

## LM-79-08 Test Report

For

### LIGHT EFFICIENT DESIGN

188 S. Northwest Highway Cary, IL 60013, USA

### Direct Linear Ambient Luminaires

Model Name(s):

RP-LBI-G1-3F-15W-XXK-WC-[Blank, OCN]-[BAA, Blank]

Representative (Tested) Model:

RP-LBI-G1-3F-15W-XXK-WC

#### Model Difference:

1. WC represents power adjustable and color tunable, wattage can adjust 10W, 12W and 15W, color tunable 2700K, 3000K and 3500K.
2. [Blank, OCN] represent sensor option, OCN represents occupancy sensor and N can be a number 1 to 4 for sensor number, Blank represents without sensor.
3. [BAA, Blank] is for business purpose.
4. All construction is the same, except the function

Prepare by :

Engineer: Derek Lai

Date: 2019-11-19

Review by:

Technical Lead: Vincent Yuan

Issue Date: 2019-11-

Revised Date: N/A

- Note:
1. The results contained in this report pertain only to the tested samples.
  2. This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd
  3. This report does not imply product certification, approval, or endorsement by NVLAP, or any agency of the Federal Government.

**Product Information:**

Client Name:	LIGHT EFFICIENT DESIGN
Brand Name:	REMPHOS OR LIGHT EFFICIENT DESIGN
Model Number:	RP-LBI-G1-3F-15W-XXK-WC
Product Type:	Direct Linear Ambient Luminaires
Rating Input:	100-277Vac, 50/60Hz, 15W
Declared CCT:	2700K/000K/3500K
Declared Light Output:	1900 lm
LED Manufacturer:	Hongli Zhihui Group Co., Ltd.
LED Model:	HL-AS-PU2835DW-S1-08-PCT-HR3
LED Quantity:	80 pcs

**Test Information:**

Standard Lamp:	Total Spectral Radiant Flux Standard Lamp, trace to NIST. 1. D908S for Gonio 2. D215S for Integrating Sphere
Date of Receipt Samples:	2019-11-06
Quantity of Receipt Samples:	1 pcs
Sample Number:	191106002-S1

**Laboratory Information:**

Test Laboratory:	Dongguan New Testing Centre Co., Ltd
Laboratory Address:	3F, No. 1 the 1 <sup>st</sup> North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China
Laboratory Contact Name:	Neil Zhong
Laboratory Contact E-mail:	<a href="mailto:Neil_ntc@163.com">Neil_ntc@163.com</a>

**Report Information:**

Issued Date of Test Report:	2019-11-
Revised Date of Test Report:	N/A
Test Report No.:	NTCLR19110104
Remark (If applicable):	1. Product tested IS test with all wattage for all CCT, tested Gonio test and PF&iTHD test with the default maximum wattage for 2700K. 2. Tested PF&iTHD test with the default maximum wattage for 2700K.

<b>Test Specification:</b>	
Date of Test	2019-11-08
Test Item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. THD and PF
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2017 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Color Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry

<b>Test Methods:</b>
<p><b>1. Photometric and Electrical Measurements – Light Distribution Method:</b></p> <p>Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at <math>25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}</math>, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at required Voltage and Frequency. It was stabilized before measurement was made. Luminous Flux, Luminaire Efficacy and Zonal Lumen were calculated from the software taken at <math>1^{\circ}</math> vertical intervals and <math>15^{\circ}</math> horizontal intervals.</p>
<p><b>2. Photometric and Electrical Measurements – Integrating Sphere Method:</b></p> <p>Photometric parameters were measured using an integrating sphere, as spectroradiometer and software. The ambient temperature condition inside the sphere was measured at <math>25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}</math>. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at require Voltage and Frequency. It was stabilized before measurement was made. Chromaticity Coordinates, Correlated Color Temperature and Color Rendering Index were calculated from the spectral radiant flux measurements taken at least 1 nm intervals over the rage of 380 to 780 nm.</p>
<p><b>3. THD and PF Measurements:</b></p> <p>The sample was tested according to the ANSI C82.77-2002, the sample was operated at requirement Voltage and Frequency, and was stabilized before measurement. The Total Harmonic Distortion was calculated from the Digital Power Meter.</p>

**Integrating Sphere Test Results:**

**Test Condition:**

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
25.1	41.0	Face Down	90	10

**Electrical Data:**

CCT (K)	Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
2700	120.0	60	0.1249	14.90	0.9942
	277.0	60	0.05850	15.08	0.9313
3000	120.0	60	0.1233	14.71	0.9946
	277.0	60	0.05780	14.90	0.9304
3500	120.0	60	0.1250	14.92	0.9943
	277.0	60	0.05850	15.10	0.9322

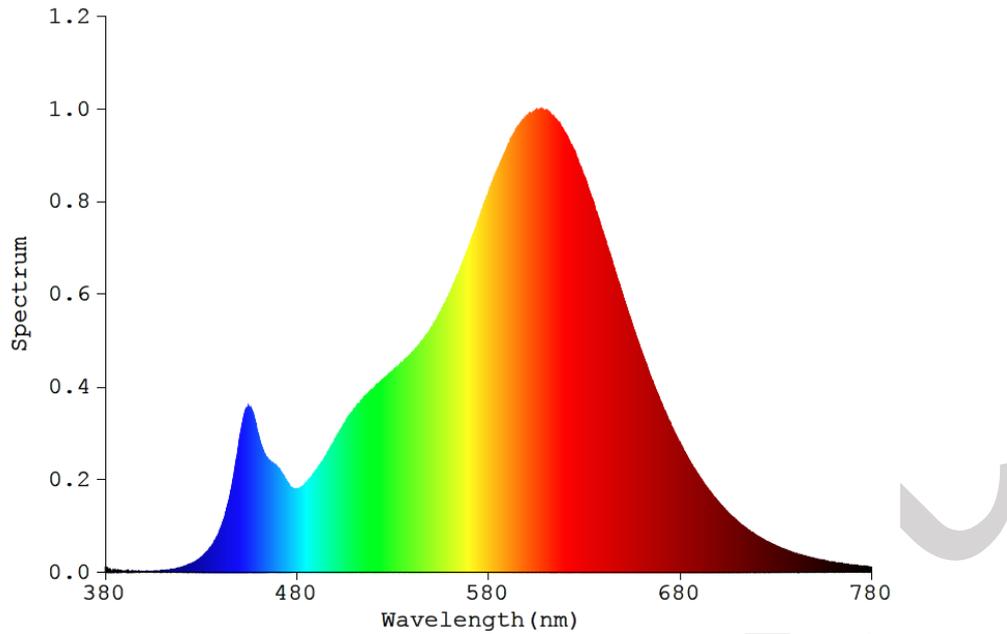
**Color Data:**

Voltage (V)	CCT (K)	CRI	R9	x	y	u'	v'	Duv
120.0	2720	82.7	7	0.4613	0.4158	0.2611	0.5295	0.00178
277.0	2723	82.6	6	0.4611	0.4158	0.2610	0.5295	0.00181
120.0	3089	84.0	12	0.4291	0.3983	0.2480	0.5179	-0.00120
277.0	3083	83.9	12	0.4295	0.3985	0.2482	0.5181	-0.00118
120.0	3525	83.8	11	0.4020	0.3849	0.2360	0.5083	-0.00187
277.0	3523	83.8	11	0.4021	0.3848	0.2360	0.5083	-0.00189

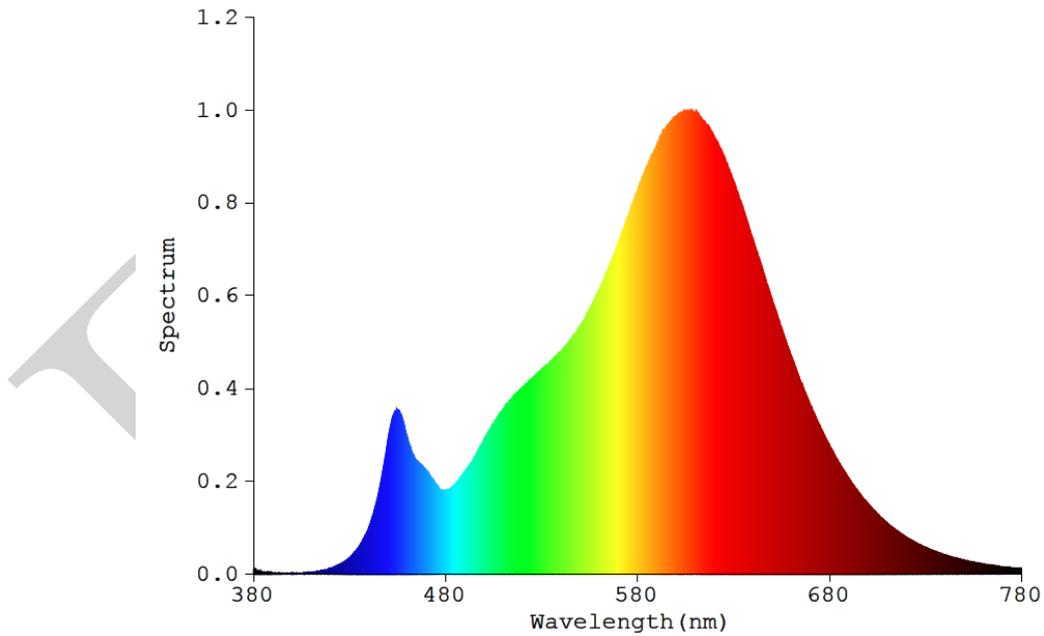
**Output Data:**

CCT (K)	Voltage (V)	Light output (lm)	Efficacy (lm/W)
2700	120.0	1938.8	130.12
	277.0	1936.0	128.38
3000	120.0	2050.7	139.41
	277.0	2049.7	137.56
3500	120.0	2055.5	137.77
	277.0	2054.5	136.06

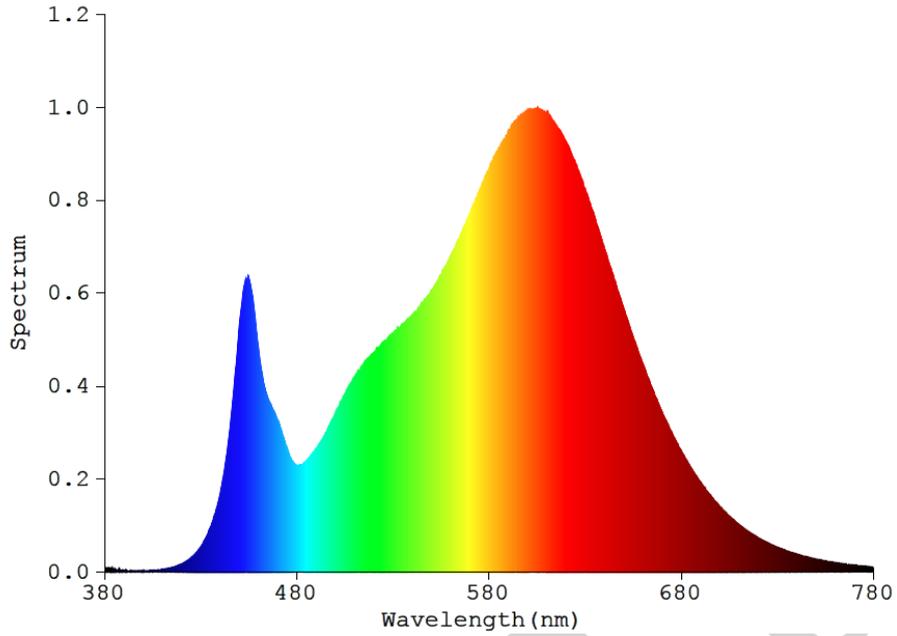
**Spectrum Diagram (2700K for 120V):**



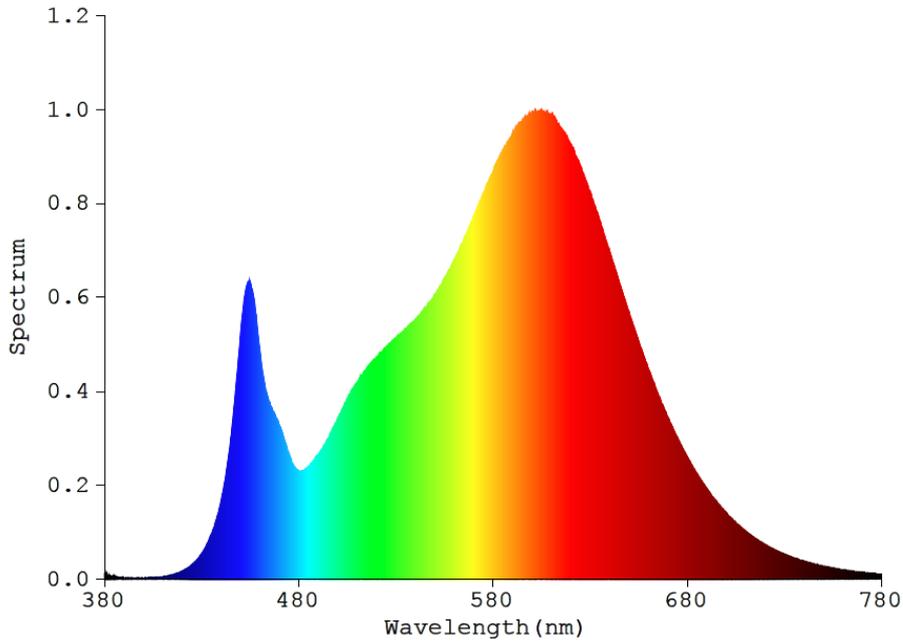
**Spectrum Diagram (2700K for 277V):**



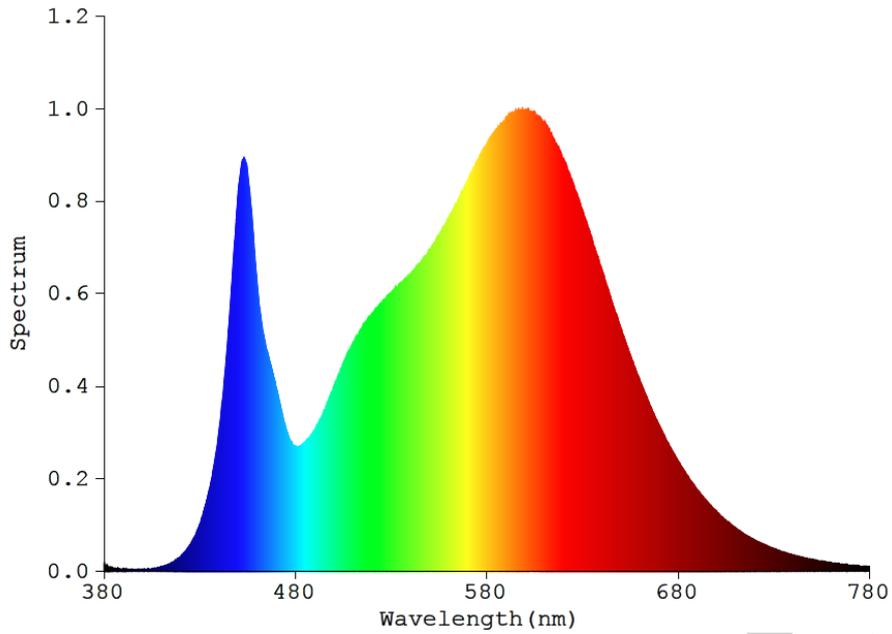
**Spectrum Diagram (3000K for 120V):**



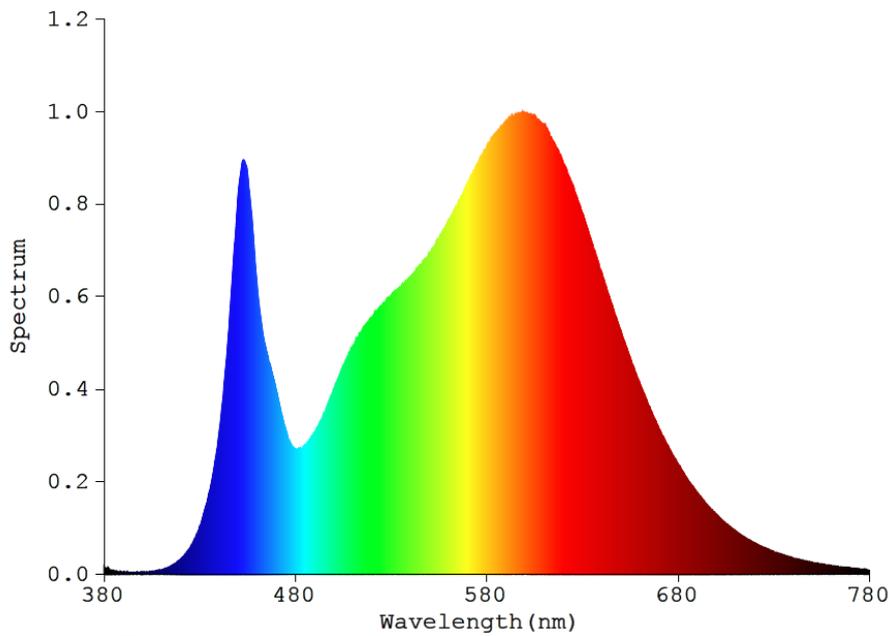
**Spectrum Diagram (3000K for 277V):**



**Spectrum Diagram (3500K for 120V):**



**Spectrum Diagram (3500K for 277V):**



**Goniophotometer Test Results:**

**Test Condition:**

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
24.6	40.2	Face Down	90	25

**Electrical Data:**

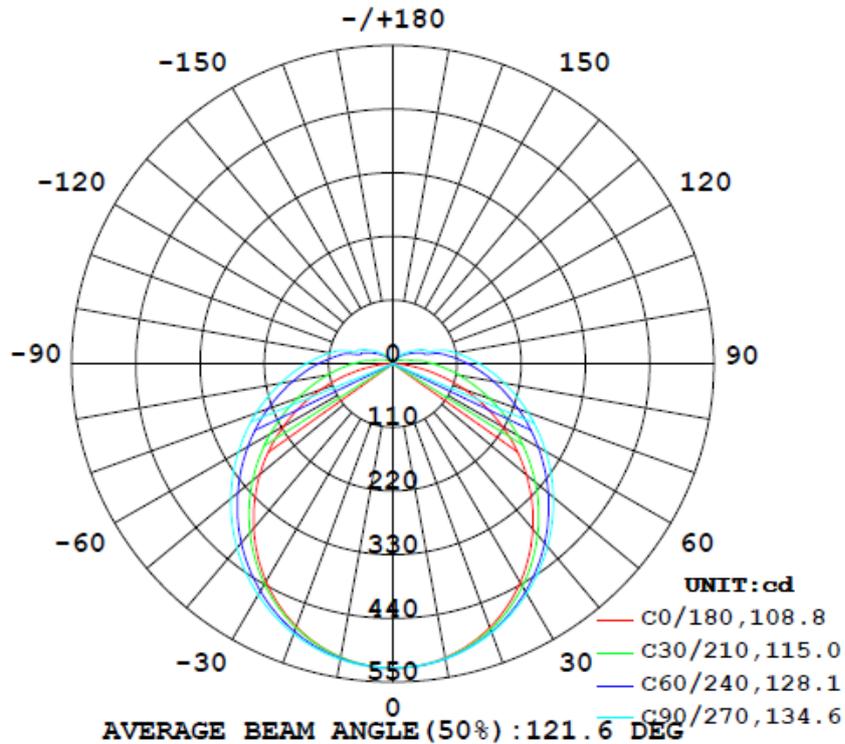
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.1249	14.90	0.9942
277.0	60	0.05850	15.08	0.9313

**Goniophotometer Data:**

Parameter	Results at 120V	Results at 277V
Total Luminous (lm)	1938.8	1936.0
Total Luminous per foot (lm/ft)	646.27	645.33
Luminous Efficacy (lm/w)	130.12	128.38
Zonal Lumens Distribution (0-60°)	62.9%	
Beam Angle (°)	121.6	

**Luminous Intensity Distribution Diagram (Result at 120V):**

**LUMINOUS INTENSITY DISTRIBUTION DIAGRAM**

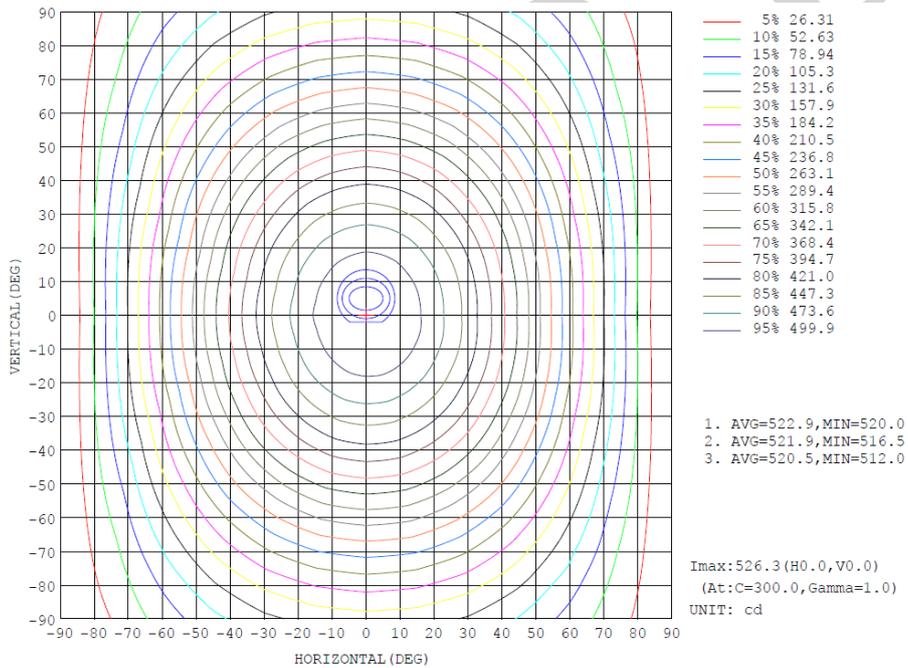


**Zonal Flux Diagram (Result at 120V):**

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	515.6	517.3	517.5	515.4	514.6	515.7	518.4	517.7	0- 10	49.74	49.74	2.57,2.57
20	485.1	491.3	494.6	487.5	483.3	488.6	496.7	491.8	10- 20	142.6	192.4	9.92,9.92
30	436.5	449.8	458.5	444.4	434.4	446.2	461.4	450.3	20- 30	216.9	409.3	21.1,21.1
40	372.9	396.1	412.1	389.5	371.1	392.1	415.6	396.3	30- 40	263.9	673.2	34.7,34.7
50	298.6	334.3	358.8	327.2	297.5	330.2	362.4	333.8	40- 50	279.8	953.1	49.2,49.2
60	216.7	269.3	302.3	262.2	216.2	265.6	305.7	268.0	50- 60	265.9	1219	62.9,62.9
70	131.2	205.6	246.5	198.7	132.3	203.5	249.4	204.2	60- 70	227.7	1447	74.6,74.6
80	49.85	149.4	194.3	143.3	52.70	147.9	195.6	147.1	70- 80	175.3	1622	83.7,83.7
90	5.178	103.4	148.1	98.34	4.728	102.5	148.5	100.5	80- 90	122.2	1744	90,90
100	3.874	68.80	109.2	65.04	3.238	67.70	109.1	64.94	90-100	81.67	1826	94.2,94.2
110	1.300	39.72	62.06	38.77	2.855	40.78	65.77	37.67	100-110	49.18	1875	96.7,96.7
120	0.1528	25.29	47.07	24.20	2.394	25.86	47.30	23.59	110-120	29.95	1905	98.3,98.3
130	0.1977	15.71	30.39	15.37	1.965	15.91	30.53	14.29	120-130	17.74	1923	99.2,99.2
140	0.2440	9.322	18.16	9.398	1.573	9.709	18.39	8.422	130-140	9.533	1932	99.7,99.7
150	0.2836	5.288	9.986	5.475	1.226	5.659	9.760	4.843	140-150	4.477	1937	99.9,99.9
160	0.3306	2.593	4.768	2.557	0.9209	1.914	4.692	1.173	150-160	1.743	1938	100,100
170	0.3704	0.3757	0.3788	0.3747	0.5641	0.5267	0.5138	0.5210	160-170	0.3620	1939	100,100
180	0.4493	0.4407	0.4431	0.4547	0.4489	0.4425	0.4420	0.4536	170-180	0.0424	1939	100,100
DEG	LUMINOUS INTENSITY:cd Less than 35% Percent = 21.2 %										UNIT:lm	

**Isocandela Diagram (Result at 120V):**



**Luminous Distribution Intensity Data (Result at 120V):**

Table--1  
UNIT: cd

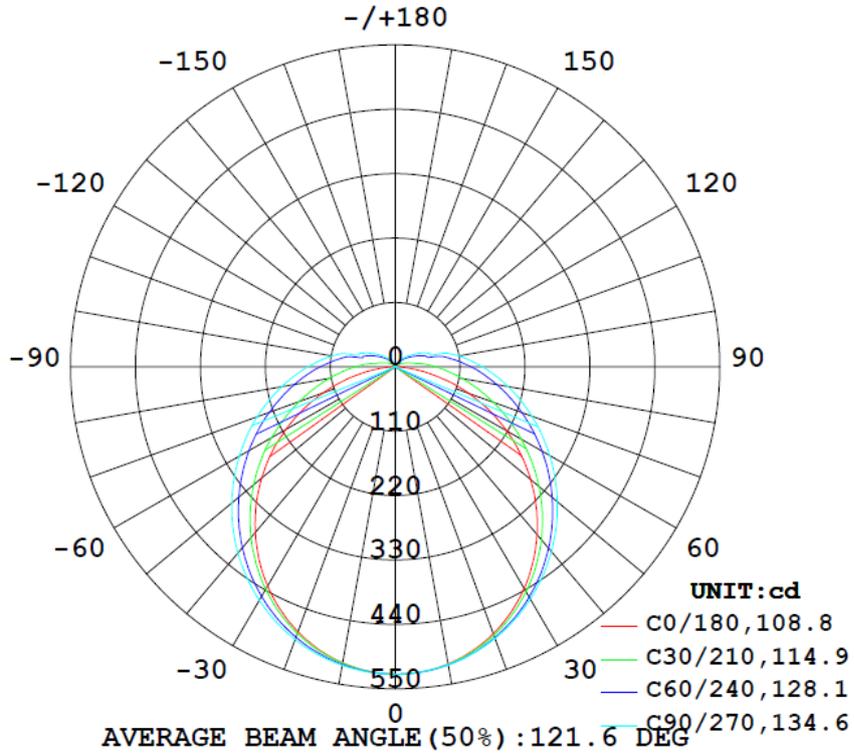
C (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	526	526	526	526	526	526	526	526	526	526	526	526	526	526	526	526	526	526	526
5	523	524	524	524	524	524	524	523	523	523	522	522	523	522	523	523	523	524	524
10	516	517	517	517	518	518	518	517	516	515	514	514	515	514	515	516	517	518	518
15	503	505	505	506	507	508	508	507	505	504	501	501	501	501	502	504	507	508	509
20	485	488	489	491	493	495	495	493	490	487	484	482	483	482	485	489	492	495	497
25	463	466	468	472	475	478	478	477	472	468	462	460	461	460	464	469	475	478	481
30	436	441	444	450	455	459	458	456	451	444	437	434	434	434	440	446	454	458	461
35	406	411	416	424	431	436	436	434	426	418	409	404	404	404	412	420	430	436	440
40	373	379	386	396	405	411	412	409	400	390	378	371	371	371	381	392	404	411	416
45	337	344	353	366	377	385	386	382	372	359	345	336	335	336	348	362	376	385	390
50	299	307	318	334	347	357	359	354	342	327	310	299	298	300	314	330	347	357	362
55	258	269	283	302	318	329	331	326	312	295	274	260	258	261	278	298	317	329	334
60	217	228	247	269	287	300	302	297	282	262	239	220	216	222	244	266	287	300	306
65	174	188	211	237	258	271	274	269	253	230	203	180	174	183	207	234	257	271	277
70	131	149	177	206	229	243	246	241	224	199	169	141	132	144	174	203	227	243	249
75	88.7	111	145	176	201	216	220	213	196	170	137	104	91.1	108	142	175	200	216	221
80	49.8	77.8	116	149	175	190	194	188	171	143	109	71.1	52.7	75.3	114	148	174	190	196
85	18.8	50.6	90.0	125	151	166	170	164	147	119	83.6	44.5	21.7	49.2	89.0	124	150	166	171
90	5.18	31.6	69.3	103	129	144	148	142	125	98.3	63.5	26.4	4.73	30.8	68.6	102	128	144	149
95	4.64	20.1	52.9	84.7	109	123	128	122	106	80.3	47.9	16.3	3.45	19.4	52.5	83.6	108	123	128
100	3.87	13.2	34.7	68.8	91.0	105	109	103	88.2	65.0	30.8	10.6	3.24	12.7	33.7	67.7	90.6	105	109
105	2.55	9.01	27.2	47.6	67.4	87.1	91.3	85.6	63.7	45.2	24.7	7.80	3.06	9.53	27.6	48.2	61.5	81.5	88.7
110	1.30	6.38	20.7	39.7	55.1	61.1	62.1	60.2	53.7	38.8	18.8	6.31	2.85	7.51	21.6	40.8	55.5	63.4	65.8
115	0.28	4.58	15.9	31.9	45.6	54.2	56.8	53.7	44.7	30.4	15.0	5.39	2.63	6.21	17.2	32.7	45.8	54.0	56.9
120	0.15	3.55	12.3	25.3	36.9	44.7	47.1	43.9	35.7	24.2	12.0	4.70	2.39	5.31	13.6	25.9	37.2	44.6	47.3
125	0.18	2.90	9.82	20.1	29.5	36.2	38.0	35.5	28.7	19.4	9.92	4.13	2.17	4.53	10.6	20.3	29.8	36.0	38.4
130	0.20	2.47	7.71	15.7	23.2	28.8	30.4	28.3	22.9	15.4	8.04	3.62	1.97	3.93	8.65	15.9	23.6	28.6	30.5
135	0.22	2.11	6.08	12.2	18.0	22.5	23.8	22.2	17.9	12.1	6.54	2.98	1.77	3.01	7.01	12.0	18.6	22.2	23.8
140	0.24	1.06	4.81	9.32	13.7	17.4	18.2	17.1	13.7	9.40	5.31	1.65	1.57	1.56	5.65	9.71	13.8	16.4	18.4
145	0.27	0.35	3.81	7.06	10.3	13.0	13.5	12.8	10.5	7.22	4.28	1.22	1.39	1.33	4.45	7.43	10.6	12.2	13.3
150	0.28	0.32	2.81	5.29	7.61	9.42	9.99	9.32	7.82	5.47	3.38	1.01	1.23	1.16	3.55	5.66	7.87	9.18	9.76
155	0.31	0.33	1.68	3.89	5.44	6.64	7.03	6.60	5.57	4.06	1.93	0.83	1.07	1.01	1.22	4.19	5.63	6.53	6.90
160	0.33	0.35	0.36	2.59	3.71	4.52	4.77	4.52	3.67	2.56	0.63	0.68	0.92	0.88	0.80	1.91	3.76	4.46	4.69
165	0.34	0.34	0.36	0.38	1.65	2.74	2.91	2.76	1.69	0.40	0.47	0.52	0.75	0.70	0.64	0.56	0.61	1.77	2.07
170	0.37	0.37	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.37	0.38	0.39	0.56	0.54	0.53	0.53	0.52	0.52	0.51
175	0.41	0.41	0.41	0.41	0.40	0.40	0.40	0.41	0.41	0.41	0.41	0.41	0.51	0.51	0.50	0.50	0.49	0.48	0.48
180	0.45	0.45	0.44	0.44	0.44	0.44	0.44	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.44	0.44	0.44	0.44

Table--2  
UNIT: cd

C (DEG)	285	300	315	330	345														
0	526	526	526	526	526														
5	524	524	524	524	524														
10	518	518	518	517	516														
15	509	508	507	506	504														
20	496	495	492	490	487														
25	479	477	473	469	466														
30	460	456	450	445	440														
35	437	433	425	417	411														
40	413	407	396	387	378														
45	386	378	366	354	343														
50	358	349	334	319	306														
55	330	319	301	283	267														
60	301	288	268	246	227														
65	272	258	235	209	186														
70	243	228	204	175	146														
75	216	200	175	142	108														
80	190	173	147	112	73.6														
85	166	149	122	86.8	46.2														
90	143	127	101	65.9	27.6														
95	123	107	81.6	49.5	17.0														
100	104	89.2	64.9	33.4	11.0														
105	80.1	61.4	46.7	25.0	7.57														
110	63.3	53.6	37.7	19.2	5.27														
115	53.4	44.4	30.0	14.5	3.68														
120	44.0	35.8	23.6	11.2	2.77														
125	35.5	28.5	18.4	8.67	2.29														
130	28.1	22.4	14.3	6.75	1.68														
135	21.8	17.5	11.1	5.40	0.45														
140	16.6	13.2	8.42	4.29	0.38														
145	12.0	9.78	6.44	3.44	0.42														
150	8.97	7.20	4.84	2.04	0.47														
155	6.37	5.16	3.56	0.56	0.51														
160	4.36	3.55	1.17	0.54	0.54														
165	1.52	0.56	0.55	0.54	0.54														
170	0.52	0.52	0.52	0.52	0.51														
175	0.48	0.48	0.49	0.49	0.49														
180	0.45	0.45	0.45	0.45	0.45														

**Luminous Intensity Distribution Diagram (Result at 277V):**

**LUMINOUS INTENSITY DISTRIBUTION DIAGRAM**

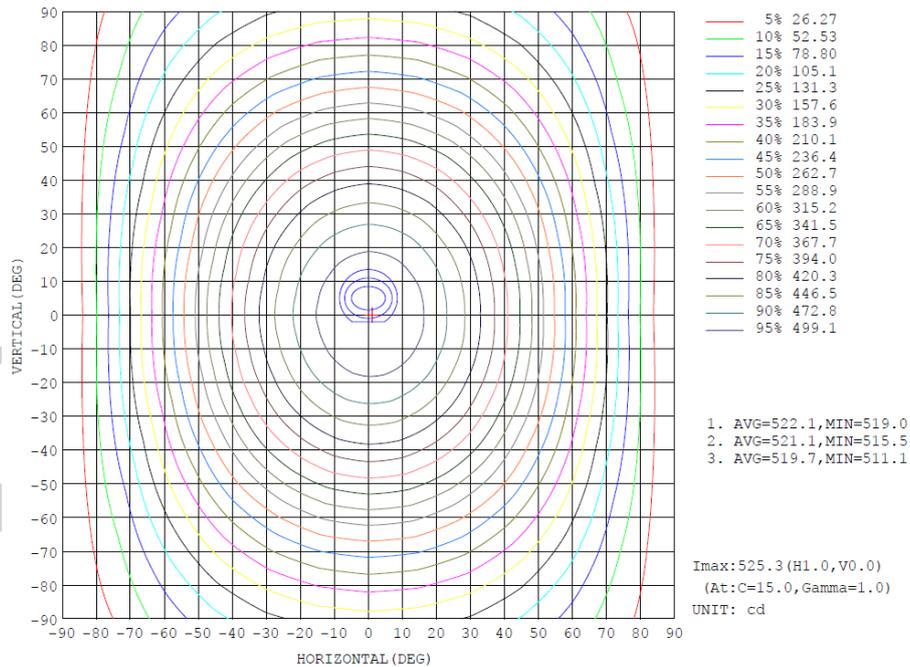


**Zonal Flux Diagram (Result at 277V):**

ZONAL FLUX DIAGRAM:

y	c0	c45	c90	c135	c180	c225	c270	c315	y	φ zone	φ total	lum,lamp
10	515.2	516.6	516.7	514.5	513.3	514.8	517.5	516.9	0- 10	49.67	49.67	2.57,2.57
20	485.2	490.7	493.9	486.7	481.7	487.6	495.9	491.1	10- 20	142.4	192.1	9.92,9.92
30	436.9	449.3	457.8	443.7	432.5	445.3	460.7	449.7	20- 30	216.6	408.6	21.1,21.1
40	373.7	395.8	411.6	389.0	369.1	391.2	414.8	395.7	30- 40	263.5	672.2	34.7,34.7
50	299.6	334.0	358.5	326.6	295.4	329.4	361.8	333.2	40- 50	279.4	951.6	49.2,49.2
60	218.0	269.2	302.1	261.9	214.2	265.1	305.1	267.5	50- 60	265.5	1217	62.9,62.9
70	132.6	205.5	246.3	198.5	130.5	203.1	249.0	203.8	60- 70	227.4	1444	74.6,74.6
80	51.05	149.4	194.3	143.1	51.31	147.6	195.2	146.9	70- 80	175.0	1619	83.7,83.7
90	5.284	103.4	148.1	98.24	4.502	102.2	148.3	100.3	80- 90	122.0	1741	90,90
100	3.916	68.79	109.2	64.96	3.216	67.53	108.9	64.79	90-100	81.57	1823	94.2,94.2
110	1.344	39.74	62.03	38.74	2.835	40.68	65.67	37.59	100-110	49.12	1872	96.7,96.7
120	0.1511	25.32	47.06	24.19	2.376	25.78	47.22	23.55	110-120	29.91	1902	98.3,98.3
130	0.1974	15.71	30.39	15.36	1.950	15.87	30.48	14.26	120-130	17.71	1920	99.2,99.2
140	0.2493	9.322	18.18	9.396	1.562	9.679	18.35	8.399	130-140	9.521	1929	99.7,99.7
150	0.2819	5.286	9.992	5.473	1.216	5.640	9.731	4.829	140-150	4.471	1934	99.9,99.9
160	0.3300	2.599	4.775	2.564	0.9136	1.899	4.679	1.149	150-160	1.740	1936	100,100
170	0.3699	0.3748	0.3787	0.3745	0.5583	0.5254	0.5126	0.5207	160-170	0.3614	1936	100,100
180	0.4469	0.4402	0.4423	0.4545	0.4466	0.4420	0.4413	0.4542	170-180	0.0424	1936	100,100
DEG	LUMINOUS INTENSITY:cd Less than 35% Percent = 21.1 %									UNIT:lm		

**Isocandela Diagram (Result at 277V):**



**Luminous Distribution Intensity Data (Result at 277V):**

Table--1 UNIT: cd

C (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525
5	523	523	523	523	523	523	523	522	522	522	521	522	522	522	522	522	523	523	523
10	515	516	516	517	517	517	517	516	515	515	513	513	513	513	514	515	516	517	518
15	503	504	504	506	507	508	507	506	504	503	500	500	500	500	502	503	506	507	509
20	485	487	488	491	492	494	494	493	490	487	483	481	482	482	485	488	492	494	496
25	463	466	468	472	475	477	477	476	471	467	462	459	459	459	464	468	474	477	480
30	437	440	443	449	454	458	458	456	450	444	437	433	432	433	439	445	453	458	461
35	407	411	416	424	430	436	436	433	426	418	408	403	402	403	411	419	429	435	439
40	374	379	385	396	404	411	412	408	399	389	377	370	369	371	380	391	403	411	415
45	338	344	353	366	376	384	386	382	371	358	344	335	333	336	347	361	375	384	389
50	300	307	318	334	347	357	358	354	342	327	309	298	295	299	313	329	346	357	362
55	260	268	282	302	317	328	330	326	312	294	274	260	256	261	278	297	316	328	334
60	218	228	247	269	287	299	302	297	282	262	238	219	214	222	242	265	286	299	305
65	175	188	211	237	257	271	274	268	252	229	203	180	172	183	207	233	257	271	277
70	133	148	177	205	228	243	246	240	223	198	169	141	131	144	173	203	227	243	249
75	90.2	111	145	176	201	215	220	213	196	170	137	104	89.5	108	142	174	199	216	221
80	51.1	77.7	116	149	175	190	194	187	170	143	108	70.8	51.3	75.2	113	148	173	190	195
85	19.6	50.5	90.0	125	151	166	170	164	147	119	83.4	44.3	20.7	49.1	88.9	123	149	166	171
90	5.28	31.5	69.2	103	129	143	148	142	125	98.2	63.4	26.3	4.50	30.7	68.5	102	127	143	148
95	4.67	20.1	52.8	84.7	109	123	128	122	106	80.2	47.8	16.2	3.42	19.4	52.4	83.4	108	123	128
100	3.92	13.2	34.7	68.8	90.9	105	109	103	88.0	65.0	30.7	10.5	3.22	12.7	33.5	67.5	90.4	104	109
105	2.60	9.00	27.2	47.6	67.4	86.9	91.4	85.5	63.6	45.2	24.6	7.77	3.04	9.50	27.5	48.1	61.3	81.3	88.5
110	1.34	6.37	20.7	39.7	55.1	61.1	62.0	60.1	53.6	38.7	18.8	6.29	2.84	7.49	21.6	40.7	55.3	63.3	65.7
115	0.30	4.58	15.9	31.9	45.6	54.2	56.8	53.6	44.6	30.4	15.0	5.38	2.61	6.19	17.1	32.7	45.7	53.9	56.8
120	0.15	3.55	12.3	25.3	36.9	44.6	47.1	43.8	35.6	24.2	12.0	4.68	2.38	5.30	13.6	25.8	37.1	44.6	47.2
125	0.17	2.90	9.81	20.1	29.5	36.1	38.0	35.5	28.7	19.4	9.90	4.11	2.15	4.51	10.6	20.2	29.8	36.0	38.3
130	0.20	2.46	7.70	15.7	23.2	28.7	30.4	28.3	22.8	15.4	8.02	3.60	1.95	3.92	8.63	15.9	23.6	28.6	30.5
135	0.22	2.11	6.08	12.2	18.0	22.5	23.8	22.2	17.9	12.1	6.52	2.97	1.75	3.00	6.99	11.9	18.6	22.2	23.8
140	0.24	1.06	4.81	9.32	13.6	17.3	18.2	17.1	13.7	9.40	5.29	1.64	1.56	1.56	5.64	9.68	13.8	16.5	18.4
145	0.27	0.35	3.80	7.06	10.3	12.9	13.5	12.8	10.5	7.22	4.26	1.21	1.38	1.33	4.44	7.40	10.6	12.2	13.3
150	0.28	0.32	2.81	5.29	7.61	9.39	9.99	9.31	7.81	5.47	3.37	1.00	1.22	1.15	3.54	5.64	7.86	9.16	9.73
155	0.31	0.33	1.67	3.89	5.44	6.62	7.03	6.59	5.57	4.06	1.93	0.83	1.06	1.01	1.21	4.18	5.61	6.53	6.88
160	0.33	0.34	0.36	2.60	3.70	4.52	4.78	4.51	3.66	2.56	0.63	0.68	0.91	0.87	0.79	1.90	3.75	4.46	4.68
165	0.34	0.34	0.36	0.37	1.65	2.73	2.91	2.76	1.69	0.40	0.47	0.52	0.74	0.70	0.64	0.55	0.61	1.77	2.05
170	0.37	0.37	0.38	0.37	0.38	0.37	0.38	0.37	0.38	0.37	0.38	0.38	0.56	0.54	0.53	0.53	0.52	0.52	0.51
175	0.40	0.41	0.41	0.41	0.40	0.40	0.41	0.41	0.41	0.41	0.41	0.51	0.51	0.50	0.50	0.49	0.48	0.48	0.48
180	0.45	0.45	0.44	0.44	0.44	0.44	0.44	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.44	0.44	0.44	0.44	0.44

Table--2 UNIT: cd

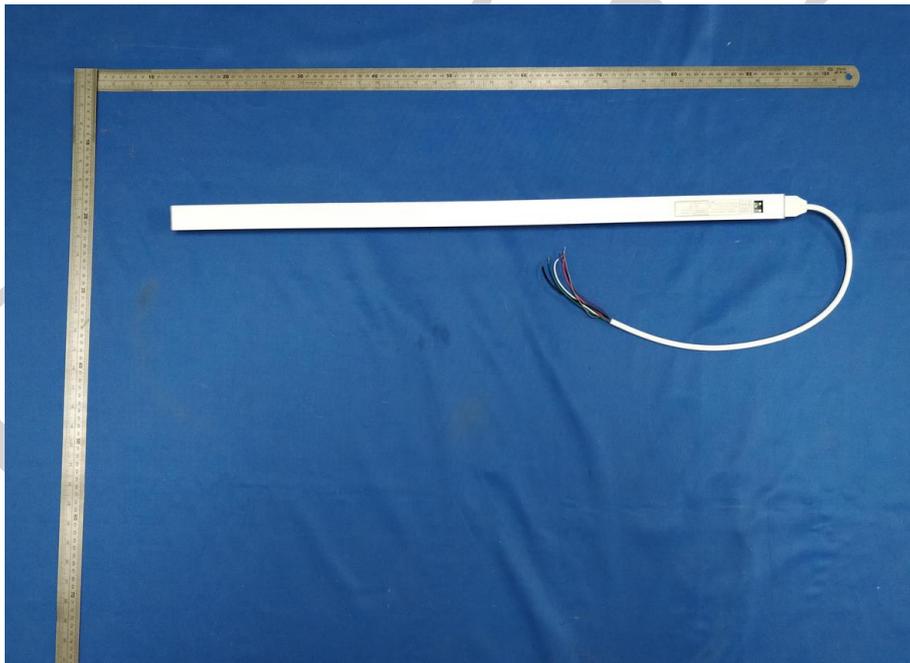
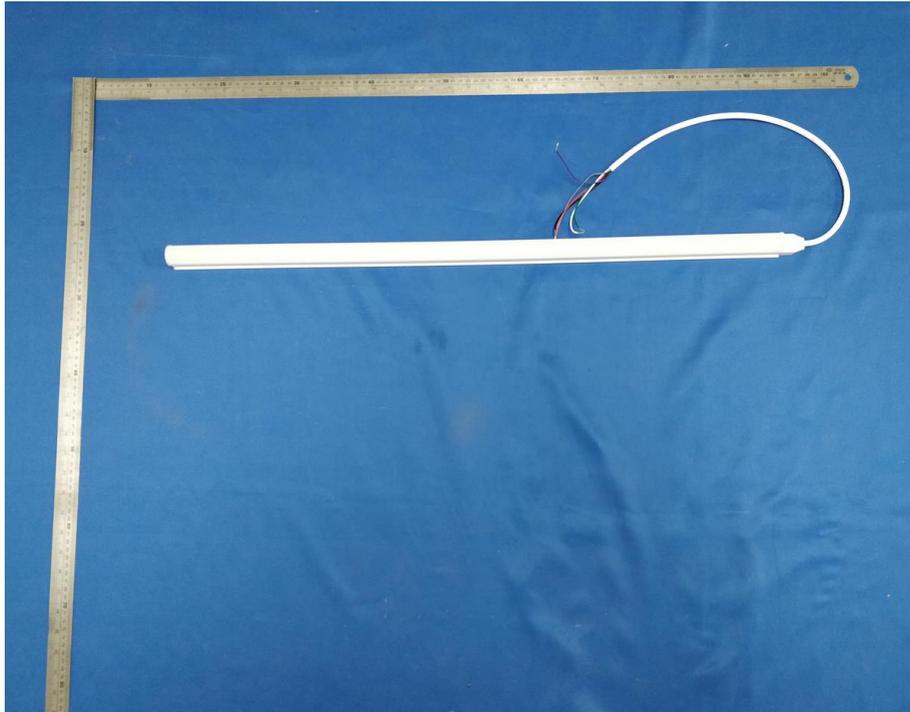
C (DEG)	285	300	315	330	345														
0	525	525	525	525	525														
5	523	523	523	523	523														
10	518	517	517	517	516														
15	508	508	506	505	504														
20	495	494	491	489	487														
25	479	477	472	469	465														
30	459	456	450	445	440														
35	437	432	424	417	410														
40	412	406	396	386	378														
45	386	378	365	353	343														
50	358	349	333	318	306														
55	329	318	300	283	267														
60	300	288	267	246	227														
65	271	258	235	209	186														
70	243	228	204	174	146														
75	216	200	174	142	108														
80	190	173	147	112	73.7														
85	165	149	122	86.7	46.3														
90	143	126	100	65.8	27.6														
95	122	107	81.4	49.5	17.0														
100	104	89.0	64.8	33.4	11.1														
105	79.9	61.3	46.7	25.0	7.59														
110	63.3	53.6	37.6	19.2	5.28														
115	53.3	44.4	29.9	14.5	3.68														
120	43.9	35.8	23.6	11.2	2.77														
125	35.4	28.5	18.4	8.67	2.29														
130	28.1	22.4	14.3	6.74	1.68														
135	21.8	17.5	11.0	5.39	0.45														
140	16.6	13.1	8.40	4.29	0.38														
145	12.0	9.76	6.43	3.44	0.42														
150	8.95	7.18	4.83	2.03	0.47														
155	6.35	5.15	3.54	0.56	0.51														
160	4.35	3.54	1.15	0.54	0.54														
165	1.51	0.56	0.54	0.54	0.54														
170	0.52	0.52	0.52	0.52	0.51														
175	0.48	0.48	0.49	0.49	0.49														
180	0.45	0.45	0.45	0.45	0.45														

**THD and PF Measurement Test Results (Test for 2700K):**

**Electrical Measurement:**

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD(%)
277.0	60	0.05850	15.08	0.9313	9.75

**Photo of Sample:**



**Annex (Results at 120V):**

ANSI CCT Quadrangle (omit any outside product range)/Worst- Case Value	Voltage (V)	Actual CCT (K)	Power Consumption (W)	Lumen Output (lm)	Efficacy (lm/W)	Input Control Signal Applied
2700K	120.0	2720	14.90	1938.8	130.12	Set Switch 0% to 2700K
	277.0	2723	15.08	1936.0	128.38	Set Switch 0% to 2700K
3000K	120.0	3089	14.71	2050.7	139.41	Set Switch 50% to 3000K
	277.0	3083	14.90	2049.7	137.56	Set Switch 50% to 3000K
3500K	120.0	3525	14.92	2055.5	137.77	Set Switch 100% to 3500K
	277.0	3523	15.10	2054.5	136.06	Set Switch 100% to 3500K
Lowest Efficacy	120.0	130.12 lm/W (@2700K)				
	277.0	128.38lm/W (@2700K)				
Maximum Power	120.0	14.92W				
	277.0	15.10W				

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**Equipment List:**

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2018-11-16	2019-11-15
NTC-F01-006	2.0 meter Integrating Sphere	2018-11-16	2019-11-15
NTC-F01-012	Standard Lamp	2018-11-13	2019-11-12
NTC-F01-013	Standard Lamp	2018-11-13	2019-11-12
NTC-F01-031	Digital Power Meter	2019-08-22	2020-08-21
NTC-F01-019	Temperature & Humidity Meter	2018-11-12	2019-11-11

\*\*\*\*\*End of Report\*\*\*\*\*

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