



REPORT

545 E. Algonquin Rd., Arlington Heights, IL 60005

Project No. G102235195

Date: January 29, 2016

REPORT NO. 102235195CHI-039

TEST OF ONE VERG PLASTER-IN LED SYSTEM

MODEL NO. VG-5WDC-5FT-30K
LED MODEL NO. LUMILEDS, P/N 3535L
DRIVER MODEL NO. HUARUI 60W 24VDC

RENDERED TO

EDGE LIGHTING
1718 W. FULLERTON AVE
CHICAGO, IL 60614

TEST: Electrical and Photometric tests as required to the IESNA test standard.

STATEMENT OF LIMITATION: This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

AUTHORIZATION: The testing performed was authorized by signed quote number Qu-00595093-1.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

ANSI NEMA ANSLG C78.377: 2012: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number VG-5WDC-5FT-30K. The sample was received by Intertek on January 25, 2016, in undamaged condition and one sample was tested as received. The sample designation was 01252016033607-39.

DATES OF TESTS: January 27, 2016 through January 29, 2016.

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SUMMARY

Model No.:	VG-5WDC-5FT-30K
Description:	Verg Plaster-In LED System

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	508.6	501.6
Total Power (W)	13.94	13.91
Luminaire Efficacy (LPW)	36.48	36.06

Criteria	Result
Power Factor	0.967
Current ATHD %	16.71
Correlated Color Temperature (CCT - K)	2884
Color Rendering Index (CRI - Ra)	91.8
Color Rendering Index (CRI - R9)	58.8
DUV	0.001
Chromaticity Coordinate (x)	0.444
Chromaticity Coordinate (y)	0.404
Chromaticity Coordinate (u')	0.255
Chromaticity Coordinate (v')	0.522

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Yokogawa Power Meter	WT210	146919	07/14/15	07/14/16	01/29/16
Omega Newport Thermometer	DPI8-C24	146920	10/09/15	10/09/16	01/29/16
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	01/29/16
Newport Thermohygrometer	iServer	146956	01/04/16	01/04/17	01/29/16
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	01/29/16
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	01/27/16
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	01/27/16
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	01/27/16
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	01/27/16
Newport Humidity Recorder	iTHX-SD	146382	07/09/15	07/09/16	01/27/16
Yokogawa Power Meter	WT1600	146768	01/14/16	01/14/17	01/27/16
Omega Temperature Meter	MDSi8	146139	04/03/15	04/03/16	01/27/16

TEST METHODS

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IESNA LM-79.

Photometric and Electrical Measurements – Integrating Sphere Method

A Labsphere Model CDS 1100 CCD Array Spectroradiometer and Two Meter or Ten Foot Sphere was used to measure correlated color temperature, chromaticity coordinates, and the color rendering index for each SSL unit.

Ambient temperature was measured at a position inside the sphere. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation. Each SSL unit was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

The calibration of the sphere photometer-spectroradiometer system is traceable to the National Institute of Standards and Technology.

Photometric and Electrical Measurements – Distribution Method

A LSI Type C High Speed Model 6440 Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.

RESULTS OF TEST

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method

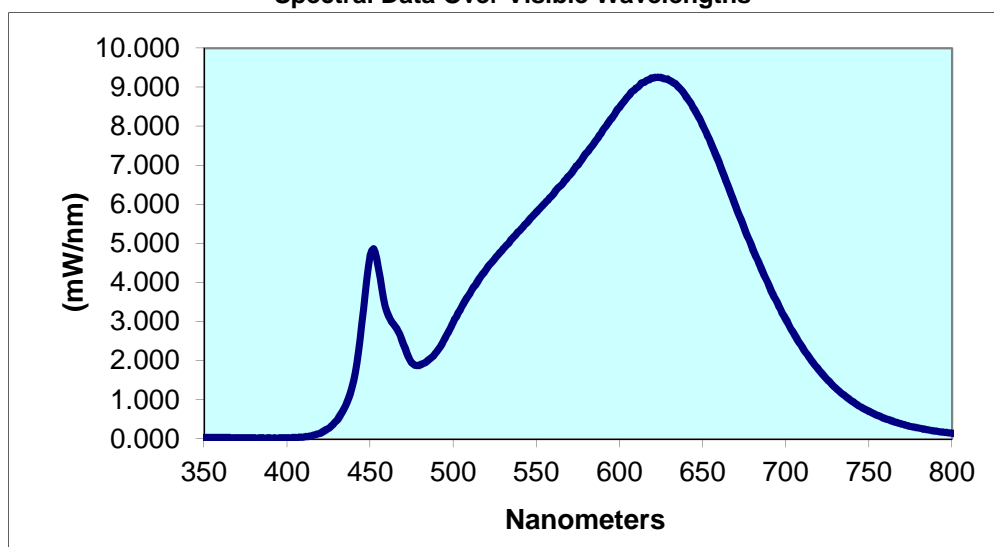
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
01252016033607-39	Up	120.0	120.1	13.94	0.967	16.71	508.6	36.48

Correlated Color Temperature (K)	CRI -Ra	CRI -R9	DUV	CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
2884	91.8	58.8	0.001	0.444	0.404	0.255	0.522

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.035	440	1.488	530	4.864	620	9.231	710	2.341
355	0.031	445	2.937	535	5.109	625	9.249	715	2.032
360	0.030	450	4.680	540	5.333	630	9.174	720	1.761
365	0.032	455	4.378	545	5.575	635	9.025	725	1.517
370	0.025	460	3.267	550	5.807	640	8.764	730	1.307
375	0.028	465	2.888	555	6.031	645	8.437	735	1.122
380	0.022	470	2.425	560	6.257	650	8.030	740	0.960
385	0.023	475	1.952	565	6.497	655	7.574	745	0.823
390	0.023	480	1.895	570	6.750	660	7.061	750	0.709
395	0.023	485	2.020	575	7.010	665	6.503	755	0.607
400	0.025	490	2.228	580	7.313	670	5.938	760	0.521
405	0.034	495	2.575	585	7.598	675	5.402	765	0.445
410	0.050	500	2.979	590	7.902	680	4.877	770	0.380
415	0.085	505	3.375	595	8.193	685	4.390	775	0.322
420	0.152	510	3.724	600	8.482	690	3.918	780	0.276
425	0.275	515	4.056	605	8.760	695	3.481		
430	0.480	520	4.352	610	8.981	700	3.063		
435	0.835	525	4.616	615	9.125	705	2.686		

Spectral Data Over Visible Wavelengths



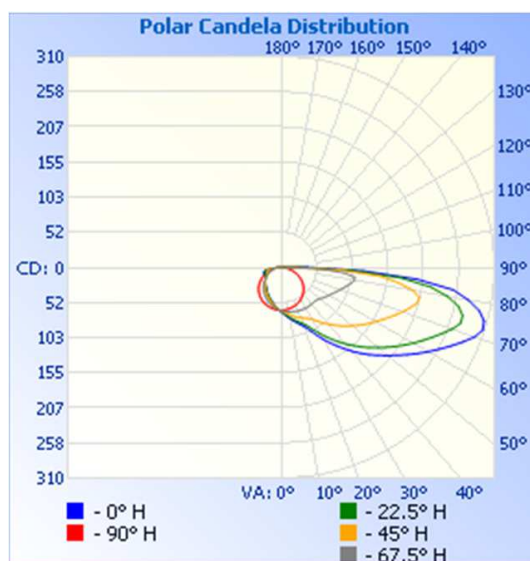
RESULTS OF TEST (cont'd)

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Distribution Method

Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (LPW)
01252016033607-39	Up	120.1	120.0	13.91	0.965	501.6	36.06

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	64	64	64	64	64
5	70	69	67	65	62
10	77	75	71	66	62
15	83	81	75	67	61
20	91	87	79	68	60
25	104	97	82	69	58
30	122	112	87	70	56
35	141	129	98	70	53
40	161	147	109	70	50
45	181	165	121	70	46
50	202	183	133	72	42
55	224	202	146	77	38
60	247	222	159	81	33
65	273	243	173	87	27
70	299	265	189	93	22
75	305	273	204	101	16
80	276	246	195	108	10
85	198	175	145	92	6
90	39	31	22	14	1



RESULTS OF TEST (cont'd)

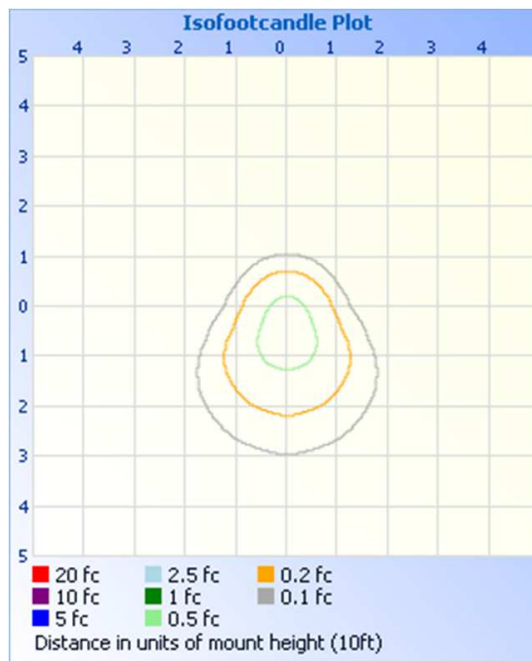
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



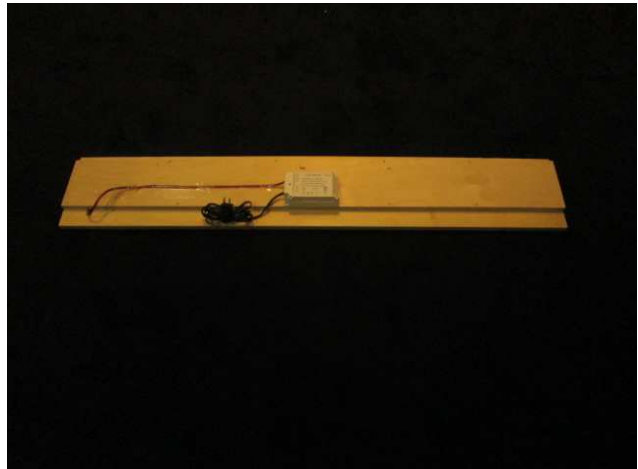
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	54.6	10.9
0-40	98.8	19.7
0-60	233.4	46.5
60-90	266.6	53.1
0-90	499.9	99.7
90-180	1.7	0.3
0-180	501.6	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	6.1	1.2
10-20	18.2	3.6
20-30	30.3	6.0
30-40	44.1	8.8
40-50	59.2	11.8
50-60	75.4	15.0
60-70	92.8	18.5
70-80	106.1	21.2
80-90	67.7	13.5
90-100	1.6	0.3
100-110	0.1	0.0

PICTURES (not to scale)



CONCLUSION

The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

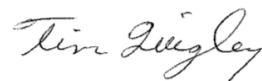
In Charge Of Tests:



Vladimir Kozak
Senior Associate Engineer
Lighting Division

Attachment: None

Report Reviewed By:



Timothy Quigley
Engineer
Lighting Division