Date of issue	2024-09-06
Version	1.0
Total pages	29

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.:

HCO2UKBP2403CG

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.

Sam Chen

Jason zhou

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	HCO2UKBP2403CG, HCO2XKBP2403CG, HCO2HKBP2403CG
Rated Inputs	AC 100-277V, AC 120-347V, 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	2024-08-16
Date of test	2024-08-19 to 2024-08-28
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
Goniophotometeric 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).

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: HCO2UKBP2403CG, 3000K

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.05	60	2.005	240.21	0.998

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
33821.77	140.8	2910

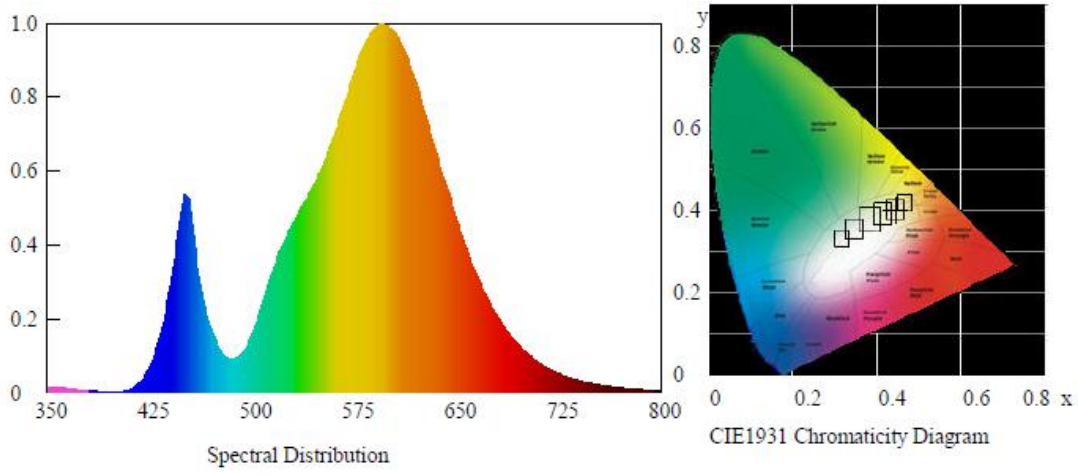
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00241	0.4398	0.3990	0.2547	0.5198

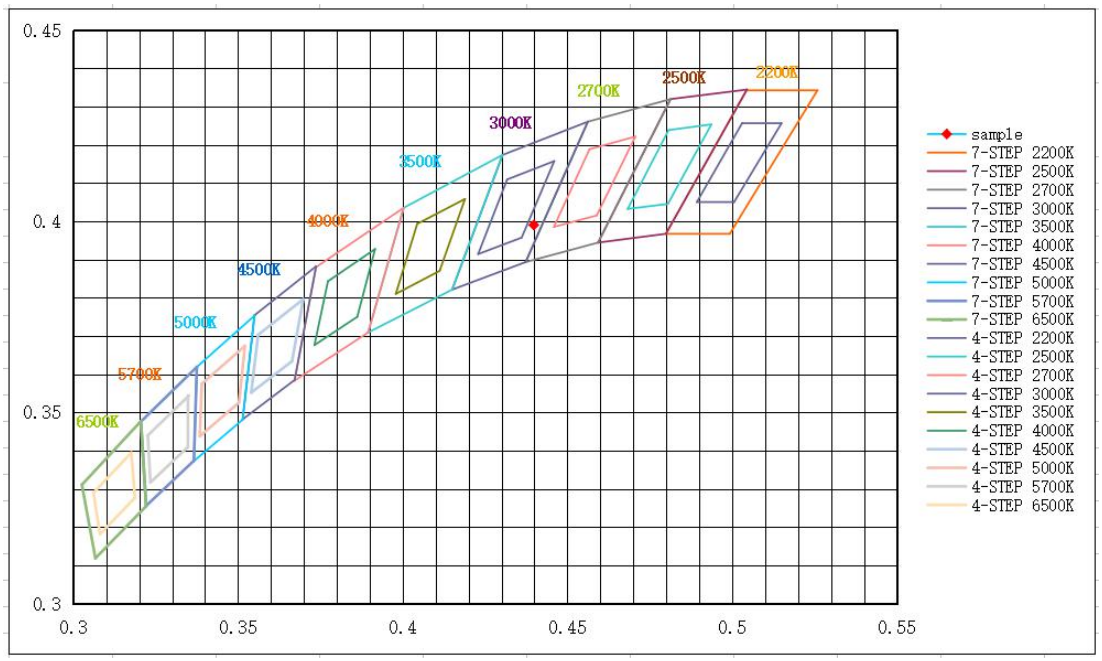
Color Rendering

CRI	R9	Rf	Rg	Rcs,h1(%)
72.2	-29	74	95	-16

Spectral Distribution

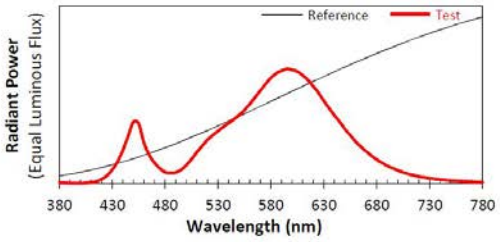


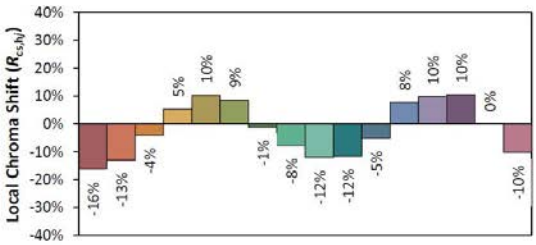
7/4 Step Quadrangle

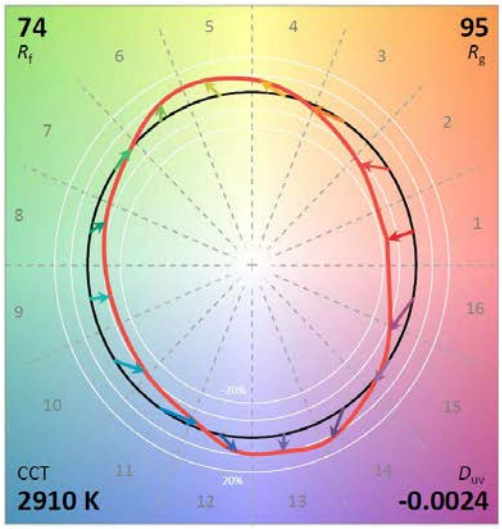


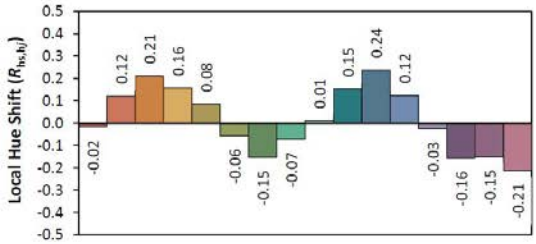
ANSI/IES TM-30-18 Color Rendition Report

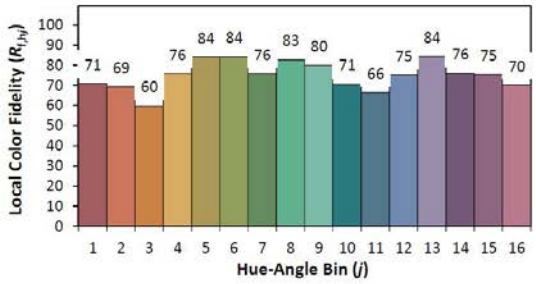
Source:	BL240816004-9	**Manufacturer:**	P.Q.L., Inc.
Date:	2024-09-06	**Model:**	HCO2UKBP2403CG, 3000K

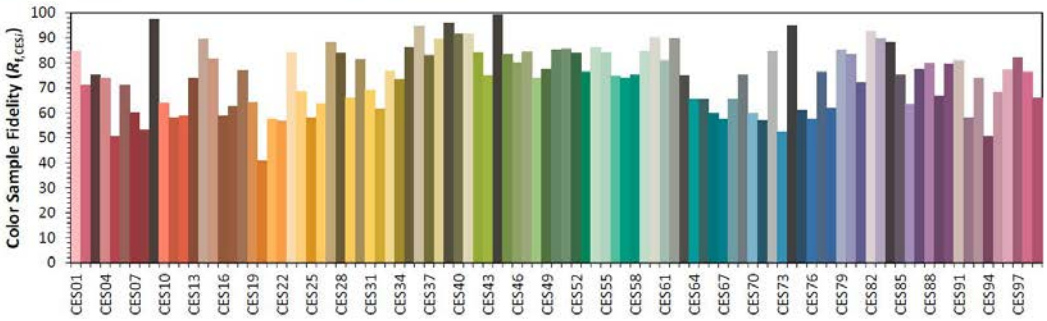












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4398
y	0.3990
u'	0.2547
v'	0.5198

CIE 13.3-1995 (CRI)

R_a	72
R_9	-29

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

3.1.2 Model Number: HCO2UKBP2403CG, 4000K

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.14	60	1.971	236.35	0.998

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
37981.32	160.7	3742

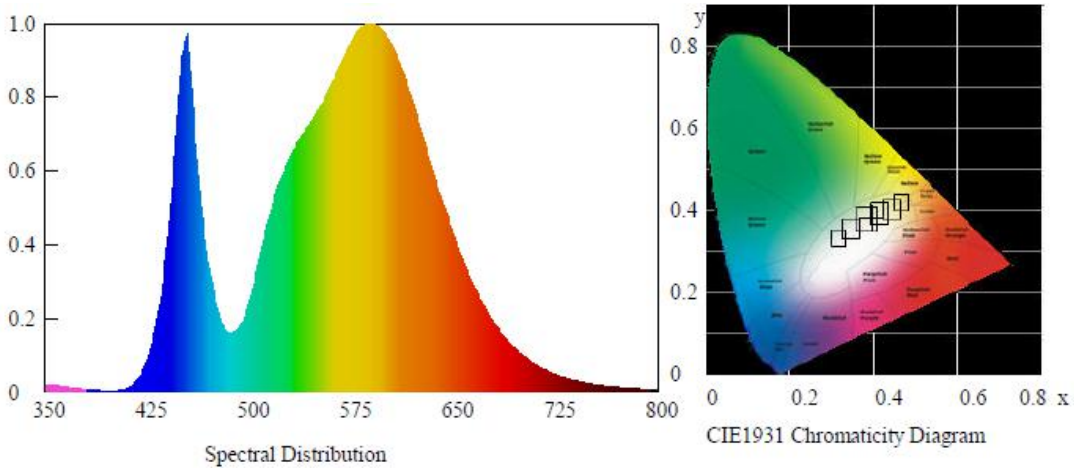
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00152	0.3912	0.3799	0.2310	0.5046

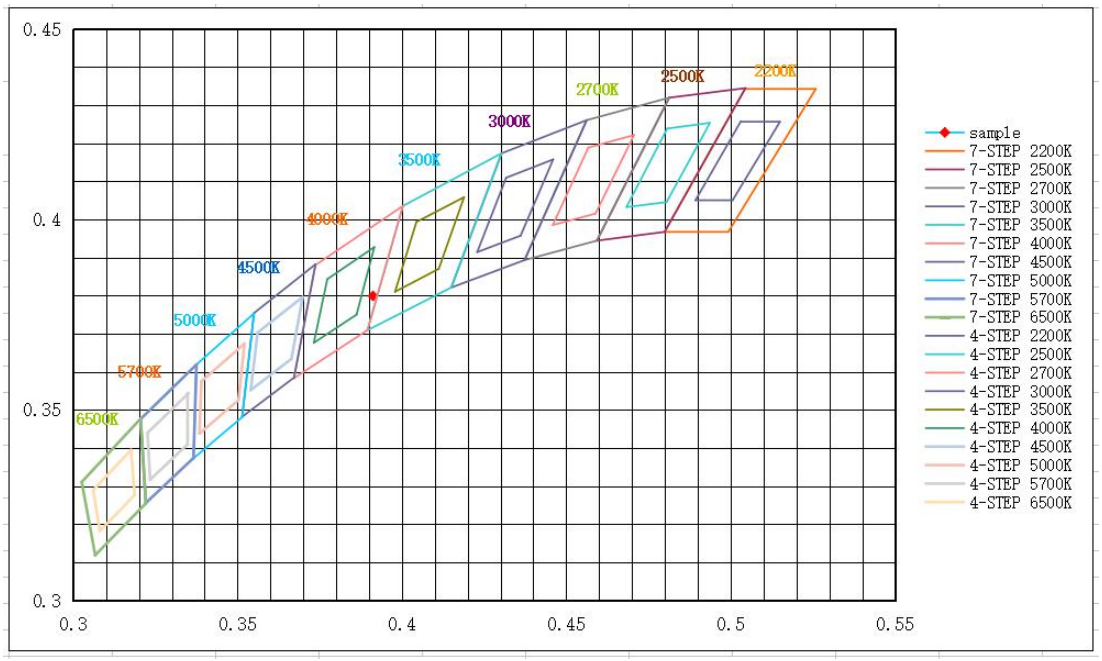
Color Rendering

CRI	R9	Rf	Rg	Rcs,h1(%)
75.0	-21	77	94	-16

Spectral Distribution

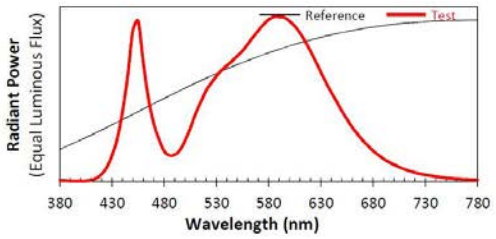


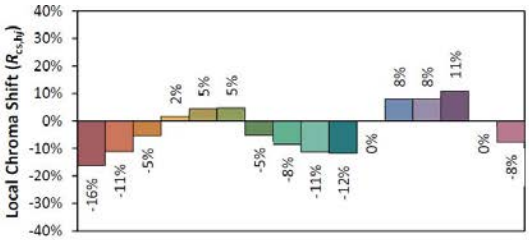
7/4 Step Quadrangle

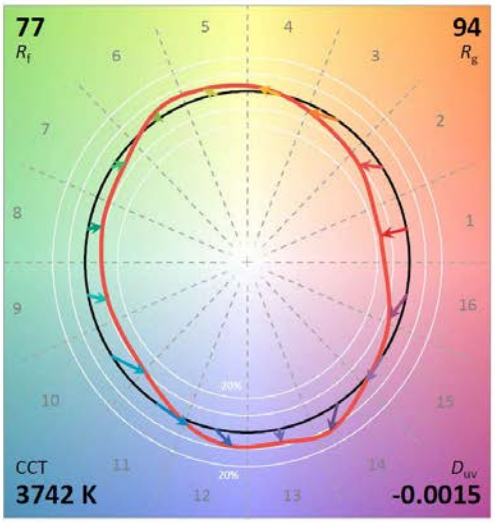


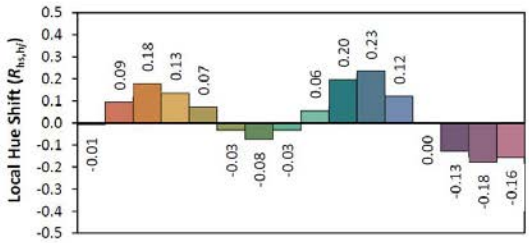
ANSI/IES TM-30-18 Color Rendition Report

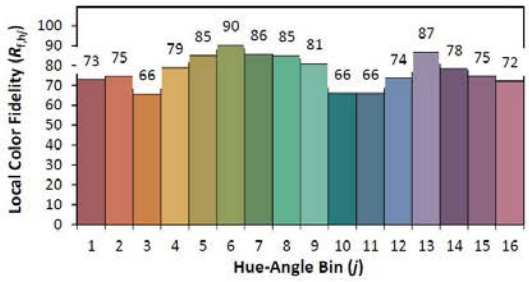
Source:	BL240816004-9	**Manufacturer:**	P.Q.L., Inc.
Date:	2024-09-06	**Model:**	HCO2UKBP2403CG, 4000K

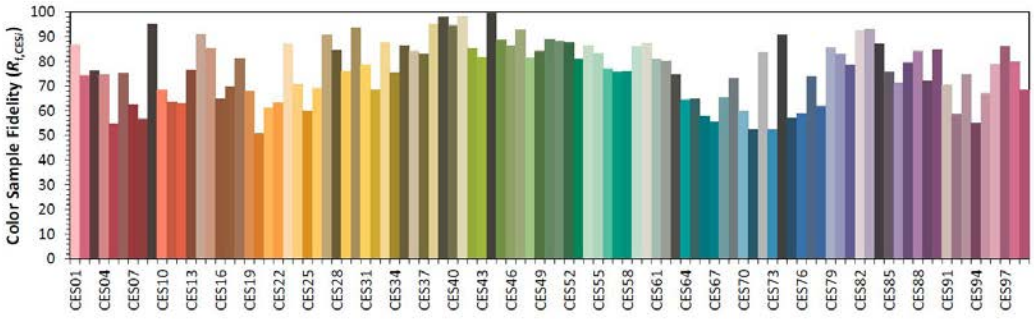












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3912
y	0.3799
u'	0.2310
v'	0.5046

CIE 13.3-1995 (CRI)

R_a	75
R_9	-21

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

3.1.3 Model Number: HCO2UKBP2403CG, 5000K

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.04	60	2.002	239.88	0.998

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
35070.27	146.2	5014

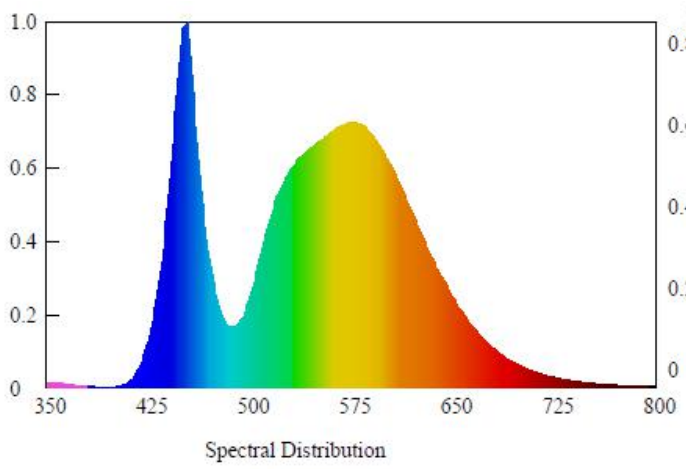
Chromaticity Coordinate

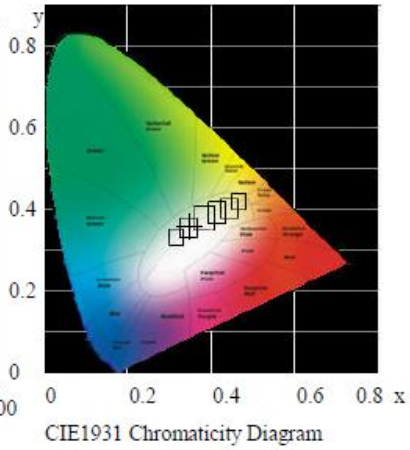
Duv	x	y	u'	v'
+0.00244	0.3452	0.3566	0.2096	0.4871

Color Rendering

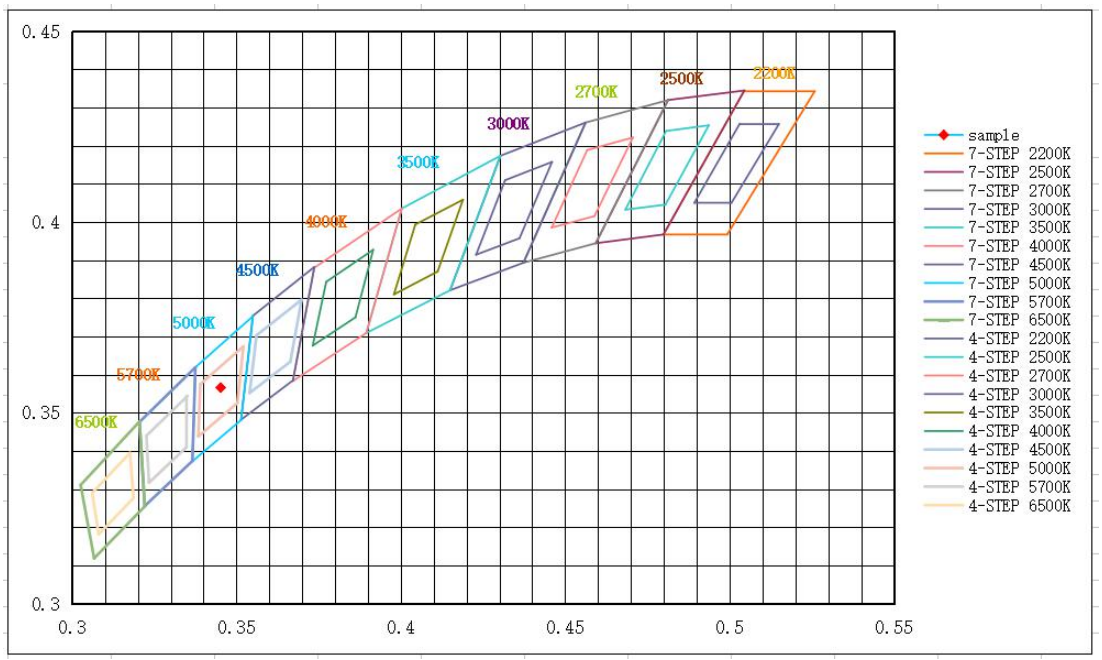
CRI	R9	Rf	Rg	Rcs,h1(%)
73.5	-31	75	93	-18

Spectral Distribution





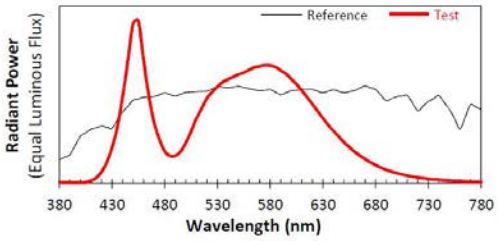
7/4 Step Quadrangle

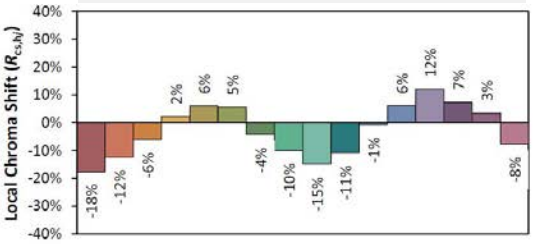


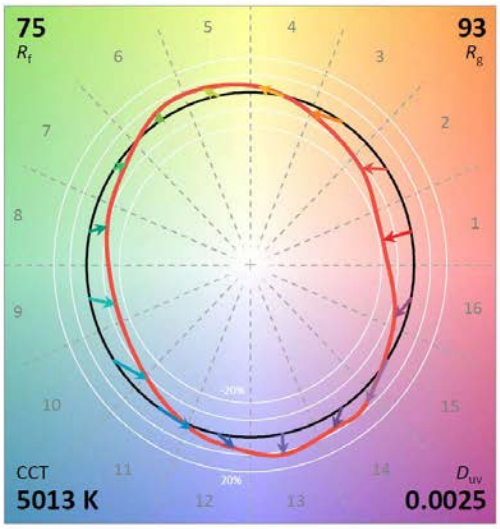
ANSI/IES TM-30-18 Color Rendition Report

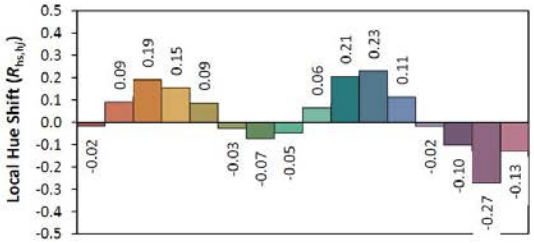
Source: BL240816004-9 **Manufacturer:** P.Q.L., Inc.

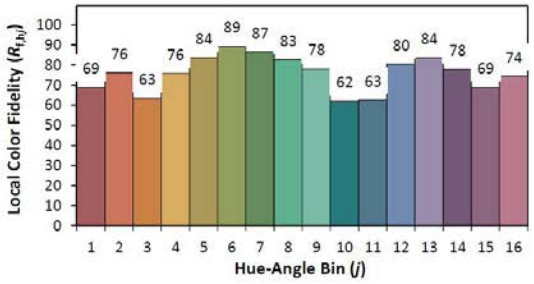
Date: 2024-09-06 **Model:** HCO2UKBP2403CG, 5000K

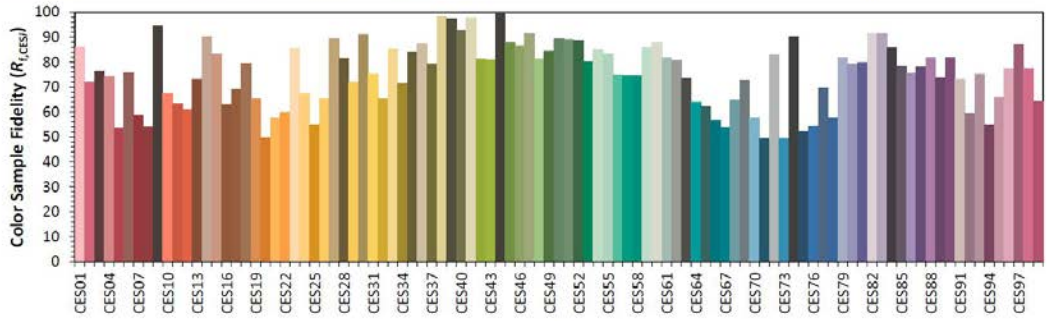












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3452
y	0.3566
u'	0.2096
v'	0.4871

CIE 13.3-1995 (CRI)

R_a	74
R_9	-31

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

3.1.4 Model Number: HCO2XKBP2403CG, 3000K

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.08	60	2.005	240.03	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
34060.40	141.9	2921

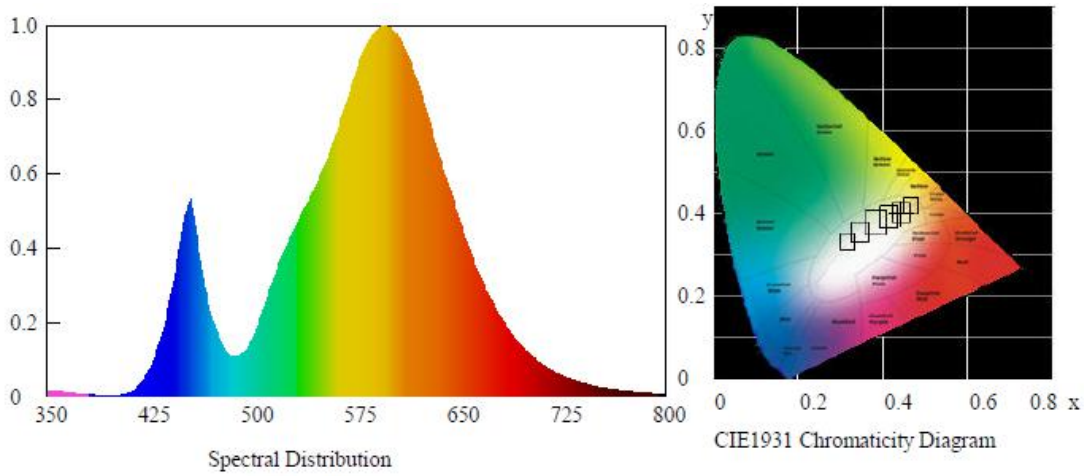
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00271	0.4386	0.3978	0.2544	0.5192

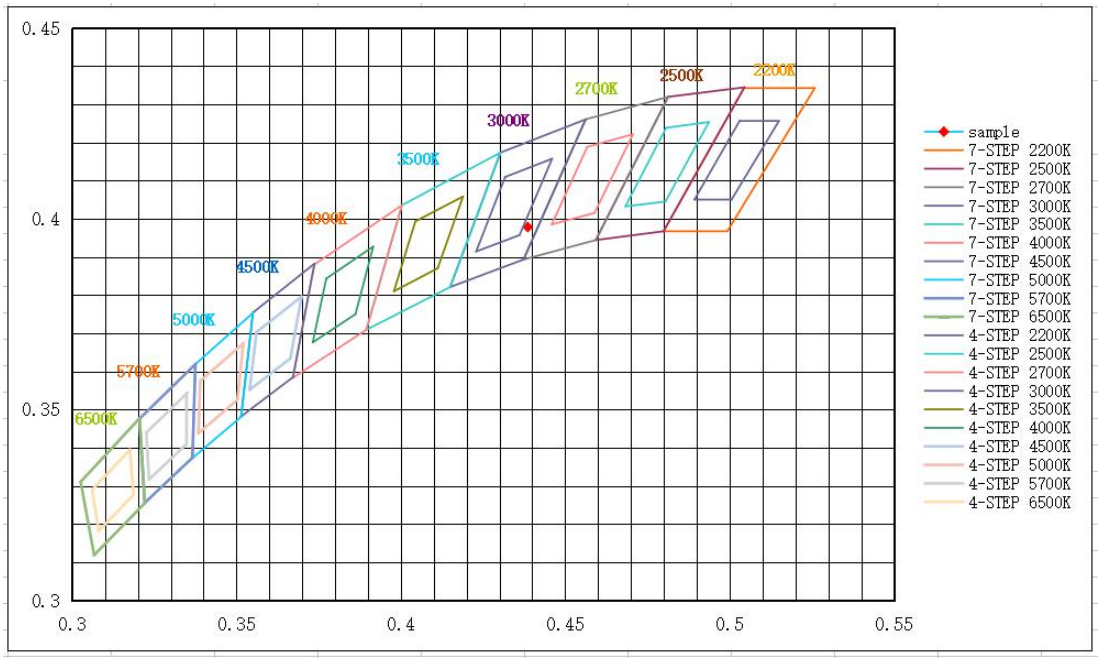
Color Rendering

CRI	R9	Rf	Rg	Rcs,h1(%)
72.3	-29	75	94	-16

Spectral Distribution

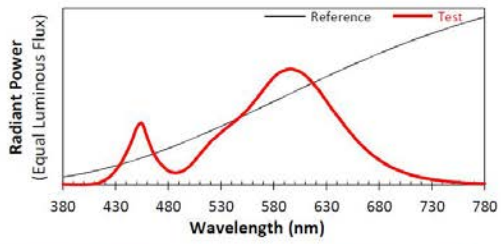


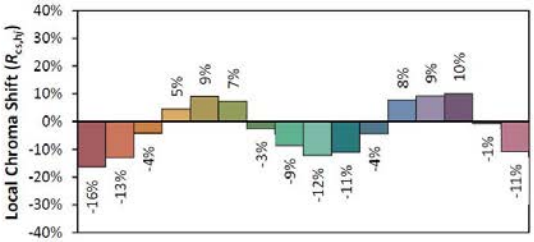
7/4 Step Quadrangle

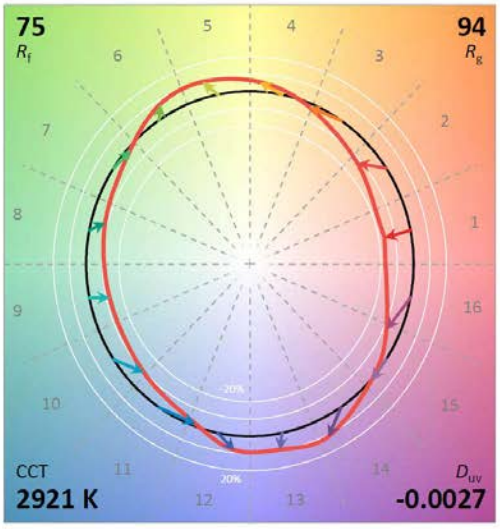


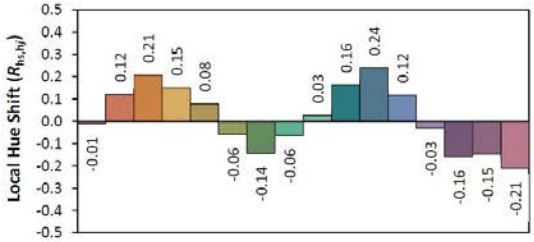
ANSI/IES TM-30-18 Color Rendition Report

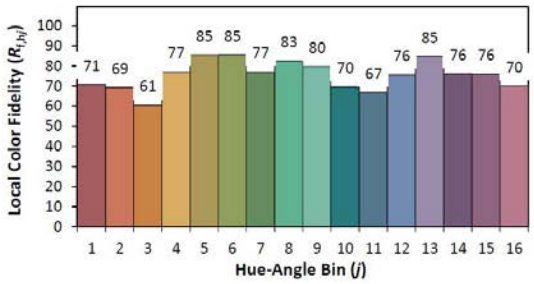
Source:	BL240816004-9	**Manufacturer:**	P.Q.L., Inc.
Date:	2024-09-06	**Model:**	HCO2HKBP2403CG, 3000K

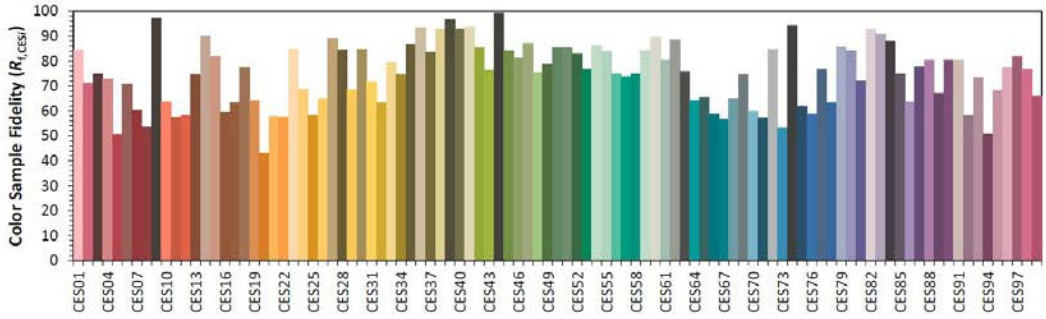












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4386
y	0.3978
u'	0.2544
v'	0.5192

CIE 13.3-1995 (CRI)

R_a	72
R_9	-29

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

3.1.5 Model Number: HCO2HKBP2403CG, 3000K

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
277.04	60	0.869	239.67	0.996

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
34152.95	142.5	2901

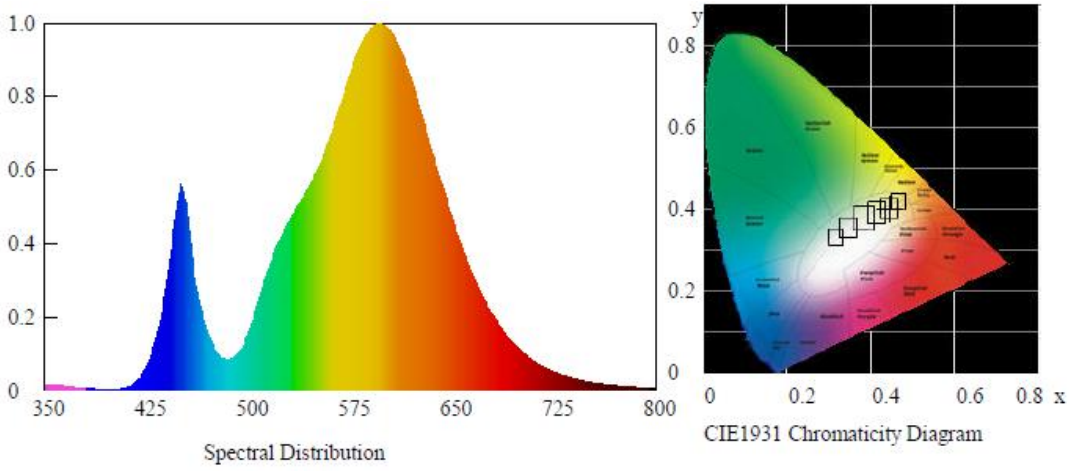
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00231	0.4407	0.3995	0.2550	0.5201

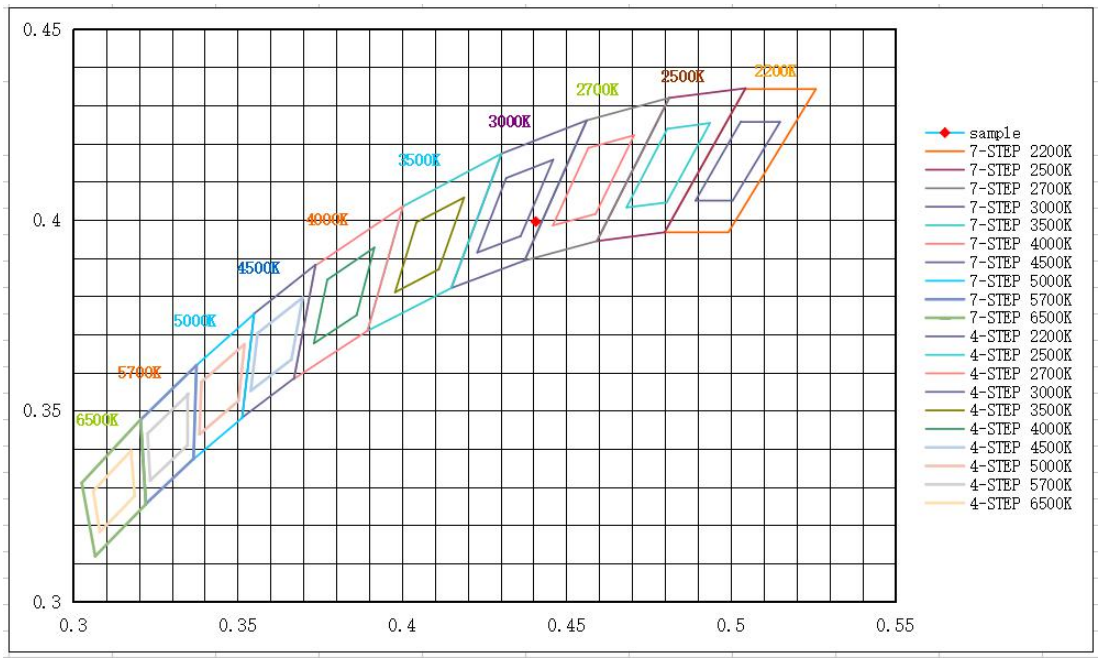
Color Rendering

CRI	R9	Rf	Rg	Rcs,h1(%)
72.3	-29	74	95	-16

Spectral Distribution

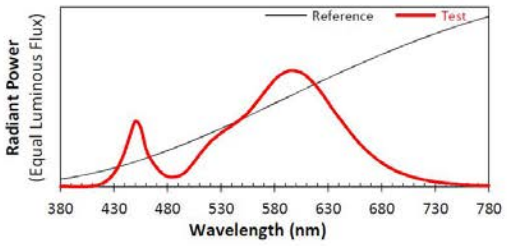


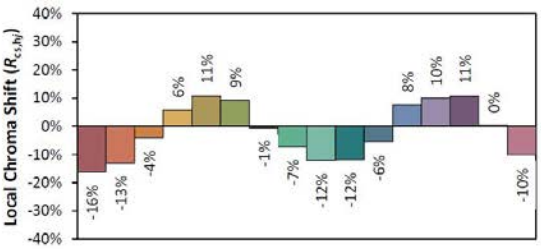
7/4 Step Quadrangle

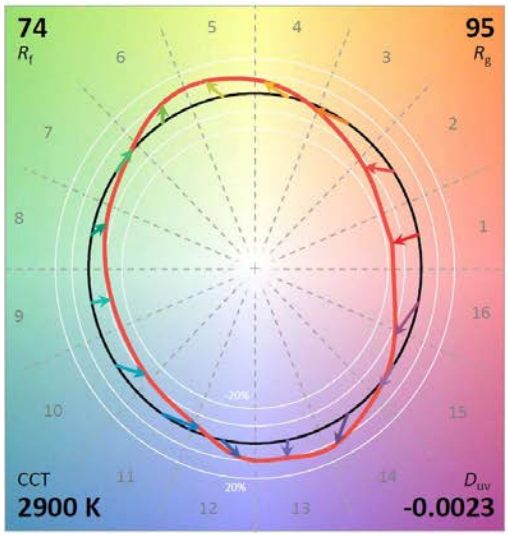


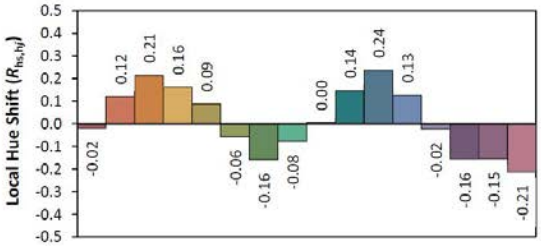
ANSI/IES TM-30-18 Color Rendition Report

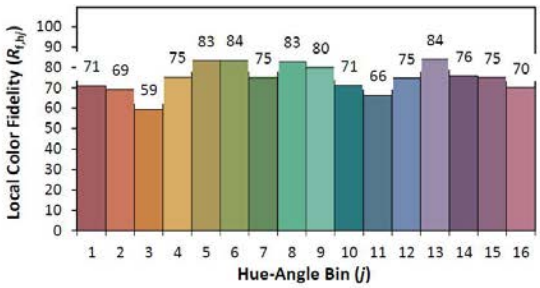
Source:	BL240816004-9	**Manufacturer:**	P.Q.L., Inc.
Date:	2024-09-06	**Model:**	HCO2HKBP2403CG, 3000K

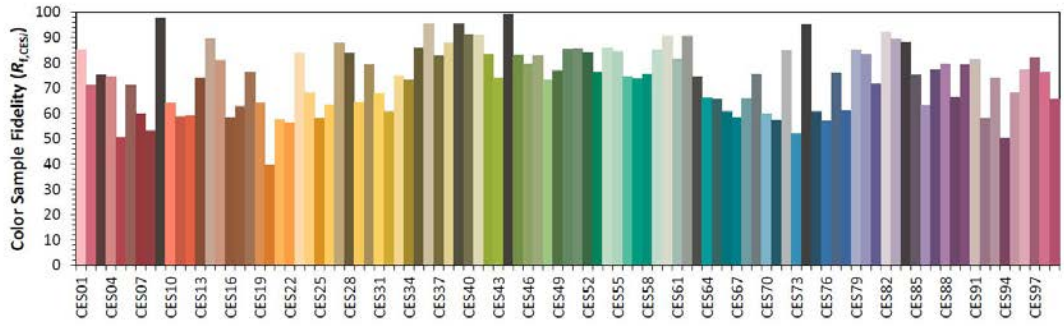












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4407
y	0.3995
u'	0.2550
v'	0.5201

CIE 13.3-1995 (CRI)

R_a	72
R_9	-29

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: HCO2UKBP2403CG, 3000K

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.11	60	2.0040	240.15	0.9979

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	Zonal Lumen in 20-50°(%lm)
33883.37	141.09	64.89

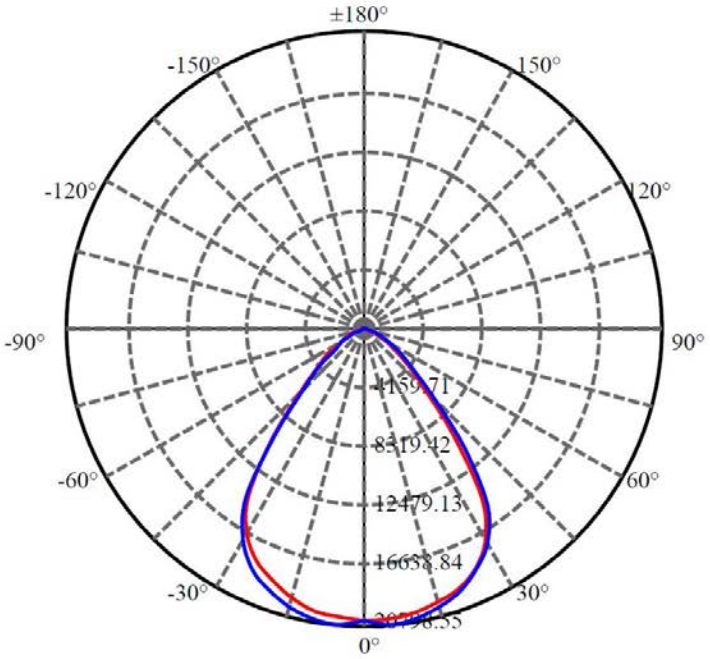
Zonal Flux Diagram

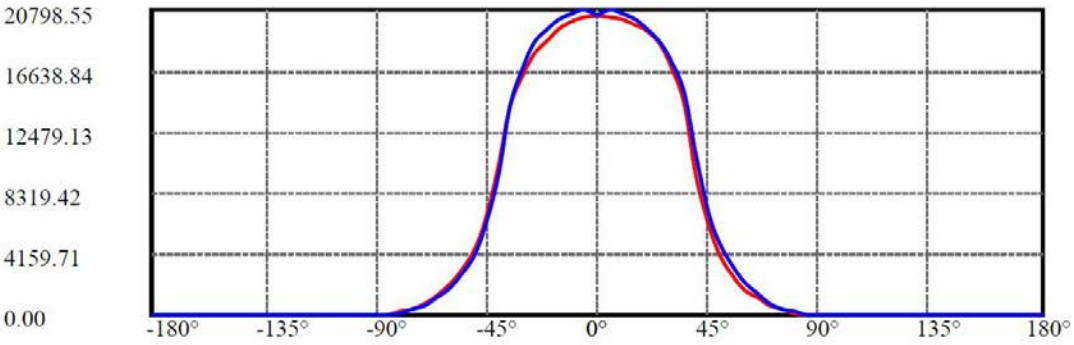
Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	20407.359	0.000	0	0.00%	0.00%
5.0	20351.650	487.262	487.262	0.00%	1.44%
10.0	20147.256	1448.773	1936.036	0.00%	5.71%
15.0	19718.043	2364.783	4300.818	0.00%	12.69%
20.0	19090.328	3198.355	7499.173	0.00%	22.13%
25.0	18120.727	3902.753	11401.926	0.00%	33.65%
30.0	16667.762	4402.512	15804.439	0.00%	46.64%
35.0	14136.623	4536.161	20340.6	0.00%	60.03%
40.0	9866.422	4004.727	24345.327	0.00%	71.85%
45.0	6338.676	3000.506	27345.832	0.00%	80.71%
50.0	4252.146	2140.030	29485.863	0.00%	87.02%
55.0	2811.149	1535.795	31021.658	0.00%	91.55%
60.0	1844.589	1076.161	32097.819	0.00%	94.73%
65.0	1185.882	736.713	32834.532	0.00%	96.90%
70.0	704.247	478.593	33313.125	0.00%	98.32%
75.0	376.806	282.570	33595.695	0.00%	99.15%
80.0	164.255	144.773	33740.467	0.00%	99.58%
85.0	34.943	54.127	33794.594	0.00%	99.74%
90.0	2.317	10.202	33804.796	0.00%	99.77%
95.0	2.042	1.194	33805.99	0.00%	99.77%
100.0	2.289	1.177	33807.167	0.00%	99.78%
105.0	2.660	1.324	33808.491	0.00%	99.78%
110.0	3.468	1.602	33810.093	0.00%	99.78%
115.0	4.688	2.065	33812.158	0.00%	99.79%
120.0	6.594	2.743	33814.901	0.00%	99.80%
125.0	9.870	3.806	33818.706	0.00%	99.81%
130.0	13.530	5.088	33823.794	0.00%	99.82%
135.0	17.259	6.221	33830.016	0.00%	99.84%
140.0	21.207	7.122	33837.138	0.00%	99.86%
145.0	25.361	7.769	33844.908	0.00%	99.89%
150.0	29.747	8.115	33853.023	0.00%	99.91%
155.0	33.997	8.067	33861.089	0.00%	99.93%
160.0	36.999	7.446	33868.536	0.00%	99.96%
165.0	38.644	6.234	33874.77	0.00%	99.97%
170.0	39.892	4.659	33879.428	0.00%	99.99%
175.0	41.729	2.920	33882.348	0.00%	100.00%
180.0	43.984	1.025	33883.373	0.00%	100.00%

Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]





C0/C180:

C90/C270:

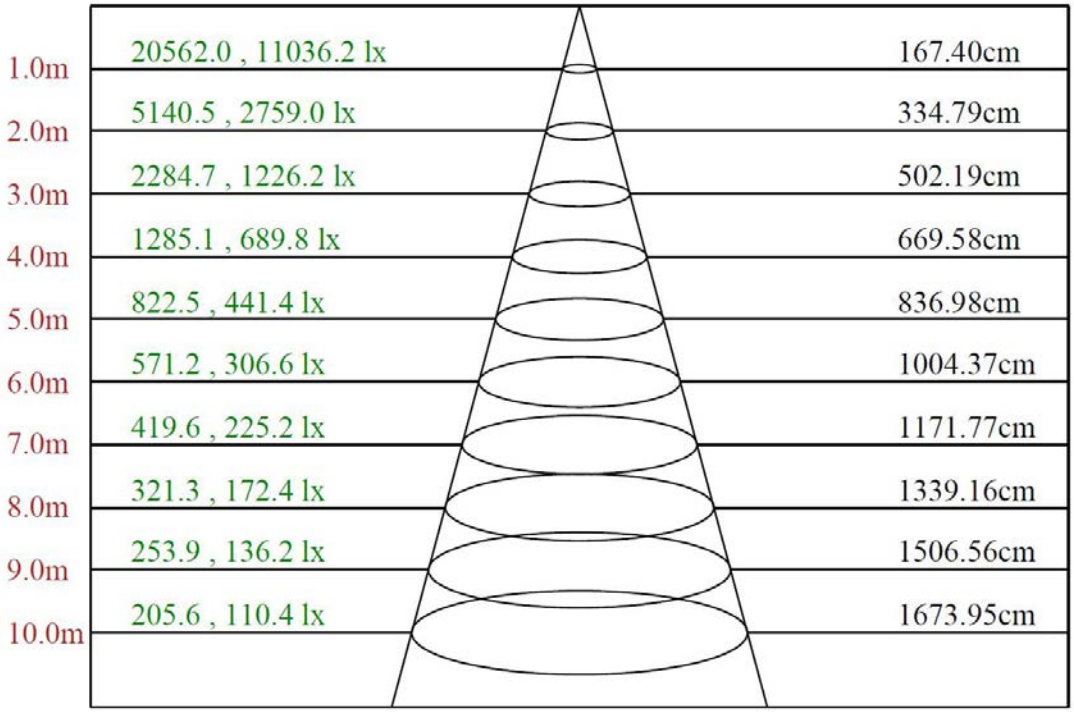
Field angle(10%Imax):C0/180Left:59.9 Right:58.2

:C90/270Left:58.5 Right:60.7

Beam Angle(50%Imax):C0/180Left:40.0 Right:39.4

:C90/270Left:39.3 Right:40.9

Lux distance Curve



Max , Ave Beam angle of C90 plane 79.86

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	24.34	25.60	24.70	25.92	26.24	23.52	24.79	23.89	25.11	25.43
	3H	24.96	26.08	25.34	26.42	26.77	24.42	25.55	24.81	25.89	26.24
	4H	25.07	26.12	25.47	26.47	26.85	24.65	25.69	25.05	26.05	26.42
	6H	25.11	26.07	25.52	26.44	26.85	24.76	25.72	25.18	26.10	26.50
	8H	25.06	25.98	25.48	26.37	26.78	24.74	25.66	25.16	26.04	26.45
	12H	25.00	25.88	25.43	26.27	26.69	24.70	25.57	25.12	25.97	26.39
4H	2H	24.56	25.60	24.96	25.96	26.33	23.86	24.90	24.26	25.26	25.63
	3H	25.26	26.13	25.69	26.52	26.94	24.77	25.64	25.20	26.04	26.46
	4H	25.46	26.21	25.90	26.64	27.09	25.05	25.80	25.49	26.23	26.68
	6H	25.48	26.14	25.95	26.60	27.05	25.13	25.80	25.60	26.25	26.70
	8H	25.46	26.08	25.94	26.53	27.01	25.14	25.76	25.62	26.21	26.69
	12H	25.42	25.99	25.91	26.45	26.96	25.12	25.69	25.61	26.15	26.66
8H	4H	25.41	26.02	25.89	26.48	26.96	25.01	25.63	25.50	26.09	26.56
	6H	25.44	25.95	25.94	26.43	26.94	25.10	25.61	25.60	26.09	26.60
	8H	25.47	25.91	26.00	26.43	26.93	25.15	25.59	25.68	26.12	26.61
	12H	25.43	25.79	25.96	26.30	26.83	25.13	25.49	25.67	26.01	26.53
12H	4H	25.37	25.94	25.86	26.39	26.91	24.98	25.55	25.47	26.00	26.52
	6H	25.44	25.88	25.97	26.40	26.90	25.10	25.54	25.63	26.07	26.56
	8H	25.43	25.79	25.97	26.31	26.83	25.12	25.48	25.66	26.00	26.52
Variation with the observer position at spacings:											
S = 1.0H		1.5/-2.2					1.4/-2.0				
S = 1.5H		3.1/-3.7					3.1/-3.3				
S = 2.0H		5.6/-5.2					5.4/-4.6				
Standard tables:		BK1					BK1				
Uncorrected UGR		9.6					9.7				

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	20407.36	20298.46	20118.60	19809.34	19333.38	18440.68	16982.10	14314.97	9599.25
22.5	20407.36	20263.37	20090.09	19723.80	19223.71	18214.77	16628.97	13696.44	9057.48
45.0	20407.36	20241.43	20061.58	19660.19	19054.82	17887.96	16172.75	12919.99	8298.58
67.5	20407.36	20171.24	19956.30	19489.11	18822.33	17611.59	15694.59	12336.56	8166.98
90.0	20407.36	20798.55	20601.14	20190.98	19526.40	18631.51	17295.75	15100.19	10970.09
112.5	20407.36	20425.68	20210.72	19767.67	19089.92	18129.23	16821.98	14569.40	10285.77
135.0	20407.36	20355.49	20081.32	19559.30	18866.20	17927.44	16547.81	14268.91	10237.51
157.5	20407.36	20274.33	20048.42	19513.24	18765.30	17819.96	16484.21	14275.49	10026.95
180.0	20407.36	20278.72	20000.16	19502.27	18760.91	17793.64	16422.79	14200.92	10191.45
202.5	20407.36	20232.66	20028.68	19517.62	18809.17	17780.48	16473.24	14253.56	10257.25
225.0	20407.36	20243.63	20039.64	19546.14	18833.29	17866.02	16536.85	14299.62	10570.90
247.5	20407.36	20219.50	20013.32	19539.56	18960.51	18006.40	16683.80	14551.85	11117.05
270.0	20407.36	20781.00	20548.50	20147.12	19486.92	18556.93	16892.17	14220.66	9601.44
292.5	20407.36	20405.94	20243.63	19866.37	19258.81	18337.60	16907.52	14203.11	9544.41
315.0	20407.36	20320.39	20153.70	19787.41	19342.15	18420.94	17023.77	14437.80	10092.75
337.5	20407.36	20316.01	20160.28	19868.56	19311.45	18506.48	17115.89	14536.50	9844.90
360.0	20407.36	20298.46	20118.60	19809.34	19333.38	18440.68	16982.10	14314.97	9599.25

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	6010.91	3964.06	2607.25	1717.84	1106.33	637.39	329.00	137.09	9.65
22.5	5881.50	3793.42	2481.79	1604.01	1019.47	588.70	308.83	124.58	5.70
45.0	5784.99	4071.54	2671.51	1730.78	1102.60	629.71	318.26	120.85	4.17
67.5	5223.49	3158.88	1973.15	1315.80	848.39	497.67	257.94	100.24	3.51
90.0	6894.83	4749.72	3234.11	2152.78	1369.75	815.71	447.01	194.55	48.25
112.5	6565.83	4585.22	3188.05	2100.14	1345.63	814.18	432.53	190.38	49.13
135.0	6502.22	4148.74	2516.88	1611.02	1095.58	649.89	368.27	171.30	45.62
157.5	6390.36	4554.51	3100.32	2029.96	1292.99	792.90	423.32	192.14	54.40
180.0	6451.77	4381.24	3023.55	2023.38	1299.57	783.69	428.36	197.84	58.34
202.5	6607.50	4350.53	2723.06	1740.43	1143.84	719.64	399.41	188.63	65.58
225.0	6883.86	4993.19	3451.25	2260.26	1475.04	888.75	496.58	227.23	76.55
247.5	7276.48	4701.47	3183.66	2154.98	1389.49	858.48	468.28	221.53	79.40
270.0	6028.45	3961.43	2666.25	1761.49	1107.65	634.98	331.64	135.11	14.48
292.5	6326.75	4370.27	2954.02	1944.85	1230.91	701.66	355.54	146.30	17.77
315.0	6296.04	3885.98	2364.22	1504.65	963.32	577.95	312.77	132.04	14.26
337.5	6293.85	4364.13	2839.31	1861.07	1183.54	676.65	351.16	148.27	12.28
360.0	6010.91	3964.06	2607.25	1717.84	1106.33	637.39	329.00	137.09	9.65

C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	2.19	2.19	2.41	3.07	3.73	4.83	6.80	10.75	14.48
22.5	2.41	2.19	2.41	2.63	3.73	5.05	7.02	11.41	14.70
45.0	2.19	2.19	2.41	2.85	4.17	5.26	7.46	11.41	14.48
67.5	2.41	2.19	2.41	3.07	3.95	5.26	7.68	11.63	15.57
90.0	2.19	1.97	1.97	2.41	3.29	4.17	6.14	8.77	12.72
112.5	2.19	1.97	2.63	2.63	3.07	4.61	6.36	8.99	12.94
135.0	2.19	1.76	2.41	2.41	3.07	4.39	6.36	9.43	12.94
157.5	2.19	1.97	2.19	2.41	3.29	4.61	6.36	9.21	13.16
180.0	2.19	1.97	2.19	2.63	3.29	4.61	6.36	8.99	12.50
202.5	2.41	2.19	1.97	2.41	3.29	4.17	5.92	8.77	12.72
225.0	2.63	1.97	1.97	2.41	3.07	4.17	5.70	8.34	11.84
247.5	2.63	1.97	2.19	2.41	3.07	4.17	5.70	8.12	11.84
270.0	2.41	1.97	2.41	2.63	3.95	5.05	7.24	10.75	14.48
292.5	2.19	1.76	2.41	2.85	3.51	4.83	7.02	10.53	14.04
315.0	2.41	2.19	2.19	2.63	3.51	4.83	6.58	10.53	13.82
337.5	2.19	2.19	2.41	3.07	3.51	5.05	6.80	10.31	14.26
360.0	2.19	2.19	2.41	3.07	3.73	4.83	6.80	10.75	14.48

C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	18.42	22.15	25.88	29.61	33.78	36.63	38.16	39.92	42.99
22.5	18.64	22.37	25.66	30.49	34.66	36.85	38.60	39.92	42.77
45.0	18.21	22.59	26.98	31.37	35.31	37.73	39.48	40.80	43.43
67.5	18.86	23.25	27.64	32.24	36.41	38.82	40.36	40.80	43.43
90.0	16.89	20.62	25.00	29.39	33.78	36.85	38.38	39.70	40.58
112.5	16.45	20.40	24.57	28.95	33.78	36.85	38.16	39.48	40.14
135.0	16.45	20.18	24.57	28.95	33.12	36.63	38.38	39.70	39.92
157.5	16.45	20.62	24.79	28.51	32.90	36.19	38.16	39.26	40.14
180.0	16.45	20.18	24.57	28.95	32.90	36.19	38.16	39.04	40.36
202.5	16.23	20.18	24.13	28.51	32.68	36.19	37.73	39.04	40.14
225.0	15.35	19.52	23.69	28.51	32.90	36.41	37.95	39.48	40.36
247.5	15.57	19.08	23.47	27.86	32.90	36.85	38.38	39.70	40.58
270.0	18.64	22.81	27.42	32.24	36.63	39.48	41.02	41.67	44.75
292.5	18.21	22.37	26.54	30.71	34.66	37.29	39.04	40.36	42.99
315.0	17.33	21.50	25.66	30.05	34.00	36.85	38.38	39.70	42.55
337.5	17.99	21.50	25.22	29.61	33.56	36.19	37.95	39.70	42.55
360.0	18.42	22.15	25.88	29.61	33.78	36.63	38.16	39.92	42.99

C/γ(°)	180.0
0.0	43.98
22.5	43.98
45.0	43.98
67.5	43.98
90.0	43.98
112.5	43.98
135.0	43.98
157.5	43.98
180.0	43.98
202.5	43.98
225.0	43.98
247.5	43.98
270.0	43.98
292.5	43.98
315.0	43.98
337.5	43.98
360.0	43.98

4 Additional Test

Electrical data

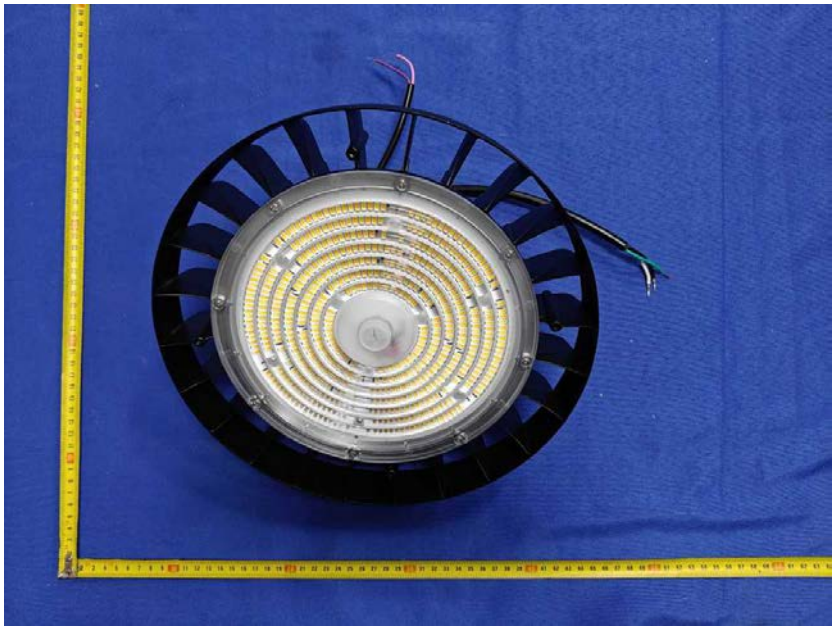
Model Number	CCT(K)	Test Voltage (V)	Frequency (Hz)	Power Factor	THD(%)
HCO2UKBP2403CG	3000	120	60	0.998	1.6
		277	60	0.938	10.4
	4000	277	60	0.939	10.0
	5000	277	60	0.939	10.3
HCO2XKBP2403CG	3000	120	60	0.999	1.9
		277	60	0.966	7.6
		347	60	0.943	10.5
HCO2HKBP2403CG	3000	200	60	0.998	3.8
		277	60	0.997	4.2
		347	60	0.972	8.0
		480	60	0.961	9.8

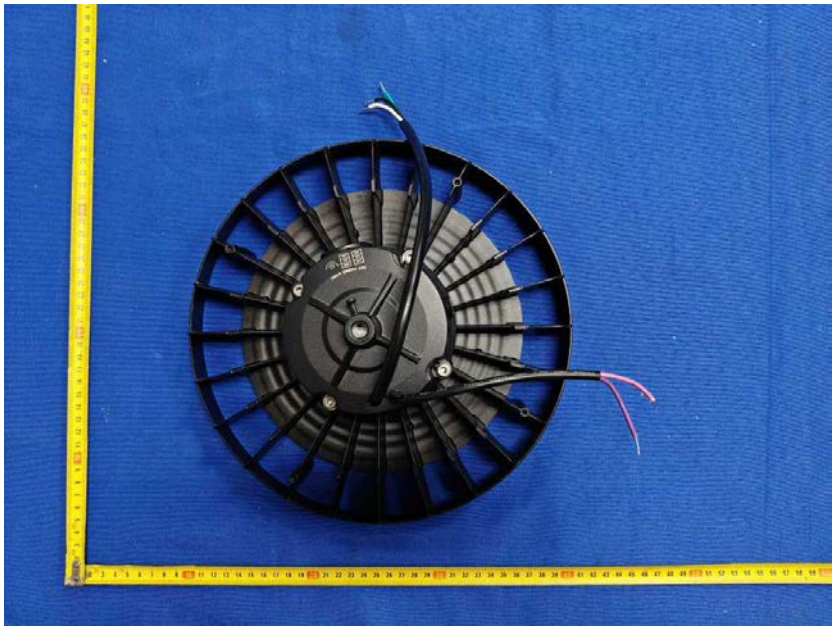
5 Data reporting for white-tunable submissions

(HCO2UKBP2403CG)

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	2910	240.21	33821.77	0%
4000K	3742	236.35	37981.32	50%
5000K	5014	239.88	35070.27	100%
Lowest Efficacy	2910	240.21	33821.77	0%
Maximum Power	2910	240.21	33821.77	0%

Photo Document





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