

Photometric Test Report

Relevant Standards

- ☒ ANSI/IES LM-79-2019
- ☒ ANSI C82.77-2017

Prepared For

RAB Lighting Inc.

Address: 408 W 14th St New York, NY 10014

Prepared By

Dongguan New Testing Centre Co., Ltd.

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

Prepare by:

Alan Wang

Engineer: Alan Wang

Date: 2024-07-15

Review by:

Vincent Yuan

Technical Lead: Vincent Yuan

Issue Date: 2024-07-15

Revised Date: N/A

1.0 Test Summary

DLC Technical Requirements V5.1

Stairwell and Passageway Luminaires					
Requirement Category		Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	750		1580
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	Standard	Premium	121.5
			105	120	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	Worst Case		13.0
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)		ANSI C82.77:2002 ANSI C82-77-10:2020	20.00%	120V	6.13
				277V	20.22
Power Factor (THD & PF – Section 4.3)		ANSI C82.77:2002 ANSI C82-77-10:2020	0.9	120V	0.981
				277V	0.758
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)		ANSI/IES LM-79:2019	7 steps	5029±283	4994
			4 steps	5029±220	
Minimum CRI (Integrating Sphere – Section 4.1)		ANSI/IES LM-79:2019 CIE13.3-1995	≥70		83.8
Minimum R9 (Integrating Sphere – Section 4.1)		ANSI/IES LM-79-2019 CIE13.3-1995	N/A		12
Minimum Rf (Integrating Sphere – Section 4.1)		ANSI/IES TM-30-18	≥70		84
Minimum Rg (Integrating Sphere – Section 4.1)		ANSI/IES TM-30-18	≥89		96
IES Rcs,h1 (Integrating Sphere – Section 4.1)		ANSI/IES TM-30-18	-18%≤IES Rcs,h1≤+23%		-12%
Zonal Lumen Requirement (0°-90°) (Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	≥85%		83.2%
Backlight, Uplight and Glare (BUG) Ratings (Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019 IES TM-15-11	N/A		B1-U3-G1
Input Voltage (V)					
(Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	Worst Cast		277.0
(Goniophotometer – Section 4.2)			Non-Worst Case		120.0
Input Current (A)					
(Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	Worst Case		0.062
(Goniophotometer – Section 4.2)			Non-Worst Case		0.103
Power (Input Wattage – W)					
(Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	Worst Case		13.0
(Goniophotometer – Section 4.2)			Non-Worst Case		12.1

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024-07-15	VXRGB @12W5000K	-	240715001-S1
2	Goniophotometer Test	2024-07-15	VXRGB @12W5000K	-	240715001-S1
3	THD and PF Test	2024-07-15	VXRGB @12W5000K	-	240715001-S1

Remark (If any):

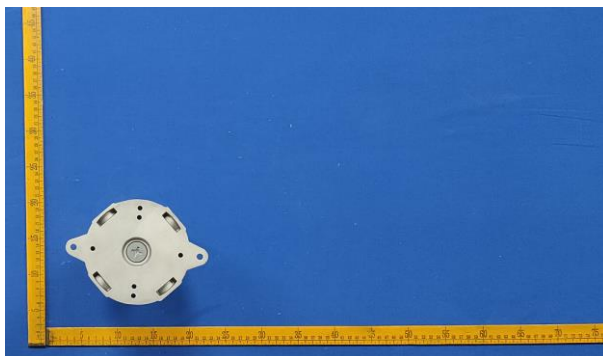
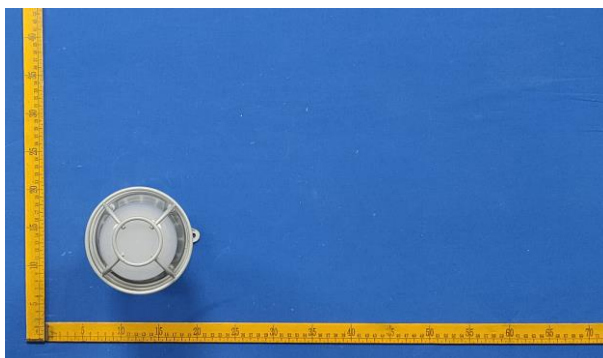
1. The results contained in this report pertain only to the tested samples.
2. This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd.
3. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. Government.

3.0 Product Description

Luminaire Description: Model No. VXRGB @12W5000K.

Electrical Specification: 120-277Vac, 50/60Hz

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	VXRGB @12W5000K	Sample ID	240715001-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

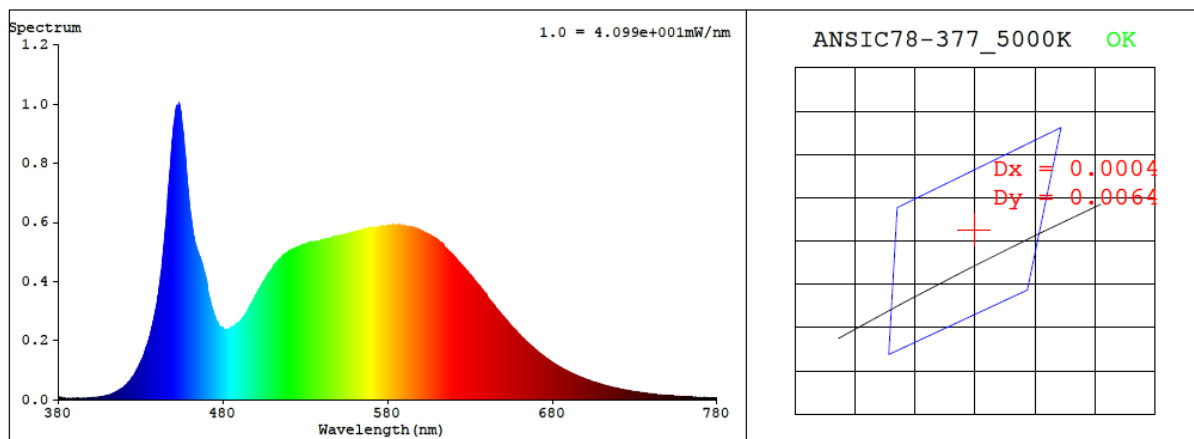
Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.</p> <p>The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.</p> <p>The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780nm.</p>

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.0	60	0.103	12.1	0.981
277.0	60	0.062	13.0	0.758

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
4994	83.8	12	0.0030	84	96	-12%

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3457$ $y = 0.3581$ / $u' = 0.2093$ $v' = 0.4879$ ($duv=3.00e-03$)

CCT= 4994K Prcp WL: $L_d=570.0nm$ Purity=11.2%

Peak WL: $L_p=453nm$ FWHM: $\approx 21.1nm$ Ratio: R=15.8% G=79.6% B=4.5%

Render Index: $R_a = 83.8$ AvgR = 76.7 TM30: $R_f=84$ $R_g=95$

EEL: 0.11650 A+

R1 =82	R2 =89	R3 =94	R4 =82	R5 =82	R6 =84	R7 =88
R8 =69	R9 =12	R10=74	R11=81	R12=56	R13=84	R14=97 R15=77

4.1 Integrating Sphere Test

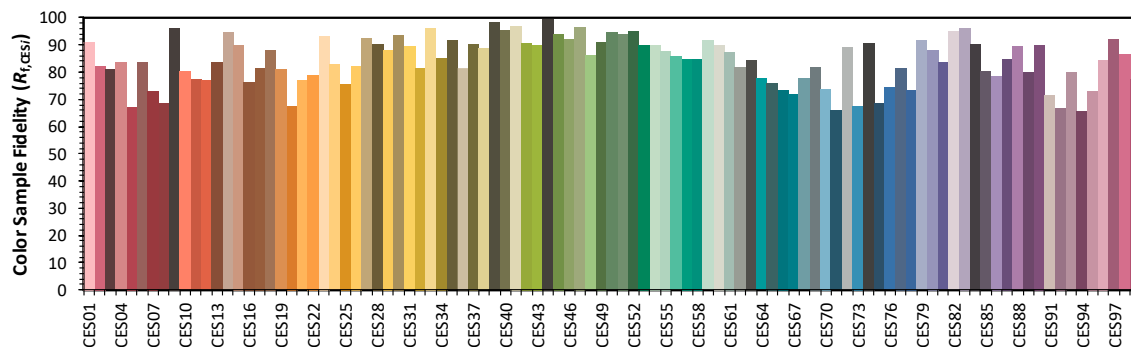
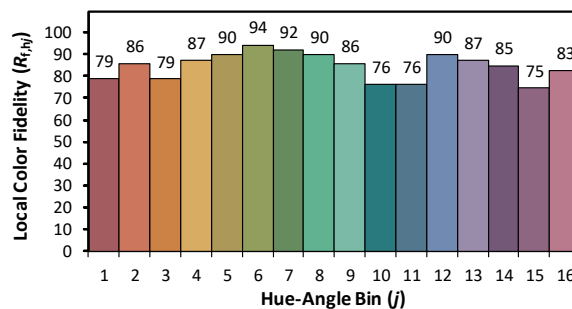
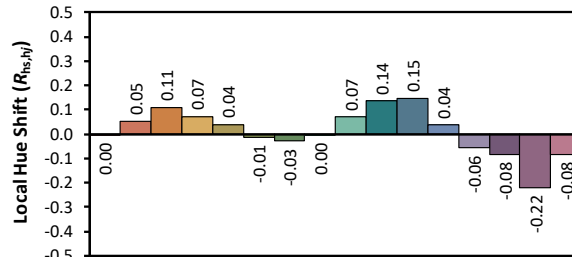
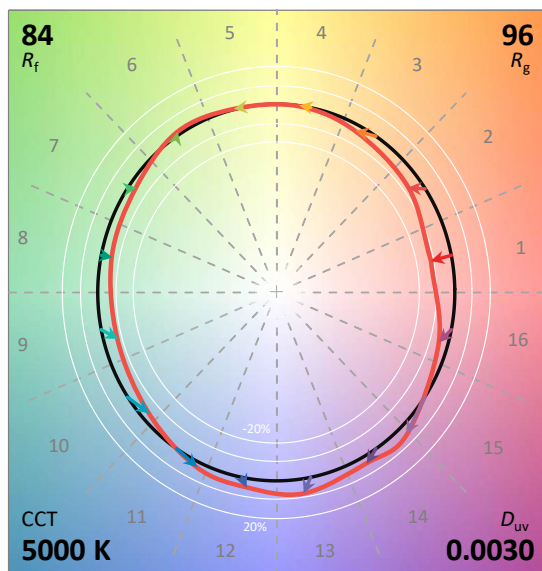
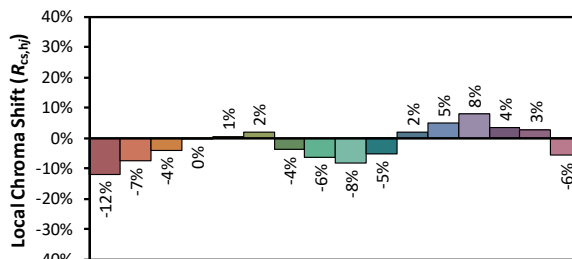
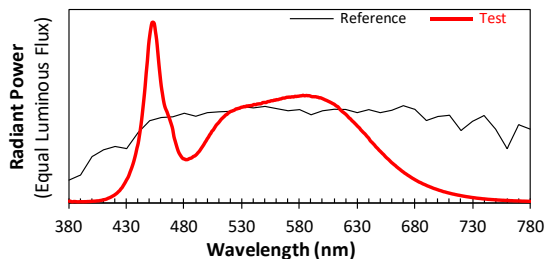
ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2024/7/15

Model: VXRGB @12W5000K



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

x 0.3457
 y 0.3580
 u' 0.2094
 v' 0.4878

CIE 13.3-1995
(CRI)
 R_a 84
 R_g 13

4.1 Integrating Sphere Test

Spectral Distribution over Visible Wavelength											
WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)
380	6.90E-06	447	7.16E-04	514	4.71E-04	581	5.89E-04	648	2.96E-04	715	4.39E-05
381	7.70E-06	448	7.82E-04	515	4.77E-04	582	5.89E-04	649	2.88E-04	716	4.28E-05
382	5.00E-06	449	8.65E-04	516	4.83E-04	583	5.92E-04	650	2.83E-04	717	4.12E-05
383	3.60E-06	450	9.19E-04	517	4.86E-04	584	5.89E-04	651	2.76E-04	718	4.02E-05
384	5.20E-06	451	9.61E-04	518	4.93E-04	585	5.89E-04	652	2.70E-04	719	3.90E-05
385	5.20E-06	452	9.92E-04	519	4.97E-04	586	5.91E-04	653	2.64E-04	720	3.76E-05
386	4.80E-06	453	9.94E-04	520	5.02E-04	587	5.89E-04	654	2.56E-04	721	3.65E-05
387	3.80E-06	454	9.86E-04	521	5.04E-04	588	5.90E-04	655	2.50E-04	722	3.53E-05
388	3.80E-06	455	9.43E-04	522	5.06E-04	589	5.88E-04	656	2.44E-04	723	3.42E-05
389	3.90E-06	456	8.98E-04	523	5.08E-04	590	5.86E-04	657	2.38E-04	724	3.31E-05
390	4.70E-06	457	8.31E-04	524	5.12E-04	591	5.84E-04	658	2.32E-04	725	3.20E-05
391	4.50E-06	458	7.62E-04	525	5.17E-04	592	5.84E-04	659	2.26E-04	726	3.11E-05
392	4.10E-06	459	7.00E-04	526	5.17E-04	593	5.83E-04	660	2.19E-04	727	3.02E-05
393	4.40E-06	460	6.44E-04	527	5.20E-04	594	5.84E-04	661	2.14E-04	728	2.91E-05
394	4.60E-06	461	6.02E-04	528	5.20E-04	595	5.82E-04	662	2.09E-04	729	2.81E-05
395	4.50E-06	462	5.62E-04	529	5.24E-04	596	5.81E-04	663	2.04E-04	730	2.72E-05
396	5.20E-06	463	5.33E-04	530	5.26E-04	597	5.78E-04	664	1.98E-04	731	2.65E-05
397	5.20E-06	464	5.14E-04	531	5.27E-04	598	5.78E-04	665	1.93E-04	732	2.57E-05
398	5.80E-06	465	5.00E-04	532	5.30E-04	599	5.76E-04	666	1.88E-04	733	2.46E-05
399	6.10E-06	466	4.82E-04	533	5.28E-04	600	5.73E-04	667	1.83E-04	734	2.38E-05
400	6.70E-06	467	4.66E-04	534	5.33E-04	601	5.70E-04	668	1.77E-04	735	2.32E-05
401	7.10E-06	468	4.46E-04	535	5.32E-04	602	5.67E-04	669	1.72E-04	736	2.25E-05
402	7.40E-06	469	4.27E-04	536	5.34E-04	603	5.64E-04	670	1.68E-04	737	2.19E-05
403	7.80E-06	470	4.03E-04	537	5.34E-04	604	5.61E-04	671	1.63E-04	738	2.11E-05
404	8.70E-06	471	3.64E-04	538	5.35E-04	605	5.58E-04	672	1.59E-04	739	2.03E-05
405	9.00E-06	472	3.41E-04	539	5.36E-04	606	5.55E-04	673	1.55E-04	740	2.00E-05
406	9.40E-06	473	3.19E-04	540	5.40E-04	607	5.52E-04	674	1.50E-04	741	1.93E-05
407	1.11E-05	474	2.97E-04	541	5.41E-04	608	5.49E-04	675	1.46E-04	742	1.87E-05
408	1.17E-05	475	2.79E-04	542	5.39E-04	609	5.45E-04	676	1.42E-04	743	1.79E-05
409	1.36E-05	476	2.67E-04	543	5.43E-04	610	5.42E-04	677	1.38E-04	744	1.74E-05
410	1.46E-05	477	2.57E-04	544	5.44E-04	611	5.37E-04	678	1.34E-04	745	1.70E-05
411	1.63E-05	478	2.48E-04	545	5.45E-04	612	5.32E-04	679	1.30E-04	746	1.65E-05
412	1.78E-05	479	2.42E-04	546	5.44E-04	613	5.29E-04	680	1.26E-04	747	1.60E-05
413	2.04E-05	480	2.41E-04	547	5.46E-04	614	5.23E-04	681	1.23E-04	748	1.57E-05
414	2.36E-05	481	2.37E-04	548	5.51E-04	615	5.14E-04	682	1.19E-04	749	1.50E-05
415	2.59E-05	482	2.37E-04	549	5.52E-04	616	5.08E-04	683	1.15E-04	750	1.46E-05
416	2.89E-05	483	2.37E-04	550	5.52E-04	617	5.02E-04	684	1.12E-04	751	1.44E-05
417	3.21E-05	484	2.41E-04	551	5.52E-04	618	4.97E-04	685	1.10E-04	752	1.37E-05
418	3.59E-05	485	2.43E-04	552	5.56E-04	619	4.92E-04	686	1.06E-04	753	1.34E-05
419	3.92E-05	486	2.45E-04	553	5.57E-04	620	4.87E-04	687	1.03E-04	754	1.30E-05
420	4.39E-05	487	2.49E-04	554	5.58E-04	621	4.81E-04	688	1.00E-04	755	1.26E-05
421	4.85E-05	488	2.54E-04	555	5.61E-04	622	4.74E-04	689	9.75E-05	756	1.22E-05
422	5.39E-05	489	2.57E-04	556	5.62E-04	623	4.66E-04	690	9.44E-05	757	1.22E-05
423	6.04E-05	490	2.62E-04	557	5.62E-04	624	4.62E-04	691	9.14E-05	758	1.16E-05
424	6.60E-05	491	2.68E-04	558	5.65E-04	625	4.55E-04	692	8.92E-05	759	1.14E-05
425	7.50E-05	492	2.76E-04	559	5.64E-04	626	4.48E-04	693	8.63E-05	760	1.09E-05
426	8.18E-05	493	2.82E-04	560	5.68E-04	627	4.43E-04	694	8.41E-05	761	1.08E-05
427	9.23E-05	494	2.92E-04	561	5.67E-04	628	4.36E-04	695	8.13E-05	762	1.06E-05
428	1.03E-04	495	3.01E-04	562	5.69E-04	629	4.30E-04	696	7.86E-05	763	1.01E-05
429	1.14E-04	496	3.11E-04	563	5.71E-04	630	4.23E-04	697	7.64E-05	764	1.00E-05
430	1.26E-04	497	3.20E-04	564	5.72E-04	631	4.16E-04	698	7.45E-05	765	9.60E-06
431	1.36E-04	498	3.32E-04	565	5.75E-04	632	4.11E-04	699	7.22E-05	766	9.10E-06
432	1.50E-04	499	3.41E-04	566	5.76E-04	633	4.02E-04	700	7.00E-05	767	9.00E-06
433	1.68E-04	500	3.52E-04	567	5.76E-04	634	3.95E-04	701	6.77E-05	768	8.90E-06
434	1.84E-04	501	3.61E-04	568	5.79E-04	635	3.88E-04	702	6.59E-05	769	8.70E-06
435	2.02E-04	502	3.73E-04	569	5.81E-04	636	3.82E-04	703	6.40E-05	770	8.40E-06
436	2.22E-04	503	3.81E-04	570	5.81E-04	637	3.76E-04	704	6.16E-05	771	8.30E-06
437	2.46E-04	504	3.93E-04	571	5.82E-04	638	3.68E-04	705	5.95E-05	772	8.00E-06
438	2.72E-04	505	3.99E-04	572	5.81E-04	639	3.61E-04	706	5.83E-05	773	7.50E-06
439	3.01E-04	506	4.09E-04	573	5.83E-04	640	3.55E-04	707	5.64E-05	774	7.50E-06
440	3.26E-04	507	4.20E-04	574	5.83E-04	641	3.44E-04	708	5.47E-05	775	7.40E-06
441	3.66E-04	508	4.29E-04	575	5.83E-04	642	3.36E-04	709	5.30E-05	776	7.20E-06
442	4.08E-04	509	4.35E-04	576	5.86E-04	643	3.30E-04	710	5.15E-05	777	7.10E-06
443	4.55E-04	510	4.42E-04	577	5.85E-04	644	3.24E-04	711	4.99E-05	778	6.70E-06
444	5.13E-04	511	4.51E-04	578	5.86E-04	645	3.17E-04	712	4.82E-05	779	6.70E-06
445	5.73E-04	512	4.59E-04	579	5.86E-04	646	3.09E-04	713	4.67E-05	780	6.70E-06
446	6.38E-04	513	4.65E-04	580	5.88E-04	647	3.02E-04	714	4.56E-05	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	VXRGB @12W5000K	Sample ID	240715001-S1
Operate time (Min.)	30	Stabilization time (Min.)	60
Temperature (°C)	25.0	Humidity (%RH)	44.3

Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using a type C goniophotometer and software.</p> <p>The ambient temperature shall be maintained at $25\pm1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample.</p> <p>The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.</p> <p>The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1.0° vertical intervals and 15° horizontal intervals.</p>

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.0	60	0.062	13.0	0.758
NON-WORST CASE	120.0	60	0.103	12.1	0.981

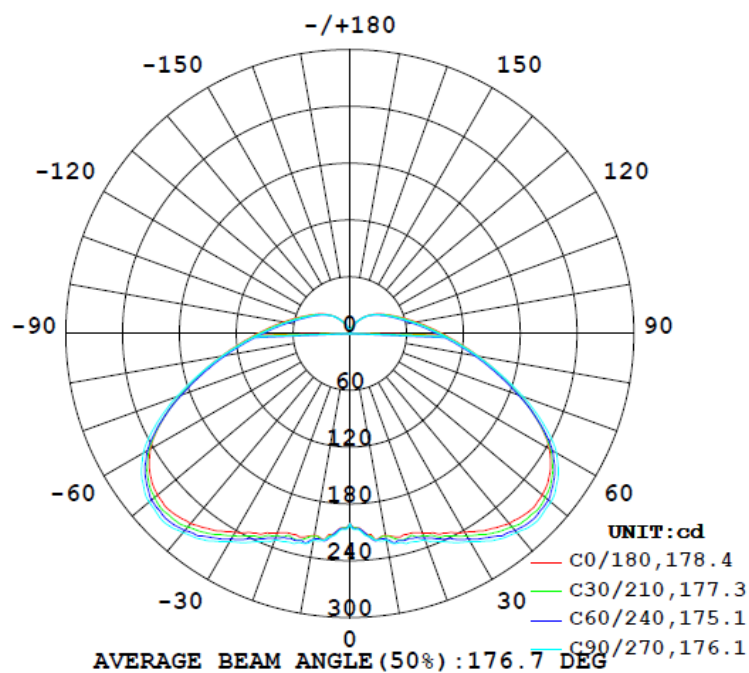
Test Result

Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)	Zonal Lumen Requirement	BUG
	C0-180	C90-270	C0-180	C90-270		(0°-90°)	
1580	180.0	180.0	159.8	151.6	121.5	83.2%	B1-U3-G1

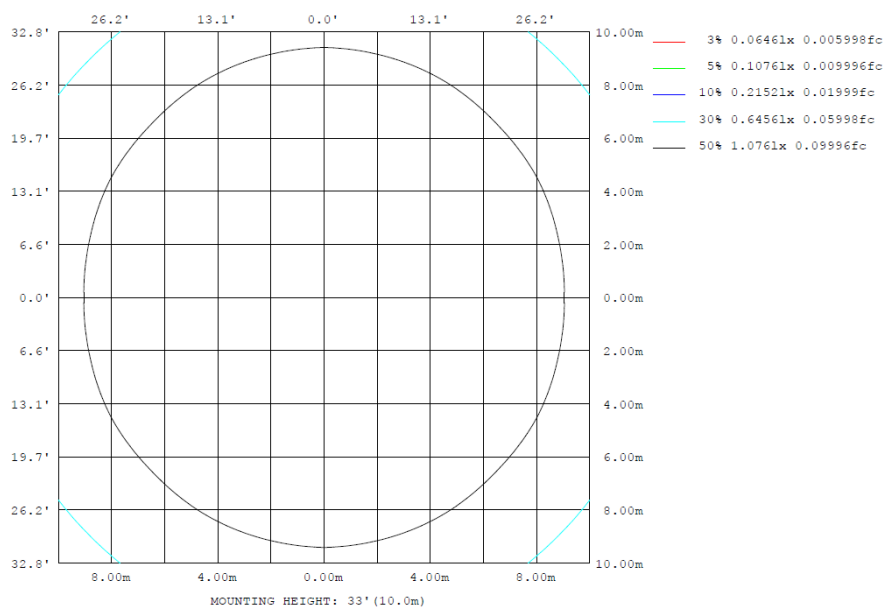
4.2 Goniophotometer Test

Lighting Distribution Curve

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

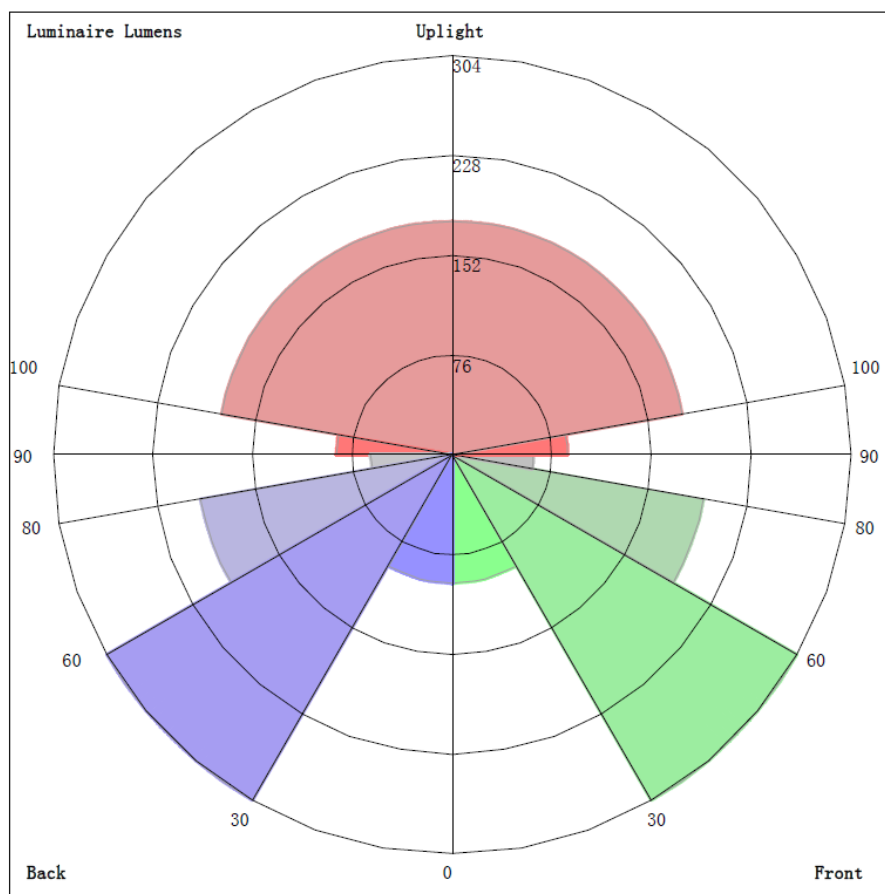
ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	216.5	218.9	221.3	218.9	216.5	218.9	221.3	218.9	0- 10	20.60	20.60	1.3,1.3
20	224.1	228.8	232.1	228.8	224.1	228.8	232.1	228.8	10- 20	63.74	84.33	5.34,5.34
30	242.2	246.2	253.6	246.2	242.2	246.2	253.6	246.2	20- 30	110.5	194.8	12.3,12.3
40	261.9	268.2	274.5	268.2	261.9	268.2	274.5	268.2	30- 40	163.0	357.9	22.7,22.7
50	265.0	270.1	276.8	270.1	265.0	270.1	276.8	270.1	40- 50	210.4	568.2	36,36
60	243.3	243.7	251.9	243.7	243.3	243.7	251.9	243.7	50- 60	233.7	802.0	50.8,50.8
70	190.9	186.9	194.5	186.9	190.9	186.9	194.5	186.9	60- 70	217.5	1020	64.5,64.5
80	137.7	132.2	136.5	132.2	137.7	132.2	136.5	132.2	70- 80	171.1	1191	75.4,75.4
90	97.58	91.07	94.26	91.07	97.58	91.07	94.26	91.07	80- 90	123.6	1314	83.2,83.2
100	71.19	65.62	68.10	65.62	71.19	65.62	68.10	65.62	90-100	87.79	1402	88.7,88.7
110	53.27	49.17	50.85	49.17	53.27	49.17	50.85	49.17	100-110	62.49	1464	92.7,92.7
120	41.12	38.50	39.54	38.50	41.12	38.50	39.54	38.50	110-120	44.83	1509	95.5,95.5
130	31.70	30.20	30.60	30.20	31.70	30.20	30.60	30.20	120-130	31.67	1541	97.5,97.5
140	22.56	22.18	21.91	22.18	22.56	22.18	21.91	22.18	130-140	20.73	1562	98.9,98.9
150	13.98	14.05	13.91	14.05	13.98	14.05	13.91	14.05	140-150	11.38	1573	99.6,99.6
160	7.289	7.422	7.537	7.422	7.289	7.422	7.537	7.422	150-160	4.966	1578	99.9,99.9
170	3.586	3.369	3.532	3.369	3.586	3.369	3.532	3.369	160-170	1.570	1580	100,100
180	0.3076	0.3110	0.3090	0.3110	0.3076	0.3110	0.3090	0.3110	170-180	0.1928	1580	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Zonal (lm)		Total (lm)		Percent
0-10	20.60	0-10	20.60	1.30%
10-20	63.74	0-20	84.34	5.34%
20-30	110.49	0-30	194.83	12.33%
30-40	163.04	0-40	357.87	22.66%
40-50	210.39	0-50	568.26	35.97%
50-60	233.73	0-60	801.99	50.77%
60-70	217.54	0-70	1019.53	64.54%
70-80	171.07	0-80	1190.60	75.37%
80-90	123.57	0-90	1314.17	83.20%
90-100	87.79	0-100	1401.96	88.75%
100-110	62.49	0-110	1464.45	92.71%
110-120	44.83	0-120	1509.28	95.55%
120-130	31.67	0-130	1540.95	97.55%
130-140	20.73	0-140	1561.68	98.87%
140-150	11.38	0-150	1573.06	99.59%
150-160	4.97	0-160	1578.03	99.90%
160-170	1.57	0-170	1579.60	100.00%
170-180	0.19	0-180	1579.79	100.01%

4.2 Goniophotometer Test

LCS/BUG

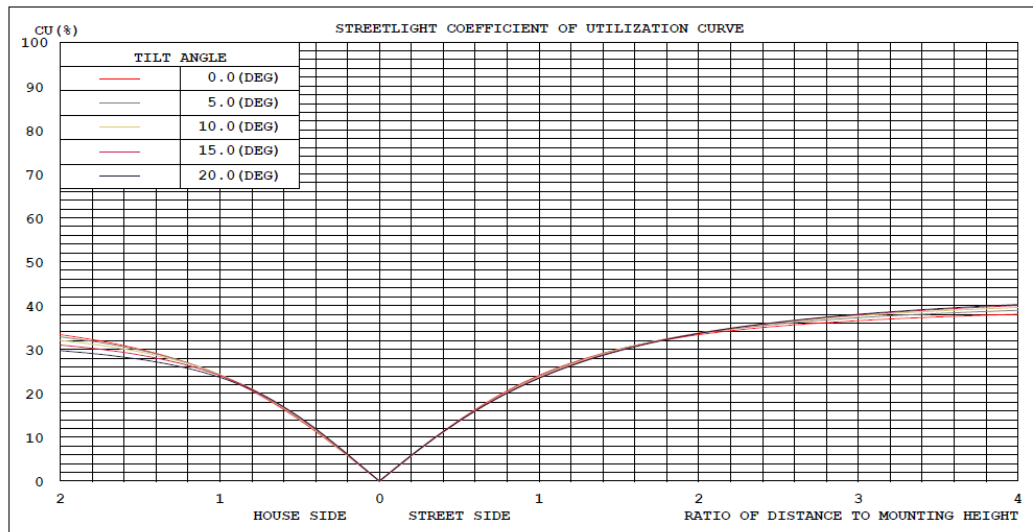


LUMINAIRE CLASSIFICATION SYSTEM (LCS)

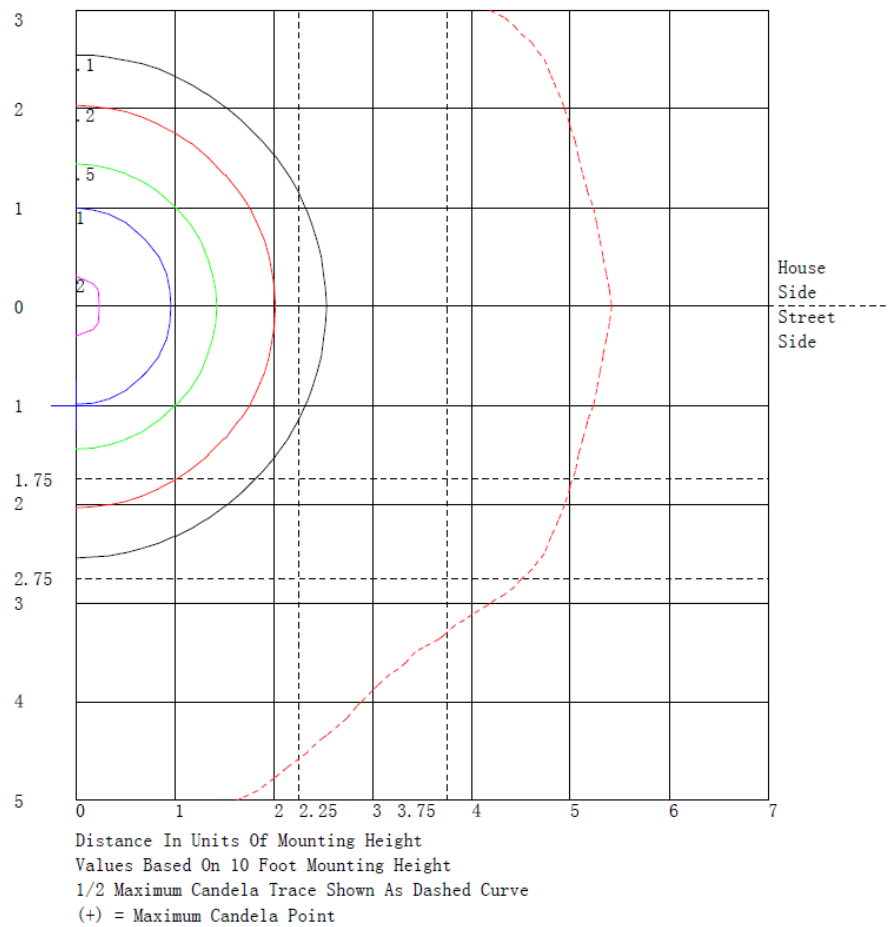
	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	97.4	N.A.	6.2
FM - Front-Medium (30-60)	303.6	N.A.	19.2
FH - Front-High (60-80)	194.3	N.A.	12.3
FVH - Front-Very High (80-90)	61.8	N.A.	3.9
BL - Back-Low (0-30)	97.4	N.A.	6.2
BM - Back-Medium (30-60)	303.6	N.A.	19.2
BH - Back-High (60-80)	194.3	N.A.	12.3
BVH - Back-Very High (80-90)	61.8	N.A.	3.9
UL - Uplight-Low (90-100)	87.8	N.A.	5.6
UH - Uplight-High (100-180)	177.8	N.A.	11.3
Total	1579.8	N.A.	100.0
BUG Rating	B1-U3-G1		

4.2 Goniophotometer Test

Coefficients of Utilization



Isolines



4.2 Goniophotometer Test

Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
0	200	200	200	200	200	200	200	201	201	201	201	201	201	201	201	201	201	201	201
5	213	212	212	211	212	213	213	214	214	214	214	214	214	214	214	214	214	215	215
10	217	218	219	219	219	218	218	218	218	219	219	220	220	221	222	222	222	222	221
15	220	221	222	222	223	224	225	225	224	225	225	226	226	227	227	228	228	229	230
20	224	224	225	225	226	226	227	228	228	229	229	229	230	231	232	233	233	232	232
25	233	234	234	235	235	236	236	236	236	237	238	240	241	241	242	242	242	243	
30	242	242	243	243	244	246	247	246	246	246	247	249	250	251	252	253	253	253	254
35	253	254	254	255	256	257	258	258	259	259	260	261	262	263	264	265	265	266	266
40	262	262	262	263	264	265	266	267	268	268	269	270	271	272	273	274	274	274	275
45	266	266	267	267	268	269	271	271	272	272	273	275	276	276	277	277	278	279	280
50	265	265	265	266	267	268	269	270	270	270	271	272	274	274	275	275	276	276	277
55	258	257	257	258	259	260	261	261	261	260	261	263	264	265	266	267	267	268	268
60	243	243	243	243	244	244	245	245	244	244	244	246	247	248	249	250	251	251	252
65	219	219	218	218	219	219	220	219	218	217	218	219	220	221	222	224	224	225	225
70	191	190	190	190	190	191	191	189	188	187	188	189	191	192	193	194	194	194	195
75	163	162	162	162	162	163	163	161	159	158	158	159	160	161	162	164	164	164	164
80	138	137	137	137	137	137	137	135	134	132	132	133	134	135	136	136	137	137	137
85	115	115	114	114	114	114	114	113	111	110	110	110	111	112	112	113	113	113	113
90	97.6	97.0	96.6	96.3	96.3	96.2	95.9	94.3	92.6	91.1	90.9	91.2	91.8	92.8	93.7	94.6	94.6	94.4	94.3
95	83.2	82.7	82.3	82.0	82.0	81.9	81.5	80.1	78.6	77.4	77.2	77.4	78.0	78.7	79.5	80.1	80.2	80.1	80.0
100	71.2	70.8	70.5	70.2	70.1	69.9	69.5	68.2	66.8	65.6	65.4	65.6	66.1	66.7	67.4	68.0	68.1	68.1	68.1
105	61.4	61.1	60.8	60.5	60.4	60.2	59.8	58.7	57.4	56.4	56.3	56.4	56.9	57.5	58.1	58.6	58.7	58.6	58.6
110	53.3	53.0	52.8	52.6	52.6	52.5	52.2	51.2	50.1	49.2	49.0	49.2	49.5	50.1	50.7	51.2	51.2	51.0	50.9
115	46.6	46.4	46.2	46.1	46.1	46.1	45.9	45.0	44.1	43.3	43.2	43.4	43.7	44.1	44.6	45.0	44.9	44.8	44.6
120	41.1	41.0	40.8	40.7	40.7	40.6	40.4	39.8	39.1	38.5	38.4	38.6	38.8	39.1	39.4	39.7	39.7	39.6	39.5
125	36.2	36.1	36.0	35.9	35.9	35.8	35.6	35.1	34.6	34.2	34.2	34.2	34.4	34.6	34.9	35.1	35.1	35.0	35.0
130	31.7	31.6	31.5	31.4	31.4	31.4	31.4	31.0	30.6	30.2	30.1	30.1	30.3	30.5	30.7	30.9	30.8	30.7	30.6
135	27.2	27.1	27.0	27.0	27.0	26.9	26.9	26.7	26.5	26.4	26.4	26.4	26.5	26.6	26.6	26.7	26.6	26.6	26.5
140	22.6	22.4	22.3	22.3	22.3	22.4	22.4	22.4	22.3	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.1	22.0	21.9
145	17.8	17.7	17.7	17.7	17.8	17.9	17.9	17.9	17.9	17.9	17.9	17.9	18.0	17.9	17.9	17.8	17.8	17.7	17.6
150	14.0	13.9	13.8	13.8	13.8	13.9	14.0	14.0	14.0	14.1	14.1	14.1	14.1	14.1	14.0	14.0	13.9	13.9	13.9
155	10.3	10.3	10.2	10.2	10.3	10.3	10.4	10.5	10.5	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.5	10.5	10.5
160	7.29	7.28	7.28	7.29	7.30	7.33	7.35	7.38	7.40	7.42	7.44	7.47	7.48	7.50	7.51	7.51	7.52	7.53	7.54
165	5.21	5.19	5.18	5.17	5.16	5.17	5.22	5.26	5.31	5.33	5.33	5.33	5.32	5.30	5.30	5.33	5.37	5.42	
170	3.59	3.51	3.45	3.42	3.43	3.45	3.47	3.44	3.40	3.37	3.36	3.37	3.39	3.44	3.50	3.55	3.55	3.54	3.53
175	0.97	1.00	1.01	1.00	0.97	0.93	0.88	0.83	0.79	0.75	0.73	0.72	0.73	0.76	0.79	0.82	0.85	0.86	0.88
180	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31

																		UNIT: cd		
C (DEG)		95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185
γ (DEG)																				
0	201	201	201	201	201	201	201	201	201	201	201	201	200	200	200	200	200	200	200	200
5	215	214	214	214	214	214	214	214	214	214	214	214	213	213	212	211	212	212	213	212
10	222	222	222	222	221	220	220	219	219	218	218	218	218	218	219	219	219	218	217	218
15	229	228	227	227	226	226	225	225	224	225	225	225	224	223	222	222	221	220	221	
20	232	233	233	232	231	230	229	229	229	228	228	227	226	226	226	225	225	224	224	
25	242	242	242	241	241	240	238	237	236	236	236	236	236	236	235	235	234	234	233	
30	253	253	253	252	251	250	249	247	246	246	246	247	246	244	243	243	242	242	242	
35	266	265	265	264	263	262	261	260	259	259	258	258	257	256	255	254	254	253	254	
40	274	274	274	273	272	271	270	269	268	268	267	266	265	264	263	262	262	262	262	
45	279	278	277	277	276	276	275	273	272	272	271	271	269	268	267	267	266	266	266	
50	276	276	275	275	274	274	272	271	270	270	270	269	268	267	266	265	265	265	265	
55	268	267	267	266	265	264	263	261	260	261	261	261	260	259	258	257	257	258	257	
60	251	251	250	249	248	247	246	244	244	244	245	245	244	244	244	243	243	243	243	
65	225	224	224	222	221	220	219	218	217	218	219	220	219	219	219	218	218	219	219	
70	194	194	193	192	191	189	188	187	187	188	189	191	191	191	190	190	190	190	191	
75	164	164	164	162	161	160	159	158	158	159	161	163	163	162	162	162	162	163	162	
80	137	137	136	136	135	134	133	132	132	133	134	135	137	137	137	137	137	137	138	
85	113	113	113	112	112	111	110	110	110	111	113	114	114	114	114	114	115	115	115	
90	94.4	94.6	94.6	93.7	92.8	91.8	91.2	90.9	91.1	92.6	94.3	95.9	96.2	96.3	96.3	96.6	97.0	97.6	97.6	
95	80.1	80.2	80.1	79.5	78.7	78.0	77.4	77.2	77.4	78.6	80.1	81.5	81.9	82.0	82.0	82.3	82.7	83.2	82.7	
100	68.1	68.1	68.0	67.4	66.7	66.1	65.6	65.4	65.6	66.8	68.2	69.5	69.9	70.1	70.2	70.5	70.8	71.2	70.8	
105	58.6	58.7	58.6	58.1	57.5	56.9	56.4	56.3	56.4	57.4	58.7	59.8	60.2	60.4	60.5	60.8	61.1	61.4	61.1	
110	51.0	51.2	51.2	50.7	50.1	49.5	49.2	49.0	49.2	50.1	51.2	52.2	52.5	52.6	52.6	52.8	53.0	53.3	53.0	
115	44.8	44.9	45.0	44.6	44.1	43.7	43.4	43.2	43.3	44.1	45.0	45.9	46.1	46.1	46.1	46.2	46.4	46.6	46.4	
120	39.6	39.7	39.7	39.4	39.1	38.8	38.6	38.4	38.5	39.1	39.8	40.4	40.6	40.7	40.7	40.8	41.0	41.1	41.0	
125	35.0	35.1	35.1	34.9	34.6	34.4	34.2	34.2	34.2	34.6	35.1	35.6	35.8	35.9	35.9	36.0	36.1	36.2	36.1	
130	30.7	30.8	30.9	30.7	30.5	30.3	30.1	30.1	30.2	30.6	31.0	31.4	31.4	31.4	31.4	31.5	31.6	31.7	31.6	
135	26.6	26.6	26.7	26.6	26.6	26.5	26.4	26.4	26.4	26.5	26.7	26.9	26.9	27.0	27.0	27.0	27.1	27.2	27.1	
140	22.0	22.1	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.3	22.4	22.4	22.4	22.3	22.3	22.3	22.4	22.6	22.4	
145	17.7	17.8	17.8	17.9	17.9	18.0	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.8	17.7	17.7	17.7	17.8	
150	13.9	13.9	14.0	14.0	14.1	14.1	14.1	14.1	14.1	14.0	14.0	14.0	13.9	13.8	13.8	13.8	13.9	14.0	13.9	
155	10.5	10.5	10.5	10.5	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.4	10.3	10.3	10.2	10.2	10.3	10.3	10.3	
160	7.53	7.52	7.51	7.51	7.50	7.48	7.47	7.44	7.42	7.40	7.38	7.35	7.33	7.30	7.29	7.28	7.28	7.29	7.28	
165	5.97	5.93	5.90	5.90	5.82	5.73	5.63	5.53	5.43	5.31	5.26	5.22	5.17	5.16	5.16	5.17	5.18	5.19	5.21	
170	3.54	3.55	3.55	3.50	3.44	3.39	3.37	3.36	3.37	3.40	3.44	3.47	3.45	3.43	3.42	3.45	3.51	3.59	3.51	
175	0.86	0.85	0.82	0.79	0.76	0.73	0.72	0.73	0.75	0.79	0.83	0.88	0.93	0.97	1.00	1.01	1.00	0.91	1.00	
180	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	

Table--3

UNIT: °C

C (DEG) y (DEG)	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280
0	200	200	200	200	200	201	201	201	201	201	201	201	201	201	201	201	201	201	201
5	212	211	212	213	213	214	214	214	214	214	214	214	214	214	214	215	215	215	214
10	219	219	219	218	218	218	218	219	219	220	220	221	222	222	222	222	221	222	222
15	222	222	223	224	225	225	225	225	225	226	226	227	227	228	228	229	230	229	228
20	225	225	226	226	227	228	228	229	229	229	230	231	232	233	233	232	232	232	233
25	234	235	235	236	236	236	236	236	237	238	240	241	241	242	242	242	243	242	242
30	243	243	244	246	247	246	246	247	249	250	251	252	253	253	253	254	253	253	253
35	254	255	256	257	258	258	259	259	260	261	262	263	264	265	265	266	266	266	265
40	262	263	264	265	266	267	268	268	269	270	271	272	273	274	274	274	275	274	274
45	267	267	268	269	271	271	272	272	273	275	276	276	277	277	278	279	280	279	278
50	265	266	267	268	269	270	270	270	271	272	274	274	275	275	276	276	277	276	276
55	257	258	259	260	261	261	261	260	261	263	264	265	266	267	267	268	268	268	267
60	243	243	244	244	245	245	244	244	244	246	247	248	249	250	251	251	252	251	251
65	218	218	219	219	220	219	218	217	218	219	220	221	222	224	224	225	225	225	224
70	190	190	190	191	191	189	188	187	187	188	189	191	192	193	194	194	195	194	194
75	162	162	162	163	163	161	159	158	158	159	160	161	162	164	164	164	164	164	164
80	137	137	137	137	137	135	134	132	132	133	134	135	136	136	137	137	137	137	137
85	114	114	114	114	114	113	111	110	110	110	111	112	112	113	113	113	113	113	113
90	96.6	96.3	96.3	96.2	95.9	94.3	92.6	91.1	90.9	91.2	91.8	92.8	93.7	94.6	94.6	94.4	94.3	94.4	94.6
95	82.3	82.0	82.0	81.9	81.5	80.1	78.6	77.4	77.2	77.4	78.0	78.7	79.5	80.1	80.2	80.1	80.0	80.1	80.2
100	70.5	70.2	70.1	69.9	69.5	68.2	66.8	65.6	65.4	65.6	66.1	66.7	67.4	68.0	68.1	68.1	68.1	68.1	68.1
105	60.8	60.5	60.4	60.2	59.8	58.7	57.4	56.4	56.3	56.4	56.9	57.5	58.1	58.6	58.7	58.6	58.6	58.6	58.7
110	52.8	52.6	52.6	52.5	52.2	51.2	50.1	49.2	49.0	49.2	49.5	50.1	50.7	51.2	51.2	51.0	50.9	51.0	51.2
115	46.2	46.1	46.1	46.1	45.9	45.0	44.1	43.3	43.2	43.4	43.7	44.1	44.6	45.0	44.9	44.8	44.6	44.8	44.9
120	40.8	40.7	40.7	40.6	40.4	39.8	39.1	38.5	38.4	38.6	38.8	39.1	39.4	39.7	39.7	39.6	39.5	39.6	39.7
125	36.0	35.9	35.9	35.8	35.6	35.1	34.6	34.2	34.2	34.4	34.6	34.9	35.1	35.1	35.0	35.0	35.0	35.1	35.1
130	31.5	31.4	31.4	31.4	31.4	31.0	30.6	30.2	30.1	30.1	30.3	30.5	30.7	30.9	30.8	30.7	30.6	30.7	30.8
135	27.0	27.0	27.0	26.9	26.9	26.7	26.5	26.4	26.4	26.4	26.5	26.6	26.6	26.7	26.6	26.6	26.5	26.6	26.6
140	22.3	22.3	22.3	22.4	22.4	22.4	22.3	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.1	22.0	21.9	22.0	22.1
145	17.7	17.7	17.8	17.9	17.9	17.9	17.9	17.9	17.9	17.9	18.0	17.9	17.9	17.8	17.8	17.7	17.6	17.7	17.8
150	13.8	13.8	13.8	13.9	14.0	14.0	14.0	14.1	14.1	14.1	14.1	14.1	14.0	14.0	13.9	13.9	13.9	13.9	13.9
155	10.2	10.2	10.3	10.3	10.4	10.5	10.5	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.5	10.5	10.5	10.5	10.5
160	7.28	7.29	7.30	7.33	7.35	7.38	7.40	7.42	7.44	7.47	7.48	7.50	7.51	7.51	7.52	7.53	7.54	7.53	7.52
165	5.18	5.17	5.16	5.16	5.17	5.22	5.26	5.31	5.33	5.33	5.33	5.32	5.30	5.30	5.33	5.37	5.42	5.37	5.33
170	3.45	3.42	3.43	3.45	3.47	3.44	3.40	3.37	3.36	3.37	3.39	3.44	3.50	3.55	3.55	3.54	3.53	3.54	3.55
175	1.01	1.00	0.97	0.93	0.88	0.83	0.79	0.75	0.73	0.72	0.73	0.76	0.79	0.82	0.85	0.86	0.88	0.86	0.85
180	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31

Table--4

UNIT: °C

C (DEG) y (DEG)		285	290	295	300	305	310	315	320	325	330	335	340	345	350	355			
0		201	201	201	201	201	201	201	201	201	200	200	200	200	200	200			
5		214	214	214	214	214	214	214	214	214	213	213	212	211	212	212			
10		222	222	221	220	220	219	219	218	218	218	218	219	219	219	218			
15		227	227	226	226	225	225	224	225	225	225	224	223	222	222	221			
20		233	232	231	230	229	229	229	228	228	227	226	226	225	225	224			
25		242	241	241	240	238	237	236	236	236	236	236	235	235	234	234			
30		253	252	251	250	249	247	246	246	246	247	246	244	243	243	242			
35		265	264	263	262	261	260	259	259	258	258	257	256	255	254	254			
40		274	273	272	271	270	269	268	268	267	266	265	264	263	262	262			
45		277	277	276	276	275	273	272	272	271	271	269	268	267	267	266			
50		275	275	274	274	272	271	270	270	270	269	268	267	266	265	265			
55		267	266	265	264	263	261	260	261	261	261	260	259	258	257	257			
60		250	249	248	247	246	244	244	244	245	245	244	244	243	243	243			
65		224	222	221	220	219	218	217	218	219	220	219	219	218	218	219			
70		193	192	191	189	188	187	187	188	189	191	191	190	190	190	190			
75		164	162	161	160	159	158	158	159	161	163	163	162	162	162	162			
80		136	136	135	134	133	132	132	134	135	137	137	137	137	137	137			
85		113	112	112	111	110	110	110	111	113	114	114	114	114	114	115			
90		94.6	93.7	92.8	91.8	91.2	90.9	91.1	92.6	94.3	95.9	96.2	96.3	96.3	96.6	97.0			
95		80.1	79.5	78.7	78.0	77.4	77.2	77.4	78.6	80.1	81.5	81.9	82.0	82.0	82.3	82.7			
100		68.0	67.4	66.7	66.1	65.6	65.4	65.6	66.8	68.2	69.5	69.9	70.1	70.2	70.5	70.8			
105		58.6	58.1	57.5	56.9	56.4	56.3	56.4	57.4	58.7	59.8	60.2	60.4	60.5	60.8	61.1			
110		51.2	50.7	50.1	49.5	49.2	49.0	49.2	50.1	51.2	52.2	52.5	52.6	52.6	52.8	53.0			
115		45.0	44.6	44.1	43.7	43.4	43.2	43.3	44.1	45.0	45.9	46.1	46.1	46.1	46.2	46.4			
120		39.7	39.4	39.1	38.8	38.6	38.4	38.5	39.1	39.8	40.4	40.6	40.7	40.7	40.8	41.0			
125		35.1	34.9	34.6	34.4	34.2	34.2	34.2	34.6	35.1	35.6	35.8	35.9	35.9	36.0	36.1			
130		30.9	30.7	30.5	30.3	30.1	30.1	30.2	30.6	31.0	31.4	31.4	31.4	31.4	31.5	31.6			
135		26.7	26.6	26.6	26.5	26.4	26.4	26.4	26.5	26.7	26.9	26.9	27.0	27.0	27.0	27.1			
140		22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.3	22.4	22.4	22.4	22.3	22.3	22.3	22.4			
145		17.8	17.9	17.9	18.0	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.8	17.7	17.7	17.7			
150		14.0	14.0	14.1	14.1	14.1	14.1	14.1	14.0	14.0	14.0	13.9	13.8	13.8	13.8	13.9			
155		10.5	10.5	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.4	10.3	10.3	10.2	10.2	10.3			
160		7.51	7.51	7.50	7.48	7.47	7.44	7.42	7.40	7.38	7.35	7.33	7.30	7.29	7.28	7.28			
165		5.30	5.30	5.32	5.33	5.33	5.33	5.31	5.26	5.22	5.17	5.16	5.16	5.17	5.18	5.19			
170		3.55	3.50	3.44	3.39	3.37	3.36	3.37	3.40	3.42	3.47	3.45	3.43	3.42	3.45	3.51			
175		0.82	0.79	0.76	0.73	0.72	0.73	0.75	0.79	0.83	0.88	0.93	0.97	1.00	1.01	1.00			
180	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31			

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	VXRGB @12W5000K	Sample ID	240715001-S1
Temperature (°C)	25.4	Humidity (%RH)	41.0

Test Method
<p>The samples were tested according to the and Ansi C82.77: 2002 and ANSI C82.77-10:2020</p> <p>The total harmonic distortion shall be measured to the 40th order.</p> <p>The ambient temperature shall be maintained at $25 \pm 1^{\circ}\text{C}$. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion was calculated.</p>

Test Results

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	iTHD(%)
120.0	60	0.103	12.1	0.981	6.13
277.0	60	0.062	13.0	0.758	20.22

5.0 Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2023-11-08	2024-11-07
NTC-F01-006	2.0 meter Integrating Sphere	2023-11-08	2024-11-07
NTC-F01-012	Standard Lamp	2023-11-02	2024-11-01
NTC-F01-013	Standard Lamp	2023-11-02	2024-11-01
NTC-F01-031	Digital Power Meter	2023-08-25	2024-08-24
NTC-F01-019	Temperature & Humidity Meter	2023-11-06	2024-11-05

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