IES LM-79-19

MEASUREMENT AND TEST REPORT

For

GREEN CREATIVE LTD

Room 3603, Level 36, Tower 1, Enterprise Square Five, 38 Wang Chiu Road, Kowloon Bay, KL, Hong Kong

Test Model: 15T8U6/835/DIR

Report Type:	Electrical and Photometric tests including: Luminous Flux, Chromaticity, Luminous Intensity Distribution
Project Engineer:	Bay Wang
Report Number:	RKSB210819031-10
Test Date:	2021-08-25 to 2021-09-04
Report Date:	2021-09-10
Reviewed By:	Seven Xia/ EE Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan). No. 248 Chenghu Road, Kunshan, Jiangsu Province, People's Republic of China Tel: +86-0512-86175000 Fax: +86-0512-88934268
Accreditation:	The A2LA Accreditation Number 4323.01.

1. Product Description

General Information:

Two samples were received on 2021-08-19 and used for testing. A standard 0.88 ballast factor (BF) instant-start electronic ballast was used during LM-79 test, detailed as below:

Model Tested:	15T8U6/835/DIR
Manufacturer:	GREEN CREATIVE LTD
Brand Name:	GREEN CREATIVE
Product Designation:	Replacement Lamps ("Plug and Play") (UL Type A)
Lamp Shape:	T8 U-Bend
Lamp base:	G13
Lamp length:	2 foot(24")
Burning Time Before Test:	0hour (For New Products)
Auxiliary ballast Model No.:	OSRAM QTP 2*32T8/UNV ISN-SC

Rated Values:

Rated Voltage/Frequency:	120-277VAC 50/60Hz
Rated Power:	17.5W
Nominal CCT:	3500K
Nominal Lumen Output:	2100lm

2. Standards Used

- IES LM-79-19: Approved Method: Optical and Electrical Measurements of Solid-state Lighting Products
- ANSI C82.77-10-2014: Harmonic Emission Limits – Related Power Quality Requirements for Lighting Equipment
- IES TM-30-18: IES Method for Evaluating Light Source Color Rendition

3. Description of Test Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
2.0m integrating sphere	EVERFINE	R98	G121960CS1361154D	2020-12-23	2021-12-22
spectroradiometer	EVERFINE	HAAS-2000	M12048CS1361148	2020-12-23	2021-12-22
Digital CC&CV DC Power Supply	EVERFINE	WY305	G115986CN1361134	2020-11-25	2021-11-24
Thermal Meter	ANYMETRE	TH-20E	N/A	2020-11-30	2021-11-29
Standard Light Source	EVERFINE	D215S	G119786CS1361115	2020-10-20	2021-10-19
Digital Power Meter	YOKOGAWA	WT210	91KB35700	2021-03-16	2022-03-15
Intelligence ac power supply	EVERFINE	DPS1005	G119890CS1361121	2020-12-25	2021-12-24
AC Power Supply	INVENTFINE	CHP-5KVA	900511765	2020-11-25	2021-11-24
DC Power Supply	INVENTFINE	WL3010	JWDMP030001	2020-11-25	2021-11-24
Power Meter	INVENTFINE	WT500	GSDSQ200007	2021-03-16	2022-03-15

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
Goniophotometer	INVENTFINE	GPM-1900	YWGCF120001	2020-12-23	2021-12-22
Wireless Weather Station	ZHONGXING	KG218	N/A	2020-11-27	2021-11-26
Standard Light Source	INVENTFINE	N/A	JWBYR040008	2020-12-23	2021-12-22

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Kunshan) 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 ANSI/IES LM-79-19. The product was operated at rated voltage or at voltage required by manufacturer. The ambient temperature of the sample was maintained at 25°C±1.2°C during measurement. And relative humidity is maintained between 10% than 65%.

Integrating Sphere System

The system includes AC power source, digital power meter, DC power supply, Spectroradiometer, and integrating sphere. The integrating sphere system is calibrated by standard spectrum light source before measurement.

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_{rel}=2.7% (k=2), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is U=27K (k=2), at the 95% confidence level. The uncertainty of the CRI is U=2.7(k=2), at the 95% confidence level.

The uncertainty of power meter AC current U_{rel}=0.27 % of rdg, AC Voltage U_{rel}=0.26% of rdg, Power U_{rel}=0.41%) (k=2), at the 95% confidence level.

Goniophotometer System

The goniophotometer system is calibrated by standard light source before measurement.

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. For measurement of luminous intensity distribution, the horizontal angle (C plane) test intervals were set 22.5 degree, the vertical angle (γ) test intervals were set 1 degree while data for 5 degree intervals is reported.

The uncertainty of the luminous flux is U_{rel}=2.6% (k=2), at the 95% confidence level.

Fidelity Index and Gamut Index Calculation

The R_f, R_g was calculated according to IES TM-30-18 by using calculation tools. The calculation was based on the measured SPD from 380nm to 780nm with 1nm intervals. All the colors in this report is for reference only.

5. Test Result

[Integrating Sphere System]

Total operating time for integrating sphere test: **1.0 hour**

Test orientation: **Downward**

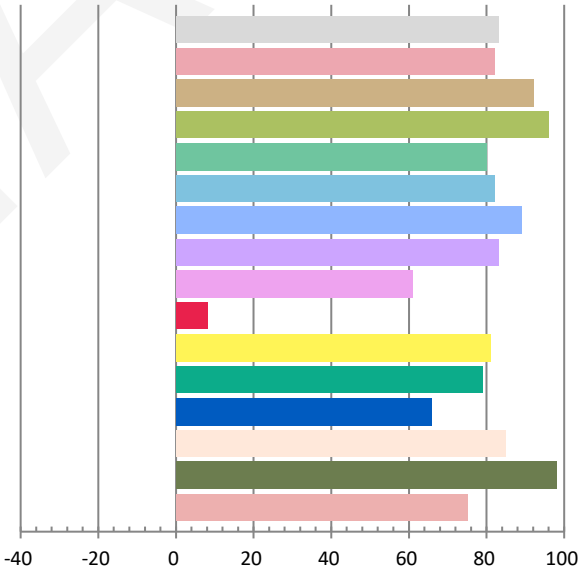
Photometric and Electrical Measurement Result

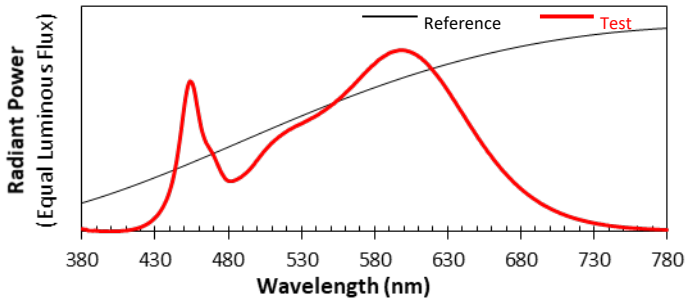
Voltage(V)	Frequency(Hz)	Current(A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy(lm/W)
120.1	60	0.1459	17.47	0.9969	2439	139.65

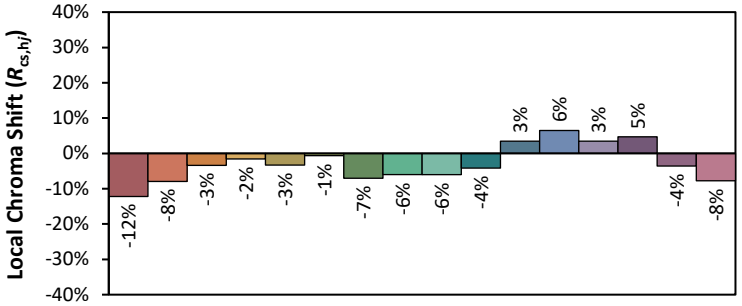
Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
7.363	3489	0.00016	0.4061	0.3915	0.2359	0.5117

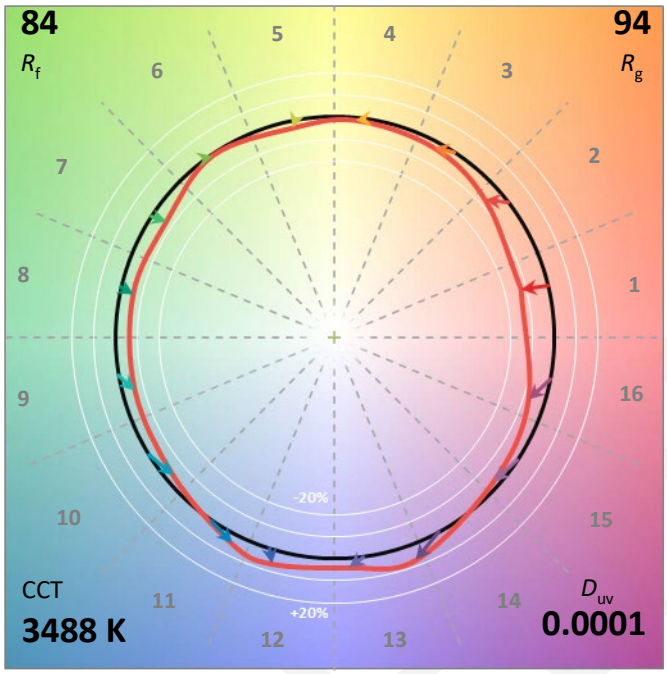
Color Rendering Index

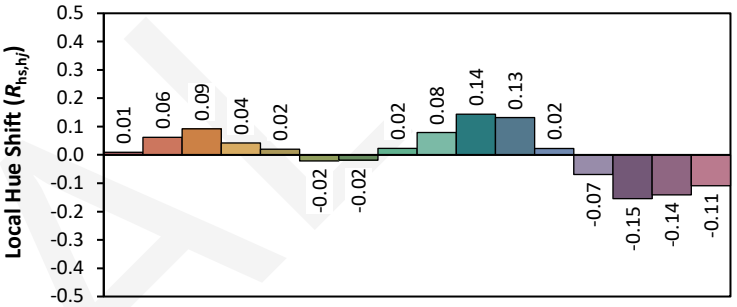
Ra			
83.2			
R1	R2	R3	R4
82	92	96	80
R5	R6	R7	R8
82	89	83	61
R9	R10	R11	R12
8	81	79	66
R13	R14	R15	
85	98	75	

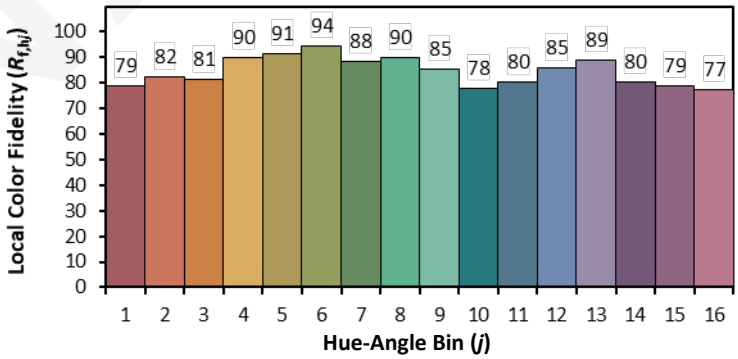


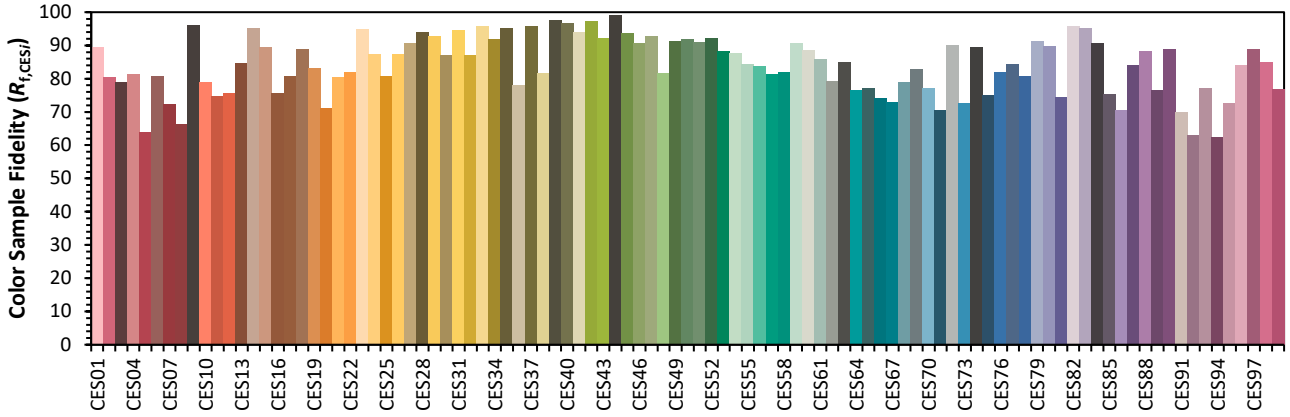

Radiant Power
(Equal Luminous Flux)
Reference
Test
380
430
480
530
580
630
680
730
780
Wavelength (nm)


Local Chroma Shift ($R_{cs,hj}$)
40%
30%
20%
10%
0%
-10%
-20%
-30%
-40%
-12%
-8%
-3%
-2%
-3%
-1%
-7%
-6%
-6%
-4%
3%
6%
3%
5%
-4%
-8%

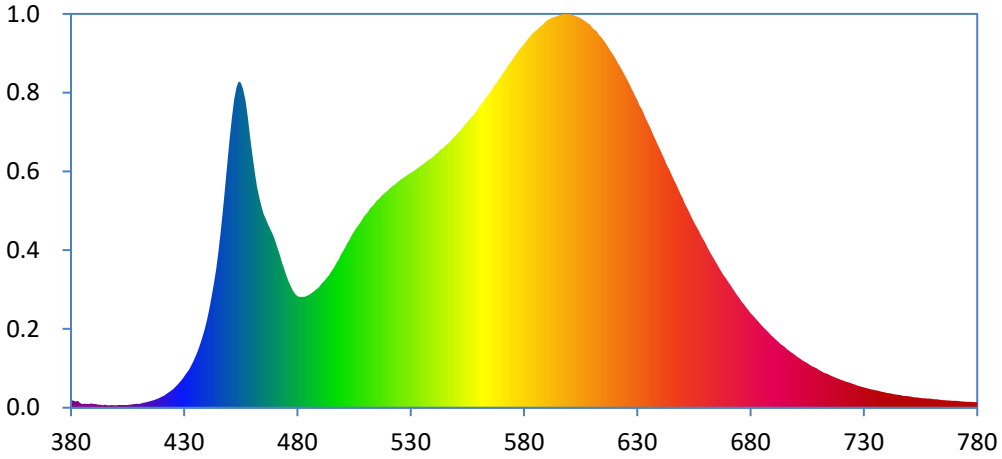

84
R_f
94
R_g
CCT
3488 K
D_{uv}
0.0001
-20%
+20%


Local Hue Shift ($R_{hs,hj}$)
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
0.01
0.06
0.09
0.04
0.02
-0.02
-0.02
0.02
0.08
0.14
0.13
0.02
-0.07
-0.15
-0.14
-0.11


Local Color Fidelity ($R_{f,hj}$)
100
90
80
70
60
50
40
30
20
10
0
79
82
81
90
91
94
88
90
85
78
80
85
89
80
79
77
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Hue-Angle Bin (j)


Color Sample Fidelity ($R_{f,CESi}$)
100
90
80
70
60
50
40
30
20
10
0
CES01
CES04
CES07
CES10
CES13
CES16
CES19
CES22
CES25
CES28
CES31
CES34
CES37
CES40
CES43
CES46
CES49
CES52
CES55
CES58
CES61
CES64
CES67
CES70
CES73
CES76
CES79
CES82
CES85
CES88
CES91
CES94
CES97

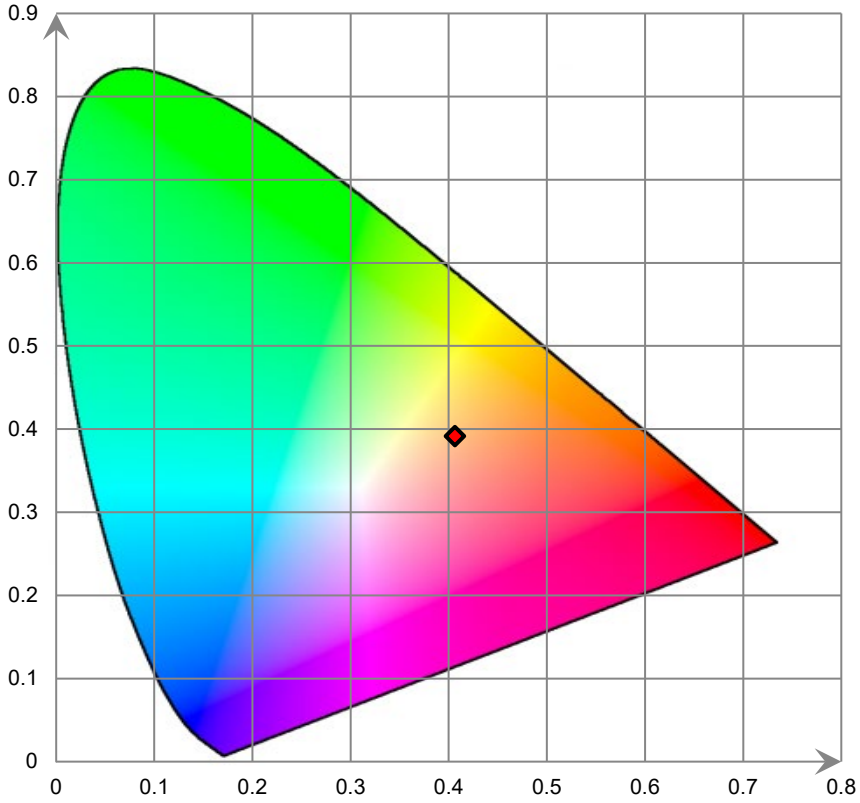
Relative Spectral Power Distribution



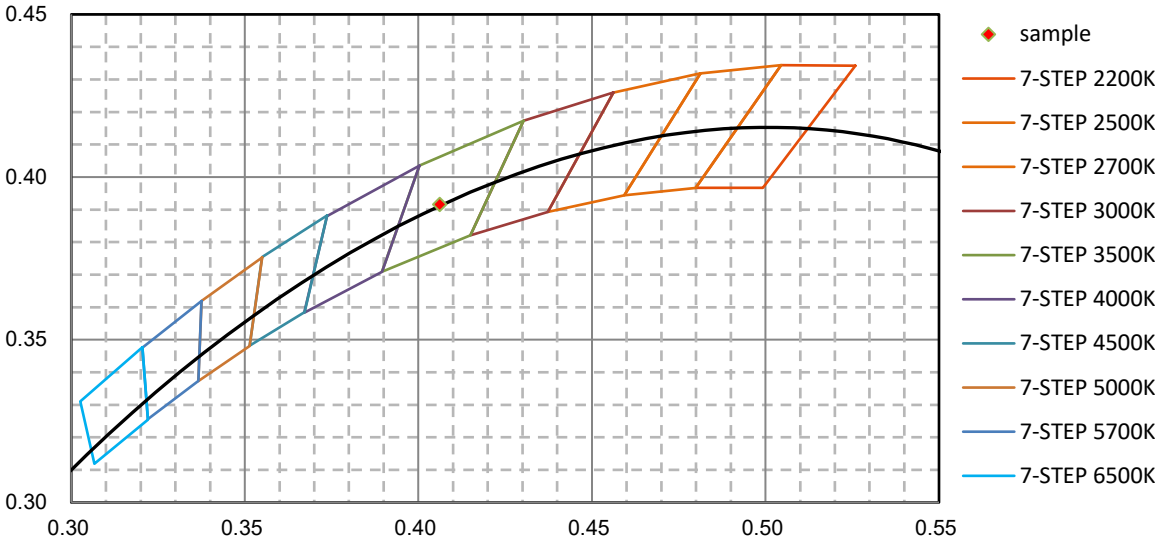
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	8.490E-01	421	1.404E+00	462	2.591E+01	503	1.959E+01	544	3.025E+01
381	8.561E-01	422	1.601E+00	463	2.464E+01	504	2.012E+01	545	3.050E+01
382	7.124E-01	423	1.757E+00	464	2.354E+01	505	2.053E+01	546	3.073E+01
383	7.841E-01	424	1.946E+00	465	2.263E+01	506	2.096E+01	547	3.096E+01
384	5.543E-01	425	2.155E+00	466	2.202E+01	507	2.135E+01	548	3.126E+01
385	4.409E-01	426	2.395E+00	467	2.138E+01	508	2.173E+01	549	3.155E+01
386	4.723E-01	427	2.673E+00	468	2.084E+01	509	2.217E+01	550	3.179E+01
387	4.362E-01	428	2.958E+00	469	2.021E+01	510	2.253E+01	551	3.212E+01
388	4.320E-01	429	3.269E+00	470	1.953E+01	511	2.282E+01	552	3.235E+01
389	5.073E-01	430	3.623E+00	471	1.872E+01	512	2.321E+01	553	3.265E+01
390	4.216E-01	431	4.015E+00	472	1.793E+01	513	2.349E+01	554	3.304E+01
391	4.121E-01	432	4.407E+00	473	1.704E+01	514	2.380E+01	555	3.331E+01
392	3.583E-01	433	4.894E+00	474	1.625E+01	515	2.415E+01	556	3.362E+01
393	3.417E-01	434	5.447E+00	475	1.545E+01	516	2.435E+01	557	3.396E+01
394	2.884E-01	435	6.028E+00	476	1.476E+01	517	2.467E+01	558	3.422E+01
395	3.609E-01	436	6.657E+00	477	1.415E+01	518	2.490E+01	559	3.461E+01
396	2.956E-01	437	7.398E+00	478	1.362E+01	519	2.517E+01	560	3.502E+01
397	2.996E-01	438	8.210E+00	479	1.326E+01	520	2.539E+01	561	3.537E+01
398	3.061E-01	439	9.126E+00	480	1.301E+01	521	2.566E+01	562	3.569E+01
399	2.758E-01	440	1.015E+01	481	1.292E+01	522	2.586E+01	563	3.607E+01
400	2.864E-01	441	1.140E+01	482	1.291E+01	523	2.603E+01	564	3.642E+01
401	3.036E-01	442	1.277E+01	483	1.291E+01	524	2.627E+01	565	3.677E+01
402	3.124E-01	443	1.429E+01	484	1.302E+01	525	2.646E+01	566	3.718E+01
403	3.110E-01	444	1.615E+01	485	1.316E+01	526	2.669E+01	567	3.761E+01
404	3.374E-01	445	1.815E+01	486	1.333E+01	527	2.685E+01	568	3.792E+01
405	3.304E-01	446	2.047E+01	487	1.352E+01	528	2.702E+01	569	3.836E+01
406	3.389E-01	447	2.296E+01	488	1.375E+01	529	2.721E+01	570	3.872E+01
407	3.869E-01	448	2.571E+01	489	1.394E+01	530	2.735E+01	571	3.914E+01
408	4.304E-01	449	2.854E+01	490	1.425E+01	531	2.753E+01	572	3.952E+01
409	4.574E-01	450	3.127E+01	491	1.456E+01	532	2.773E+01	573	3.994E+01
410	4.395E-01	451	3.373E+01	492	1.484E+01	533	2.796E+01	574	4.028E+01
411	4.869E-01	452	3.587E+01	493	1.516E+01	534	2.811E+01	575	4.064E+01
412	5.813E-01	453	3.726E+01	494	1.551E+01	535	2.832E+01	576	4.106E+01
413	6.025E-01	454	3.805E+01	495	1.594E+01	536	2.849E+01	577	4.139E+01
414	6.910E-01	455	3.788E+01	496	1.633E+01	537	2.875E+01	578	4.180E+01
415	7.535E-01	456	3.718E+01	497	1.681E+01	538	2.890E+01	579	4.208E+01
416	8.595E-01	457	3.576E+01	498	1.722E+01	539	2.908E+01	580	4.237E+01
417	9.331E-01	458	3.387E+01	499	1.779E+01	540	2.928E+01	581	4.272E+01
418	1.031E+00	459	3.163E+01	500	1.821E+01	541	2.954E+01	582	4.310E+01
419	1.147E+00	460	2.958E+01	501	1.868E+01	542	2.972E+01	583	4.344E+01
420	1.270E+00	461	2.766E+01	502	1.919E+01	543	3.004E+01	584	4.369E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	4.394E+01	626	3.800E+01	667	1.590E+01	708	4.714E+00	749	1.356E+00
586	4.417E+01	627	3.743E+01	668	1.548E+01	709	4.597E+00	750	1.307E+00
587	4.441E+01	628	3.693E+01	669	1.510E+01	710	4.431E+00	751	1.279E+00
588	4.461E+01	629	3.635E+01	670	1.469E+01	711	4.285E+00	752	1.231E+00
589	4.487E+01	630	3.587E+01	671	1.429E+01	712	4.140E+00	753	1.208E+00
590	4.511E+01	631	3.525E+01	672	1.388E+01	713	4.018E+00	754	1.164E+00
591	4.527E+01	632	3.474E+01	673	1.353E+01	714	3.928E+00	755	1.154E+00
592	4.541E+01	633	3.411E+01	674	1.313E+01	715	3.776E+00	756	1.112E+00
593	4.554E+01	634	3.351E+01	675	1.277E+01	716	3.662E+00	757	1.087E+00
594	4.562E+01	635	3.300E+01	676	1.236E+01	717	3.552E+00	758	1.071E+00
595	4.572E+01	636	3.242E+01	677	1.208E+01	718	3.444E+00	759	1.055E+00
596	4.578E+01	637	3.182E+01	678	1.170E+01	719	3.349E+00	760	1.029E+00
597	4.589E+01	638	3.125E+01	679	1.139E+01	720	3.227E+00	761	1.005E+00
598	4.587E+01	639	3.064E+01	680	1.104E+01	721	3.150E+00	762	9.797E-01
599	4.589E+01	640	3.014E+01	681	1.076E+01	722	3.049E+00	763	9.452E-01
600	4.587E+01	641	2.952E+01	682	1.041E+01	723	2.958E+00	764	9.234E-01
601	4.581E+01	642	2.897E+01	683	1.013E+01	724	2.879E+00	765	8.866E-01
602	4.575E+01	643	2.833E+01	684	9.831E+00	725	2.774E+00	766	8.694E-01
603	4.562E+01	644	2.778E+01	685	9.525E+00	726	2.694E+00	767	8.481E-01
604	4.556E+01	645	2.718E+01	686	9.283E+00	727	2.602E+00	768	8.415E-01
605	4.538E+01	646	2.659E+01	687	9.009E+00	728	2.529E+00	769	8.084E-01
606	4.523E+01	647	2.608E+01	688	8.745E+00	729	2.441E+00	770	7.829E-01
607	4.504E+01	648	2.551E+01	689	8.468E+00	730	2.358E+00	771	7.830E-01
608	4.484E+01	649	2.490E+01	690	8.247E+00	731	2.300E+00	772	7.569E-01
609	4.467E+01	650	2.440E+01	691	7.983E+00	732	2.214E+00	773	7.413E-01
610	4.435E+01	651	2.376E+01	692	7.742E+00	733	2.149E+00	774	7.196E-01
611	4.410E+01	652	2.325E+01	693	7.489E+00	734	2.113E+00	775	7.066E-01
612	4.390E+01	653	2.273E+01	694	7.269E+00	735	2.021E+00	776	6.965E-01
613	4.347E+01	654	2.218E+01	695	7.063E+00	736	1.992E+00	777	6.806E-01
614	4.321E+01	655	2.167E+01	696	6.824E+00	737	1.915E+00	778	6.466E-01
615	4.287E+01	656	2.117E+01	697	6.639E+00	738	1.849E+00	779	6.474E-01
616	4.251E+01	657	2.063E+01	698	6.452E+00	739	1.822E+00	780	6.482E-01
617	4.209E+01	658	2.008E+01	699	6.246E+00	740	1.747E+00		
618	4.166E+01	659	1.965E+01	700	6.069E+00	741	1.680E+00		
619	4.124E+01	660	1.920E+01	701	5.855E+00	742	1.653E+00		
620	4.084E+01	661	1.865E+01	702	5.682E+00	743	1.593E+00		
621	4.034E+01	662	1.816E+01	703	5.518E+00	744	1.564E+00		
622	3.990E+01	663	1.772E+01	704	5.346E+00	745	1.510E+00		
623	3.945E+01	664	1.724E+01	705	5.199E+00	746	1.474E+00		
624	3.896E+01	665	1.682E+01	706	5.036E+00	747	1.410E+00		
625	3.847E+01	666	1.635E+01	707	4.837E+00	748	1.378E+00		

CIE 1931xy Chromaticity Diagram



7-Step Chromaticity Quadrangles



[Goniophotometer System]

Total operating time for luminous intensity distribution: **1.0hour**

Test orientation: **Downward**

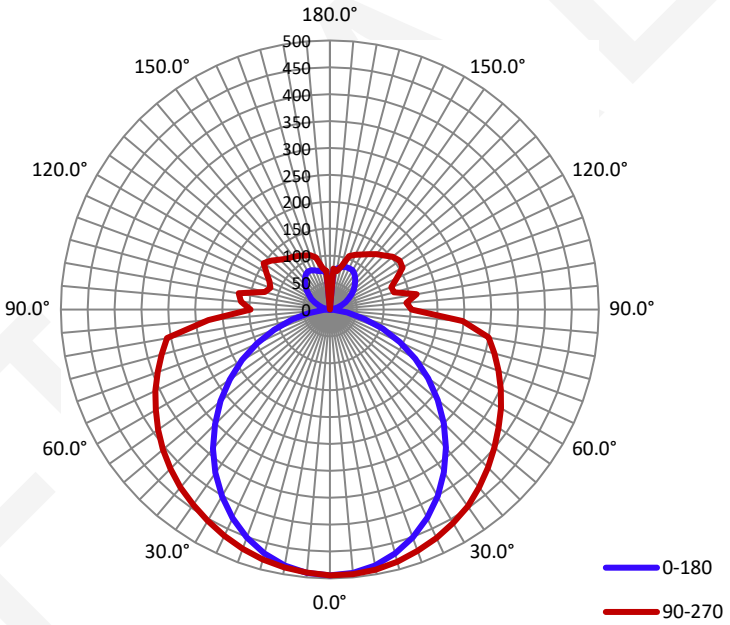
Electrical Measurement

Input Voltage(V)	Frequency(Hz)	Input Current(A)	Power (W)	Power Factor
120.0	60	0.146	17.49	0.998

Photometric Measurement

Luminous Flux(lm)	Efficacy(lm/W)	I_{max}(cd)	S/MH(C0/180)	S/MH(C90/270)
2449.5	140.1	495.0	1.21	1.39

Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle(50%I_{max}):	104.4	141.2	169.0	143.8	139.6
Field Angle(10%I_{max}):	358.7	358.5	358.4	358.7	358.6

Luminous Intensity (cd) Distribution Data

C / γ	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0.0°	494.3	494.3	494.3	494.3	494.3	494.3	494.3	494.3
5.0°	491.7	492.0	492.3	493.2	494.3	492.7	493.1	492.2
10.0°	483.5	484.0	486.5	488.8	491.1	489.1	487.3	485.3
15.0°	469.6	471.1	476.6	482.0	485.5	482.5	478.1	473.3
20.0°	451.0	454.2	463.3	473.4	477.6	474.1	465.7	457.0
25.0°	427.8	432.7	447.0	461.8	468.9	463.1	450.2	436.4
30.0°	400.9	408.3	428.1	449.1	458.5	450.4	432.2	412.7
35.0°	369.9	380.4	406.9	434.0	446.9	436.7	412.4	385.6
40.0°	335.7	350.1	384.1	418.7	431.9	420.9	391.3	357.5
45.0°	300.0	318.3	360.4	401.9	415.7	405.3	368.7	325.9
50.0°	261.9	284.9	336.4	384.6	399.2	388.6	345.1	294.8
55.0°	223.1	251.9	312.8	366.7	383.0	371.0	322.5	263.1
60.0°	183.8	219.2	289.7	348.4	367.4	352.9	299.5	231.5
65.0°	143.9	187.6	266.9	330.1	350.8	334.8	277.6	200.9
70.0°	104.0	157.9	245.8	311.8	334.0	316.6	257.1	171.0
75.0°	66.3	131.2	224.9	293.6	316.5	298.9	236.5	144.6
80.0°	33.0	107.6	204.7	275.4	299.6	281.1	217.6	122.4
85.0°	7.7	83.7	175.3	229.4	247.9	239.6	194.9	101.5
90.0°	0.0	39.8	93.8	135.4	151.7	143.9	114.5	61.6
95.0°	0.9	37.5	103.9	135.3	142.6	130.5	99.1	44.1
100.0°	6.4	43.9	84.9	143.2	164.0	146.4	90.3	44.5
105.0°	14.1	57.3	86.1	111.4	123.4	112.7	87.7	57.9
110.0°	22.8	58.2	106.2	117.4	121.7	117.4	103.8	61.3
115.0°	32.0	59.5	119.5	137.2	137.1	133.8	118.1	62.5
120.0°	40.8	62.2	116.1	153.2	156.0	149.7	118.5	63.6
125.0°	49.8	64.8	112.1	149.6	158.4	149.6	113.8	65.6
130.0°	58.4	67.8	108.0	141.5	152.0	142.6	109.5	68.6
135.0°	66.1	69.7	103.9	133.3	142.0	133.9	105.5	71.8
140.0°	73.5	73.6	102.0	126.0	134.2	125.9	101.4	74.8
145.0°	79.8	76.5	101.8	119.1	125.1	118.0	98.8	78.7
150.0°	84.5	79.9	99.7	114.7	117.9	110.9	95.6	78.8
155.0°	84.7	81.7	95.9	110.3	111.7	104.7	84.7	81.0
160.0°	84.4	83.5	92.0	103.6	105.5	87.9	81.4	76.2
165.0°	81.0	80.6	87.7	92.8	82.9	79.0	71.5	67.1
170.0°	77.1	76.7	82.2	80.2	72.0	70.6	63.0	62.3
175.0°	74.6	75.3	67.3	61.7	76.1	66.3	72.3	73.9
180.0°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Luminous Intensity (cd) Distribution Data (cont.)

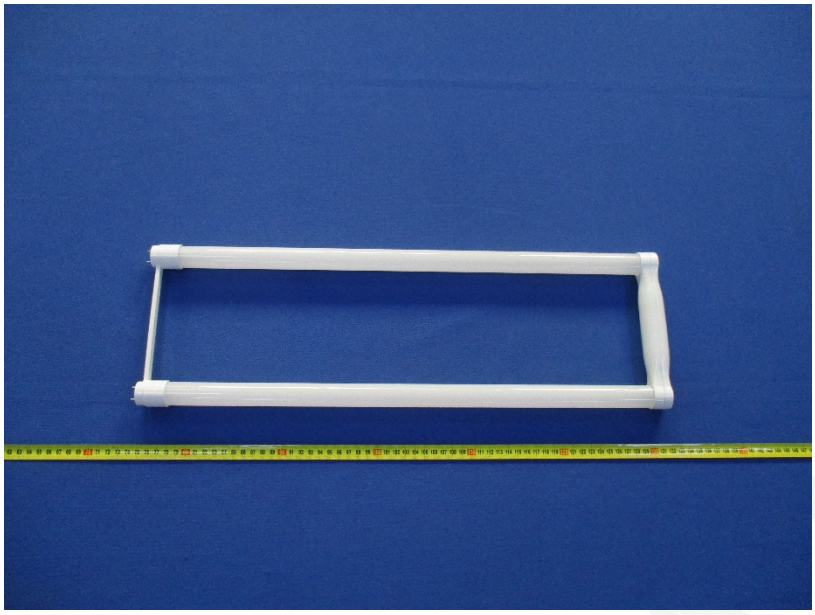
C / γ	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0.0°	494.3	494.3	494.3	494.3	494.3	494.3	494.3	494.3
5.0°	491.6	492.3	492.7	493.8	491.2	493.0	492.3	491.2
10.0°	483.6	484.7	487.7	489.8	487.1	489.5	487.2	484.0
15.0°	469.5	472.6	478.2	483.9	481.1	483.3	477.2	470.9
20.0°	451.2	456.1	465.7	475.6	473.5	475.4	464.8	453.9
25.0°	428.2	435.0	450.0	464.5	464.2	464.8	448.8	432.9
30.0°	401.1	410.6	432.4	452.2	453.8	452.4	431.0	408.3
35.0°	370.7	383.2	412.1	438.1	442.9	437.6	410.5	380.8
40.0°	338.0	353.6	390.3	422.9	431.9	422.7	388.9	351.2
45.0°	301.9	321.8	367.2	406.7	419.0	407.4	365.9	318.8
50.0°	265.2	289.2	343.6	390.3	404.9	390.3	342.6	286.5
55.0°	227.1	256.7	319.9	372.7	389.6	373.4	319.5	254.1
60.0°	188.6	224.5	296.7	355.0	373.8	355.8	296.5	222.1
65.0°	149.8	193.0	274.7	337.6	357.9	338.4	274.7	191.2
70.0°	110.3	163.3	253.9	320.6	340.3	320.0	254.2	162.4
75.0°	72.6	137.2	233.3	303.4	323.7	301.8	233.4	137.4
80.0°	39.2	111.4	213.6	285.6	307.6	284.0	212.2	113.8
85.0°	11.7	91.7	184.9	220.7	226.8	209.0	161.5	87.9
90.0°	0.0	47.6	102.3	135.9	147.5	136.5	100.1	46.5
95.0°	0.0	39.6	114.2	151.8	166.1	160.9	128.0	44.6
100.0°	6.5	39.1	88.6	150.3	171.9	151.6	91.6	43.4
105.0°	14.0	50.7	82.6	111.0	125.1	112.1	84.1	58.9
110.0°	22.0	49.9	91.2	110.9	117.3	110.9	94.2	62.2
115.0°	30.9	50.9	105.2	119.0	123.8	119.4	110.0	62.6
120.0°	39.4	54.4	106.0	132.8	135.5	133.0	115.2	64.8
125.0°	48.0	60.5	97.8	139.1	149.9	144.0	110.3	68.6
130.0°	56.6	64.8	93.1	128.3	141.7	133.4	106.0	73.1
135.0°	65.0	70.0	94.2	116.7	130.8	125.2	104.0	77.1
140.0°	71.9	75.1	95.4	114.4	123.4	120.6	102.4	79.7
145.0°	78.5	79.2	96.8	112.2	119.5	115.0	102.6	83.3
150.0°	81.7	81.4	97.1	110.0	115.0	112.1	102.0	83.6
155.0°	80.5	81.9	89.8	106.5	110.8	108.4	102.4	83.8
160.0°	77.1	77.2	83.0	101.7	107.4	106.1	96.6	82.7
165.0°	73.4	67.5	79.1	80.9	100.0	98.1	89.8	81.1
170.0°	73.2	64.0	73.7	76.7	78.4	86.1	84.1	78.4
175.0°	66.9	61.6	62.6	71.4	71.2	74.2	72.6	74.2
180.0°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

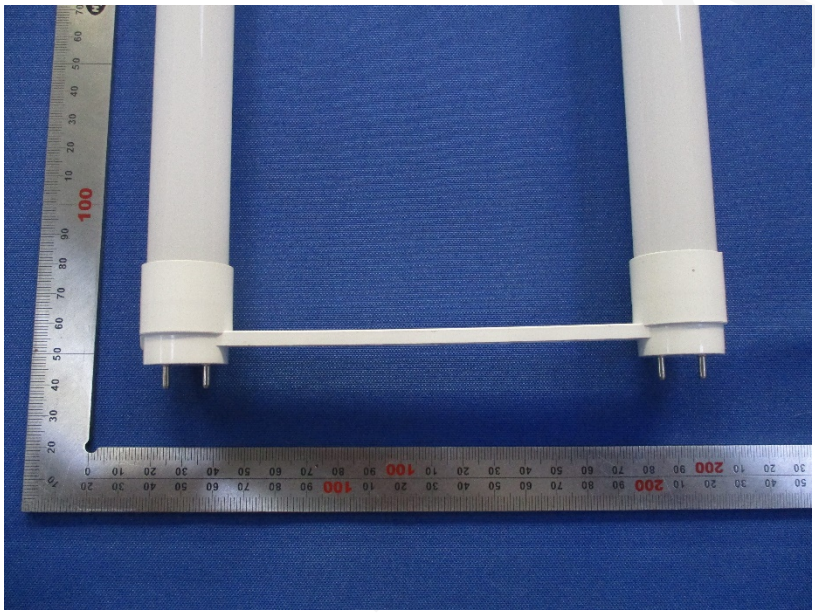
Zonal Lumen Density Measurement

Deg	Flux (lm)	%
0-5	11.8	0.48
5-10	35.0	1.43
10-15	57.2	2.34
15-20	77.7	3.17
20-25	95.8	3.91
25-30	111.2	4.54
30-35	123.6	5.04
35-40	132.8	5.43
40-45	138.8	5.67
45-50	141.6	5.78
50-55	141.6	5.78
55-60	138.8	5.67
60-65	133.8	5.45
65-70	127.0	5.19
70-75	118.9	4.85
75-80	109.8	4.48
80-85	96.6	3.96
85-90	66.3	2.71
90-95	49.1	2.01
95-100	51.9	2.12
100-105	45.3	1.86
105-110	43.1	1.76
110-115	45.7	1.86
115-120	48.2	1.98
120-125	48.2	1.97
125-130	45.2	1.85
130-135	41.2	1.68
135-140	36.9	1.51
140-145	33.1	1.35
145-150	29.0	1.18
150-155	24.5	1.00
155-160	19.5	0.80
160-165	14.3	0.59
165-170	9.3	0.38
170-175	5.1	0.21
175-180	1.6	0.06

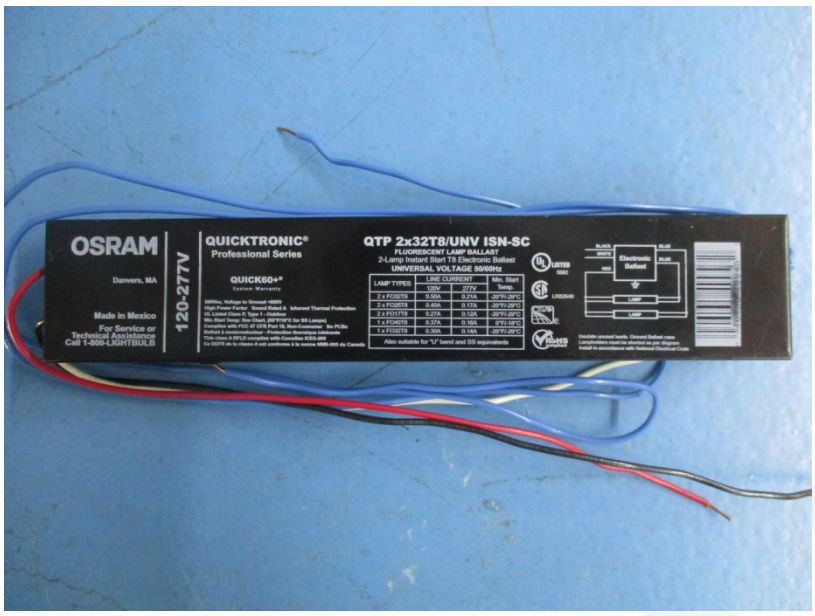
Deg	Flux (lm)	%
0-5	11.8	0.48
0-10	46.8	1.91
0-15	104.0	4.25
0-20	181.6	7.42
0-25	277.4	11.32
0-30	388.6	15.86
0-35	512.2	20.91
0-40	644.9	26.33
0-45	783.7	31.99
0-50	925.3	37.77
0-55	1066.8	43.55
0-60	1205.7	49.22
0-65	1339.5	54.69
0-70	1466.6	59.87
0-75	1585.4	64.72
0-80	1695.1	69.20
0-85	1791.8	73.15
0-90	1858.1	75.85
0-95	1907.3	77.86
0-100	1959.3	79.99
0-105	2004.6	81.84
0-110	2047.6	83.59
0-115	2093.3	85.46
0-120	2141.5	87.43
0-125	2189.7	89.39
0-130	2234.9	91.24
0-135	2276.0	92.92
0-140	2313.0	94.43
0-145	2346.2	95.78
0-150	2375.2	96.97
0-155	2399.6	97.96
0-160	2419.1	98.76
0-165	2433.4	99.34
0-170	2442.7	99.72
0-175	2447.9	99.93
0-180	2449.5	100.00

6. Product Photo





Ballast



Directions

1. The information marked "superscript #" is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
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