Date of issue	2025-07-15
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Total pages	26

Test report of
IES LM-79-08
Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Applicant:

P.Q.L., Inc.

Address:

2285 Ward Avenue / Simi Valley, CA 93065

For Product:

High Bay Luminaires (Commercial and Industrial)

Model No.:

HCB1[U,H]KBP2403C3B
(U or H denotes input voltage, U = 100-277V, H = 200-480V.)

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	P.Q.L., Inc.
Manufacturer Address	2285 Ward Avenue Simi Valley, CA 93065
Brand Name	PQL
Luminaire Type	High Bay Luminaires (Commercial and Industrial)
Model Number	HCB1[U,H]KBP2403C3B (U or H denotes input voltage, U = 100-277V, H = 200-480V.)
Rated Inputs	AC 100-277V, AC 200-480V, 50/60Hz
Field-Adjustable Product	Yes, Wattage setting: 150W, 200W, 240W
Color-Tunable Product	Yes, CCT setting: 3000K, 4000K, 5000K
Dimming Capability	Continuous
Integral Control Sensors	Optional
Date of Receipt Samples	2025-06-06
Date of test	2025-06-09 to 2025-06-18
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	Manufacturer	Model No.	Serial No.	Calibration due date
Goniophotometeric System	SENSING	GMS-3000	M101758514120011	2026-04-29
AC Power Source	TAI WAN PS	PS-61005	S25036605142	2026-04-28
DC Power Source	Everfine	WY305	P185210CA1411154	2026-04-28
Total Luminous Flux Standard Lamp	SENSING	110V/100W	S13100188	2026-05-13
Total Luminous Flux Standard Lamp	OSRAM	12V/20W	LSD12201737	2026-05-13
Total Spectral Radiant Flux Standard Lamp	Everfine	D204	M133806CA1411205	2026-05-13
Digital Power Meter	YOKOGAWA	WT310	C2QM02030V	2026-04-28
Thermostatic stabilized photometric sphere	SENSING	SPR-600M	N.A	2026-04-29
Plant spectral photosynthetically radiometer	Everfine	SP-20	P612946CF1411115	2026-04-29
Digital Power Meter	YOKOGAWA	WT210	91L929742	2026-04-28
Spectral radiometer	SENSING	SPR-3000	S1101108	2026-04-29
Environment Measurer	XUYAO	HS-1	N/A	2026-05-09
Environment Measurer	XUYAO	HS-1	N/A	2026-05-09
Stop watch	KISLO	K610	N/A	2026-04-10
Digital Anemometer	TECMAN	TD8901	026141	2025-09-05

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).

2 Test conducted and method

2.1 Ambient Condition

The ambient temperature in which measurements are being taken was maintained at 25°C ±1°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=20K (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: HCB1UKBP2403C3B, 3000K

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.00	60	1.997	238.87	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
37430.33	156.7	2928

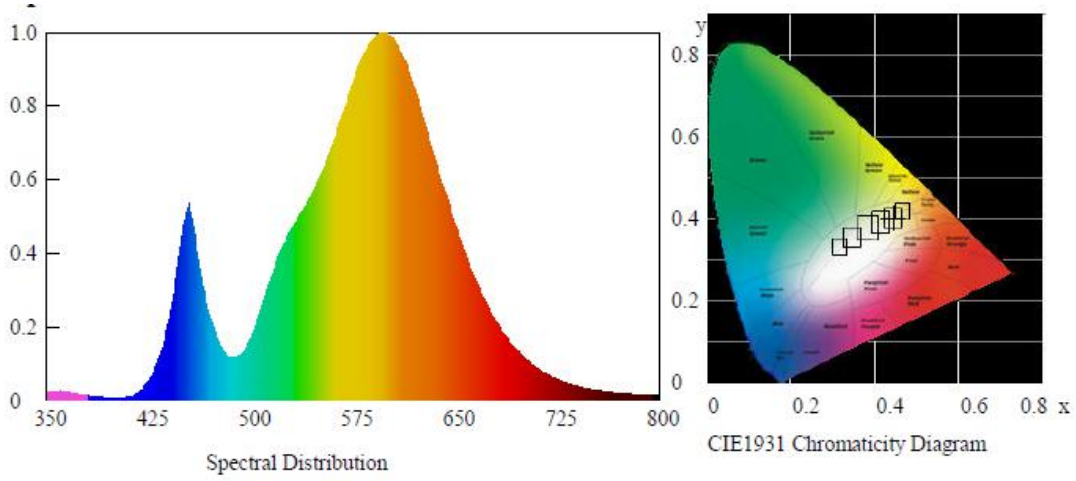
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00139	0.4400	0.4016	0.2536	0.5209

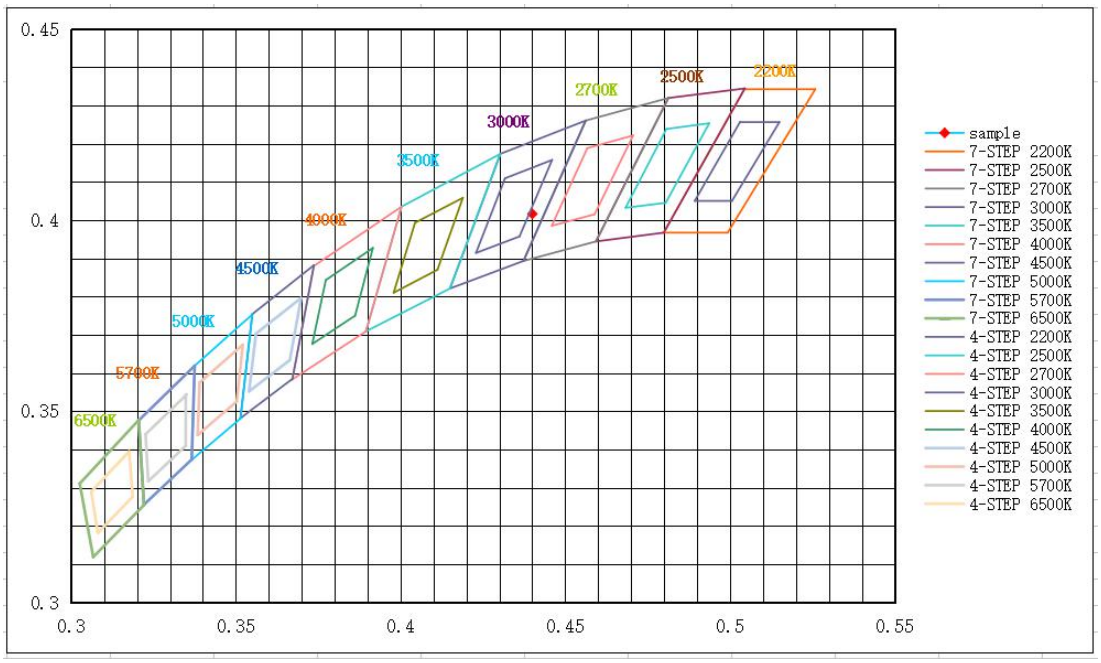
Color Rendering

CRI	R9	Rf	Rg	Rcs,h1(%)
73.5	-26	77	94	-16

Spectral Distribution

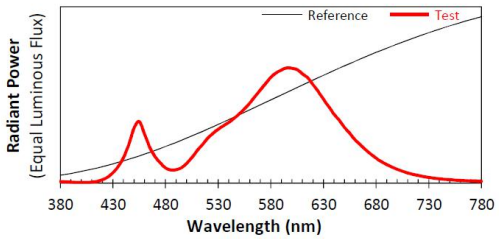


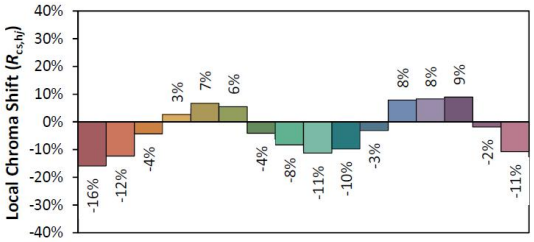
7/4 Step Quadrangle

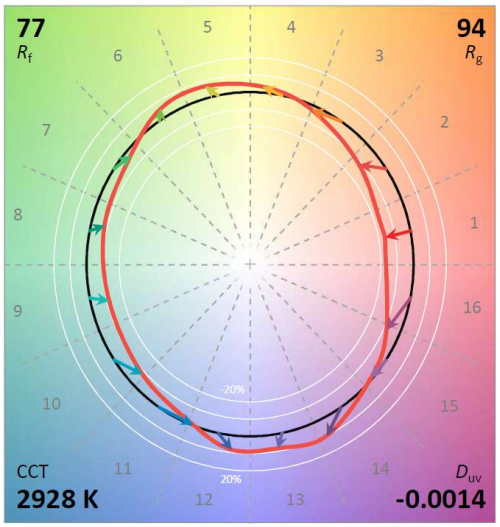


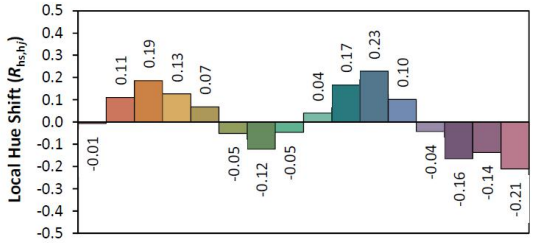
ANSI/IES TM-30-18 Color Rendition Report

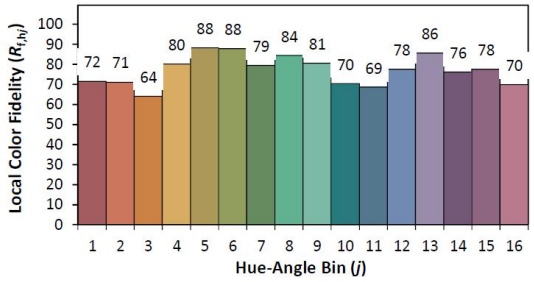
Source:	BL250606017-9	**Manufacturer:**	P.Q.L., Inc.
Date:	2025-07-15	**Model:**	HCB1UKBP2403C3B, 3000K

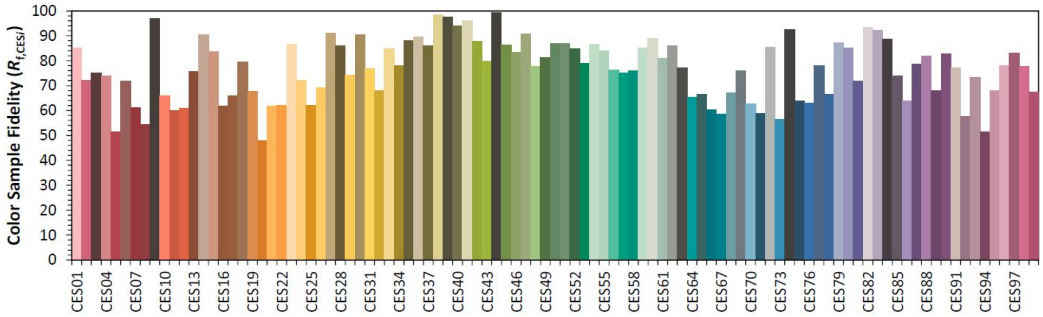












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4400
y	0.4016
u'	0.2536
v'	0.5209

CIE 13.3-1995 (CRI)

R_a	74
R_9	-26

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

3.1.2 Model Number: HCB1UKBP2403C3B, 4000K

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.11	60	1.958	234.67	0.998

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
41348.19	176.2	3788

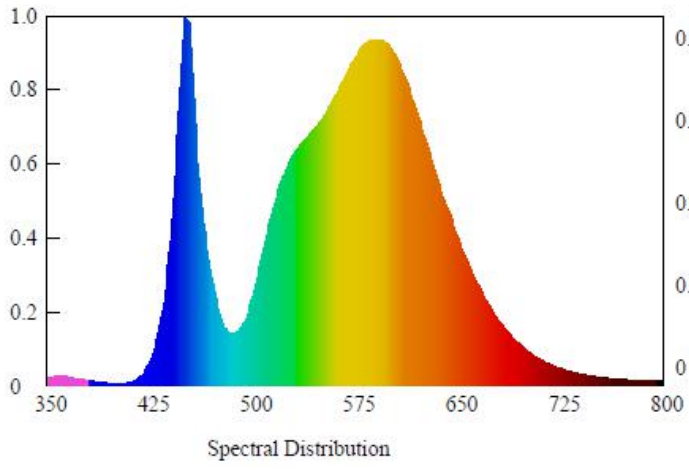
Chromaticity Coordinate

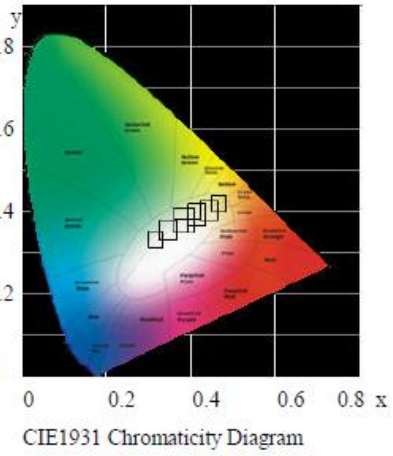
Duv	x	y	u'	v'
-0.00153	0.3890	0.3786	0.2300	0.5037

Color Rendering

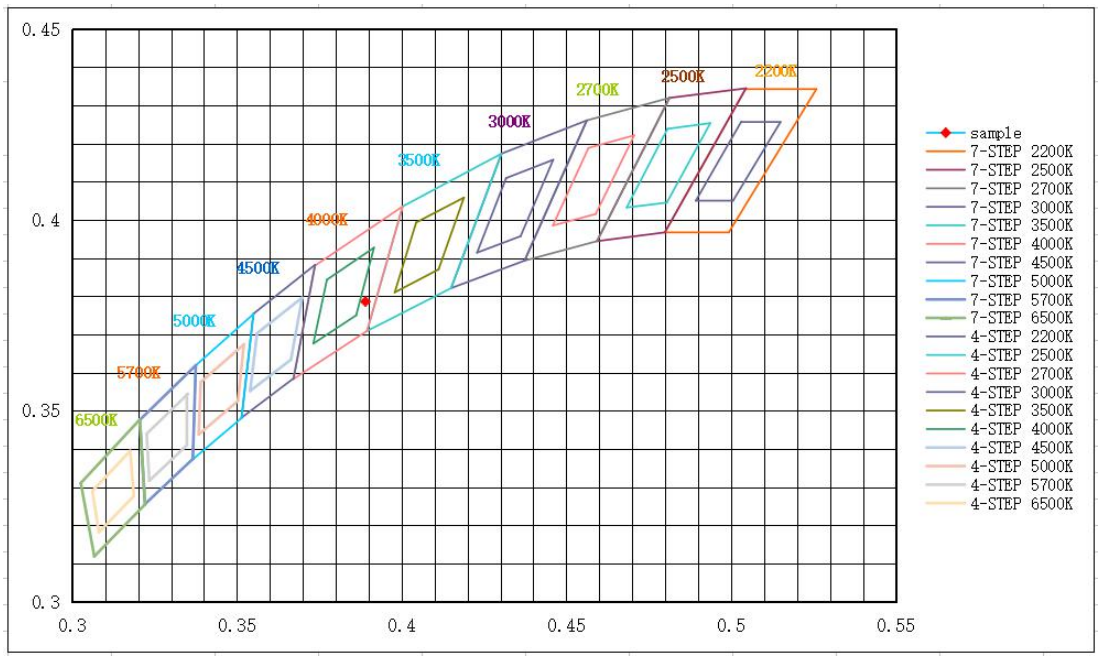
CRI	R9	Rf	Rg	Rcs,h1(%)
75.8	-18	77	94	-16

Spectral Distribution



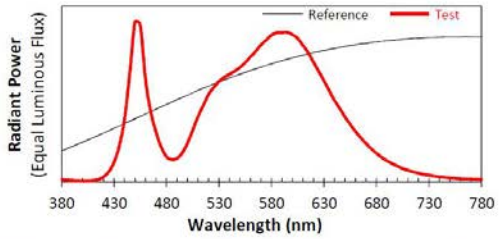


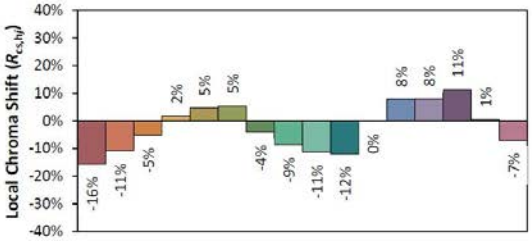
7/4 Step Quadrangle

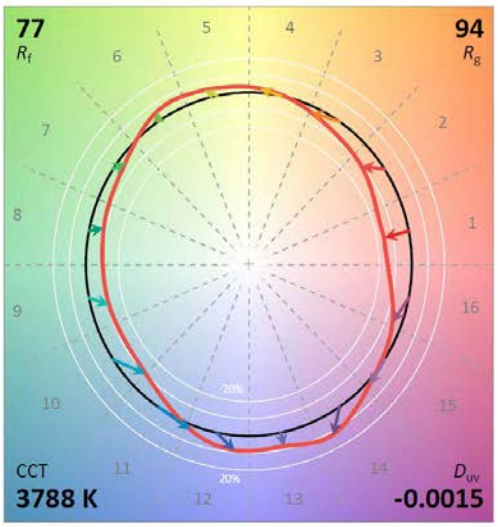


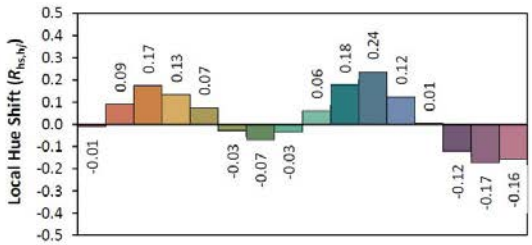
ANSI/IES TM-30-18 Color Rendition Report

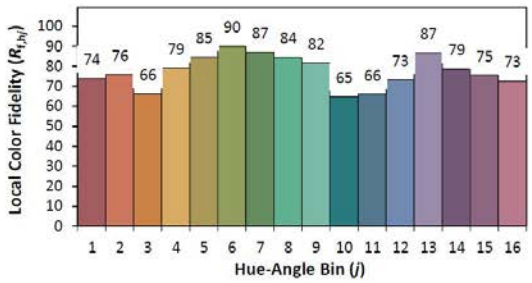
Source:	BL250606017-9	**Manufacturer:**	P.Q.L., Inc.
Date:	2025-07-15	**Model:**	HCB1UKBP2403C3B, 4000K

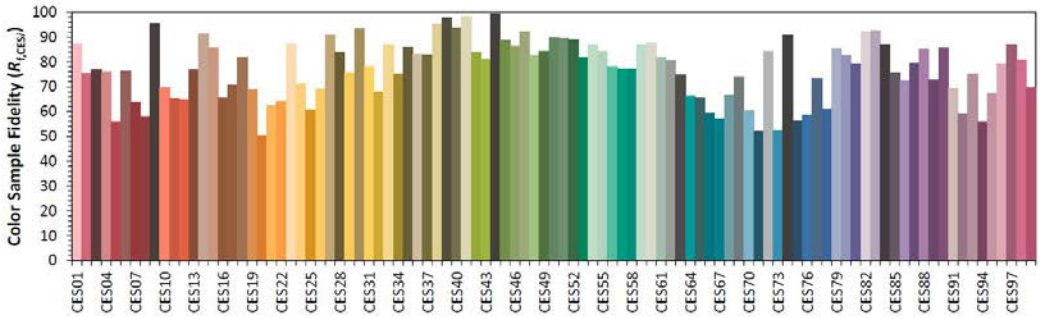












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3890
y	0.3786
u'	0.2300
v'	0.5037

CIE 13.3-1995 (CRI)

R_a	76
R_9	-18

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

3.1.3 Model Number: HCB1UKBP2403C3B, 5000K

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.12	60	1.994	239.01	0.998

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
39938.86	167.1	5286

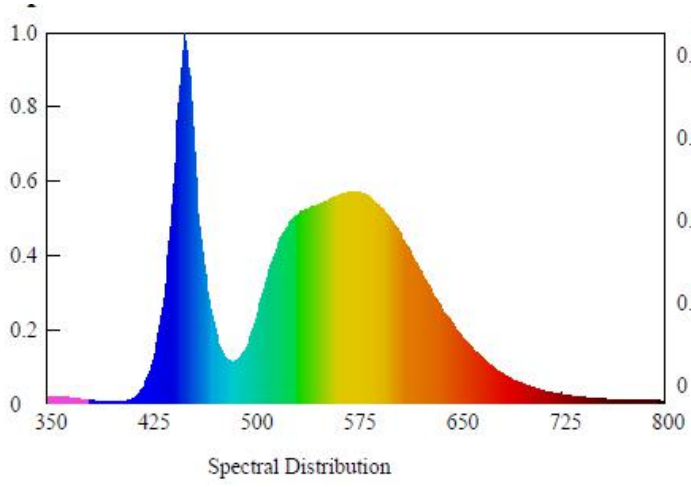
Chromaticity Coordinate

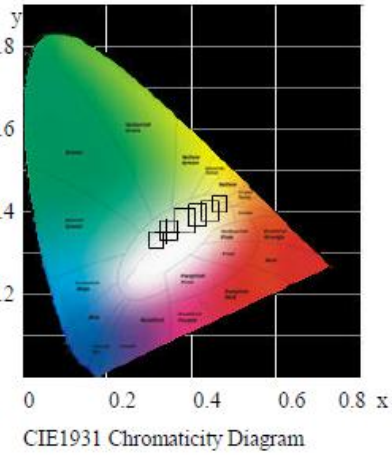
Duv	x	y	u'	v'
+0.00252	0.3378	0.3506	0.2069	0.4831

Color Rendering

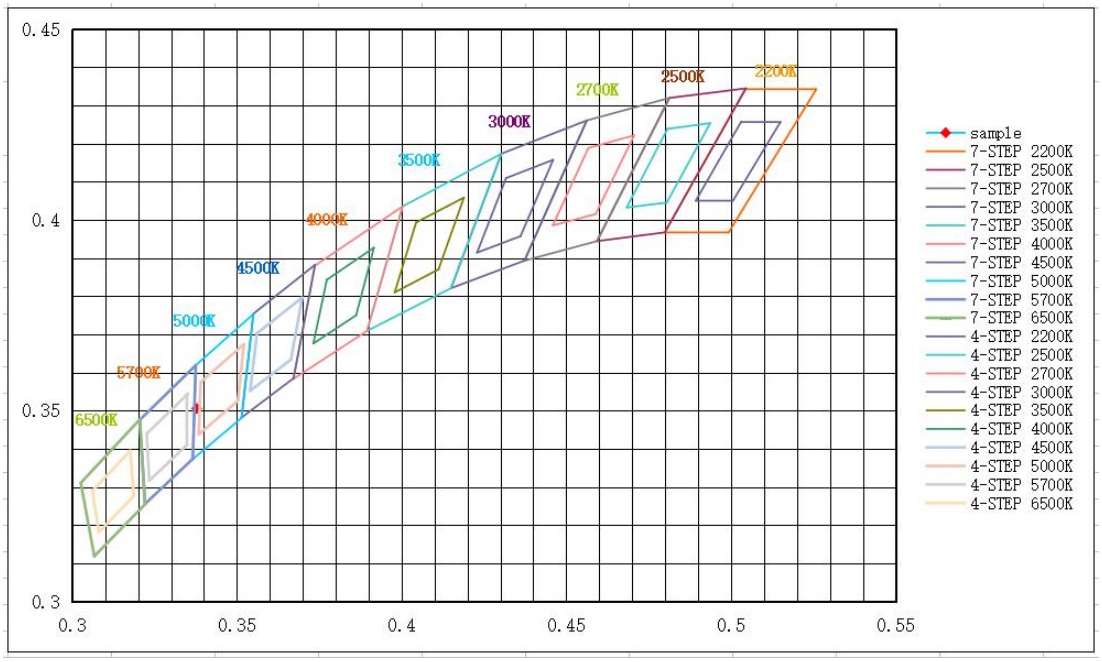
CRI	R9	Rf	Rg	Rcs,h1(%)
73.4	-29	75	94	-18

Spectral Distribution



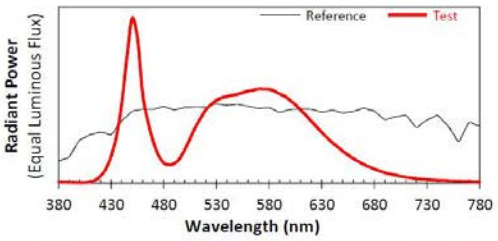


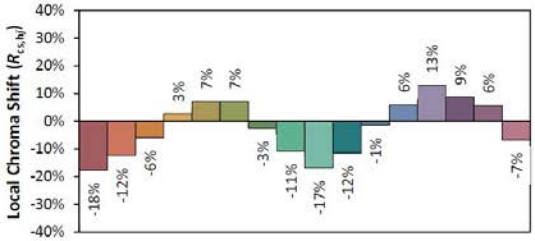
7/4 Step Quadrangle

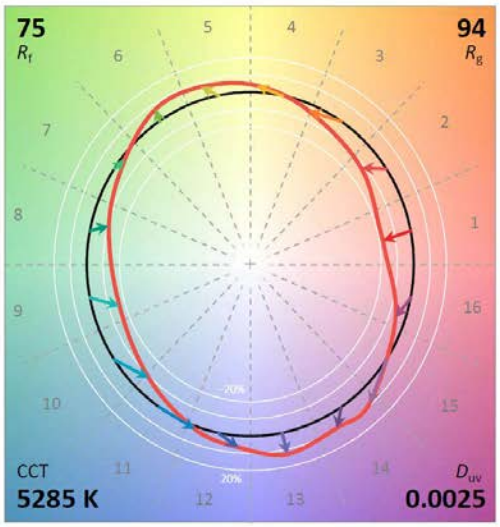


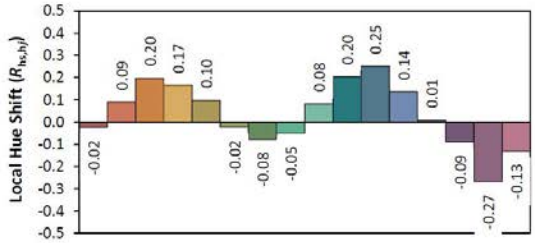
ANSI/IES TM-30-18 Color Rendition Report

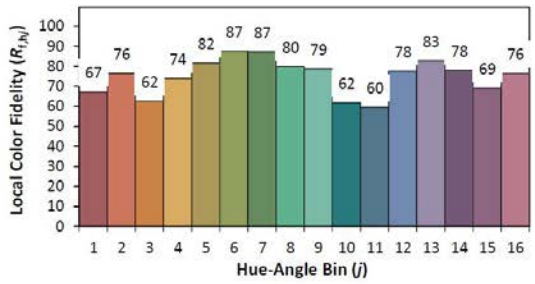
Source:	BL250606017-9	**Manufacturer:**	P.Q.L., Inc.
Date:	2025-07-15	**Model:**	HCB1UKBP2403C3B, 5000K

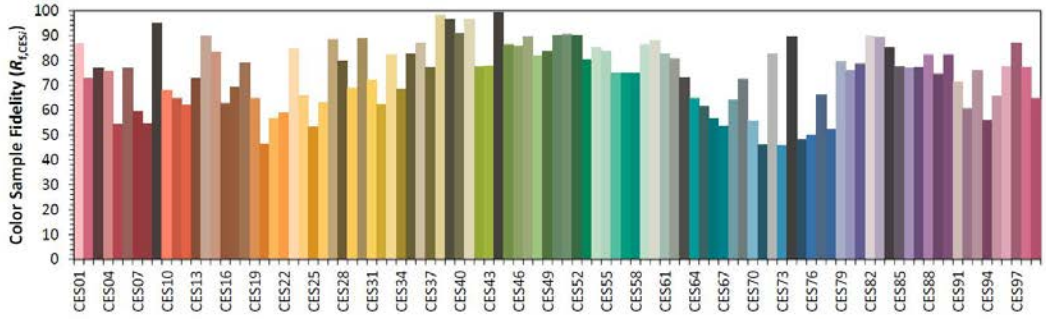












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3378
y	0.3506
u'	0.2069
v'	0.4831

CIE 13.3-1995 (CRI)

R_a	73
R_9	-29

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

3.1.4 Model Number: HCB1HKBP2403C3B, 3000K

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
200.05	60	1.196	238.47	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
37654.99	157.9	2938

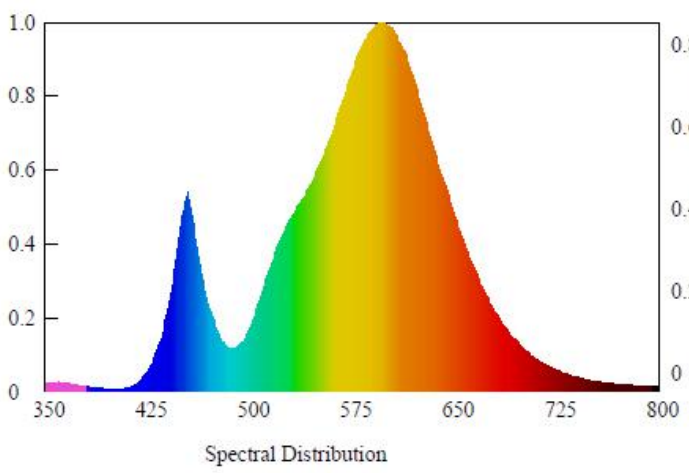
Chromaticity Coordinate

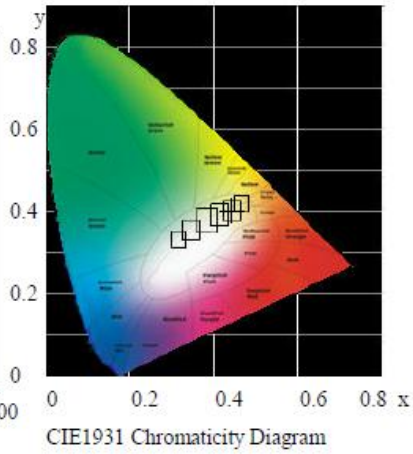
Duv	x	y	u'	v'
-0.00149	0.4392	0.4011	0.2533	0.5205

Color Rendering

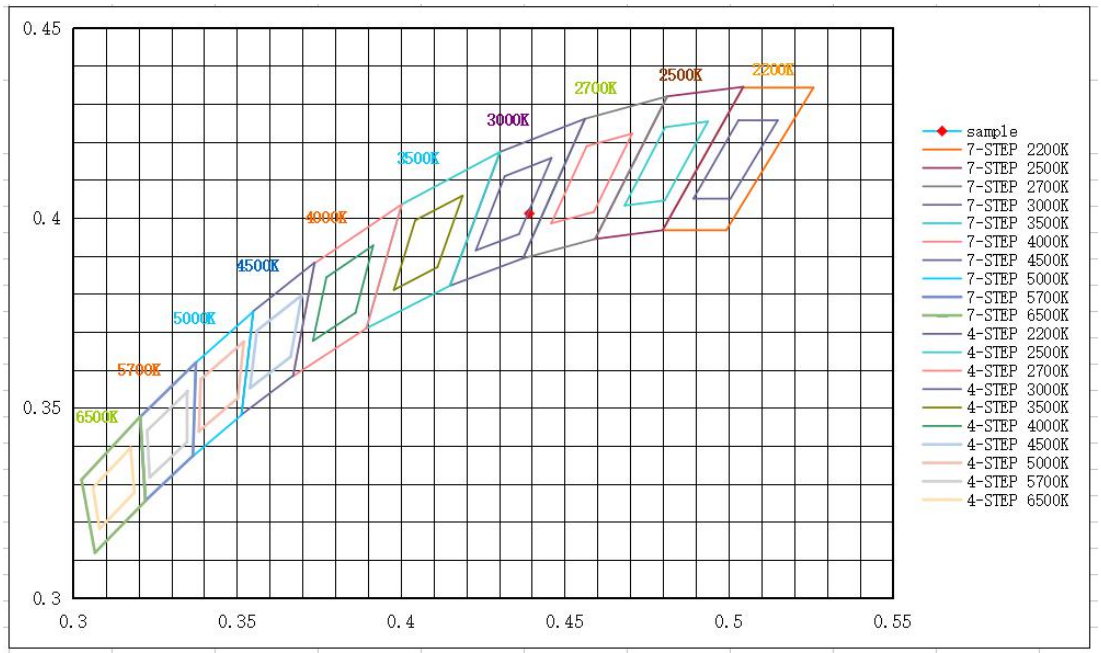
CRI	R9	Rf	Rg	Rcs,h1(%)
73.7	-25	77	94	-16

Spectral Distribution



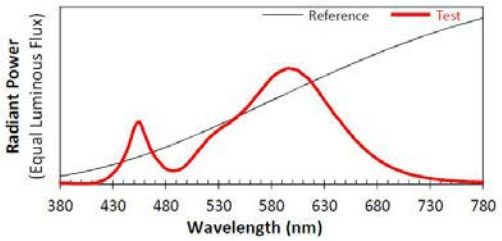


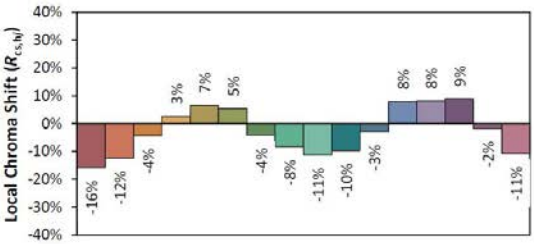
7/4 Step Quadrangle

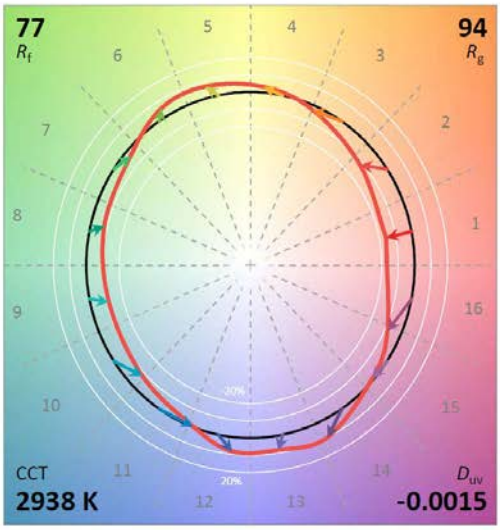


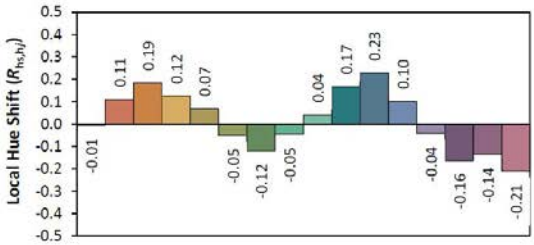
ANSI/IES TM-30-18 Color Rendition Report

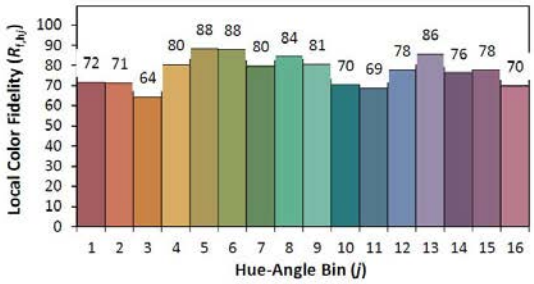
Source:	BL250606017-9	**Manufacturer:**	P.Q.L., Inc.
Date:	2025-07-15	**Model:**	HCB1HKBP2403C3B, 3000K

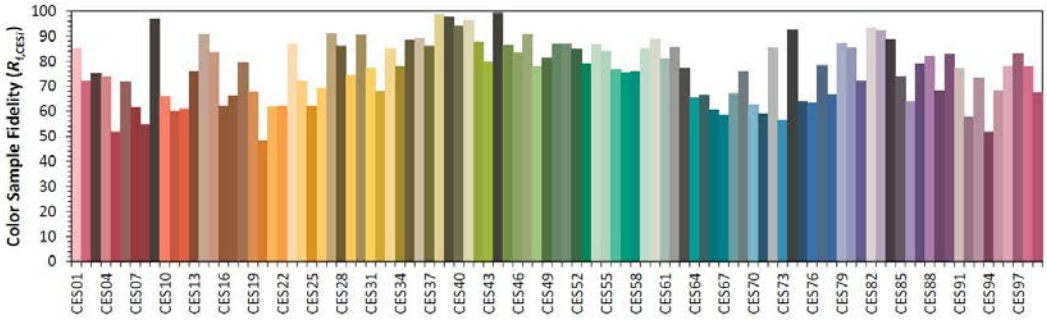












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4392
y	0.4011
u'	0.2533
v'	0.5205

CIE 13.3-1995 (CRI)

R_a	74
R_9	-25

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: HCB1HKBP2403C3B, 3000K

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
200.09	60	1.1960	238.44	0.9967

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	Zonal Lumen in 20-50°(%lm)
37634.07	157.83	62.84

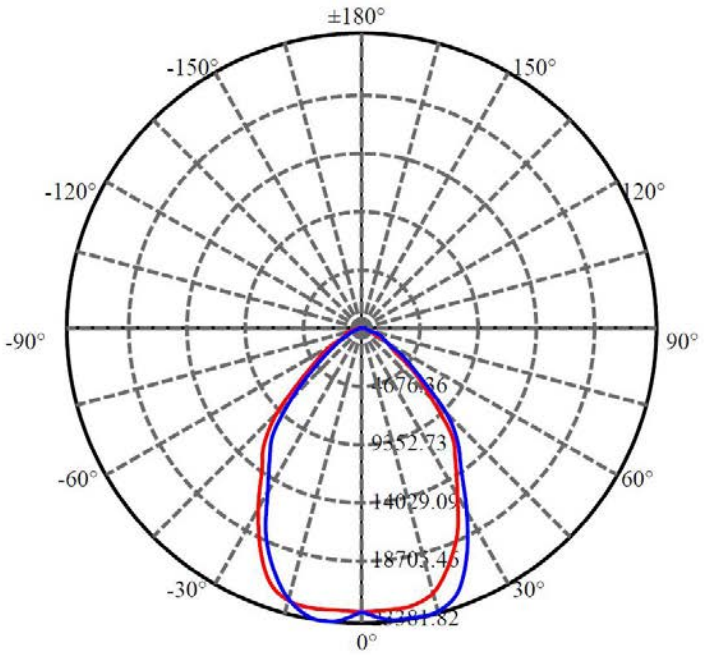
Zonal Flux Diagram

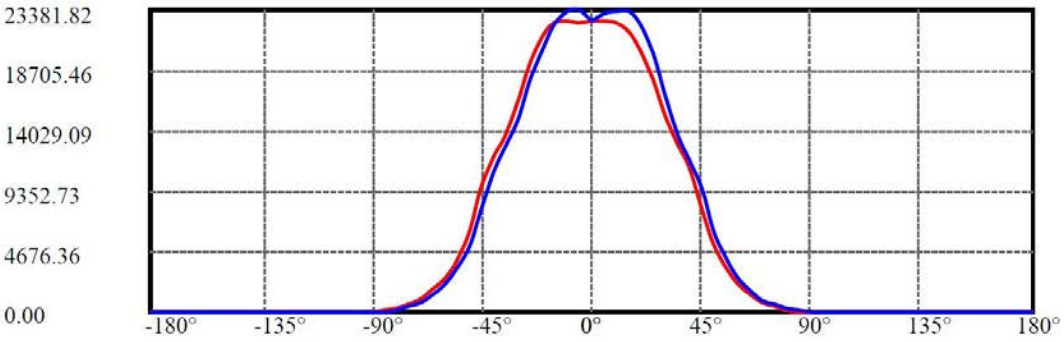
Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	22561.131	0.000	0	0.00%	0.00%
5.0	22598.869	539.875	539.875	0.00%	1.43%
10.0	22582.748	1616.289	2156.164	0.00%	5.73%
15.0	22161.639	2654.207	4810.37	0.00%	12.78%
20.0	20860.111	3545.597	8355.967	0.00%	22.20%
25.0	18599.803	4138.617	12494.584	0.00%	33.20%
30.0	15801.079	4353.460	16848.044	0.00%	44.77%
35.0	13114.451	4258.014	21106.058	0.00%	56.08%
40.0	11272.526	4068.783	25174.841	0.00%	66.89%
45.0	9256.675	3801.148	28975.989	0.00%	76.99%
50.0	5734.721	3029.231	32005.22	0.00%	85.04%
55.0	3678.023	2046.644	34051.864	0.00%	90.48%
60.0	2343.563	1391.873	35443.736	0.00%	94.18%
65.0	1429.073	917.135	36360.871	0.00%	96.62%
70.0	838.402	574.139	36935.011	0.00%	98.14%
75.0	458.683	339.037	37274.048	0.00%	99.04%
80.0	200.908	176.488	37450.536	0.00%	99.51%
85.0	57.537	70.226	37520.762	0.00%	99.70%
90.0	3.125	16.610	37537.372	0.00%	99.74%
95.0	2.877	1.643	37539.015	0.00%	99.75%
100.0	3.150	1.638	37540.653	0.00%	99.75%
105.0	3.869	1.878	37542.53	0.00%	99.76%
110.0	5.109	2.347	37544.877	0.00%	99.76%
115.0	6.795	3.014	37547.891	0.00%	99.77%
120.0	9.474	3.955	37551.846	0.00%	99.78%
125.0	12.475	5.073	37556.92	0.00%	99.80%
130.0	16.219	6.239	37563.159	0.00%	99.81%
135.0	20.436	7.407	37570.565	0.00%	99.83%
140.0	25.396	8.486	37579.051	0.00%	99.85%
145.0	30.678	9.355	37588.407	0.00%	99.88%
150.0	35.688	9.773	37598.18	0.00%	99.90%
155.0	40.276	9.613	37607.793	0.00%	99.93%
160.0	43.426	8.779	37616.572	0.00%	99.95%
165.0	45.410	7.321	37623.893	0.00%	99.97%
170.0	47.096	5.487	37629.38	0.00%	99.99%
175.0	49.675	3.462	37632.842	0.00%	100.00%
180.0	52.869	1.226	37634.068	0.00%	100.00%

Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]





C0/C180:

C90/C270:

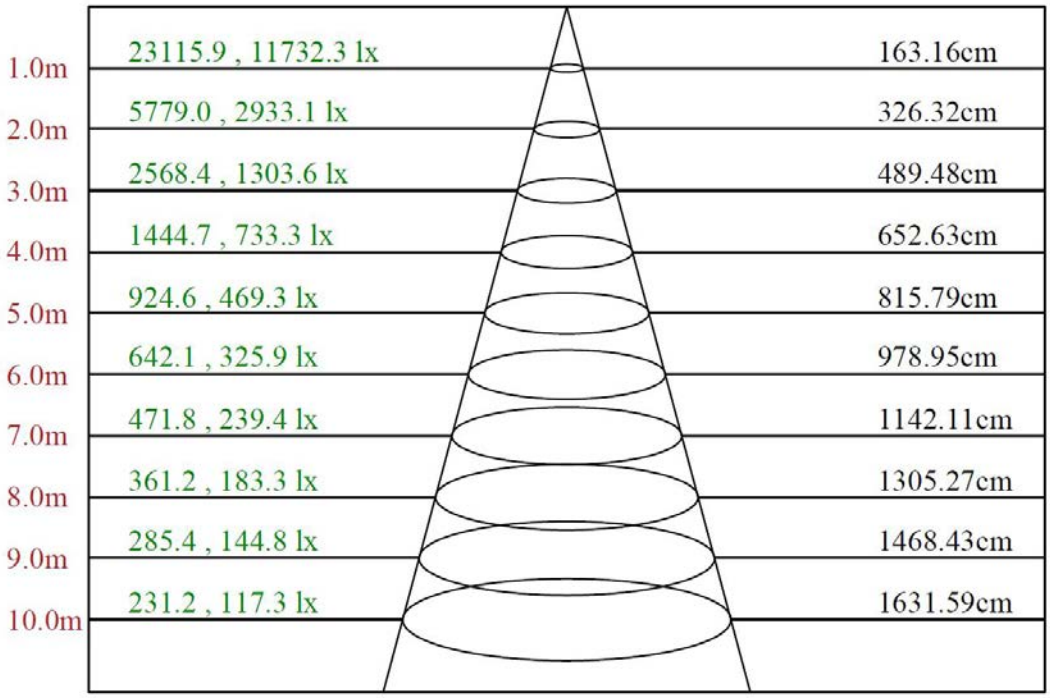
Field angle(10%Imax):C0/180Left:62.1 Right:59.7

:C90/270Left:59.4 Right:61.5

Beam Angle(50%Imax):C0/180Left:41.6 Right:39.5

:C90/270Left:38.9 Right:40.9

Lux distance Curve



Max , Ave Beam angle of C270 plane 78.41

UGR Glare

Illumination assessment according UGR											
Rf of Ceiling		70	70	50	50	30	70	70	50	50	30
Rf of Wall		50	30	50	30	30	50	30	50	30	30
Rf of Floor		20	20	20	20	20	20	20	20	20	20
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	23.99	25.31	24.35	25.63	25.95	25.14	26.47	25.51	26.79	27.11
	3H	24.47	25.65	24.85	25.99	26.34	25.67	26.85	26.06	27.20	27.55
	4H	24.56	25.66	24.96	26.01	26.38	25.79	26.88	26.19	27.24	27.61
	6H	24.59	25.59	25.00	25.97	26.37	25.84	26.84	26.25	27.22	27.62
	8H	24.54	25.51	24.96	25.89	26.30	25.80	26.77	26.22	27.15	27.56
	12H	24.49	25.41	24.92	25.81	26.23	25.76	26.68	26.18	27.07	27.49
4H	2H	24.19	25.28	24.59	25.64	26.01	25.22	26.32	25.62	26.68	27.05
	3H	24.75	25.66	25.18	26.06	26.48	25.86	26.77	26.28	27.16	27.58
	4H	24.93	25.72	25.37	26.14	26.59	26.07	26.86	26.51	27.28	27.73
	6H	24.94	25.64	25.41	26.09	26.54	26.11	26.81	26.58	27.26	27.71
	8H	24.92	25.57	25.41	26.03	26.51	26.11	26.76	26.59	27.22	27.69
	12H	24.90	25.50	25.39	25.95	26.47	26.10	26.70	26.58	27.15	27.67
8H	4H	24.91	25.56	25.40	26.02	26.49	26.01	26.66	26.49	27.11	27.59
	6H	24.94	25.48	25.44	25.96	26.47	26.06	26.60	26.57	27.08	27.59
	8H	24.98	25.45	25.51	25.97	26.47	26.12	26.59	26.65	27.11	27.61
	12H	24.96	25.34	25.49	25.86	26.38	26.11	26.50	26.65	27.02	27.54
12H	4H	24.89	25.49	25.37	25.94	26.46	25.97	26.57	26.46	27.02	27.54
	6H	24.96	25.42	25.48	25.94	26.44	26.07	26.54	26.60	27.06	27.56
	8H	24.96	25.35	25.50	25.87	26.39	26.09	26.48	26.63	27.00	27.52
Variation with the observer position at spacings:											
S = 1.0H		0.9/-1.6					2.8/-2.5				
S = 1.5H		1.7/-3.1					4.3/-3.9				
S = 2.0H		3.8/-4.0					6.0/-5.4				
Standard tables:		BK1					BK1				
Uncorrected UGR		9.7					9.6				

UGR calculation is based on CIE Publ. 117 ,S/H = 1

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	22561.13	22485.04	22401.71	21675.55	20143.88	17901.92	15259.19	12977.55	11112.56
22.5	22561.13	22421.55	22405.67	21917.60	20576.40	18401.90	15640.12	12918.03	11275.25
45.0	22561.13	22421.55	22469.16	22199.33	21084.31	18981.23	16278.98	13144.21	11259.38
67.5	22561.13	22338.21	22449.32	22290.60	21389.85	19278.84	16433.74	13473.56	11680.00
90.0	22561.13	23155.64	23242.94	23219.13	22286.63	19889.92	16822.61	13668.00	11711.74
112.5	22561.13	22727.09	22818.35	22834.22	21996.96	19675.64	16687.69	13398.17	11584.76
135.0	22561.13	22512.81	22604.08	22576.30	21699.36	19528.83	16596.43	13509.27	11636.35
157.5	22561.13	22421.55	22489.00	22409.64	21425.56	19294.71	16628.17	13794.97	11941.89
180.0	22561.13	22385.83	22473.13	22314.41	21322.39	19147.89	16390.09	13703.71	12064.90
202.5	22561.13	22393.77	22437.42	22215.21	21127.96	19005.04	16183.75	13374.36	11465.72
225.0	22561.13	22401.71	22409.64	22036.64	20782.73	18552.68	15834.56	13072.79	11322.87
247.5	22561.13	22362.02	22306.47	21719.20	20219.27	18048.74	15338.55	12945.81	11295.09
270.0	22561.13	23381.82	23227.06	22278.70	20354.18	17842.40	14961.59	12814.86	10834.80
292.5	22561.13	22933.43	22738.99	21814.43	19901.82	17354.33	14505.26	12263.30	10342.76
315.0	22561.13	22711.21	22481.07	21532.70	19687.55	17243.22	14421.93	12152.20	10326.89
337.5	22561.13	22528.68	22369.96	21552.54	19762.94	17449.56	14834.61	12620.43	10505.45
360.0	22561.13	22485.04	22401.71	21675.55	20143.88	17901.92	15259.19	12977.55	11112.56

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	7878.19	5191.82	3332.38	2194.34	1349.14	782.50	407.92	164.28	39.68
22.5	17207.51	5590.61	3490.31	2147.91	1227.32	700.76	382.52	170.63	47.22
45.0	9080.91	5850.12	3672.05	2292.35	1429.69	844.40	459.90	189.28	55.55
67.5	9442.01	6149.31	4015.68	2626.46	1603.89	911.46	494.82	211.50	62.30
90.0	9410.26	6303.27	3997.82	2541.55	1567.78	919.80	512.67	240.86	76.98
112.5	9501.53	6128.68	3866.88	2497.90	1553.10	912.26	524.98	251.18	84.52
135.0	9338.84	6319.14	4069.25	2497.90	1504.69	949.96	553.15	252.37	82.14
157.5	9354.71	6382.63	4279.56	2767.73	1707.06	972.57	544.42	245.62	79.76
180.0	9557.08	6196.13	3989.89	2668.52	1692.38	1031.30	563.47	246.42	75.00
202.5	9029.33	6073.12	3835.13	2370.92	1422.55	829.72	456.72	215.86	66.27
225.0	8719.82	5767.58	3720.06	2374.89	1452.31	847.98	468.23	199.99	54.36
247.5	8735.69	5727.90	3787.52	2482.02	1516.20	874.56	460.30	188.48	47.62
270.0	7874.23	5132.69	3271.67	2107.84	1287.64	737.27	397.60	172.21	40.87
292.5	7598.05	4825.96	3015.73	1866.97	1094.79	664.65	357.92	151.18	35.71
315.0	7632.17	4931.11	3130.01	1951.49	1209.47	726.16	379.35	157.53	35.71
337.5	7746.45	5185.47	3374.44	2108.23	1247.16	709.09	374.98	157.14	36.90
360.0	7878.19	5191.82	3332.38	2194.34	1349.14	782.50	407.92	164.28	39.68

C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	2.78	2.78	3.57	3.97	5.95	7.14	9.92	13.49	17.06
22.5	2.78	2.78	3.57	3.97	5.16	7.14	9.92	13.49	17.46
45.0	3.17	2.78	3.57	4.37	5.16	6.75	10.32	12.70	16.67
67.5	3.17	2.78	3.17	3.97	5.16	7.14	9.52	12.30	15.87
90.0	3.17	3.17	2.78	3.57	4.76	6.35	8.73	11.90	15.48
112.5	3.57	3.17	3.57	3.57	4.76	6.35	8.33	11.51	15.08
135.0	3.57	2.78	2.78	3.17	4.76	5.95	8.33	11.90	14.29
157.5	3.57	2.38	2.78	3.97	4.76	6.35	8.33	11.11	14.68
180.0	3.57	2.78	3.17	3.17	4.76	5.95	8.73	11.11	14.68
202.5	2.38	2.78	2.38	3.97	4.76	6.75	8.73	11.51	15.87
225.0	2.78	3.17	2.78	3.97	4.76	6.35	9.52	11.90	16.27
247.5	2.78	2.78	3.17	3.97	5.16	6.75	9.13	12.30	16.27
270.0	3.17	2.78	3.17	4.37	5.16	7.14	10.71	13.10	17.86
292.5	3.57	2.78	3.17	3.97	5.56	7.54	10.32	13.89	17.06
315.0	2.78	3.17	3.17	3.97	5.56	7.54	10.32	13.89	17.46
337.5	3.17	3.17	3.57	3.97	5.56	7.54	10.71	13.49	17.46
360.0	2.78	2.78	3.57	3.97	5.95	7.14	9.92	13.49	17.06

C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	21.82	27.38	32.14	36.90	41.27	44.44	45.63	47.22	50.39
22.5	21.43	26.19	31.35	36.51	40.87	43.25	44.84	46.43	50.00
45.0	21.03	26.19	30.95	35.71	40.47	43.65	45.63	47.22	50.00
67.5	20.24	25.00	30.16	35.32	40.08	42.86	45.24	46.82	50.00
90.0	19.84	24.60	30.16	35.32	40.87	44.05	46.43	48.41	50.00
112.5	18.25	23.41	28.57	34.92	39.28	42.86	45.63	47.22	49.20
135.0	18.25	23.02	28.17	33.33	38.09	41.67	44.05	46.43	48.41
157.5	18.25	22.62	27.78	32.94	37.70	41.27	43.25	45.63	47.62
180.0	19.44	23.02	28.17	32.94	37.70	41.67	43.25	45.24	48.01
202.5	19.05	24.21	28.97	34.13	38.09	40.87	43.65	45.24	47.62
225.0	20.24	25.00	30.55	34.92	38.89	42.06	44.44	46.03	47.62
247.5	20.24	25.40	30.95	36.11	40.47	44.05	45.63	46.82	48.01
270.0	22.22	28.17	34.13	39.28	44.05	47.62	49.20	50.39	53.97
292.5	22.22	27.38	33.73	38.09	42.86	45.63	47.62	48.81	52.38
315.0	22.22	27.38	32.94	37.70	42.46	44.84	46.43	48.01	51.19
337.5	22.22	27.38	32.14	36.90	41.27	44.05	45.63	47.62	50.39
360.0	21.82	27.38	32.14	36.90	41.27	44.44	45.63	47.22	50.39

C/γ(°)	180.0
0.0	52.87
22.5	52.87
45.0	52.87
67.5	52.87
90.0	52.87
112.5	52.87
135.0	52.87
157.5	52.87
180.0	52.87
202.5	52.87
225.0	52.87
247.5	52.87
270.0	52.87
292.5	52.87
315.0	52.87
337.5	52.87
360.0	52.87

4 Additional Test

Electrical data

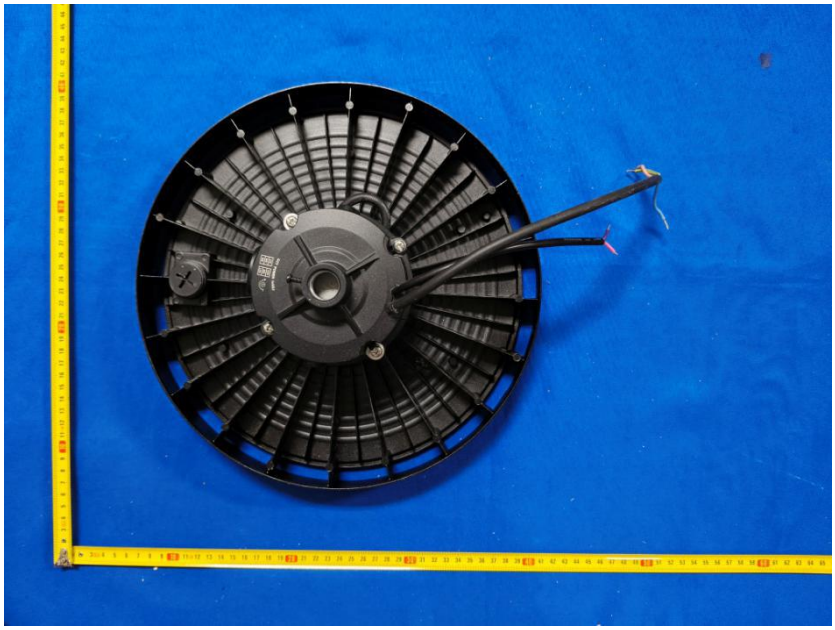
Model Number	CCT(K)	Test Voltage (V)	Frequency (Hz)	Power Factor	THD(%)
HCB1UKBP2403C3B	3000	120	60	0.998	1.9
		277	60	0.953	7.0
	4000	277	60	0.954	6.8
	5000	277	60	0.954	6.7
HCB1HKBP2403C3B	3000	200	60	0.995	5.8
		277	60	0.971	8.3
		347	60	0.945	9.9
		480	60	0.938	10.5

5 Data reporting for white-tunable submissions

(HCB1UKBP2403C3B)

ANSI CCT Quadrangle (omit any outside product range) / Worst-Case Value	Actual CCT (K)	Power Consumption (W)	Lumen Output (lm)	Input Control Signal Applied
3000K	2928	238.87	37430.33	0%
4000K	3788	234.67	41348.19	50%
5000K	5286	239.01	39938.86	100%
Lowest Efficacy	2928	238.87	37430.33	0%
Maximum Power	5286	239.01	39938.86	100%

Photo Document



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