

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-12W-XXK-WC-[Blank, OCN]-[BAA, Blank]

Representative (Tested) Model:

RP-LBI-G1-3F-12W-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 function.

Prepare by :

Review by:

Engineer: Derek Lai

Date: 2019-11-19

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.
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 3. This report does not imply product certification, approval, or endorsement by NVLAP, or any agency of the Federal Government.

Laboratory: Dongguan New Testing Centre Co., Ltd

Address: 3F, No. 1 the 1st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China

Tel: 86-769-89874553

Website: <http://www.ntc-cert.com>

Product Information:

Client Name:	LIGHT EFFICIENT DESIGN
Brand Name:	REMPHOS OR LIGHT EFFICIENT DESIGN
Model Number:	RP-LBI-G1-3F-12W-XXK-WC
Product Type:	Direct Linear Ambient Luminaires
Rating Input:	100-277Vac, 50/60Hz, 12W
Declared CCT:	2700K/000K/3500K
Declared Light Output:	1500 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 st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China
Laboratory Contact Name:	Neil Zhong
Laboratory Contact E-mail:	Neil_ntc@163.com

Report Information:

Issued Date of Test Report:	2019-11-
Revised Date of Test Report:	N/A
Test Report No.:	NTCLR19110161
Remark (If applicable):	N/A

Test Specification:	
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

Test Methods:
<p>1. Photometric and Electrical Measurements – Light Distribution Method:</p> <p>Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25\text{ }^{\circ}\text{C} \pm 1^{\circ}\text{C}$, 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 1° vertical intervals and 15° horizontal intervals.</p>
<p>2. Photometric and Electrical Measurements – Integrating Sphere Method:</p> <p>Photometric parameters were measured using an integrating sphere, as spectroradiometer and software. The ambient temperature condition inside the sphere was measured at $25\text{ }^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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>3. THD and PF Measurements:</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)
24.7	40.7	Face Down	90	10

Electrical Data:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.09820	11.70	0.9926
277.0	60	0.04740	11.97	0.9120

Output Data:

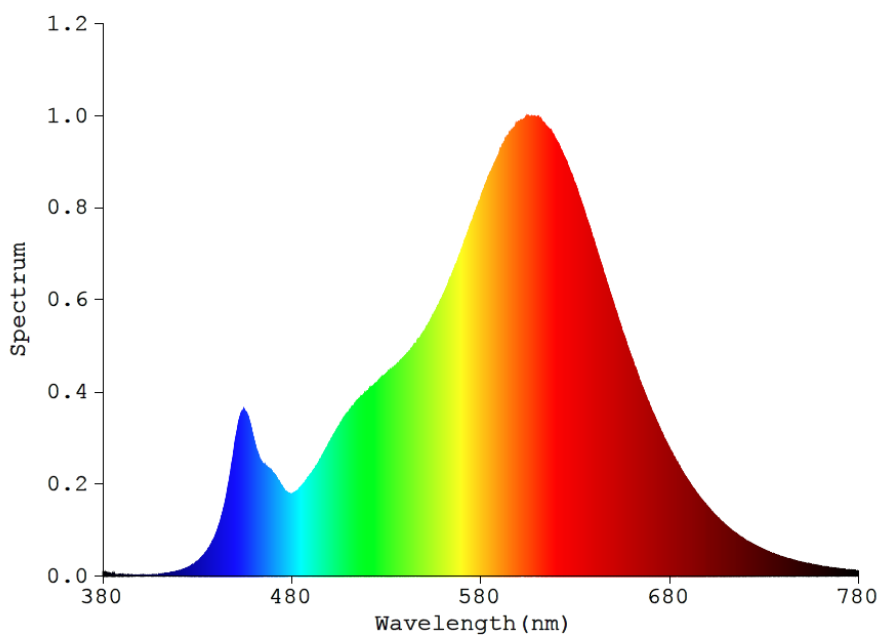
Light Output (lm)	Efficacy (lm/W)
1546.2	132.15
1544.0	128.99

Color Data:

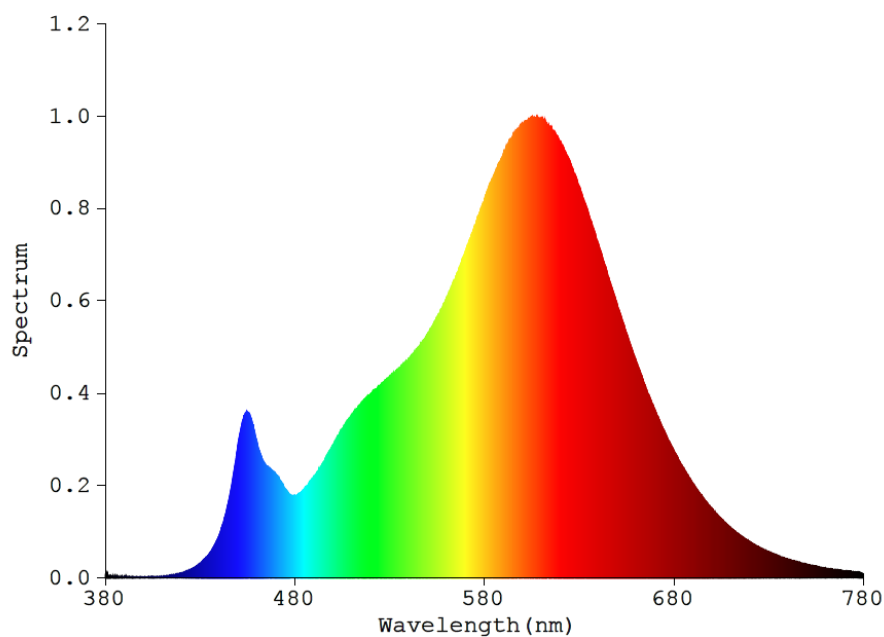
Parameter	Result at 120V	Result at 277V
CCT(K)	2710	2713
Ra	82.7	82.7
R9	7	7
Chromaticity, x	0.4619	0.4617
Chromaticity, y	0.4155	0.4155
Chromaticity, u'	0.2616	0.2615
Chromaticity, v'	0.5295	0.5295
Duv	0.00163	0.00166

Special Color Rendering					
	Result at 120V	Result at 277V		Result at 120V	Result at 277V
R1	82	82	R9	7	7
R2	93	93	R10	85	85
R3	94	94	R11	81	84
R4	80	80	R12	76	76
R5	82	82	R13	84	84
R6	93	93	R14	97	97
R7	81	81	R15	73	73
R8	57	57	-	-	-

Spectrum Diagram (Result at 120V):



Spectrum Diagram (Result at 277V):



Goniophotometer Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
24.7	40.7	Face Down	90	25

Electrical Data:

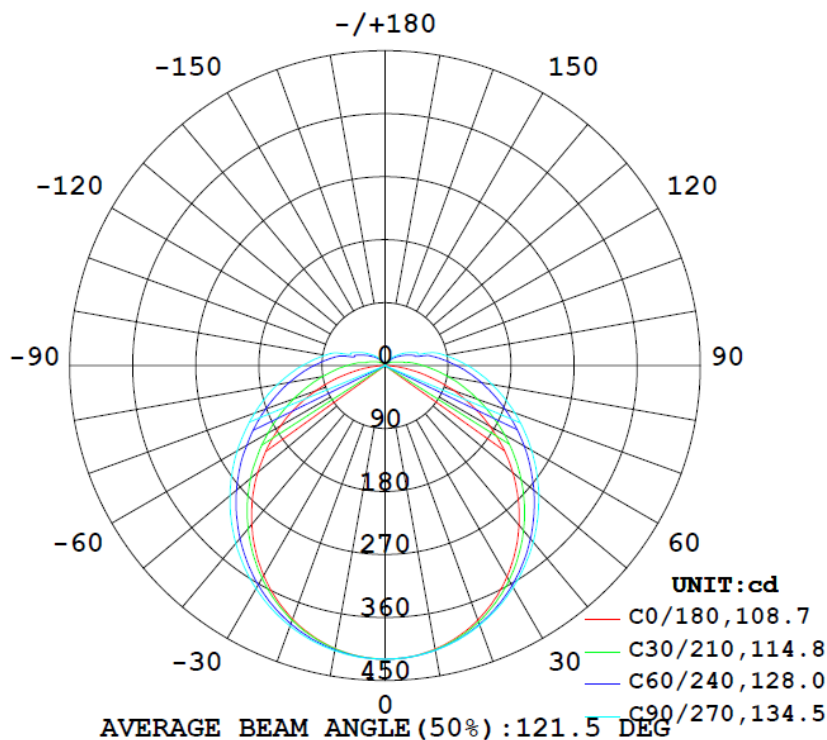
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.09820	11.70	0.9926
277.0	60	0.04740	11.97	0.9120

Goniophotometer Data:

Parameter	Results at 120V	Results at 277V
Total Luminous (lm)	1546.2	1544.0
Total Luminous per foot (lm/ft)	515.40	514.67
Luminous Efficacy (lm/w)	132.15	128.99
Zonal Lumens Distribution (0-60°)	62.9%	
Beam Angle (°)	121.5	

Luminous Intensity Distribution Diagram (Result at 120V):

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

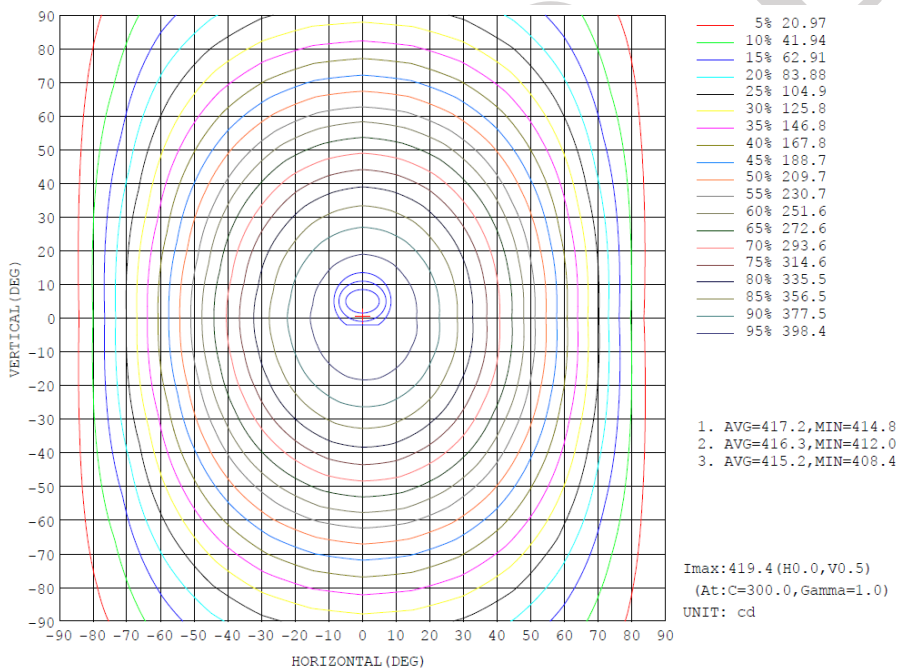


Zonal Flux Diagram (Result at 120V):

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	φ zone	φ total	%lum,lamp
10	411.3	412.7	412.9	411.0	410.5	411.4	413.5	412.8	0- 10	39.68	39.68	2.57,2.57
20	387.0	392.1	394.6	388.8	385.5	389.7	396.1	392.3	10- 20	113.8	153.4	9.92,9.92
30	348.2	359.2	365.9	354.5	346.4	355.9	368.0	359.2	20- 30	173.0	326.5	21.1,21.1
40	297.5	316.2	328.9	310.7	296.0	312.5	331.4	316.0	30- 40	210.6	537.0	34.7,34.7
50	238.1	266.9	286.4	261.1	237.1	263.3	289.0	266.2	40- 50	223.3	760.3	49.2,49.2
60	172.9	214.4	241.4	208.4	172.4	211.9	244.0	213.7	50- 60	212.0	972.3	62.9,62.9
70	106.3	164.2	196.8	158.5	105.6	162.1	198.1	162.8	60- 70	181.5	1154	74.6,74.6
80	39.59	119.4	155.2	114.3	42.07	117.9	155.9	117.4	70- 80	139.8	1294	83.7,83.7
90	4.097	82.57	118.4	78.39	3.758	81.20	118.5	79.86	80- 90	97.45	1391	90,90
100	3.072	54.95	86.80	51.86	2.548	53.87	86.95	51.75	90-100	65.08	1456	94.2,94.2
110	1.014	31.70	49.49	30.88	2.246	32.40	52.39	30.01	100-110	39.21	1495	96.7,96.7
120	0.0965	20.37	37.53	19.50	1.880	20.52	37.67	18.75	110-120	23.86	1519	98.3,98.3
130	0.1325	12.54	24.20	12.25	1.541	12.60	24.29	11.35	120-130	14.13	1533	99.2,99.2
140	0.1704	7.433	14.45	7.479	1.229	7.712	14.64	6.700	130-140	7.603	1541	99.7,99.7
150	0.2005	4.208	7.968	4.346	0.9510	4.478	7.763	3.844	140-150	3.570	1544	99.9,99.9
160	0.2380	2.060	3.792	2.015	0.7093	1.490	3.719	0.9121	150-160	1.380	1546	100,100
170	0.2697	0.2733	0.2772	0.2730	0.4266	0.3953	0.3850	0.3912	160-170	0.2820	1546	100,100
180	0.3343	0.3260	0.3288	0.3356	0.3338	0.3284	0.3259	0.3359	170-180	0.0315	1546	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
γ (DEG)	0	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419
5	417	418	418	418	418	418	418	418	417	417	417	417	417	417	417	417	418	418	418
10	411	412	412	413	413	413	413	413	412	411	410	410	410	410	411	411	412	413	414
15	401	403	403	404	405	405	405	403	402	400	399	400	399	401	402	404	405	406	
20	387	389	390	392	393	395	395	394	391	389	386	385	386	385	387	390	393	395	396
25	369	372	373	377	379	381	381	380	377	373	369	367	368	367	371	374	379	381	383
30	348	352	354	359	363	366	366	364	360	355	349	346	346	346	351	356	362	366	368
35	324	328	332	339	344	348	348	346	340	334	326	322	322	322	329	335	343	348	351
40	298	303	308	316	323	328	329	326	319	311	302	296	296	296	304	313	322	328	331
45	269	275	281	292	301	307	308	305	297	286	275	268	268	268	278	288	300	307	311
50	238	245	254	267	277	285	286	283	273	261	248	238	237	239	251	263	277	285	289
55	206	214	225	242	253	262	264	260	249	235	219	207	205	208	222	237	253	262	267
60	173	182	197	214	229	239	241	237	225	208	190	176	172	177	193	212	228	239	244
65	139	150	168	189	206	216	219	214	201	183	162	144	139	146	165	186	204	216	220
70	106	119	141	164	182	193	197	191	178	159	135	113	106	115	139	162	181	194	198
75	70.6	88.8	115	141	160	172	176	170	157	136	110	83.2	72.8	85.7	114	139	159	172	177
80	39.6	62.1	91.7	119	140	152	155	150	136	114	86.3	56.7	42.1	59.9	90.8	118	139	152	156
85	14.8	40.4	71.7	99.8	120	132	136	131	117	95.2	66.7	35.4	17.0	39.1	71.1	98.2	119	132	136
90	4.10	25.2	55.1	82.6	102	115	118	113	99.6	78.4	50.7	21.4	3.76	24.4	54.8	81.2	102	114	118
95	3.69	16.2	42.0	67.7	86.6	98.4	102	97.1	84.0	64.0	38.2	13.0	2.72	15.4	41.9	66.6	86.2	97.8	102
100	3.07	10.5	27.6	55.0	72.6	83.7	86.8	82.5	70.3	51.9	24.5	8.41	2.55	10.2	26.7	53.9	72.2	83.1	86.9
105	2.01	7.18	21.6	37.9	53.8	69.5	72.9	68.3	50.8	36.0	19.7	6.21	2.41	7.56	22.2	38.4	49.0	64.9	70.6
110	1.01	5.08	16.4	31.7	43.9	48.7	49.5	48.0	42.8	30.9	15.0	5.02	2.25	5.95	17.3	32.4	44.2	50.5	52.4
115	0.19	3.64	12.6	25.5	36.3	43.2	45.3	42.8	35.6	24.3	11.9	4.28	2.06	4.92	13.7	26.0	36.4	43.0	45.3
120	0.10	2.81	10.0	20.4	29.4	35.6	37.5	35.0	28.4	19.5	9.79	3.73	1.88	4.21	10.9	20.5	29.6	35.5	37.7
125	0.12	2.29	7.80	16.1	23.5	28.8	30.3	28.3	22.9	15.5	7.90	3.27	1.70	3.58	8.43	16.1	23.7	28.7	30.5
130	0.13	1.95	6.12	12.5	18.5	22.9	24.2	22.6	18.2	12.3	6.41	2.86	1.54	3.11	6.89	12.6	19.0	22.8	24.3
135	0.15	1.66	4.82	9.71	14.3	18.1	18.9	17.8	14.2	9.63	5.20	2.36	1.38	2.36	5.58	9.72	14.9	17.7	19.2
140	0.17	0.82	3.81	7.43	10.9	13.8	14.5	13.7	11.0	7.48	4.21	1.30	1.23	1.22	4.49	7.71	11.0	13.1	14.6
145	0.19	0.25	3.01	5.63	8.29	10.3	10.8	10.2	8.43	5.74	3.39	0.95	1.09	1.03	3.54	5.89	8.44	9.96	10.6
150	0.20	0.23	2.22	4.21	6.05	7.49	7.97	7.42	6.22	4.35	2.67	0.78	0.95	0.90	2.81	4.48	6.26	7.31	7.76
155	0.22	0.24	1.30	3.09	4.32	5.28	5.60	5.25	4.42	3.22	1.52	0.64	0.83	0.78	0.96	3.32	4.47	5.19	5.48
160	0.24	0.25	0.27	2.06	2.94	3.59	3.79	3.58	2.90	2.01	0.48	0.52	0.71	0.67	0.61	1.49	2.97	3.54	3.72
165	0.25	0.25	0.26	0.27	1.29	2.16	2.30	2.18	1.31	0.30	0.35	0.39	0.57	0.54	0.49	0.42	0.46	1.39	1.62
170	0.27	0.27	0.28	0.27	0.28	0.27	0.28	0.27	0.28	0.27	0.28	0.28	0.43	0.40	0.40	0.40	0.39	0.39	0.38
175	0.30	0.30	0.30	0.30	0.29	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.38	0.38	0.38	0.37	0.36	0.36	0.36
180	0.33	0.33	0.33	0.33	0.32	0.33	0.33	0.33	0.33	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33

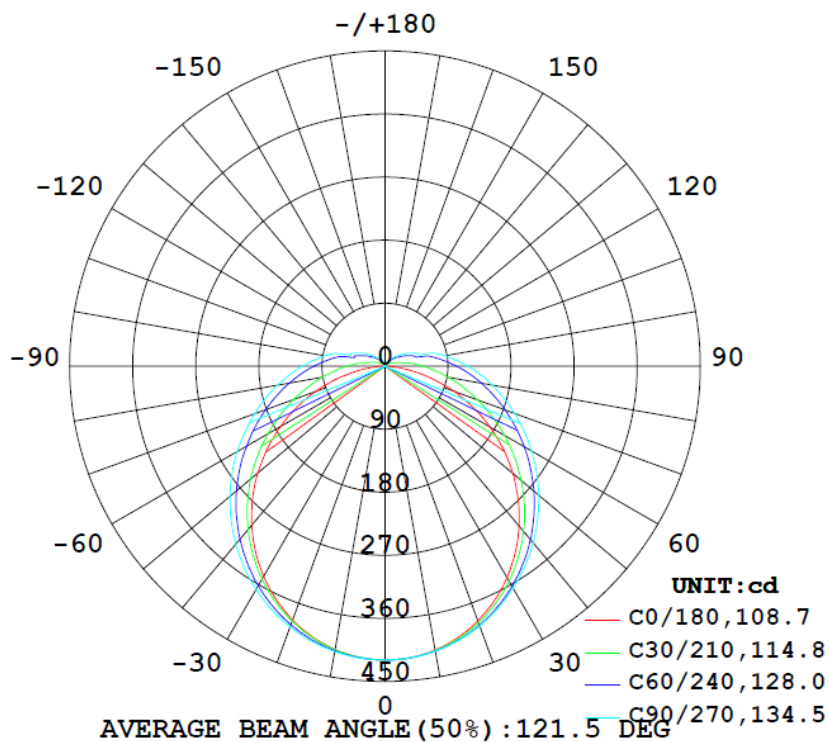
Table--2

UNIT: cd

C (DEG)	285	300	315	330	345														
γ (DEG)	0	419	419	419	419														
5	418	418	418	418	418														
10	413	413	413	413	412														
15	406	406	404	403	402														
20	396	395	392	391	389														
25	382	381	377	374	371														
30	367	364	359	355	351														
35	349	345	339	333	328														
40	329	324	316	308	302														
45	308	302	292	282	274														
50	286	279	266	254	244														
55	263	254	240	225	213														
60	240	229	214	196	181														
65	217	205	188	167	148														
70	194	182	163	139	117														
75	172	159	139	113	85.8														
80	152	138	117	89.5	58.6														
85	132	119	97.2	69.1	36.8														
90	114	101	79.9	52.4	22.0														
95	97.3	85.2	65.0	39.4	13.5														
100	82.5	71.1	51.8	26.5	8.88														
105	63.9	48.9	37.2	20.1	6.02														
110	50.5	42.8	30.0	15.3	4.19														
115	42.6	35.4	23.9	11.5	2.91														
120	35.1	28.5	18.8	8.88	2.18														
125	28.3	22.7	14.6	6.90	1.80														
130	22.4	18.0	11.3	5.36	1.32														
135	17.3	14.0	8.84	4.28	0.33														
140	13.2	10.5	6.70	3.41	0.28														
145	9.76	7.79	5.12	2.72	0.31														
150	7.14	5.73	3.84	1.60	0.35														
155	5.06	4.10	2.82	0.42	0.38														
160	3.46	2.81	0.91	0.41	0.40														
165	1.19	0.42	0.41	0.40	0.41														
170	0.39	0.39	0.39	0.39	0.39														
175	0.36	0.36	0.37	0.37	0.37														
180	0.33	0.33	0.34	0.34	0.33														

Luminous Intensity Distribution Diagram (Result at 277V):

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

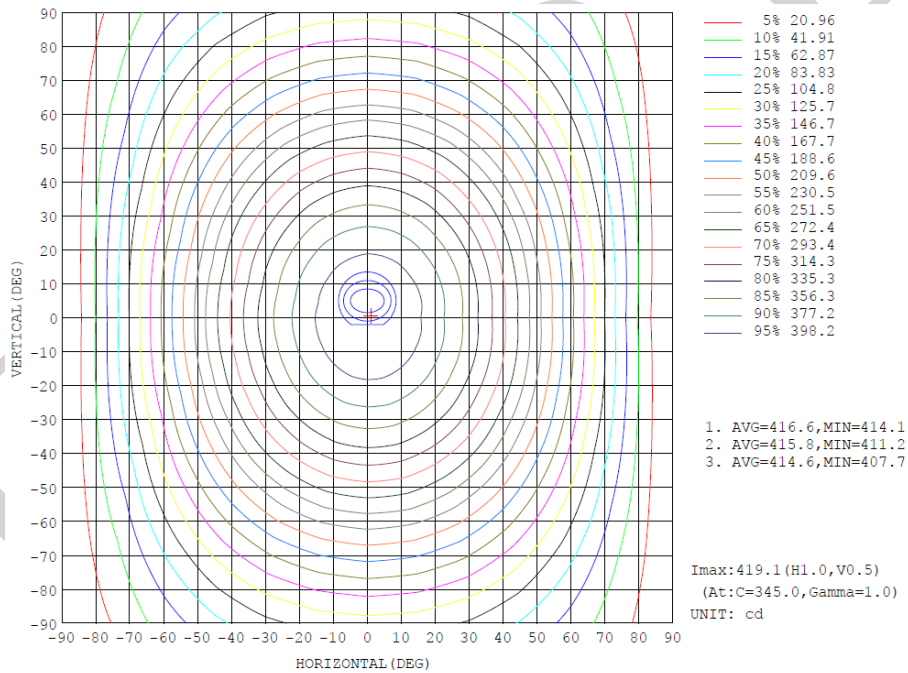


Zonal Flux Diagram (Result at 277V):

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	φ zone	φ total	lum, lamp
10	410.6	412.1	412.2	410.5	409.9	410.8	413.0	412.3	0- 10	39.62	39.62	2.57,2.57
20	386.3	391.5	394.0	388.3	385.0	389.1	395.5	391.9	10- 20	113.6	153.2	9.92,9.92
30	347.5	358.5	365.4	354.0	346.1	355.4	367.4	358.8	20- 30	172.8	326.0	21.1,21.1
40	296.9	315.7	328.4	310.3	295.8	312.2	330.9	315.6	30- 40	210.3	536.3	34.7,34.7
50	237.6	266.5	286.0	260.6	236.6	262.9	288.6	265.9	40- 50	223.0	759.3	49.2,49.2
60	172.5	214.0	241.1	208.1	172.5	211.6	243.7	213.5	50- 60	211.7	970.9	62.9,62.9
70	104.1	163.9	196.6	158.3	105.7	162.0	197.8	162.6	60- 70	181.2	1152	74.6,74.6
80	39.35	119.1	155.0	114.2	42.27	117.8	155.7	117.2	70- 80	139.6	1292	83.7,83.7
90	4.085	82.41	118.2	78.29	3.793	81.14	118.3	79.76	80- 90	97.33	1389	90,90
100	3.059	54.82	86.70	51.78	2.544	53.85	86.81	51.65	90-100	65.00	1454	94.2,94.2
110	1.007	31.64	49.45	30.83	2.242	32.40	52.33	29.97	100-110	39.16	1493	96.7,96.7
120	0.0966	20.33	37.47	19.47	1.878	20.52	37.60	18.73	110-120	23.83	1517	98.3,98.3
130	0.1330	12.51	24.18	12.24	1.538	12.60	24.25	11.32	120-130	14.11	1531	99.2,99.2
140	0.1702	7.411	14.43	7.471	1.228	7.713	14.62	6.687	130-140	7.592	1539	99.7,99.7
150	0.2003	4.192	7.957	4.342	0.9501	4.482	7.745	3.837	140-150	3.565	1542	99.9,99.9
160	0.2388	2.043	3.786	2.018	0.7081	1.500	3.714	0.9005	150-160	1.378	1544	100,100
170	0.2692	0.2727	0.2769	0.2728	0.4265	0.3944	0.3842	0.3909	160-170	0.2816	1544	100,100
180	0.3319	0.3254	0.3274	0.3354	0.3334	0.3272	0.3252	0.3357	170-180	0.0314	1544	100,100
DEG	LUMINOUS INTENSITY:cd Less than 35% Percent = 21.2 %									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
γ (DEG)	0	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419
5	417	417	417	417	417	417	417	417	417	416	416	416	416	416	416	416	417	417	417
10	411	412	412	412	412	413	412	412	411	410	410	409	410	409	410	411	412	412	413
15	400	402	402	403	404	405	404	404	402	401	399	399	399	399	400	402	404	405	406
20	386	389	389	392	393	394	394	393	391	388	385	384	385	384	387	389	392	394	396
25	369	371	373	376	379	381	381	379	376	372	368	366	367	366	370	374	378	381	383
30	347	351	354	359	362	365	365	364	359	354	348	345	346	345	350	355	361	365	367
35	324	328	332	338	343	348	348	345	340	333	326	322	322	322	328	335	342	347	350
40	297	302	307	316	323	328	328	326	319	310	301	295	296	296	303	312	322	328	331
45	268	274	281	292	300	307	308	305	296	286	275	268	267	268	277	288	299	307	310
50	238	245	254	266	277	285	286	282	273	261	247	238	237	238	250	263	276	285	289
55	206	213	225	240	253	262	264	260	249	234	219	207	205	208	221	237	252	262	266
60	172	182	197	214	229	239	241	237	225	208	190	175	172	177	193	212	228	239	244
65	138	150	168	189	205	216	219	213	201	183	162	144	139	145	165	186	204	216	220
70	104	119	141	164	182	193	197	191	178	158	135	113	106	115	138	162	181	194	198
75	70.3	88.7	115	141	160	172	175	170	156	135	109	83.0	72.8	85.5	113	139	159	172	176
80	39.3	62.0	91.8	119	140	151	155	149	136	114	86.2	56.6	42.3	59.8	90.5	118	138	152	156
85	14.6	40.3	71.7	99.6	120	132	136	130	117	95.1	66.6	35.4	17.1	39.1	70.9	98.2	119	132	136
90	4.08	25.1	55.2	82.4	102	114	118	113	99.2	78.3	50.6	21.4	3.79	24.4	54.6	81.1	102	114	118
95	3.68	16.2	42.0	67.5	86.5	98.3	102	96.9	83.8	63.9	38.2	13.0	2.71	15.4	41.7	66.5	86.0	97.6	102
100	3.06	10.5	27.6	54.8	72.5	83.6	86.7	82.4	70.2	51.8	24.4	8.39	2.54	10.2	26.7	53.8	72.1	83.0	86.8
105	2.00	7.16	21.7	37.9	53.8	69.4	72.8	68.2	50.7	35.9	19.6	6.19	2.41	7.54	22.1	38.4	49.0	64.9	70.6
110	1.01	5.06	16.4	31.6	43.9	48.7	49.4	47.9	42.7	30.8	15.0	5.00	2.24	5.94	17.3	32.4	44.1	50.4	52.3
115	0.19	3.63	12.6	25.4	36.3	43.2	45.2	42.7	35.5	24.2	11.9	4.27	2.06	4.90	13.7	26.0	36.4	43.0	45.2
120	0.10	2.80	10.0	20.3	29.4	35.6	37.5	34.9	28.4	19.5	9.77	3.72	1.88	4.20	10.8	20.5	29.6	35.5	37.6
125	0.11	2.29	7.81	16.0	23.5	28.8	30.3	28.2	22.8	15.4	7.88	3.26	1.70	3.57	8.42	16.1	23.7	28.6	30.5
130	0.13	1.94	6.12	12.5	18.5	22.9	24.2	22.5	18.1	12.2	6.39	2.85	1.54	3.10	6.87	12.6	19.0	22.7	24.2
135	0.15	1.66	4.83	9.68	14.3	18.1	18.9	17.8	14.2	9.62	5.19	2.35	1.38	2.36	5.56	9.72	14.8	17.6	19.1
140	0.17	0.81	3.81	7.41	10.9	13.8	14.4	13.6	11.0	7.47	4.21	1.29	1.23	1.21	4.48	7.71	11.0	13.1	14.6
145	0.19	0.25	3.01	5.61	8.28	10.3	10.8	10.2	8.43	5.74	3.38	0.94	1.09	1.03	3.52	5.89	8.43	9.95	10.6
150	0.20	0.23	2.22	4.19	6.05	7.48	7.96	7.41	6.21	4.34	2.67	0.78	0.95	0.89	2.80	4.48	6.25	7.29	7.75
155	0.22	0.24	1.30	3.08	4.32	5.27	5.59	5.23	4.42	3.21	1.52	0.64	0.82	0.78	0.95	3.32	4.46	5.18	5.48
160	0.24	0.25	0.27	2.04	2.93	3.59	3.79	3.57	2.90	2.02	0.48	0.52	0.71	0.67	0.61	1.50	2.97	3.53	3.71
165	0.25	0.25	0.26	0.27	1.30	2.16	2.30	2.17	1.32	0.30	0.35	0.39	0.57	0.54	0.48	0.42	0.46	1.38	1.62
170	0.27	0.27	0.27	0.27	0.28	0.27	0.28	0.27	0.28	0.27	0.28	0.28	0.43	0.40	0.40	0.39	0.39	0.39	0.38
175	0.30	0.30	0.30	0.30	0.29	0.30	0.29	0.30	0.30	0.30	0.30	0.30	0.38	0.38	0.37	0.38	0.36	0.36	0.36
180	0.33	0.33	0.33	0.33	0.32	0.33	0.33	0.33	0.33	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33

Table--2

UNIT: cd

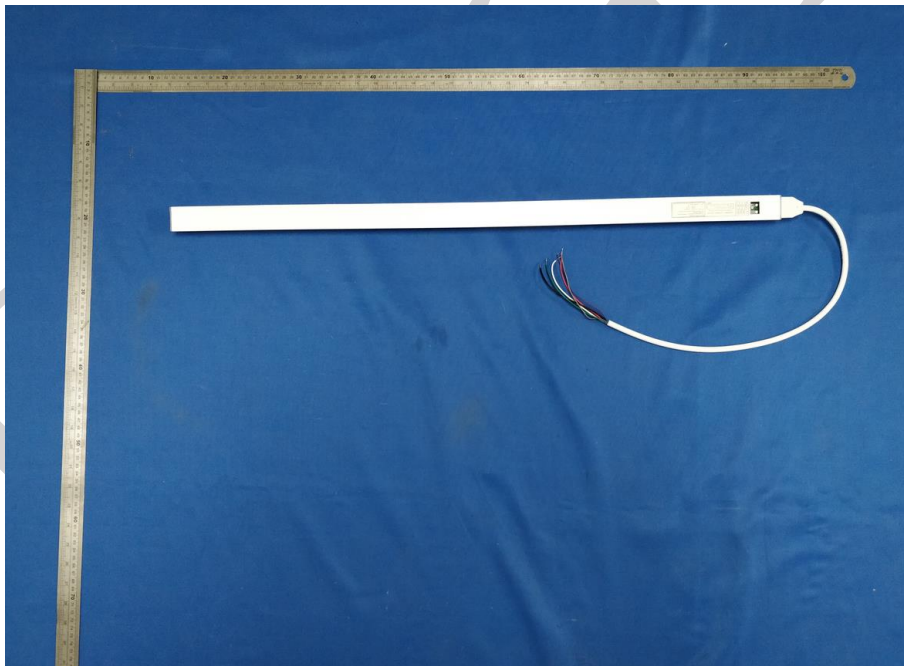
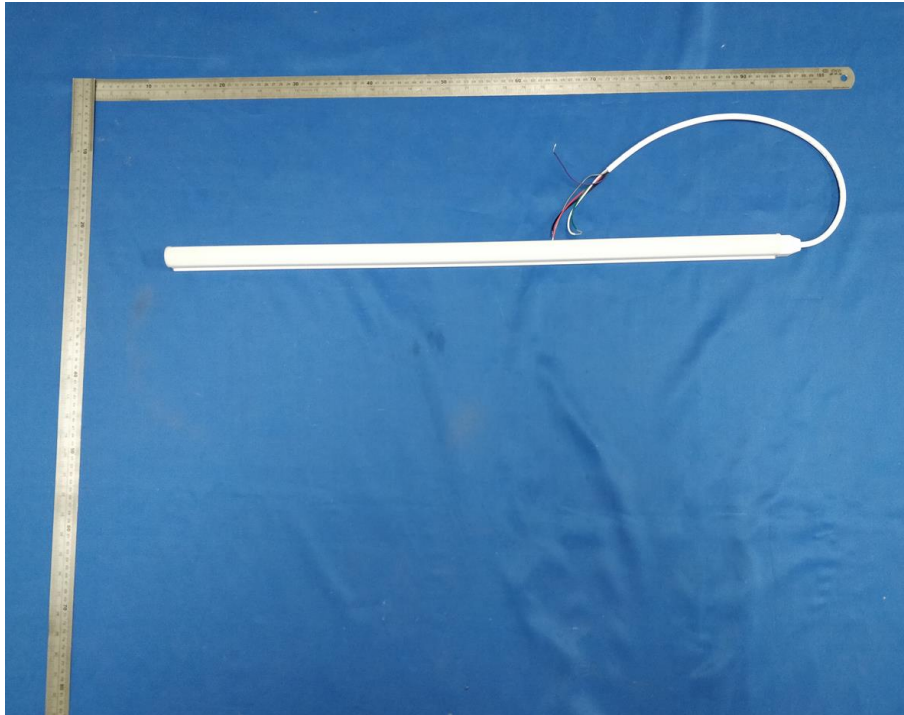
C (DEG)	285	300	315	330	345														
γ (DEG)	0	419	419	419	419														
5	417	417	417	417	417														
10	413	413	412	412	412														
15	405	405	404	403	402														
20	395	394	392	390	388														
25	382	380	377	374	371														
30	366	364	359	355	351														
35	349	345	338	333	327														
40	329	324	316	308	301														
45	308	302	291	282	273														
50	286	278	266	254	244														
55	263	254	240	224	213														
60	239	229	214	196	181														
65	217	205	188	167	148														
70	194	182	163	139	117														
75	172	159	139	113	85.8														
80	151	138	117	89.4	58.6														
85	132	119	97.0	69.1	36.8														
90	114	101	79.8	52.4	21.9														
95	97.2	85.1	64.9	39.4	13.5														
100	82.5	71.0	51.6	26.6	8.88														
105	64.0	48.9	37.2	20.1	6.02														
110	50.4	42.7	30.0	15.3	4.19														
115	42.5	35.4	23.8	11.5	2.91														
120	35.0	28.5	18.7	8.87	2.19														
125	28.2	22.7	14.6	6.89	1.80														
130	22.4	18.0	11.3	5.35	1.32														
135	17.3	13.9	8.82	4.28	0.33														
140	13.2	10.5	6.69	3.40	0.28														
145	9.75	7.78	5.11	2.72	0.31														
150	7.13	5.72	3.84	1.60	0.35														
155	5.05	4.09	2.81	0.42	0.38														
160	3.46	2.81	0.90	0.41	0.40														
165	1.20	0.42	0.41	0.40	0.41														
170	0.39	0.39	0.39	0.39	0.39														
175	0.36	0.36	0.37	0.37	0.37														
180	0.33	0.33	0.34	0.34	0.33														

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	0.04740	11.97	0.9120	13.53

Photo of Sample:



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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