

LM-79-08 Test Report

For

Beyond LED Technology

LED HIGH BAY

Model Name(s):

X-PRO240W-50K70LV-GSH

Representative (Tested) Model:

X-PRO240W-50K70LV-GSH

Model Difference:

1. **XXK** represents CCT, can be 30K for 3000K, 40K for 4000K, 50K for 5000K or 57K for 5700K;
2. **G** represents **O** and **G** for Hook Mount or **U** for U Bracket Mount;
3. **S** represents Sensor, can be **S** for with sensor or **N** for without sensor;
4. All is the same construction, except CCT, mounting mean and function.

Prepare by:

Alan Wang

Engineer: Alan Wang

Date: 2021-08-12

Review by:

Vincent Yuan

Technical Lead: Vincent Yuan

Issue Date: 2021-09-10

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.

Client Information:

Applicant Name:	Beyond LED Technology
Brand Name:	Beyond LED Technology
Manufacturer Name:	Beyond LED Technology

Product Information:

Model Number:	X-PRO240W-50K70LV-GSH
Product Type:	High Bay Luminaires for Commercial and Industrial Building
Rating Input:	120-347Vac, 50/60Hz, 240W
Declared CCT:	5700K
Declared Light Output:	43200 lm
LED Manufacturer:	Guangdong Elite Optoelectronic Technology Co., Ltd.
LED Model:	SMD2835
LED Quantity:	675 pcs
Driver Manufacturer:	Shenzhen XSY Lighting Co., Ltd.
Driver Model:	XBL-240NA-130DAF

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:	2021-07-19
Quantity of Receipt Samples:	1 pc
Sample Number:	210719026-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_zhong@ntc-cert.com

Report Information:

Issued Date of Test Report:	2021-09-10
Revised Date of Test Report:	N/A
Test Report No.:	NTCLR21080144
Remark (If applicable):	N/A

Test Specification:	
Date of Test	2021-08-05
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. Fidelity Index 8. Gamut Index 9. Local Chroma Shift 10. 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 ANSI IES TM-30-18 IES Method for Evaluating Light Source Color Rendition ANSI C78.77-10-2014 Harmonic Emission Limits – Related Power Quality Requirements IES TM-15-11 Luminaire Classification System for Outdoor Luminaires Addendum A for IES TM-15-11 Backlight, Uplight, and Glare (BUG) Ratings

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 °C ± 1°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 °C± 1°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)
25.4	41.0	Face Down	90	10

Electrical Data:

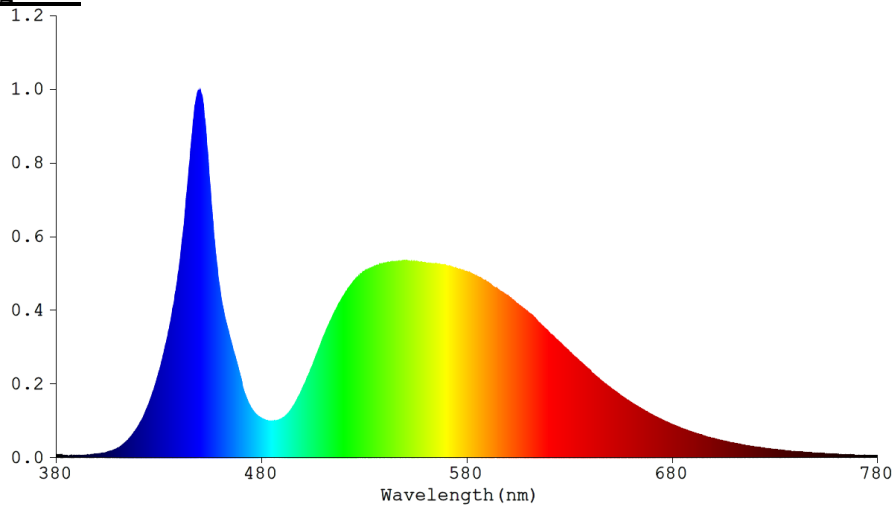
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	1.986	238.2	0.9993

Color Data:

Parameter	Result
CCT(K)	5617
R _a	72.6
R _f	74
R _g	95
R _{cs, h1}	-17%
Chromaticity, (x, y)	(0.3298, 0.3481)
Chromaticity, (u', v')	(0.2024, 0.4807)
Duv	0.0047

Specify Color Rendering			
R1	71	R9	-23
R2	76	R10	42
R3	79	R11	71
R4	74	R12	42
R5	72	R13	71
R6	68	R14	88
R7	82	R15	66
R8	61	-	-

Spectrum Diagram:

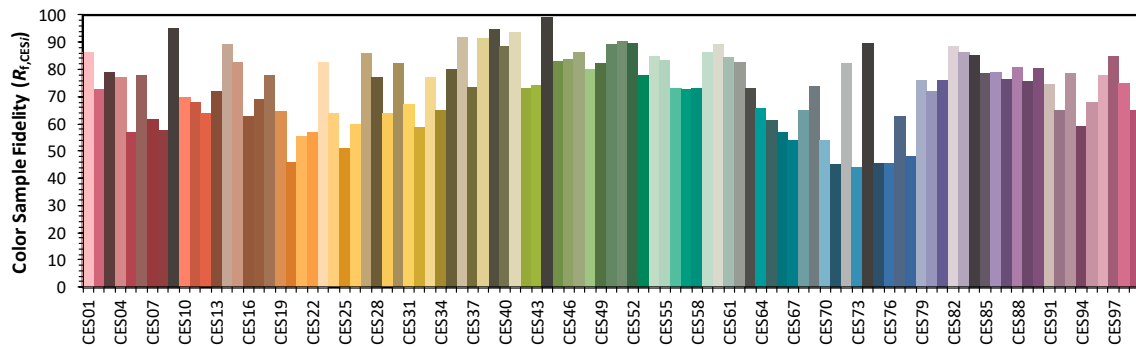
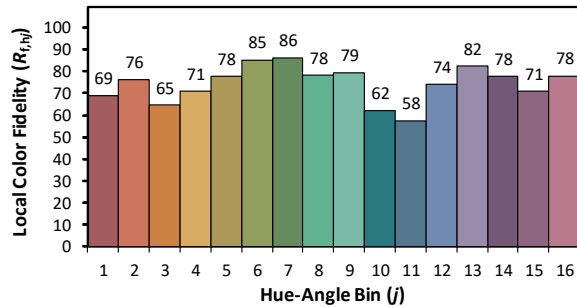
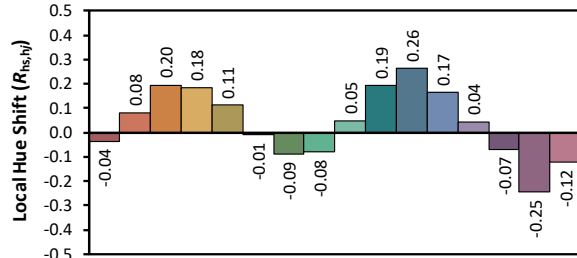
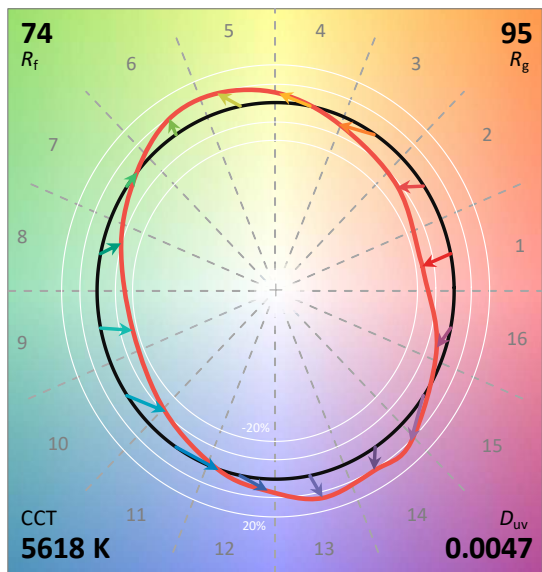
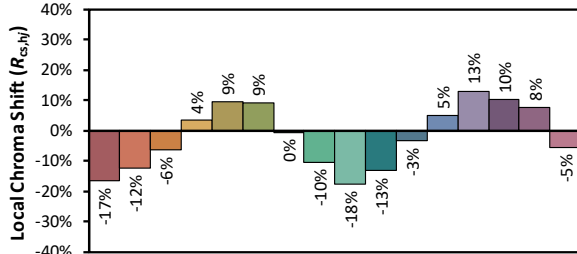
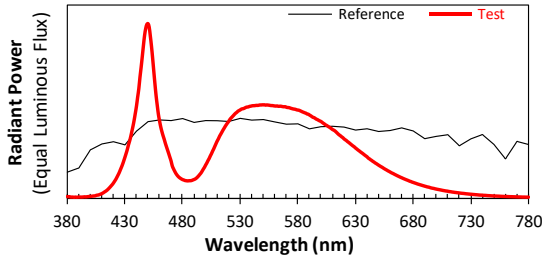


IES TM-30-18 Color Rendition Result:

ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1
Date: 2021/8/12

Manufacturer: Beyond LED Technology
Model: X-PRO240W-50K70LV-GSH



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

x 0.3297
 y 0.3479
 u' 0.2024
 v' 0.4806

CIE 13.3-1995
(CRI)
 R_a 73
 R_g -23

Spectrum Data:

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	0.0089	447	0.9330	514	0.3777	581	0.5036	648	0.1979	715	0.0343
381	0.0085	448	0.9728	515	0.3900	582	0.5006	649	0.1934	716	0.0329
382	0.0082	449	0.9962	516	0.4008	583	0.4976	650	0.1890	717	0.0324
383	0.0061	450	1.0000	517	0.4120	584	0.4943	651	0.1848	718	0.0313
384	0.0062	451	0.9805	518	0.4222	585	0.4918	652	0.1807	719	0.0307
385	0.0059	452	0.9285	519	0.4317	586	0.4889	653	0.1772	720	0.0297
386	0.0048	453	0.8700	520	0.4404	587	0.4868	654	0.1727	721	0.0288
387	0.0062	454	0.8012	521	0.4512	588	0.4824	655	0.1685	722	0.0280
388	0.0051	455	0.7268	522	0.4591	589	0.4812	656	0.1646	723	0.0274
389	0.0058	456	0.6540	523	0.4661	590	0.4766	657	0.1610	724	0.0268
390	0.0062	457	0.5866	524	0.4732	591	0.4726	658	0.1568	725	0.0259
391	0.0063	458	0.5315	525	0.4806	592	0.4681	659	0.1535	726	0.0250
392	0.0060	459	0.4798	526	0.4872	593	0.4635	660	0.1497	727	0.0244
393	0.0063	460	0.4422	527	0.4920	594	0.4615	661	0.1458	728	0.0237
394	0.0068	461	0.4089	528	0.4984	595	0.4572	662	0.1427	729	0.0230
395	0.0077	462	0.3823	529	0.5022	596	0.4527	663	0.1395	730	0.0224
396	0.0071	463	0.3588	530	0.5060	597	0.4499	664	0.1358	731	0.0218
397	0.0079	464	0.3382	531	0.5105	598	0.4459	665	0.1326	732	0.0211
398	0.0088	465	0.3150	532	0.5123	599	0.4425	666	0.1292	733	0.0206
399	0.0095	466	0.2944	533	0.5138	600	0.4395	667	0.1260	734	0.0199
400	0.0099	467	0.2743	534	0.5172	601	0.4345	668	0.1228	735	0.0194
401	0.0110	468	0.2542	535	0.5205	602	0.4295	669	0.1197	736	0.0188
402	0.0119	469	0.2332	536	0.5223	603	0.4250	670	0.1169	737	0.0181
403	0.0126	470	0.2125	537	0.5230	604	0.4199	671	0.1138	738	0.0175
404	0.0132	471	0.1852	538	0.5259	605	0.4165	672	0.1109	739	0.0174
405	0.0156	472	0.1695	539	0.5271	606	0.4118	673	0.1081	740	0.0167
406	0.0173	473	0.1560	540	0.5288	607	0.4079	674	0.1054	741	0.0161
407	0.0181	474	0.1436	541	0.5299	608	0.4034	675	0.1029	742	0.0160
408	0.0208	475	0.1337	542	0.5300	609	0.3986	676	0.1001	743	0.0156
409	0.0232	476	0.1255	543	0.5308	610	0.3934	677	0.0971	744	0.0150
410	0.0264	477	0.1191	544	0.5319	611	0.3900	678	0.0951	745	0.0145
411	0.0298	478	0.1142	545	0.5316	612	0.3858	679	0.0921	746	0.0142
412	0.0345	479	0.1099	546	0.5325	613	0.3800	680	0.0900	747	0.0137
413	0.0386	480	0.1062	547	0.5342	614	0.3735	681	0.0877	748	0.0133
414	0.0433	481	0.1041	548	0.5340	615	0.3670	682	0.0855	749	0.0129
415	0.0490	482	0.1012	549	0.5349	616	0.3616	683	0.0831	750	0.0127
416	0.0557	483	0.1002	550	0.5347	617	0.3569	684	0.0807	751	0.0122
417	0.0627	484	0.0991	551	0.5349	618	0.3511	685	0.0788	752	0.0120
418	0.0703	485	0.0994	552	0.5332	619	0.3465	686	0.0766	753	0.0117
419	0.0779	486	0.1000	553	0.5343	620	0.3398	687	0.0748	754	0.0115
420	0.0867	487	0.1001	554	0.5335	621	0.3347	688	0.0726	755	0.0111
421	0.0970	488	0.1016	555	0.5328	622	0.3303	689	0.0708	756	0.0107
422	0.1071	489	0.1045	556	0.5314	623	0.3242	690	0.0687	757	0.0103
423	0.1197	490	0.1071	557	0.5307	624	0.3196	691	0.0669	758	0.0101
424	0.1327	491	0.1103	558	0.5305	625	0.3140	692	0.0648	759	0.0098
425	0.1462	492	0.1152	559	0.5292	626	0.3087	693	0.0636	760	0.0097
426	0.1625	493	0.1215	560	0.5283	627	0.3031	694	0.0620	761	0.0094
427	0.1783	494	0.1288	561	0.5278	628	0.2982	695	0.0596	762	0.0091
428	0.1954	495	0.1368	562	0.5284	629	0.2934	696	0.0579	763	0.0088
429	0.2149	496	0.1449	563	0.5266	630	0.2871	697	0.0566	764	0.0085
430	0.2352	497	0.1557	564	0.5267	631	0.2821	698	0.0554	765	0.0084
431	0.2563	498	0.1669	565	0.5271	632	0.2765	699	0.0534	766	0.0082
432	0.2783	499	0.1774	566	0.5257	633	0.2718	700	0.0521	767	0.0079
433	0.3047	500	0.1903	567	0.5243	634	0.2665	701	0.0506	768	0.0078
434	0.3270	501	0.2016	568	0.5238	635	0.2615	702	0.0494	769	0.0074
435	0.3530	502	0.2154	569	0.5241	636	0.2570	703	0.0480	770	0.0073
436	0.3835	503	0.2272	570	0.5211	637	0.2517	704	0.0468	771	0.0070
437	0.4140	504	0.2417	571	0.5196	638	0.2465	705	0.0453	772	0.0069
438	0.4485	505	0.2546	572	0.5191	639	0.2415	706	0.0440	773	0.0067
439	0.4878	506	0.2695	573	0.5173	640	0.2368	707	0.0428	774	0.0065
440	0.5286	507	0.2830	574	0.5148	641	0.2296	708	0.0415	775	0.0061
441	0.5793	508	0.2982	575	0.5129	642	0.2254	709	0.0407	776	0.0062
442	0.6271	509	0.3130	576	0.5112	643	0.2202	710	0.0396	777	0.0060
443	0.6929	510	0.3276	577	0.5102	644	0.2160	711	0.0382	778	0.0058
444	0.7491	511	0.3397	578	0.5087	645	0.2108	712	0.0373	779	0.0058
445	0.8108	512	0.3542	579	0.5061	646	0.2068	713	0.0363	780	0.0059
446	0.8744	513	0.3660	580	0.5049	647	0.2017	714	0.0349	N/A	N/A

Goniophotometer Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
25.0	48.6	Face Down	90	25

Electrical Data:

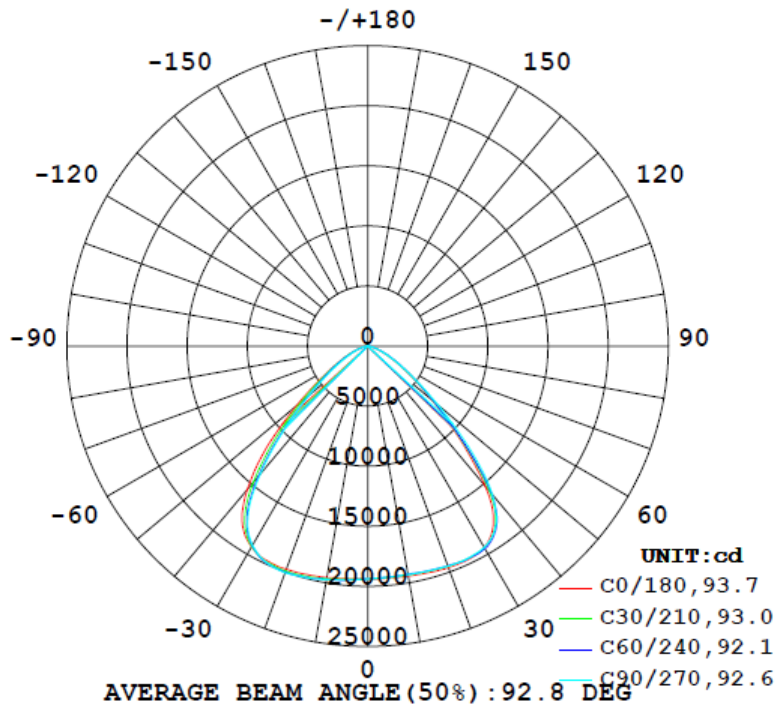
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	1.986	238.2	0.9993
347.0	60	0.7342	238.0	0.9341

Goniophotometer Data:

Parameter	Results			
	120V		347V	
Total Luminous (lm)	42838.1		42900.1	
Luminous Efficacy (lm/w)	179.84		180.25	
Zonal Lumens Distribution (20-50°)	66.7%		66.9%	
Beam Angle (°)	92.8		93.3	
UGR	Crosswise	Endwise	Crosswise	Endwise
	25.6	26.0	25.6	25.9

Luminous Intensity Distribution Diagram (120V):

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

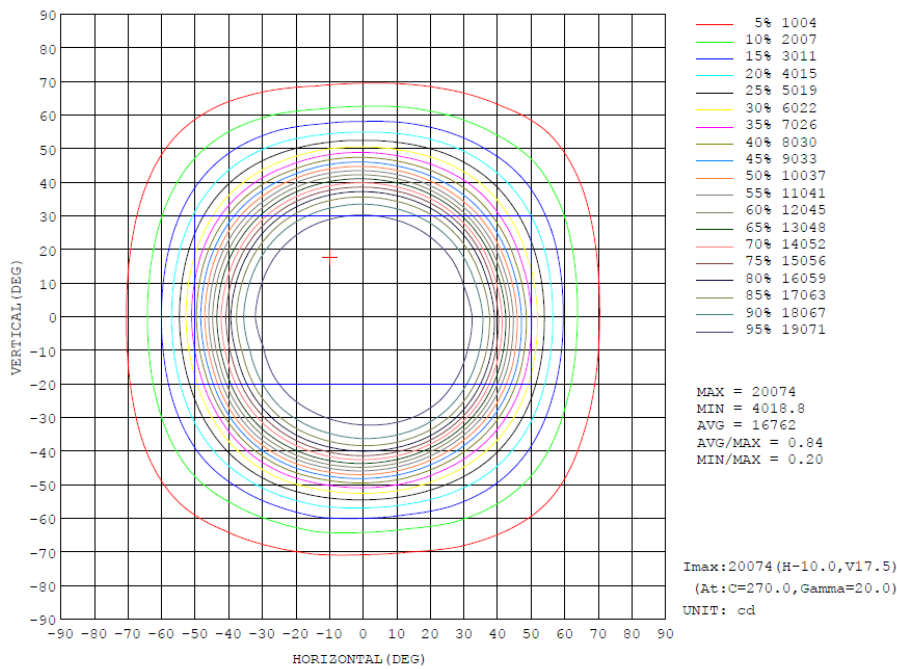


Zonal Flux Diagram (120V):

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total	lum, lamp
10	1944	1928	1930	1941	1956	1969	1974	1962	0- 10	1856	1856	4.33, 4.33
20	1962	1946	1951	1965	1976	1998	2007	1994	10- 20	5570	7426	17.3, 17.3
30	1935	1944	1935	1940	1931	1923	1914	1931	20- 30	9097	16523	38.6, 38.6
40	1518	1598	1612	1593	1557	1442	1388	1399	30- 40	11113	27636	64.5, 64.5
50	705.9	711.6	769.0	771.6	771.3	669.7	631.0	647.8	40- 50	8382	36018	84.1, 84.1
60	287.1	304.5	302.1	298.3	300.6	286.9	252.6	269.0	50- 60	4175	40193	93.8, 93.8
70	104.3	111.3	109.7	106.4	105.8	104.5	94.59	98.11	60- 70	1831	42024	98.1, 98.1
80	28.07	31.00	30.17	29.08	28.34	28.15	26.15	27.94	70- 80	642.8	42667	99.6, 99.6
90	0.4712	0.6707	0.7289	0.8423	0.1071	0.1081	0.1077	0.1080	80- 90	123.7	42791	99.9, 99.9
100	0.0986	0.0943	0.0901	0.0943	0.1897	0.1976	0.1999	0.1983	90-100	1.371	42792	99.9, 99.9
110	0.1840	0.1720	0.1689	0.1747	0.3204	0.3321	0.3487	0.3443	100-110	2.083	42794	99.9, 99.9
120	0.3698	0.3465	0.3569	0.3640	0.6354	0.6654	0.6859	0.6723	110-120	3.600	42798	99.9, 99.9
130	0.6424	0.6255	0.6354	0.6377	1.100	1.200	1.257	1.163	120-130	6.284	42804	99.9, 99.9
140	0.9577	0.9617	0.9642	0.9470	1.472	1.632	1.682	1.576	130-140	8.491	42813	99.9, 99.9
150	1.264	1.294	1.312	1.262	1.867	2.003	2.078	1.989	140-150	9.108	42822	100, 100
160	1.649	1.608	1.505	1.629	2.317	2.402	2.349	2.333	150-160	8.386	42830	100, 100
170	1.849	1.874	1.766	1.817	2.383	2.454	2.354	2.291	160-170	5.833	42836	100, 100
180	2.249	2.296	2.198	2.236	2.250	2.301	2.197	2.168	170-180	2.040	42838	100, 100
DEG	LUMINOUS INTENSITY:×10cd									UNIT:lm		

Isocandela Diagram (120V):



Uncorrected UGR Table (120V):

UGR Table - Uncorrected

Reflectances		70	70	50	50	30	70	70	50	50	30
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	11.4	12.7	11.7	13.0	13.4	11.7	13.1	12.1	13.4	13.7
	3H	11.9	13.1	12.3	13.5	13.8	12.3	13.5	12.7	13.8	14.2
	4H	12.1	13.2	12.5	13.5	13.9	12.4	13.5	12.8	13.9	14.3
	6H	12.1	13.1	12.5	13.5	13.9	12.4	13.5	12.9	13.8	14.2
	8H	12.1	13.1	12.5	13.5	13.9	12.5	13.4	12.9	13.8	14.2
	12H	12.1	13.0	12.5	13.4	13.8	12.4	13.4	12.9	13.7	14.2
4H	2H	11.6	12.7	12.0	13.0	13.4	11.9	13.0	12.3	13.4	13.7
	3H	12.3	13.2	12.7	13.6	14.0	12.6	13.5	13.0	13.9	14.3
	4H	12.4	13.3	12.9	13.7	14.1	12.8	13.6	13.2	14.0	14.5
	6H	12.5	13.2	13.0	13.7	14.1	12.9	13.6	13.3	14.0	14.5
	8H	12.5	13.2	13.0	13.6	14.1	12.9	13.5	13.3	14.0	14.4
	12H	12.5	13.1	13.0	13.6	14.1	12.8	13.4	13.3	13.9	14.4
8H	4H	12.4	13.1	12.9	13.5	14.0	12.8	13.4	13.2	13.9	14.3
	6H	12.6	13.1	13.1	13.6	14.1	12.9	13.4	13.4	13.9	14.4
	8H	12.6	13.1	13.1	13.6	14.1	12.9	13.4	13.4	13.9	14.4
	12H	12.6	13.0	13.1	13.5	14.1	12.9	13.4	13.4	13.8	14.4
12H	4H	12.4	13.0	12.9	13.5	13.9	12.7	13.3	13.2	13.8	14.3
	6H	12.5	13.0	13.1	13.5	14.0	12.9	13.4	13.4	13.8	14.4
	8H	12.6	13.0	13.1	13.5	14.1	12.9	13.3	13.4	13.8	14.4

Maximum UGR = 14.5

Corrected UGR Table (120V):

UGR Table - Corrected

Reflectances		70	70	50	50	30	70	70	50	50	30
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	24.5	25.8	24.8	26.1	26.5	24.8	26.2	25.2	26.5	26.8
	3H	25.0	26.2	25.4	26.6	26.9	25.4	26.6	25.8	26.9	27.3
	4H	25.2	26.3	25.6	26.6	27.0	25.5	26.6	25.9	27.0	27.4
	6H	25.2	26.2	25.6	26.6	27.0	25.5	26.6	26.0	26.9	27.3
	8H	25.2	26.2	25.6	26.6	27.0	25.6	26.5	26.0	26.9	27.3
	12H	25.2	26.1	25.6	26.5	26.9	25.5	26.5	26.0	26.8	27.3
4H	2H	24.7	25.8	25.1	26.1	26.5	25.0	26.1	25.4	26.5	26.8
	3H	25.4	26.3	25.8	26.7	27.1	25.7	26.6	26.1	27.0	27.4
	4H	25.5	26.4	26.0	26.8	27.2	25.9	26.7	26.3	27.1	27.6
	6H	25.6	26.3	26.1	26.8	27.2	26.0	26.7	26.4	27.1	27.6
	8H	25.6	26.3	26.1	26.7	27.2	26.0	26.6	26.4	27.1	27.5
	12H	25.6	26.2	26.1	26.7	27.2	25.9	26.5	26.4	27.0	27.5
8H	4H	25.5	26.2	26.0	26.6	27.1	25.9	26.5	26.3	27.0	27.4
	6H	25.7	26.2	26.2	26.7	27.2	26.0	26.5	26.5	27.0	27.5
	8H	25.7	26.2	26.2	26.7	27.2	26.0	26.5	26.5	27.0	27.5
	12H	25.7	26.1	26.2	26.6	27.2	26.0	26.5	26.5	26.9	27.5
12H	4H	25.5	26.1	26.0	26.6	27.0	25.8	26.4	26.3	26.9	27.4
	6H	25.6	26.1	26.2	26.6	27.1	26.0	26.5	26.5	26.9	27.5
	8H	25.7	26.1	26.2	26.6	27.2	26.0	26.4	26.5	26.9	27.5

Maximum UGR = 27.6

Luminous Distribution Intensity Data (120V):

Table--1 UNIT: *10cd

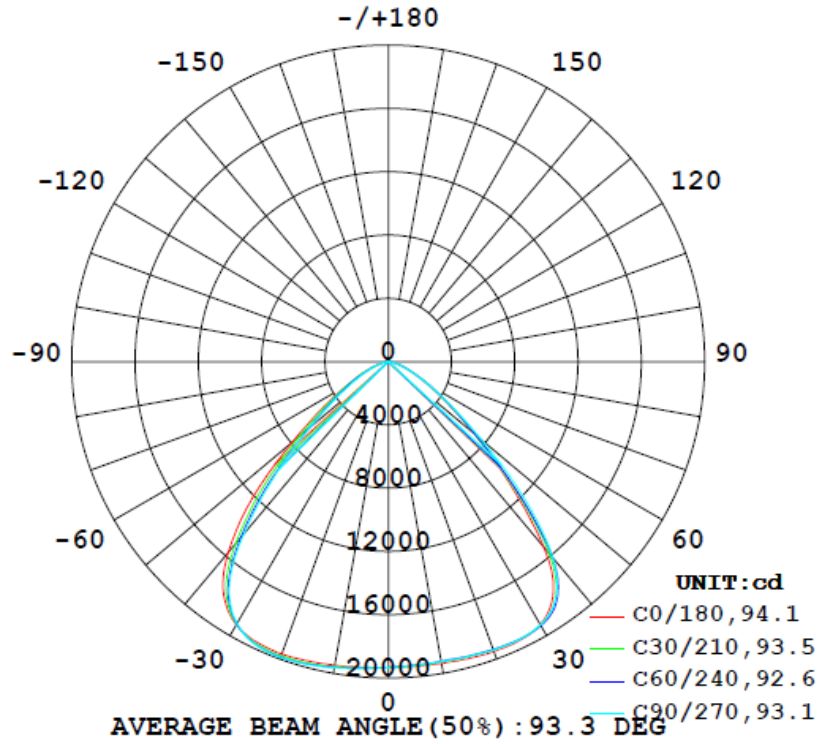
C (DEG)		0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	1938	1938	1938	1938	1938	1938	1938	1938	1938	1938	1938	1938	1938	1938	1938	1938	1938	1938	1938	1938
5	1937	1935	1932	1930	1929	1930	1931	1931	1930	1936	1939	1941	1943	1946	1948	1949	1954	1956	1953	
10	1944	1939	1933	1928	1928	1928	1930	1931	1936	1941	1950	1951	1956	1961	1965	1969	1969	1973	1974	
15	1952	1946	1940	1935	1935	1936	1938	1941	1946	1953	1960	1965	1967	1976	1982	1988	1991	1994	1994	
20	1962	1956	1950	1946	1948	1947	1951	1951	1956	1965	1972	1977	1976	1986	1991	1998	2004	2006	2007	
25	1963	1958	1956	1954	1956	1955	1954	1957	1962	1970	1973	1974	1973	1977	1984	1987	1990	1988	1989	
30	1935	1934	1939	1944	1946	1941	1935	1934	1938	1940	1942	1934	1931	1929	1928	1923	1920	1915	1914	
35	1820	1830	1845	1859	1859	1856	1851	1845	1843	1845	1835	1819	1817	1801	1785	1769	1752	1745	1734	
40	1518	1552	1577	1598	1608	1612	1612	1605	1603	1593	1580	1558	1557	1517	1478	1442	1416	1400	1388	
45	1069	1104	1105	1099	1122	1163	1191	1202	1208	1212	1192	1173	1184	1142	1085	1030	1002	990	978	
50	706	725	717	712	722	754	769	772	783	772	748	754	771	755	712	670	644	638	631	
55	454	462	465	470	470	477	481	488	490	480	475	479	485	476	459	441	426	403	396	
60	287	287	296	305	308	296	302	317	305	298	306	306	301	299	293	287	277	254	253	
65	177	174	184	189	192	179	187	198	186	181	190	189	183	183	182	179	171	156	157	
70	104	101	109	111	115	107	110	117	111	106	111	110	106	106	106	105	100.0	92.8	94.6	
75	56.5	55.7	59.5	61.1	63.2	60.4	60.3	62.9	61.1	58.1	59.4	58.7	57.1	56.3	56.7	56.2	54.6	52.1	53.0	
80	28.1	27.9	29.4	31.0	31.4	30.2	30.2	30.8	30.3	29.1	29.6	29.0	28.3	28.1	28.0	28.2	27.3	26.4	26.1	
85	9.59	9.98	10.2	11.2	11.2	10.8	10.5	10.7	10.8	11.0	11.1	10.7	10.00	9.99	9.60	9.75	8.87	8.56	8.25	
90	0.47	0.52	0.61	0.67	0.72	0.74	0.73	0.74	0.79	0.84	0.86	0.77	0.11	0.11	0.11	0.11	0.11	0.11	0.11	
95	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
100	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.19	0.19	0.19	0.20	0.20	0.20	0.20	
105	0.14	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.26	0.26	0.26	0.26	0.27	0.27	
110	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.32	0.32	0.33	0.33	0.34	0.34	0.35	
115	0.26	0.25	0.24	0.24	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.43	0.44	0.45	0.46	0.46	0.47	0.48	
120	0.37	0.35	0.35	0.35	0.35	0.35	0.36	0.36	0.36	0.36	0.36	0.36	0.64	0.64	0.65	0.67	0.67	0.68	0.69	
125	0.50	0.48	0.47	0.48	0.49	0.48	0.49	0.49	0.49	0.50	0.49	0.48	0.87	0.89	0.90	0.93	0.94	0.95	0.95	
130	0.64	0.63	0.62	0.63	0.65	0.62	0.64	0.64	0.64	0.64	0.65	0.63	1.10	1.14	1.17	1.20	1.23	1.25	1.26	
135	0.80	0.80	0.80	0.79	0.82	0.78	0.81	0.81	0.80	0.79	0.81	0.80	1.31	1.35	1.40	1.44	1.47	1.51	1.52	
140	0.96	0.96	0.96	0.96	0.97	0.98	0.96	0.97	0.95	0.95	0.93	0.96	1.47	1.52	1.55	1.63	1.66	1.70	1.68	
145	1.12	1.15	1.12	1.12	1.16	1.16	1.14	1.14	1.13	1.10	1.08	1.11	1.68	1.72	1.74	1.81	1.88	1.91	1.88	
150	1.26	1.31	1.31	1.29	1.32	1.32	1.31	1.32	1.29	1.26	1.22	1.24	1.87	1.90	1.90	2.00	2.05	2.10	2.08	
155	1.46	1.52	1.55	1.47	1.47	1.47	1.45	1.47	1.46	1.45	1.48	1.41	2.07	2.08	2.18	2.18	2.23	2.27	2.24	
160	1.65	1.69	1.69	1.61	1.57	1.56	1.51	1.60	1.60	1.63	1.63	1.60	2.32	2.32	2.34	2.40	2.38	2.39	2.35	
165	1.74	1.80	1.80	1.76	1.70	1.66	1.64	1.73	1.75	1.78	1.74	1.73	2.37	2.38	2.41	2.46	2.48	2.44	2.40	
170	1.85	1.90	1.90	1.87	1.79	1.78	1.77	1.81	1.82	1.82	1.81	1.84	2.38	2.39	2.43	2.45	2.45	2.42	2.35	
175	2.04	2.11	2.11	2.08	2.02	1.97	1.92	1.97	1.99	2.01	2.02	2.06	2.34	2.35	2.39	2.39	2.36	2.35	2.30	
180	2.25	2.33	2.30	2.30	2.26	2.24	2.20	2.14	2.34	2.24	2.28	2.29	2.25	2.26	2.31	2.30	2.28	2.24	2.20	

Table--2 UNIT: *10cd

C (DEG)		285	300	315	330	345														
0	1938	1938	1938	1938	1938															
5	1949	1950	1947	1946	1940															
10	1971	1967	1962	1960	1951															
15	1990	1986	1979	1976	1965															
20	2003	2000	1994	1988	1978															
25	1988	1991	1988	1986	1979															
30	1914	1922	1931	1938	1941															
35	1738	1750	1769	1786	1802															
40	1377	1384	1399	1429	1463															
45	959	946	949	965	1005															
50	625	637	648	651	664															
55	408	419	423	435	453															
60	265	267	269	288	297															
65	164	165	166	183	187															
70	97.5	98.3	98.1	108	110															
75	53.0	53.6	54.4	59.4	60.5															
80	26.7	27.0	27.9	29.6	30.1															
85	8.59	8.89	9.30	9.72	10.3															
90	0.11	0.11	0.11	0.11	0.11															
95	0.14	0.14	0.14	0.14	0.14															
100	0.20	0.20	0.20	0.20	0.20															
105	0.27	0.27	0.27	0.27	0.26															
110	0.35	0.35	0.34	0.34	0.33															
115	0.48	0.48	0.47	0.46	0.45															
120	0.68	0.68	0.67	0.66	0.65															
125	0.95	0.94	0.92	0.89	0.88															
130	1.24	1.22	1.16	1.14	1.12															
135	1.48	1.43	1.38	1.37	1.35															
140	1.64	1.61	1.58	1.54	1.52															
145	1.84	1.84	1.77	1.73	1.73															
150	2.03	2.01	1.99	1.94	1.93															
155	2.22	2.19	2.17	2.23	2.18															
160	2.30	2.34	2.33	2.40	2.38															
165	2.35	2.39	2.40	2.41	2.43															
170	2.34	2.34	2.29	2.34	2.40															
175	2.22	2.30	2.24	2.31	2.34															
180	2.18	2.13	2.17	2.19	2.22															

Luminous Intensity Distribution Diagram (347V):

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

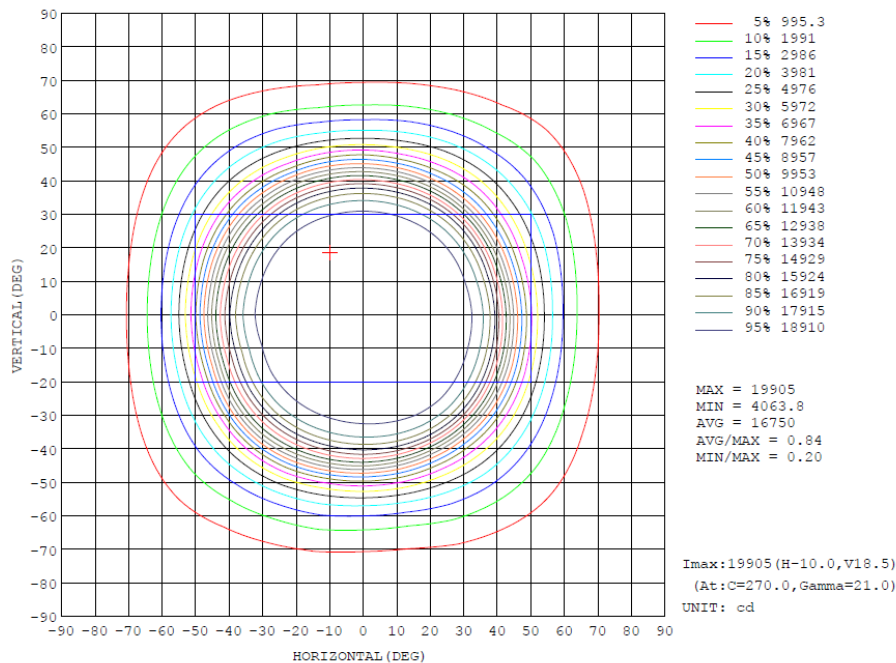


Zonal Flux Diagram (347V):

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	φ zone	φ total	%lum, lamp
10	1937	1927	1925	1936	1949	1962	1964	1953	0- 10	1850	1850	4.31, 4.31
20	1949	1939	1939	1954	1967	1986	1989	1979	10- 20	5542	7393	17.2, 17.2
30	1920	1931	1923	1926	1920	1919	1911	1925	20- 30	9039	16432	38.3, 38.3
40	1528	1609	1618	1597	1574	1475	1419	1432	30- 40	11128	27560	64.2, 64.2
50	710.7	715.7	775.5	778.4	789.8	685.8	640.4	655.4	40- 50	8513	36073	84.1, 84.1
60	286.0	303.6	300.7	298.0	306.8	290.1	252.8	271.2	50- 60	4206	40278	93.9, 93.9
70	103.6	109.1	107.5	104.3	106.9	104.3	92.79	97.76	60- 70	1827	42105	98.1, 98.1
80	26.68	29.75	28.79	28.05	27.89	27.37	25.10	27.25	70- 80	629.4	42735	99.6, 99.6
90	0.0683	0.5782	0.6593	0.7733	0.1058	0.1063	0.1060	0.1064	80- 90	118.1	42853	99.9, 99.9
100	0.0995	0.0948	0.0899	0.0944	0.1890	0.1965	0.1988	0.1976	90-100	1.313	42854	99.9, 99.9
110	0.1865	0.1743	0.1704	0.1762	0.3212	0.3330	0.3501	0.3462	100-110	2.087	42856	99.9, 99.9
120	0.3739	0.3513	0.3613	0.3682	0.6379	0.6690	0.6896	0.6759	110-120	3.624	42860	99.9, 99.9
130	0.6471	0.6313	0.6405	0.6407	1.107	1.208	1.261	1.169	120-130	6.328	42866	99.9, 99.9
140	0.9635	0.9669	0.9688	0.9490	1.471	1.632	1.677	1.569	130-140	8.504	42875	99.9, 99.9
150	1.270	1.300	1.315	1.264	1.864	2.002	2.070	1.983	140-150	9.107	42884	100, 100
160	1.648	1.610	1.504	1.630	2.317	2.399	2.342	2.323	150-160	8.380	42892	100, 100
170	1.845	1.872	1.763	1.813	2.382	2.451	2.347	2.280	160-170	5.821	42898	100, 100
180	2.243	2.304	2.103	2.291	2.245	2.296	2.187	2.156	170-180	2.034	42900	100, 100
DEG	LUMINOUS INTENSITY: *10cd									UNIT: lm		

Isocandela Diagram (347V):



Uncorrected UGR Table (347V):

UGR Table - Uncorrected

Reflectances											
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30	30
Walls	50	30	50	30	30	50	30	50	30	30	30
Floor Cavity	20	20	20	20	20	20	20	20	20	20	20
Room Size											
X=2H	Y=2H	UGR Viewed Crosswise					UGR Viewed Endwise				
		11.4	12.8	11.7	13.1	13.4	11.7	13.0	12.0	13.4	13.7
	3H	11.9	13.1	12.3	13.5	13.8	12.2	13.4	12.6	13.8	14.1
	4H	12.1	13.2	12.5	13.5	13.9	12.4	13.5	12.8	13.8	14.2
	6H	12.1	13.1	12.5	13.5	13.9	12.4	13.4	12.8	13.8	14.2
	8H	12.1	13.0	12.5	13.4	13.8	12.4	13.3	12.8	13.7	14.1
	12H	12.0	13.0	12.5	13.4	13.8	12.4	13.3	12.8	13.7	14.1
4H	2H	11.6	12.7	12.0	13.0	13.4	11.9	13.0	12.3	13.3	13.7
	3H	12.2	13.2	12.7	13.6	14.0	12.5	13.5	12.9	13.9	14.3
	4H	12.4	13.2	12.8	13.7	14.1	12.7	13.5	13.1	13.9	14.4
	6H	12.5	13.2	12.9	13.6	14.1	12.8	13.5	13.2	13.9	14.4
	8H	12.5	13.2	13.0	13.6	14.1	12.8	13.4	13.3	13.9	14.4
	12H	12.5	13.1	13.0	13.5	14.0	12.8	13.4	13.2	13.8	14.3
8H	4H	12.4	13.1	12.9	13.5	14.0	12.7	13.4	13.2	13.8	14.3
	6H	12.5	13.1	13.0	13.6	14.0	12.8	13.3	13.3	13.8	14.3
	8H	12.5	13.0	13.1	13.5	14.0	12.8	13.3	13.3	13.8	14.3
	12H	12.5	13.0	13.0	13.5	14.0	12.8	13.3	13.3	13.8	14.3
12H	4H	12.4	13.0	12.9	13.4	13.9	12.7	13.2	13.1	13.7	14.2
	6H	12.5	13.0	13.0	13.4	14.0	12.8	13.3	13.3	13.7	14.3
	8H	12.5	13.0	13.0	13.4	14.0	12.8	13.2	13.3	13.7	14.3

Maximum UGR = 14.4

Corrected UGR Table (347V):

UGR Table - Corrected

Reflectances											
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30	30
Walls	50	30	50	30	30	50	30	50	30	30	30
Floor Cavity	20	20	20	20	20	20	20	20	20	20	20
Room Size											
X=2H	Y=2H	UGR Viewed Crosswise					UGR Viewed Endwise				
		24.5	25.9	24.8	26.2	26.5	24.8	26.1	25.1	26.5	26.8
	3H	25.0	26.2	25.4	26.6	26.9	25.3	26.5	25.7	26.9	27.2
	4H	25.2	26.3	25.6	26.6	27.0	25.5	26.6	25.9	26.9	27.3
	6H	25.2	26.2	25.6	26.6	27.0	25.5	26.5	25.9	26.9	27.3
	8H	25.2	26.1	25.6	26.5	26.9	25.5	26.4	25.9	26.8	27.2
	12H	25.1	26.1	25.6	26.5	26.9	25.5	26.4	25.9	26.8	27.2
4H	2H	24.7	25.8	25.1	26.1	26.5	25.0	26.1	25.4	26.4	26.8
	3H	25.3	26.3	25.8	26.7	27.1	25.6	26.6	26.0	27.0	27.4
	4H	25.5	26.3	25.9	26.8	27.2	25.8	26.6	26.2	27.0	27.5
	6H	25.6	26.3	26.0	26.7	27.2	25.9	26.6	26.3	27.0	27.5
	8H	25.6	26.3	26.1	26.7	27.2	25.9	26.5	26.4	27.0	27.5
	12H	25.6	26.2	26.1	26.6	27.1	25.9	26.5	26.3	26.9	27.4
8H	4H	25.5	26.2	26.0	26.6	27.1	25.8	26.5	26.3	26.9	27.4
	6H	25.6	26.2	26.1	26.7	27.1	25.9	26.4	26.4	26.9	27.4
	8H	25.6	26.1	26.2	26.6	27.1	25.9	26.4	26.4	26.9	27.4
	12H	25.6	26.1	26.1	26.6	27.1	25.9	26.4	26.4	26.9	27.4
12H	4H	25.5	26.1	26.0	26.5	27.0	25.8	26.3	26.2	26.8	27.3
	6H	25.6	26.1	26.1	26.5	27.1	25.9	26.4	26.4	26.8	27.4
	8H	25.6	26.1	26.1	26.5	27.1	25.9	26.3	26.4	26.8	27.4

Maximum UGR = 27.5

Luminous Distribution Intensity Data (347V):

Table--1 UNIT: *10cd

C (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	
0	1933	1933	1933	1933	1933	1933	1933	1933	1933	1933	1933	1933	1933	1933	1933	1933	1933	1933	1933	1933
5	1933	1930	1928	1928	1924	1926	1926	1927	1930	1931	1935	1937	1939	1940	1942	1946	1945	1946	1946	1946
10	1937	1931	1927	1927	1924	1924	1925	1927	1931	1936	1941	1946	1949	1953	1956	1962	1961	1963	1964	1964
15	1944	1936	1932	1931	1929	1929	1931	1935	1939	1944	1952	1959	1958	1966	1971	1978	1979	1980	1982	1982
20	1949	1942	1939	1939	1936	1936	1939	1943	1948	1954	1961	1968	1967	1972	1979	1986	1987	1989	1989	1989
25	1949	1943	1941	1944	1941	1941	1942	1945	1950	1955	1960	1963	1958	1965	1963	1976	1975	1977	1976	1976
30	1920	1921	1923	1931	1929	1926	1923	1923	1924	1926	1928	1924	1920	1915	1916	1919	1916	1913	1911	1911
35	1813	1822	1839	1855	1854	1848	1842	1838	1836	1834	1828	1812	1813	1797	1788	1781	1766	1756	1754	1754
40	1528	1556	1585	1609	1619	1619	1618	1612	1607	1597	1584	1563	1574	1534	1502	1475	1448	1433	1419	1419
45	1080	1112	1115	1117	1139	1181	1210	1220	1225	1227	1207	1185	1209	1167	1115	1062	1033	1017	1003	1003
50	711	726	719	716	725	760	775	780	792	778	755	758	790	771	729	686	653	647	640	640
55	454	463	464	470	469	476	483	489	490	481	476	480	496	486	466	448	430	406	399	399
60	286	287	295	304	305	293	301	316	304	298	306	306	307	304	297	290	279	255	253	253
65	175	173	182	187	190	177	185	196	185	181	189	188	187	186	184	180	171	156	156	156
70	104	101	107	109	112	104	107	115	109	104	110	109	107	107	106	104	99.0	91.8	92.8	92.8
75	54.6	53.9	57.8	59.2	60.9	58.1	58.2	60.9	59.3	56.6	57.9	57.3	56.8	55.9	56.1	55.5	53.4	50.9	51.6	51.6
80	26.7	26.6	27.9	29.7	29.8	28.9	28.8	29.6	29.1	28.1	28.5	27.8	27.9	27.5	27.4	27.4	26.4	25.6	25.1	25.1
85	8.99	9.34	9.65	10.4	10.3	9.99	9.92	10.00	10.1	10.4	10.5	10.1	9.72	9.65	9.30	9.46	8.61	8.24	7.95	7.95
90	0.07	0.08	0.07	0.58	0.64	0.66	0.66	0.67	0.71	0.77	0.76	0.70	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
95	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.14
100	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.19	0.19	0.19	0.20	0.20	0.20	0.20	0.20
105	0.14	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.26	0.26	0.26	0.26	0.27	0.27	0.27	0.27
110	0.19	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.18	0.18	0.18	0.18	0.32	0.33	0.33	0.33	0.34	0.34	0.35	0.35
115	0.26	0.26	0.25	0.25	0.25	0.25	0.25	0.25	0.26	0.26	0.25	0.25	0.43	0.44	0.45	0.46	0.46	0.47	0.48	0.48
120	0.37	0.35	0.35	0.35	0.35	0.36	0.36	0.36	0.37	0.37	0.36	0.36	0.64	0.64	0.66	0.67	0.67	0.68	0.69	0.69
125	0.51	0.49	0.47	0.49	0.49	0.49	0.49	0.50	0.50	0.50	0.49	0.48	0.87	0.89	0.91	0.94	0.95	0.96	0.96	0.96
130	0.65	0.64	0.63	0.63	0.65	0.62	0.64	0.64	0.65	0.64	0.65	0.63	1.11	1.14	1.17	1.21	1.24	1.26	1.26	1.26
135	0.80	0.80	0.81	0.79	0.82	0.79	0.81	0.81	0.80	0.79	0.81	0.80	1.31	1.35	1.39	1.44	1.46	1.50	1.51	1.51
140	0.96	0.97	0.97	0.97	0.97	0.98	0.97	0.97	0.96	0.95	0.94	0.96	1.47	1.51	1.55	1.63	1.66	1.69	1.68	1.68
145	1.12	1.15	1.13	1.12	1.16	1.17	1.14	1.15	1.13	1.10	1.08	1.11	1.67	1.71	1.73	1.81	1.87	1.90	1.88	1.88
150	1.27	1.32	1.32	1.30	1.32	1.32	1.32	1.32	1.29	1.26	1.22	1.24	1.86	1.90	1.90	2.00	2.04	2.09	2.07	2.07
155	1.47	1.53	1.55	1.47	1.47	1.47	1.45	1.47	1.47	1.45	1.49	1.41	2.07	2.08	2.18	2.18	2.23	2.26	2.23	2.23
160	1.65	1.69	1.69	1.61	1.57	1.56	1.50	1.60	1.60	1.63	1.63	1.60	2.32	2.31	2.34	2.40	2.37	2.38	2.34	2.34
165	1.73	1.80	1.80	1.76	1.70	1.66	1.64	1.73	1.75	1.78	1.74	1.73	2.37	2.37	2.41	2.46	2.48	2.43	2.39	2.39
170	1.84	1.89	1.90	1.87	1.79	1.77	1.76	1.80	1.81	1.81	1.81	1.84	2.38	2.39	2.42	2.45	2.44	2.41	2.35	2.35
175	2.04	2.09	2.09	2.08	2.01	1.97	1.91	1.97	1.99	2.01	2.02	2.06	2.33	2.33	2.38	2.39	2.35	2.34	2.29	2.29
180	2.24	2.32	2.32	2.30	2.26	2.23	2.10	2.13	2.23	2.29	2.27	2.48	2.24	2.25	2.30	2.30	2.27	2.23	2.19	2.19

Table--2 UNIT: *10cd

C (DEG)	285	300	315	330	345
0	1933	1933	1933	1933	1933
5	1944	1943	1940	1939	1935
10	1961	1958	1953	1948	1943
15	1978	1972	1968	1962	1954
20	1989	1984	1979	1973	1966
25	1977	1976	1974	1972	1967
30	1915	1918	1925	1931	1930
35	1756	1764	1775	1791	1804
40	1412	1416	1432	1456	1484
45	981	963	964	983	1025
50	633	644	655	659	673
55	411	423	429	439	458
60	265	268	271	290	300
65	163	165	167	184	188
70	96.3	97.6	97.8	108	110
75	51.8	52.6	53.8	58.5	59.9
80	25.8	26.2	27.2	29.0	29.5
85	8.29	8.62	9.03	9.45	10.01
90	0.11	0.11	0.11	0.11	0.11
95	0.14	0.14	0.14	0.14	0.14
100	0.20	0.20	0.20	0.20	0.20
105	0.27	0.27	0.27	0.27	0.27
110	0.35	0.35	0.35	0.34	0.34
115	0.48	0.48	0.47	0.46	0.45
120	0.69	0.68	0.68	0.66	0.65
125	0.95	0.94	0.92	0.90	0.89
130	1.24	1.22	1.17	1.14	1.12
135	1.48	1.42	1.38	1.37	1.35
140	1.64	1.60	1.57	1.53	1.52
145	1.83	1.83	1.76	1.72	1.73
150	2.02	2.00	1.98	1.94	1.93
155	2.21	2.18	2.16	2.23	2.18
160	2.30	2.33	2.32	2.40	2.38
165	2.34	2.38	2.39	2.41	2.43
170	2.33	2.33	2.28	2.33	2.39
175	2.21	2.28	2.23	2.30	2.33
180	2.20	2.12	2.16	2.18	2.21

THD and PF Measurement Test Results:

Electrical Measurement:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD(%)
120.0	60	1.986	238.2	0.9993	6.01
277.0	60	0.8327	224.3	0.9725	7.13
347.0	60	0.7342	238.0	0.9341	12.24

Photo of Sample:



Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2020-11-12	2021-11-11
NTC-F01-006	2.0 meter Integrating Sphere	2020-11-12	2021-11-11
NTC-F01-012	Standard Lamp	2020-11-12	2021-11-11
NTC-F01-013	Standard Lamp	2020-11-12	2021-11-11
NTC-F01-031	Digital Power Meter	2020-08-22	2021-08-21
NTC-F01-019	Temperature & Humidity Meter	2020-11-13	2021-11-12

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