

Photometric Test Report

Relevant Standards

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

Prepared For

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1.0 Test Summary

DLC Technical Requirements V5.1

Stairwell and Passageway Luminaires					
Requirement Category		Test Method	Requirements		Test Value
Luminaire Output (lm) (Integrating Sphere – Section 4.1)		ANSI/IES LM-79:2019	750		351
Minimum Luminaire Efficacy (lm/W) (Integrating Sphere – Section 4.1)		ANSI/IES LM-79:2019	Standard	Premium	29.5
			105	120	
Power (Input Wattage) (W) (Integrating Sphere – Section 4.1)		ANSI/IES LM-79:2019	Worst Case		11.9
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)		ANSI C82.77:2002	20.00%	120V	8.19
		ANSI C82-77-10:2020		277V	23.73
Power Factor (THD & PF – Section 4.3)		ANSI C82.77:2002	0.9	120V	0.975
		ANSI C82-77-10:2020		277V	0.746
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)		ANSI/IES LM-79:2019	N/A		Blue (Lp=470nm)
Minimum CRI (Integrating Sphere – Section 4.1)		ANSI/IES LM-79:2019 CIE13.3-1995	N/A		-39.1
Minimum R9 (Integrating Sphere – Section 4.1)		ANSI/IES LM-79-2019 CIE13.3-1995	N/A		-285
Minimum Rf (Integrating Sphere – Section 4.1)		ANSI/IES TM-30-18	N/A		N/A
Minimum Rg (Integrating Sphere – Section 4.1)		ANSI/IES TM-30-18	N/A		N/A
IES Rcs,h1 (Integrating Sphere – Section 4.1)		ANSI/IES TM-30-18	N/A		N/A
Zonal Lumen Requirement (0°-90°) (Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	≥85%		N/A
Backlight, Uplight and Glare (BUG) Ratings (Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019 IES TM-15-11	N/A		N/A
Input Voltage (V)					
(Integrating Sphere – Section 4.1)		ANSI/IES LM-79:2019	Worst Cast		277.0
(Integrating Sphere – Section 4.1)			Non-Worst Case		120.0
Input Current (A)					
(Integrating Sphere – Section 4.1)		ANSI/IES LM-79:2019	Worst Case		0.058
(Integrating Sphere – Section 4.1)			Non-Worst Case		0.092
Power (Input Wattage – W)					
(Integrating Sphere – Section 4.1)		ANSI/IES LM-79:2019	Worst Case		11.9
(Integrating Sphere – Section 4.1)			Non-Worst Case		10.8

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024-07-23	VXRGB @12WBLUE	-	240715001-S1
2	Goniophotometer Test	N/A	VXRGB @12WBLUE	-	240715001-S1
3	THD and PF Test	2024-07-23	VXRGB @12WBLUE	-	240715001-S1

Remark (If any):

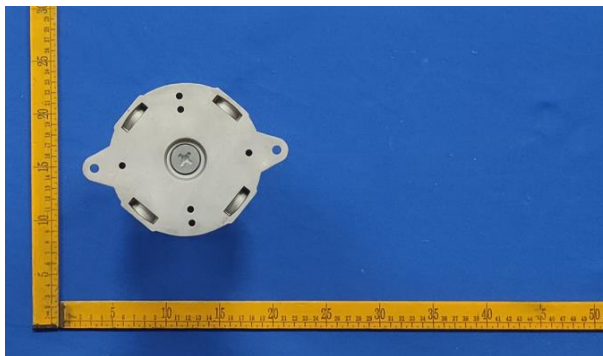
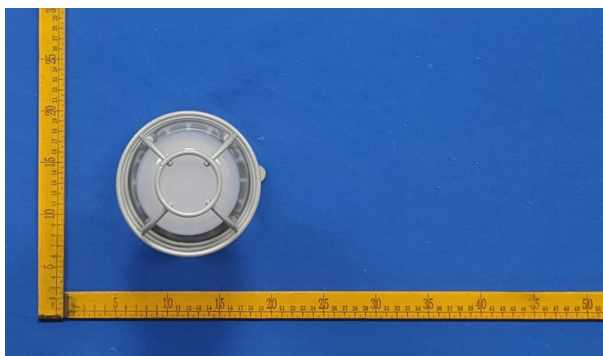
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3.0 Product Description

Luminaire Description: Model No. VXRGB @12WBLUE.

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 @12WBLUE	Sample ID	240715001-S1
Operate time (Min.)	10	Stabilization time (Min.)	60
Temperature (°C)	25.4	Humidity (%RH)	41.0

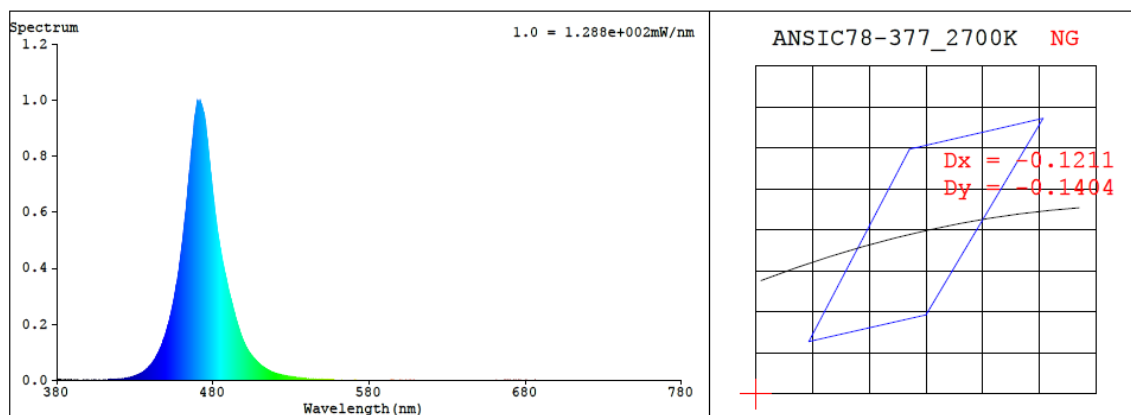
Test Method
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made 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	0.092	10.8	0.975
277.0	60	0.058	11.9	0.746

CCT (K)	CRI	R9	Duv	Rf	Rg	IES Rcs,h1
Blue (Lp=470nm)	-39.1	-285	-0.1300	N/A	N/A	N/A

4.1 Integrating Sphere Test



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.1215$ $y = 0.0977$ / $u' = 0.1237$ $v' = 0.2238$ ($duv = -1.30e-01$)

CCT $> 1000000K$ Prcp WL: $L_d = 474.8nm$ Purity = 95.0%

Peak WL: $L_p = 470nm$ FWHM: $\approx 23.2nm$ Ratio: R=0.3% G=23.4% B=76.3%

Render Index: $R_a = -39.1$ AvgR = -68.0 TM30: $R_f = 0$ $R_g = 46$

EEL: 0.35287 B

R1 = -17 R2 = -30 R3 = -104 R4 = -68 R5 = 3 R6 = -43 R7 = -29

R8 = -26 R9 = -285 R10 = -194 R11 = -98 R12 = -79 R13 = -33 R14 = -16 R15 = -2

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	1.80E-06	447	1.22E-04	514	4.05E-05	581	9.00E-07	648	4.00E-07	715	0.00E+00
381	2.20E-06	448	1.38E-04	515	3.72E-05	582	1.00E-06	649	4.00E-07	716	1.00E-07
382	2.90E-06	449	1.52E-04	516	3.42E-05	583	9.00E-07	650	4.00E-07	717	1.00E-07
383	8.00E-07	450	1.70E-04	517	3.12E-05	584	9.00E-07	651	3.00E-07	718	2.00E-07
384	2.00E-06	451	1.90E-04	518	2.88E-05	585	9.00E-07	652	4.00E-07	719	0.00E+00
385	6.00E-07	452	2.13E-04	519	2.68E-05	586	9.00E-07	653	4.00E-07	720	0.00E+00
386	1.60E-06	453	2.34E-04	520	2.46E-05	587	9.00E-07	654	3.00E-07	721	1.00E-07
387	7.00E-07	454	2.61E-04	521	2.31E-05	588	9.00E-07	655	3.00E-07	722	2.00E-07
388	1.50E-06	455	2.86E-04	522	2.15E-05	589	8.00E-07	656	3.00E-07	723	0.00E+00
389	9.00E-07	456	3.20E-04	523	2.01E-05	590	8.00E-07	657	4.00E-07	724	1.00E-07
390	5.00E-07	457	3.49E-04	524	1.88E-05	591	8.00E-07	658	3.00E-07	725	1.00E-07
391	9.00E-07	458	3.87E-04	525	1.76E-05	592	9.00E-07	659	3.00E-07	726	1.00E-07
392	7.00E-07	459	4.29E-04	526	1.65E-05	593	8.00E-07	660	3.00E-07	727	1.00E-07
393	8.00E-07	460	4.74E-04	527	1.56E-05	594	7.00E-07	661	3.00E-07	728	1.00E-07
394	1.10E-06	461	5.19E-04	528	1.46E-05	595	7.00E-07	662	3.00E-07	729	1.00E-07
395	9.00E-07	462	5.69E-04	529	1.37E-05	596	8.00E-07	663	3.00E-07	730	1.00E-07
396	1.10E-06	463	6.23E-04	530	1.28E-05	597	7.00E-07	664	3.00E-07	731	1.00E-07
397	1.20E-06	464	6.85E-04	531	1.20E-05	598	8.00E-07	665	3.00E-07	732	1.00E-07
398	8.00E-07	465	7.45E-04	532	1.12E-05	599	8.00E-07	666	3.00E-07	733	1.00E-07
399	1.20E-06	466	8.06E-04	533	1.04E-05	600	7.00E-07	667	3.00E-07	734	1.00E-07
400	1.40E-06	467	8.54E-04	534	9.80E-06	601	8.00E-07	668	3.00E-07	735	1.00E-07
401	1.00E-06	468	9.15E-04	535	9.20E-06	602	8.00E-07	669	3.00E-07	736	0.00E+00
402	9.00E-07	469	9.57E-04	536	8.70E-06	603	8.00E-07	670	3.00E-07	737	1.00E-07
403	9.00E-07	470	9.98E-04	537	8.10E-06	604	7.00E-07	671	2.00E-07	738	0.00E+00
404	1.10E-06	471	9.85E-04	538	7.50E-06	605	6.00E-07	672	2.00E-07	739	1.00E-07
405	1.20E-06	472	9.92E-04	539	7.00E-06	606	7.00E-07	673	2.00E-07	740	1.00E-07
406	1.30E-06	473	9.75E-04	540	6.50E-06	607	7.00E-07	674	3.00E-07	741	1.00E-07
407	1.10E-06	474	9.53E-04	541	6.20E-06	608	7.00E-07	675	2.00E-07	742	0.00E+00
408	1.40E-06	475	9.21E-04	542	5.90E-06	609	7.00E-07	676	2.00E-07	743	0.00E+00
409	1.60E-06	476	8.70E-04	543	5.70E-06	610	7.00E-07	677	3.00E-07	744	1.00E-07
410	1.80E-06	477	8.20E-04	544	5.20E-06	611	7.00E-07	678	2.00E-07	745	1.00E-07
411	1.70E-06	478	7.67E-04	545	4.80E-06	612	7.00E-07	679	2.00E-07	746	0.00E+00
412	1.90E-06	479	7.12E-04	546	4.60E-06	613	7.00E-07	680	3.00E-07	747	0.00E+00
413	2.20E-06	480	6.60E-04	547	4.40E-06	614	7.00E-07	681	2.00E-07	748	0.00E+00
414	2.20E-06	481	6.09E-04	548	4.10E-06	615	6.00E-07	682	2.00E-07	749	1.00E-07
415	2.70E-06	482	5.68E-04	549	3.90E-06	616	7.00E-07	683	2.00E-07	750	0.00E+00
416	3.00E-06	483	5.29E-04	550	3.70E-06	617	6.00E-07	684	2.00E-07	751	1.00E-07
417	3.40E-06	484	4.92E-04	551	3.00E-06	618	6.00E-07	685	2.00E-07	752	1.00E-07
418	3.40E-06	485	4.60E-04	552	2.80E-06	619	6.00E-07	686	2.00E-07	753	0.00E+00
419	4.10E-06	486	4.27E-04	553	2.70E-06	620	6.00E-07	687	1.00E-07	754	1.00E-07
420	4.30E-06	487	3.99E-04	554	2.60E-06	621	6.00E-07	688	2.00E-07	755	0.00E+00
421	5.00E-06	488	3.73E-04	555	2.40E-06	622	6.00E-07	689	1.00E-07	756	1.00E-07
422	5.90E-06	489	3.48E-04	556	2.30E-06	623	6.00E-07	690	1.00E-07	757	0.00E+00
423	6.20E-06	490	3.21E-04	557	2.20E-06	624	6.00E-07	691	1.00E-07	758	1.00E-07
424	6.70E-06	491	2.98E-04	558	2.10E-06	625	6.00E-07	692	2.00E-07	759	1.00E-07
425	7.80E-06	492	2.76E-04	559	2.00E-06	626	6.00E-07	693	1.00E-07	760	0.00E+00
426	9.20E-06	493	2.54E-04	560	2.00E-06	627	6.00E-07	694	1.00E-07	761	0.00E+00
427	1.01E-05	494	2.32E-04	561	1.90E-06	628	6.00E-07	695	2.00E-07	762	1.00E-07
428	1.19E-05	495	2.12E-04	562	1.80E-06	629	6.00E-07	696	2.00E-07	763	0.00E+00
429	1.33E-05	496	1.92E-04	563	1.70E-06	630	6.00E-07	697	0.00E+00	764	1.00E-07
430	1.55E-05	497	1.75E-04	564	1.60E-06	631	6.00E-07	698	2.00E-07	765	1.00E-07
431	1.73E-05	498	1.59E-04	565	1.50E-06	632	5.00E-07	699	1.00E-07	766	0.00E+00
432	1.94E-05	499	1.44E-04	566	1.50E-06	633	5.00E-07	700	1.00E-07	767	1.00E-07
433	2.23E-05	500	1.31E-04	567	1.40E-06	634	5.00E-07	701	1.00E-07	768	1.00E-07
434	2.47E-05	501	1.21E-04	568	1.40E-06	635	5.00E-07	702	1.00E-07	769	1.00E-07
435	2.81E-05	502	1.10E-04	569	1.30E-06	636	5.00E-07	703	2.00E-07	770	1.00E-07
436	3.27E-05	503	1.01E-04	570	1.30E-06	637	5.00E-07	704	2.00E-07	771	0.00E+00
437	3.64E-05	504	9.31E-05	571	1.20E-06	638	5.00E-07	705	1.00E-07	772	1.00E-07
438	4.09E-05	505	8.55E-05	572	1.20E-06	639	4.00E-07	706	1.00E-07	773	2.00E-07
439	4.72E-05	506	7.85E-05	573	1.20E-06	640	5.00E-07	707	1.00E-07	774	1.00E-07
440	5.33E-05	507	7.24E-05	574	1.10E-06	641	5.00E-07	708	1.00E-07	775	0.00E+00
441	5.95E-05	508	6.66E-05	575	1.10E-06	642	4.00E-07	709	1.00E-07	776	0.00E+00
442	6.80E-05	509	6.14E-05	576	1.00E-06	643	5.00E-07	710	2.00E-07	777	0.00E+00
443	7.62E-05	510	5.65E-05	577	1.00E-06	644	4.00E-07	711	1.00E-07	778	2.00E-07
444	8.70E-05	511	5.18E-05	578	1.00E-06	645	5.00E-07	712	1.00E-07	779	0.00E+00
445	9.72E-05	512	4.79E-05	579	1.00E-06	646	4.00E-07	713	1.00E-07	780	0.00E+00
446	1.10E-04	513	4.41E-05	580	1.00E-06	647	5.00E-07	714	2.00E-07	N/A	N/A

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	VXRGB @12WBLUE	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	0.092	10.8	0.975	8.19
277.0	60	0.058	11.9	0.746	23.73

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*****