Catalog Number	71600
UPC Number	60198671600
Description	LED Ultra Thin Canopy Fixture 45W Voltage: 120/208/240/277

QPL ID #
PZMSURDQ

Features

- Intergral Cooling Fin Releases the Heat Efficiently to Maintain the Life of LEDs and LED Driver
- Corrosion Die Cast Aluminum Housing
- Prismatic Polycarbonate Lens
- Superior Architectural Bronze Powder Coat Finish
- Cree CXA LED COB
- Stainless Steel Hardware
- 4 Threaded Apertures - (1) Back, (3) Sides
- 50,000+ Hour Life Expectancy
- cULus Listed for Wet Locations

General

Material:	Diecast Aluminum Housing
Lens:	Prismatic Polycarbonate Lens
Finish:	Bronze Powdercoat
Lamp Type:	LED COB
Photocell:	Optional
Color Temperature:	4000K

Dimension Information

Length:	9-1/2"
Width:	9-1/2"
Height:	3"

See Dimensional Drawing below:

Specifications

Color Temperature:	4000K
Lumens:	4005
Temperature Rating:	-40°F to 131°F
Voltage Rating:	120/208/240/277
Wattage Rating:	45W
Light Pattern:	158° Beam Angle
CRI:	≥83

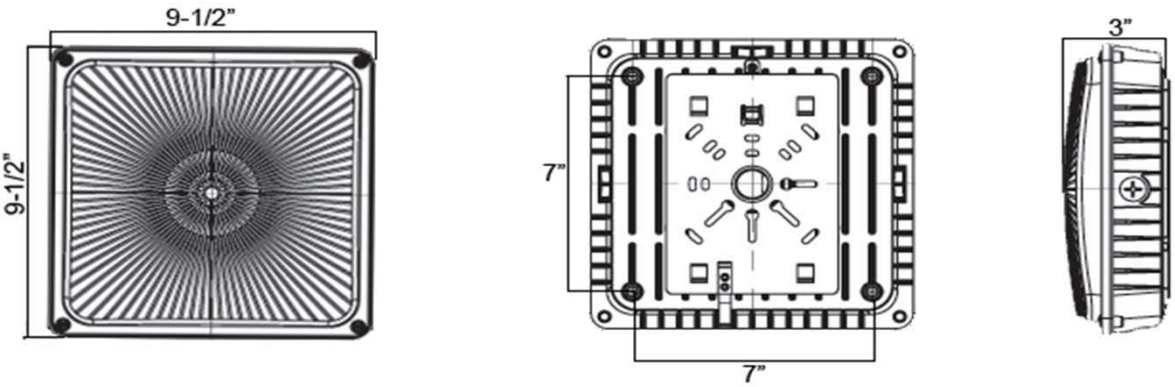
Packaging

Box Qty	1

Certifications

cULus	Yes
DLC	Yes
IP65(Nema 4X)	Yes
Warranty	5 Year

Dimensions: 71600



NVLAP LAB CODE 200707-0

Bay Area Compliance Labs Corp.

IES LM-79-08

MEASUREMENT AND TEST REPORT

For

Morris Products Inc.

53 Carey Rd Queensbury, NY 12804

Test Model: 71600

Report Type:	Electrical and Photometric tests including: Luminous Flux, Color, Luminous Intensity Distribution, THD, Power Factor, Off-state Power
Test Engineer:	Daniel Duan
Report Number:	RSZ150420520-10
Test Date:	2015-04-21 to 2015-04-22
Report Date:	2015-05-06
Reviewed By:	Jeanne Han/Safety Manager
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008
Test Facility:	Test facility was located at Pu Long Cun 69, Puxinghu Industrial Area, Tangxia Town, Dongguan, Guangdong, P.R.China.
Accreditation:	The NVLAP Lab Code is 200707-0.

1. Product Description

General Information:

One sample was received on 2015-04-20 and used for testing. Sample No.: RSZ150420520-S01
Model: 71600

Model Tested:	71600
Manufacturer:	Morris Products Inc.
Brand Name:	Morris
Product Designation:	Parking Garage Luminaires
Burning Time Before Test:	0 hour(For New Products)

Rated Values:

Rated Voltage/Frequency: 100-277VAC 60Hz

Rated Power: 45W

Nominal CCT: 4000K

2. Standards Used

- IESNA LM-79-08: Approved Method: Electrical & Photometric Measurement of Solid-state Lighting Products
- ANSI C82.77-2002: Harmonic Emission Limits Related Power Quality Requirements for Lighting

3. Description of Test Equipment

Device	Manufacture	Model No	Serial No	Test Range	Calibration date	Calibration due date
Integrating Sphere	SENSING	SPR-600	S09008	1.5 meter	2015-03-16	2016-03-16
Spectral photometer	SENSING	SPR3000	90902027	380nm~800nm	2015-03-16	2016-03-16
Power Meter	YOKOGAWA	WT-210	91j926132	15/30/60/150/300/600 V	2015-03-05	2016-03-05
AC Power Supply	ALL Power	APW-105N	970613	0V-300V 50-400Hz	2015-03-05	2016-03-05
Standard Light Source	EVERFINE	D204	LSD090808	N/A	2014-08-05	2015-08-05
Thermal Meter	SENSING	N/A	N/A	25℃,45℃,55℃	2015-03-05	2016-03-05
DC Power Supply	ITECH	IT6154	0061 0417 6471 0010 19	0~60V	2015-03-05	2016-03-05
AC Power Supply	EVERFINE	VPS1060 PWM	1101006	0-150V, 0-300V	2015-03-12	2016-03-12
DC Power Supply	EVERFINE	WY12010	1009009	30V/5A	2015-03-05	2016-03-05
Power Meter	YOKOGAWA	WT-210	91KB35700	15/30/60/150/300/600 V	2015-03-05	2016-03-05
Goniophotometer	EVERFINE	GO-R5000	YG108492N10120001	1600mm,3000W/10A	2015-03-04	2016-03-04
Thermal Meter	Victor	VC230	EE091	0~40℃0~90%	2013-04-01	2016-03-31
Standard Light Source	EVERFINE	D908	1012004	N/A	2014-07-31	2015-07-31

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Shenzhen) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

4. Test Method

Product was tested with no seasoning. All stabilization and measurements were made in compliance with IES LM-79-08. The product was operated at rated voltage or at voltage required by manufacturer. The ambient temperature of the sample was maintained at 25°C±1°C during measurement. And relative humidity is less than 65%.

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.

The uncertainty of the light output (luminous flux) measurements is U=1.64% (K=2), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is U=21K (K=2), at the 95% confidence level. The uncertainty of the CRI is U=1.6 (K=2), at the 95% confidence level.

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 uncertainty of the luminous intensity is U=2.82% (K=2) , at the 95% confidence level.

Additional Test

The Additional Test item may not be covered by IESNA LM-79-2008. Additional test including power factor, off-state power and THD, was measured by Digital Power Meter after stabilized at 25°C±1°C.Test voltage for THD and power factor test would be equal to rated voltage or, in case of a voltage range, maximum value of that range.

The uncertainty of power meter AC current U=0.19 % of rdg, AC Voltage U=0.15% of rdg, Power U=0.20%) (K=2), at the 95% confidence level.

5. Test Result

[Integrating Sphere System]

Total operating time for integrating sphere test: 1.0 hours

Test orientation: Downward

Electrical Measurement

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.97	60.0	0.3687	43.666	0.987

Photometric Measurement

Luminous Flux (lm)	Radiant Flux (W)	Efficacy (lm/W)	CCT (K)	Duv
4005.121	10.141	91.722	3991	1.84E-03

Chromaticity Coordinate

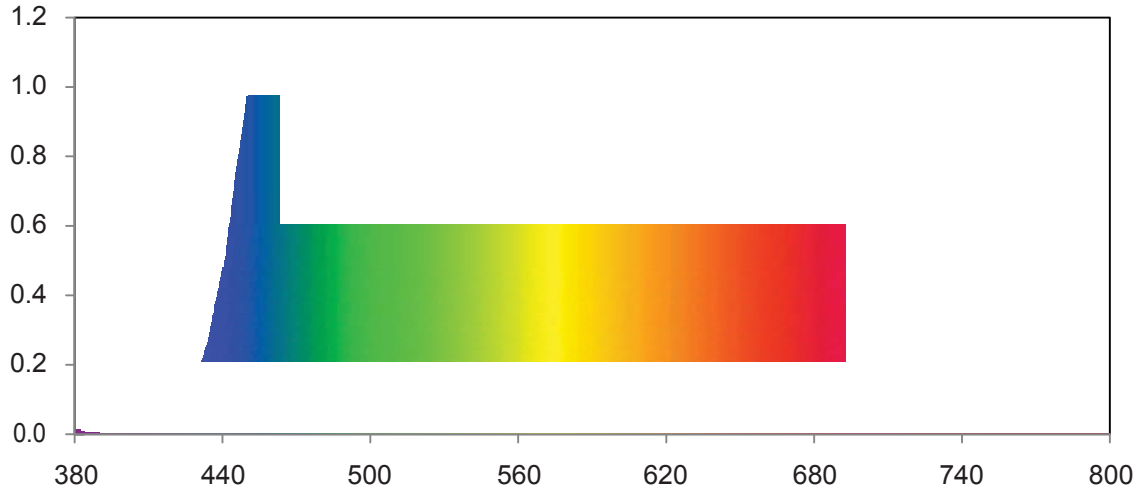
x	y	u	v	u'	v'
0.3822	0.3818	0.2242	0.3360	0.2242	0.5040

Color Rendering Index

Ra
83.5

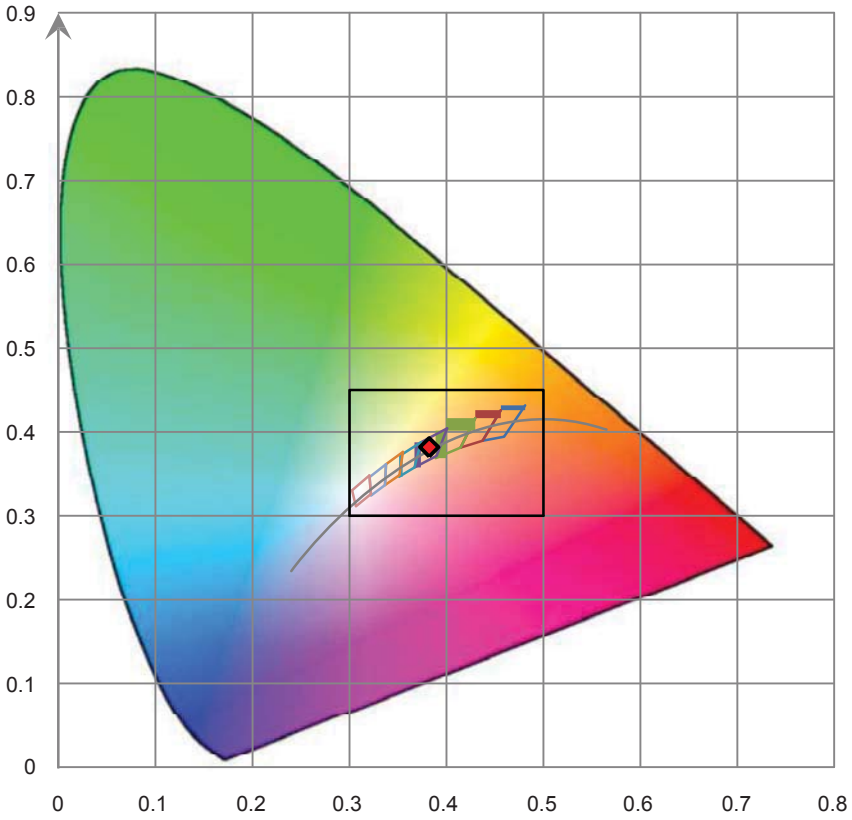
R1	R2	R3	R4
82	89	94	83
R5	R6	R7	R8
81	84	88	68
R9	R10	R11	R12
16	73	81	61
R13	R14	R15	
84	96	77	

Relative Spectral Power Distribution

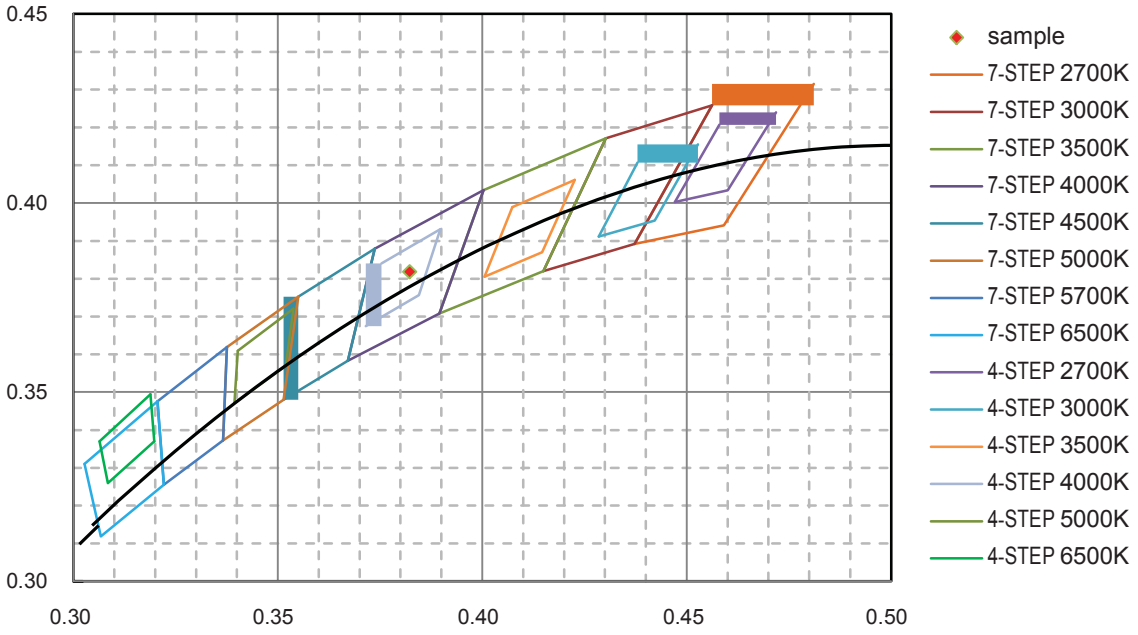


nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	5.587E-03	465	1.525E-01	550	2.339E-01	635	2.061E-01	720	2.529E-02
385	2.288E-03	470	1.196E-01	555	2.397E-01	640	1.895E-01	725	2.177E-02
390	1.737E-03	475	9.453E-02	560	2.485E-01	645	1.741E-01	730	1.849E-02
395	9.434E-04	480	8.569E-02	565	2.521E-01	650	1.581E-01	735	1.584E-02
400	1.112E-03	485	8.737E-02	570	2.582E-01	655	1.418E-01	740	1.371E-02
405	1.670E-03	490	9.598E-02	575	2.637E-01	660	1.272E-01	745	1.178E-02
410	3.799E-03	495	1.115E-01	580	2.700E-01	665	1.124E-01	750	1.014E-02
415	7.641E-03	500	1.295E-01	585	2.739E-01	670	1.001E-01	755	8.860E-03
420	1.538E-02	505	1.478E-01	590	2.758E-01	675	8.843E-02	760	7.898E-03
425	2.939E-02	510	1.657E-01	595	2.775E-01	680	7.681E-02	765	6.686E-03
430	5.116E-02	515	1.782E-01	600	2.761E-01	685	6.751E-02	770	5.894E-03
435	8.433E-02	520	1.909E-01	605	2.711E-01	690	6.066E-02	775	5.162E-03
440	1.332E-01	525	1.996E-01	610	2.661E-01	695	5.620E-02	780	4.358E-03
445	2.061E-01	530	2.079E-01	615	2.568E-01	700	4.435E-02	785	4.035E-03
450	2.716E-01	535	2.143E-01	620	2.470E-01	705	3.841E-02	790	3.633E-03
455	2.617E-01	540	2.201E-01	625	2.328E-01	710	3.340E-02	795	3.245E-03
460	1.959E-01	545	2.291E-01	630	2.206E-01	715	2.861E-02	800	2.958E-03

CIE 1931 x y Chromaticity Diagram



7-Step & 4-Step Chromaticity Quadrangles



[Goniophotometer System]

Total operating time for luminous intensity distribution: 1.0 hours

Test orientation: Downward

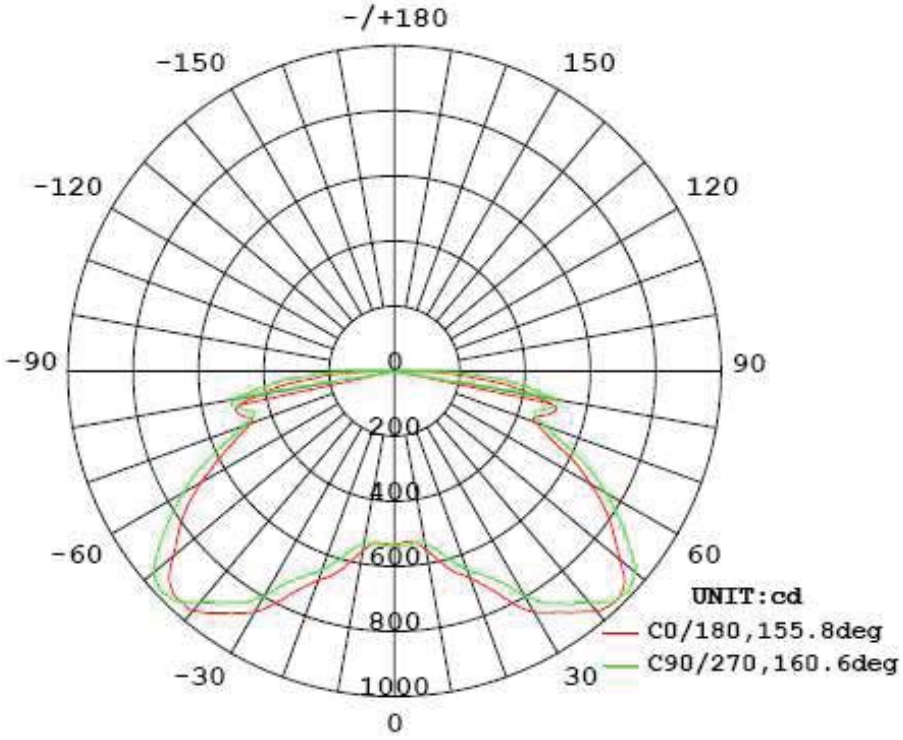
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.1	60.0	0.3651	43.52	0.9929

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	CBCP (cd)	S/MH (C0/180)	S/MH (C90/270)
4023.69	92.45	533	2.11	2.17

Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% Imax):	155.8	158.3	160.6	158.5	158.3
Field Angle (10% Imax):	176.7	179.8	180.1	179.8	179.1

Luminous Intensity (cd) Distribution Data

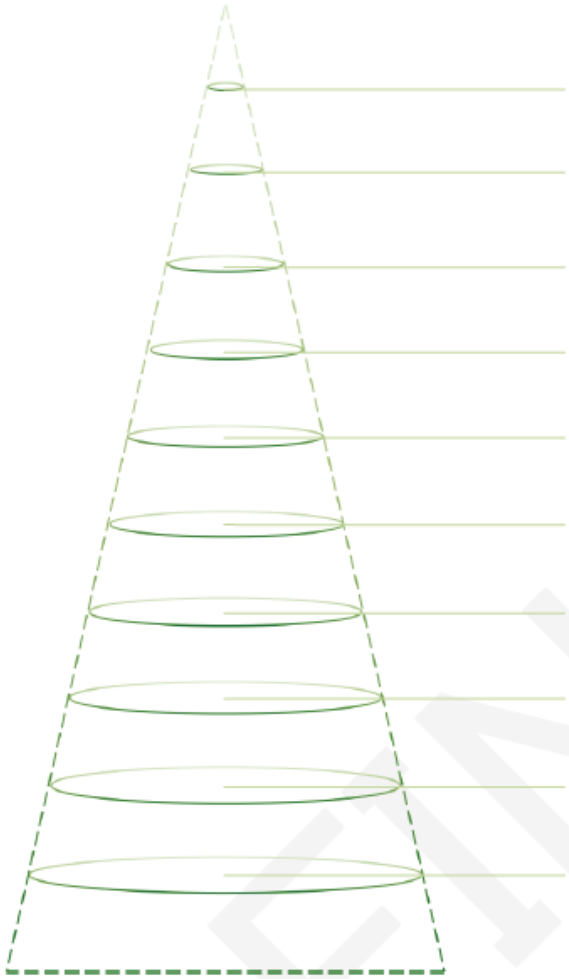
C / γ	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0.0°	533	533	533	533	533	533	533	533
5.0°	529	531	533	535	535	530	528	527
10.0°	560	557	549	540	536	540	545	549
15.0°	631	619	603	590	585	594	605	615
20.0°	684	671	658	650	649	654	662	671
25.0°	758	737	714	703	703	708	723	743
30.0°	853	838	809	797	799	798	822	842
35.0°	907	895	872	876	871	867	889	900
40.0°	961	952	924	929	932	922	952	959
45.0°	960	978	965	968	976	963	971	980
50.0°	884	925	933	948	964	936	924	918
55.0°	795	816	830	850	861	838	822	812
60.0°	685	706	723	745	747	730	719	706
65.0°	563	580	591	620	618	606	588	582
70.0°	468	473	482	488	487	486	480	470
75.0°	498	476	469	462	466	470	478	488
80.0°	419	434	467	483	501	490	472	442
85.0°	241	278	312	334	346	334	303	273
90.0°	51	68	93	120	113	113	84	63
95.0°	0	0	0	0	0	0	0	0
100.0°	0	0	0	0	0	0	0	0
105.0°	0	0	0	0	0	0	0	0
110.0°	0	0	0	0	0	0	0	0
115.0°	0	0	0	0	0	0	0	0
120.0°	0	0	0	0	0	0	0	0
125.0°	0	0	0	0	0	0	0	0
130.0°	0	0	0	0	0	0	0	0
135.0°	0	0	0	0	0	0	0	0
140.0°	0	0	0	0	0	0	0	0
145.0°	0	0	0	0	0	0	0	0
150.0°	0	0	0	0	0	0	0	0
155.0°	0	0	0	0	0	0	0	0
160.0°	0	0	0	0	0	0	0	0
165.0°	0	0	0	0	0	0	0	0
170.0°	0	0	0	0	0	0	0	0
175.0°	0	0	0	0	0	0	0	0
180.0°	0	0	0	0	0	0	0	0

Luminous Intensity (cd) Distribution Data (cont.)

C / γ	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0.0°	533	533	533	533	533	533	533	533
5.0°	525	527	528	530	535	535	533	531
10.0°	557	549	545	540	536	540	549	557
15.0°	625	615	605	594	585	590	603	619
20.0°	676	671	662	654	649	650	658	671
25.0°	757	743	723	708	703	703	714	737
30.0°	855	842	822	798	799	797	809	838
35.0°	904	900	889	867	871	876	872	895
40.0°	963	959	952	922	932	929	924	952
45.0°	977	980	971	963	976	968	965	978
50.0°	900	918	924	936	964	948	933	925
55.0°	807	812	822	838	861	850	830	816
60.0°	693	706	719	730	747	745	723	706
65.0°	562	582	588	606	618	620	591	580
70.0°	461	470	480	486	487	488	482	473
75.0°	498	488	478	470	466	462	469	476
80.0°	436	442	472	490	501	483	467	434
85.0°	252	273	303	334	346	334	312	278
90.0°	62	63	84	113	113	120	93	68
95.0°	0	0	0	0	0	0	0	0
100.0°	0	0	0	0	0	0	0	0
105.0°	0	0	0	0	0	0	0	0
110.0°	0	0	0	0	0	0	0	0
115.0°	0	0	0	0	0	0	0	0
120.0°	0	0	0	0	0	0	0	0
125.0°	0	0	0	0	0	0	0	0
130.0°	0	0	0	0	0	0	0	0
135.0°	0	0	0	0	0	0	0	0
140.0°	0	0	0	0	0	0	0	0
145.0°	0	0	0	0	0	0	0	0
150.0°	0	0	0	0	0	0	0	0
155.0°	0	0	0	0	0	0	0	0
160.0°	0	0	0	0	0	0	0	0
165.0°	0	0	0	0	0	0	0	0
170.0°	0	0	0	0	0	0	0	0
175.0°	0	0	0	0	0	0	0	0
180.0°	0	0	0	0	0	0	0	0

Average Area Illumination Figure

Angle: 158.30°. Flux out: 3697.0 lm.



Height (m)	Diameter (cm)	E_{avg}(lx)	E_{max}(lx)
0.5	521.7	146.4	2297.0
1.0	1043.5	36.6	574.2
1.5	1565.2	16.3	255.2
2.0	2087.0	9.1	143.5
2.5	2608.7	5.9	91.9
3.0	3130.5	4.1	63.8
3.5	3652.2	3.0	46.9
4.0	4174.0	2.3	35.9
4.5	4695.7	1.8	28.4
5.0	5217.4	1.5	23.0

Zonal Lumen Density Measurement

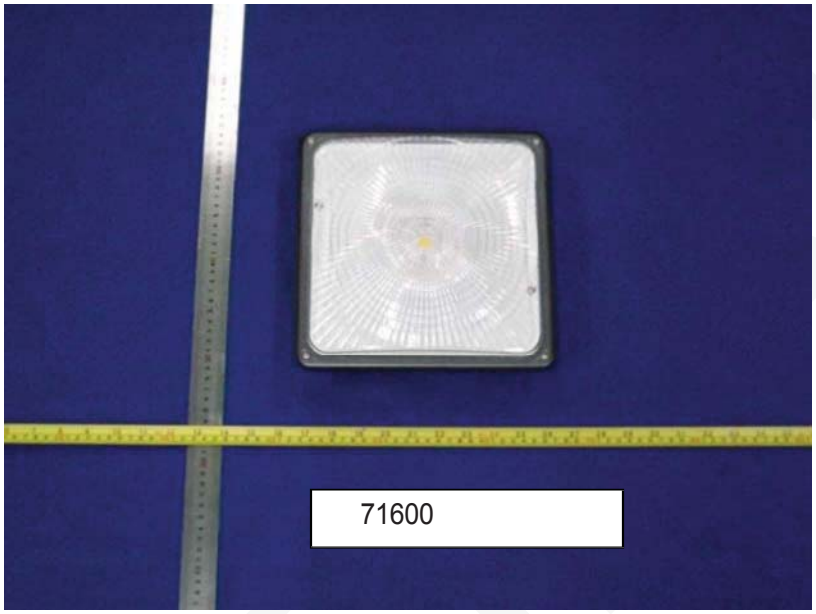
Deg	Flux (lm)	%
0-5	12.8	0.32
5-10	38.3	0.95
10-15	68.3	1.70
15-20	104.9	2.60
20-25	144.9	3.60
25-30	195.4	4.86
30-35	251.8	6.26
35-40	304.8	7.57
40-45	355.9	8.85
45-50	387.6	9.63
50-55	382.3	9.50
55-60	358.3	8.91
60-65	319.9	7.95
65-70	269.4	6.69
70-75	241.9	6.02
75-80	260.5	6.47
80-85	211.4	5.25
85-90	110.5	2.75
90-95	4.9	0.12
95-100	0.0	0.00
100-105	0.0	0.00
105-110	0.0	0.00
110-115	0.0	0.00
115-120	0.0	0.00
120-125	0.0	0.00
125-130	0.0	0.00
130-135	0.0	0.00
135-140	0.0	0.00
140-145	0.0	0.00
145-150	0.0	0.00
150-155	0.0	0.00
155-160	0.0	0.00
160-165	0.0	0.00
165-170	0.0	0.00
170-175	0.0	0.00
175-180	0.0	0.00

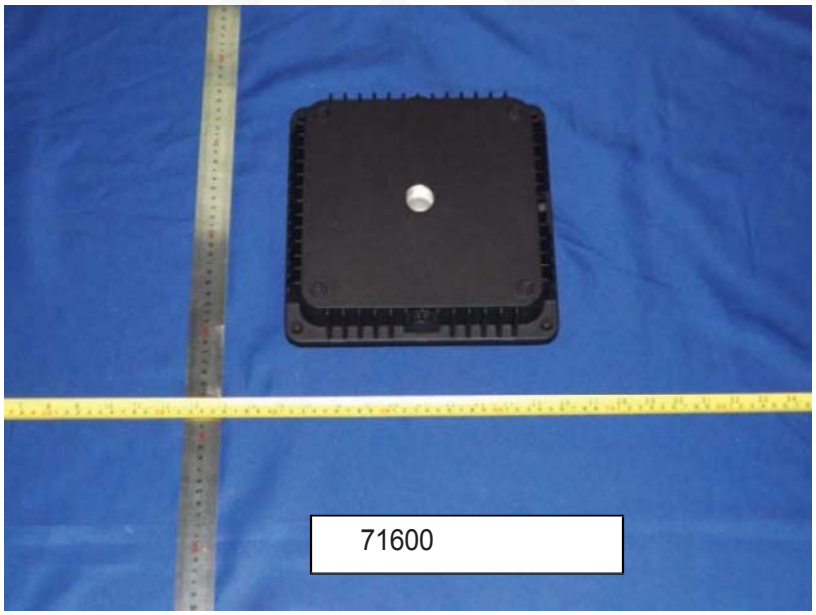
Deg	Flux (lm)	%
0-5	12.8	0.32
0-10	51.1	1.27
0-15	119.3	2.97
0-20	224.2	5.57
0-25	369.1	9.17
0-30	564.5	14.03
0-35	816.4	20.29
0-40	1121.2	27.86
0-45	1477.1	36.71
0-50	1864.7	46.34
0-55	2247.0	55.84
0-60	2605.3	64.75
0-65	2925.1	72.70
0-70	3194.6	79.39
0-75	3436.4	85.41
0-80	3696.9	91.88
0-85	3908.3	97.13
0-90	4018.8	99.88
0-95	4023.7	100.00
0-100	4023.7	100.00
0-105	4023.7	100.00
0-110	4023.7	100.00
0-115	4023.7	100.00
0-120	4023.7	100.00
0-125	4023.7	100.00
0-130	4023.7	100.00
0-135	4023.7	100.00
0-140	4023.7	100.00
0-145	4023.7	100.00
0-150	4023.7	100.00
0-155	4023.7	100.00
0-160	4023.7	100.00
0-165	4023.7	100.00
0-170	4023.7	100.00
0-175	4023.7	100.00
0-180	4023.7	100.00

[Additional Test]

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Power Factor:	277	60	0.9507
Total Harmonic Distortion:	277	60	13.77%
Total Harmonic Distortion:	120	60	10.10%
Off State Power (W):	120	60	0.00

6. Product Photo





**********END OF REPORT**********