.0	1330.858	730.089	6573.826	0.00%	58.82%
100.0	1249.891	701.251	7275.077	0.00%	65.10%
105.0	1185.375	651.610	7926.687	0.00%	70.93%
110.0	1103.167	598.188	8524.875	0.00%	76.28%
115.0	987.963	529.488	9054.362	0.00%	81.02%
120.0	944.745	469.845	9524.208	0.00%	85.23%
125.0	839.145	412.341	9936.549	0.00%	88.92%
130.0	741.837	343.758	10280.307	0.00%	91.99%
135.0	635.480	278.307	10558.614	0.00%	94.48%
140.0	526.206	215.096	10773.71	0.00%	96.41%
145.0	427.372	159.097	10932.807	0.00%	97.83%
150.0	335.399	112.323	11045.13	0.00%	98.84%
155.0	235.849	72.292	11117.422	0.00%	99.48%
160.0	135.029	38.898	11156.32	0.00%	99.83%
165.0	43.515	14.715	11171.035	0.00%	99.96%
170.0	14.748	3.456	11174.491	0.00%	99.99%
175.0	5.497	0.724	11175.215	0.00%	100.00%
180.0	3.470	0.107	11175.322	0.00%	100.00%



Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]



C0/C180: —

C90/C270: —

Field angle(10%Imax):C0/180Left:160.0 Right:159.2
:C90/270Left:160.5 Right:160.6

Beam Angle(50%Imax):C0/180Left:133.6 Right:131.1
:C90/270Left:133.7 Right:134.6

**Luminous Intensity Distribution Data**

C/ γ ($^{\circ}$)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	193.25	217.82	246.56	284.16	377.73	431.10	489.23	550.60	632.28
22.5	193.25	220.84	244.40	282.43	380.53	466.97	529.64	609.59	709.86
45.0	193.25	218.90	253.26	276.81	354.39	420.51	511.70	594.68	692.57
67.5	193.25	215.66	240.94	266.01	345.74	441.47	511.92	598.35	688.25
90.0	193.25	209.61	228.19	243.53	325.00	423.10	480.58	542.60	613.26
112.5	193.25	207.66	231.65	245.69	312.68	411.44	485.99	552.54	639.63
135.0	193.25	207.01	238.56	258.01	317.65	401.71	466.11	561.40	651.73
157.5	193.25	205.50	237.27	255.63	306.20	405.17	476.70	540.66	627.31
180.0	193.25	205.93	235.32	249.15	317.65	399.12	454.87	527.26	605.05
202.5	193.25	204.85	239.21	256.07	298.85	408.19	483.83	549.95	642.44
225.0	193.25	208.10	234.67	251.53	318.52	406.25	466.32	554.49	648.92
247.5	193.25	205.50	224.52	244.83	316.14	418.78	502.19	570.05	652.38
270.0	193.25	210.47	220.20	248.50	343.80	425.05	486.64	552.11	616.29
292.5	193.25	216.95	229.70	265.79	363.90	453.36	518.83	604.19	691.70
315.0	193.25	221.49	249.58	284.37	376.21	446.87	523.80	613.48	696.24
337.5	193.25	219.55	246.13	286.32	379.24	459.19	527.26	617.15	721.74
360.0	193.25	217.82	246.56	284.16	377.73	431.10	489.23	550.60	632.28
C/ γ ($^{\circ}$)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	694.73	781.60	816.60	839.29	931.78	964.41	1047.39	1105.73	1112.43
22.5	782.25	894.83	975.43	1045.66	1111.35	1191.95	1276.44	1381.46	1395.29
45.0	794.35	910.17	987.32	1013.89	1151.11	1189.14	1297.40	1393.13	1416.04
67.5	771.44	896.34	972.62	1036.58	1098.17	1183.53	1261.32	1372.17	1388.16
90.0	734.49	796.08	892.45	886.19	983.43	1030.53	1098.39	1177.69	1195.19
112.5	740.97	856.80	928.32	1016.27	1059.92	1148.73	1223.50	1334.36	1373.04
135.0	779.65	846.86	969.60	998.98	1095.14	1175.75	1241.65	1355.32	1405.23
157.5	739.03	845.99	924.65	1008.92	1066.19	1139.88	1210.97	1327.87	1374.77
180.0	703.59	745.51	851.83	869.55	931.13	1000.71	1048.90	1147.87	1187.20
202.5	750.91	862.42	940.86	1019.08	1062.73	1156.08	1212.91	1335.22	1386.22
225.0	772.31	831.95	953.17	995.53	1086.28	1165.37	1230.42	1342.14	1402.21
247.5	755.45	878.41	945.18	1024.05	1074.83	1155.65	1231.28	1335.00	1381.25
270.0	709.21	760.64	821.36	819.20	906.71	944.53	1025.56	1094.50	1107.03
292.5	773.17	887.48	962.25	1024.70	1089.74	1168.40	1249.43	1354.45	1369.80
315.0	796.51	901.53	982.13	1011.30	1142.04	1178.77	1293.73	1383.41	1408.48
337.5	793.70	905.85	981.48	1051.28	1108.97	1190.66	1277.31	1373.47	1388.59
360.0	694.73	781.60	816.60	839.29	931.78	964.41	1047.39	1105.73	1112.43
C/ γ ($^{\circ}$)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	1108.97	1098.39	1025.78	990.56	901.74	811.20	815.31	675.50	626.23
22.5	1394.86	1368.07	1266.50	1222.85	1080.45	1030.10	934.81	842.10	731.25
45.0	1414.53	1386.43	1289.41	1207.51	1129.07	985.37	968.30	806.88	736.22
67.5	1389.03	1371.31	1268.88	1224.37	1096.66	1028.37	939.99	857.45	734.92
90.0	1189.79	1196.92	1123.45	1059.49	1026.00	864.79	869.55	756.75	692.35
112.5	1387.08	1395.94	1316.20	1246.19	1165.81	1050.63	989.48	912.12	782.68
135.0	1421.01	1427.71	1347.32	1261.75	1213.13	1032.91	1022.75	890.94	809.47
157.5	1390.32	1401.78	1332.84	1251.38	1182.44	1059.27	994.88	930.05	793.48
180.0	1199.30	1211.18	1170.13	1091.26	1070.29	922.92	905.63	824.38	704.02
202.5	1405.23	1416.69	1352.51	1268.23	1192.17	1082.61	995.96	938.70	803.42
225.0	1411.07	1420.36	1344.30	1249.00	1205.13	1029.67	1004.39	892.02	790.89
247.5	1393.78	1404.15	1323.34	1251.38	1171.21	1045.88	994.23	908.01	782.03
270.0	1103.14	1107.68	1042.63	1008.28	945.83	830.00	852.26	711.15	676.58
292.5	1371.31	1351.64	1253.54	1209.89	1077.43	1019.08	926.38	841.45	730.38
315.0	1403.94	1373.25	1282.93	1204.70	1116.54	989.26	964.84	802.99	739.03
337.5	1385.79	1362.23	1258.51	1219.18	1076.78	1025.35	937.18	835.84	736.44
360.0	1108.97	1098.39	1025.78	990.56	901.74	811.20	815.31	675.50	626.23



C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	529.20	455.30	365.84	299.29	213.07	103.08	34.14	9.94	3.67
22.5	629.04	516.89	425.48	337.10	223.87	93.14	32.63	12.32	3.24
45.0	619.10	516.02	403.66	302.53	191.89	111.50	31.98	9.51	2.81
67.5	634.66	499.17	396.09	286.75	191.02	106.53	24.20	6.05	3.46
90.0	590.57	494.85	411.44	320.68	208.53	131.38	37.82	9.29	3.89
112.5	684.57	573.50	475.18	378.81	283.94	165.09	46.89	14.26	5.83
135.0	689.33	592.30	482.31	401.71	287.18	188.00	59.21	23.55	8.21
157.5	704.02	581.71	488.58	360.01	279.19	179.79	73.26	28.96	9.72
180.0	567.89	405.17	306.42	264.28	186.49	121.01	52.73	25.50	10.16
202.5	712.23	591.01	492.25	356.12	267.52	184.33	70.88	27.44	10.16
225.0	682.41	572.42	470.00	382.91	264.28	164.88	60.51	24.63	8.64
247.5	685.87	564.86	457.90	362.17	284.16	170.50	48.62	15.78	6.27
270.0	570.69	500.03	398.25	323.49	232.95	128.57	31.55	7.13	3.46
292.5	625.15	513.86	425.05	332.78	228.41	111.07	29.39	6.27	2.59
315.0	617.15	526.83	414.46	327.16	224.30	112.37	32.41	7.78	2.81
337.5	625.80	515.38	425.05	330.62	206.80	89.25	30.04	7.56	3.03
360.0	529.20	455.30	365.84	299.29	213.07	103.08	34.14	9.94	3.67
C/γ(°)	180.0								
0.0	3.47								
22.5	3.47								
45.0	3.47								
67.5	3.47								
90.0	3.47								
112.5	3.47								
135.0	3.47								
157.5	3.47								
180.0	3.47								
202.5	3.47								
225.0	3.47								
247.5	3.47								
270.0	3.47								
292.5	3.47								
315.0	3.47								
337.5	3.47								
360.0	3.47								



Photo Document



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