



REPORT

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

Project No. G102748333

Date: December 20, 2016

REPORT NO. 102748333CHI-013

TEST OF ONE LED PANEL LIGHT

MODEL NO. LPD-40K24-40
LED MODEL NO. EVERLIGHT / 67-21S SERIES
DRIVER MODEL NO. JUSTIN / TG10

RENDERED TO

SUPER BRIGHT LEADS, INC.
4400 EARTH CITY EXPRESSWAY
SAINT LOUIS, MO 63045

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

AUTHORIZATION: The testing performed was authorized by signed quote number Qu-00723537-3.

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 LPD-40K24-40. The sample was received by Intertek on December 16, 2016, in undamaged condition and one sample was tested as received. The sample designation was 12162016023157.

DATES OF TESTS: December 19, 2016 through December 20, 2016.

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SUMMARY

Model No.:	LPD-40K24-40
Description:	LED Panel Light

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	4483	4262
Total Power (W)	38.59	38.68
Luminaire Efficacy (LPW)	116.2	110.2

Criteria	Result
Power Factor at 120Vac	0.983
Power Factor at 277Vac	0.939
Current ATHD % at 120Vac	8.73
Current ATHD % at 277Vac	9.92
Correlated Color Temperature (CCT - K)	4025
Color Rendering Index (CRI - Ra)	82.6
Color Rendering Index (CRI - R9)	6.3
DUV	0.002
Chromaticity Coordinate (x)	0.381
Chromaticity Coordinate (y)	0.383
Chromaticity Coordinate (u')	0.223
Chromaticity Coordinate (v')	0.504

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Yokogawa Power Meter	WT210	146919	07/11/16	07/11/17	12/19/16
Omega Newport Thermometer	DPI8-C24	146920	10/07/16	10/07/17	12/19/16
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	12/19/16
Newport Thermohygrometer	iServer	146956	01/04/16	01/04/17	12/19/16
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	12/19/16
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	12/20/16
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	12/20/16
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	12/20/16
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	12/20/16
Newport Humidity Recorder	iTHX-SD	146382	06/27/16	06/27/17	12/20/16
Yokogawa Power Meter	WT1600	146768	01/14/16	01/14/17	12/20/16
Omega Temperature Meter	MDSi8	146139	03/21/16	03/21/17	12/20/16



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

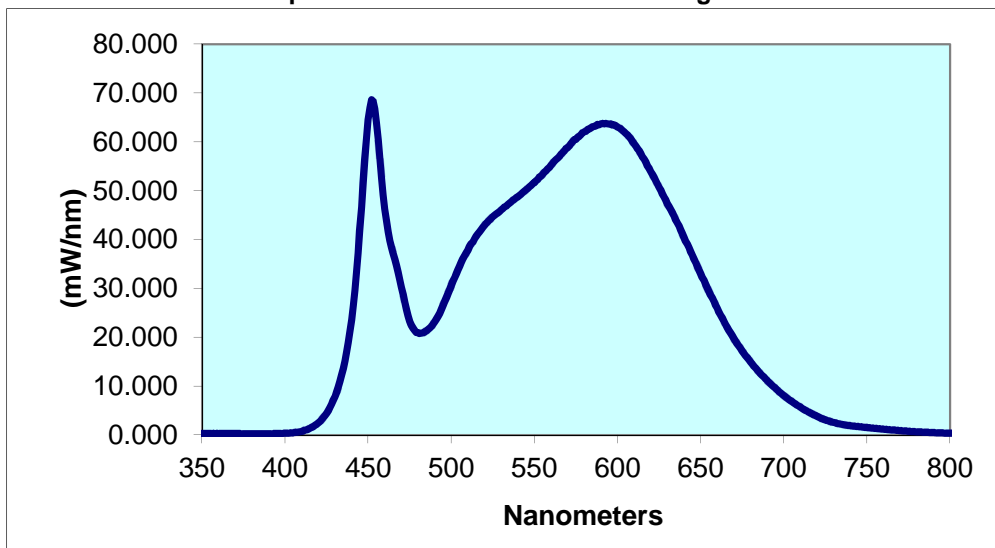
Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method

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)
12162016023157	Up	120.0 277.0	327.1 144.9	38.59 37.70	0.983 0.939	8.73 9.92	4483	116.2
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')	
4025	82.6	6.3	0.002	0.381	0.383	0.223	0.504	

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.278	440	23.60	530	46.09	620	53.94	710	5.680
355	0.272	445	41.77	535	47.42	625	50.74	715	4.684
360	0.300	450	64.57	540	48.75	630	47.42	720	3.827
365	0.280	455	64.07	545	50.19	635	44.09	725	3.101
370	0.258	460	46.29	550	51.74	640	40.47	730	2.558
375	0.232	465	37.21	555	53.45	645	36.81	735	2.166
380	0.229	470	30.27	560	55.25	650	33.05	740	1.890
385	0.217	475	23.30	565	57.03	655	29.41	745	1.692
390	0.226	480	20.91	570	58.89	660	25.94	750	1.509
395	0.261	485	21.32	575	60.57	665	22.65	755	1.341
400	0.318	490	23.14	580	62.06	670	19.76	760	1.180
405	0.458	495	26.47	585	63.14	675	17.20	765	1.021
410	0.759	500	30.61	590	63.73	680	14.97	770	0.875
415	1.353	505	34.56	595	63.66	685	12.94	775	0.747
420	2.470	510	37.79	600	63.04	690	11.14	780	0.631
425	4.477	515	40.69	605	61.76	695	9.561		
430	7.883	520	42.91	610	59.67	700	8.082		
435	13.65	525	44.68	615	56.97	705	6.805		

Spectral Data Over Visible Wavelengths



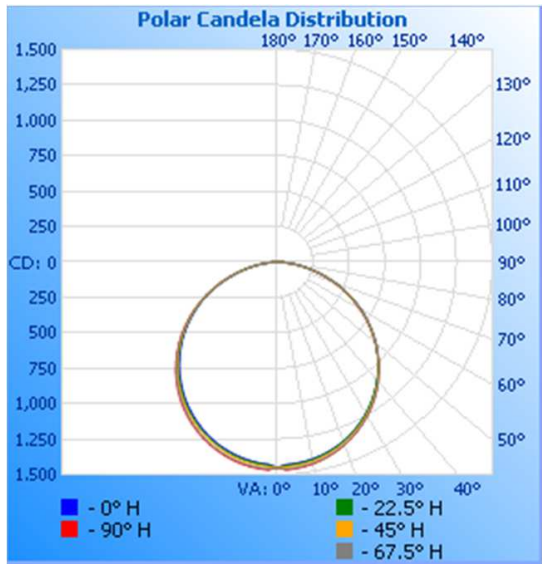
RESULTS OF TEST (cont'd)

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)
12162016023157	Up	120.0	325.4	38.68	0.991	4262	110.2

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	1450	1450	1450	1450	1450
5	1428	1433	1445	1459	1464
10	1413	1416	1428	1441	1446
15	1385	1388	1399	1412	1415
20	1346	1348	1359	1370	1373
25	1296	1297	1308	1319	1319
30	1237	1236	1246	1255	1255
35	1165	1165	1173	1181	1180
40	1085	1085	1091	1096	1094
45	995	995	999	1002	999
50	898	897	899	899	895
55	792	791	789	788	784
60	679	675	674	671	666
65	560	556	553	548	544
70	436	430	428	423	418
75	310	306	303	297	292
80	194	190	185	180	177
85	90	87	83	78	75
90	8	7	8	9	9

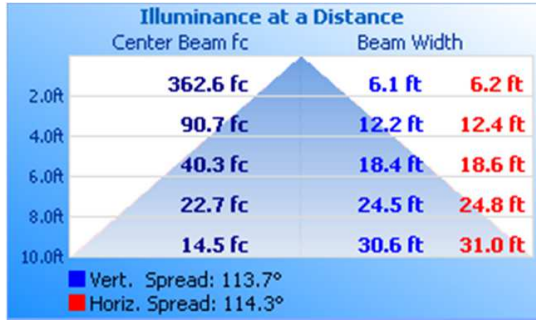


RESULTS OF TEST (cont'd)

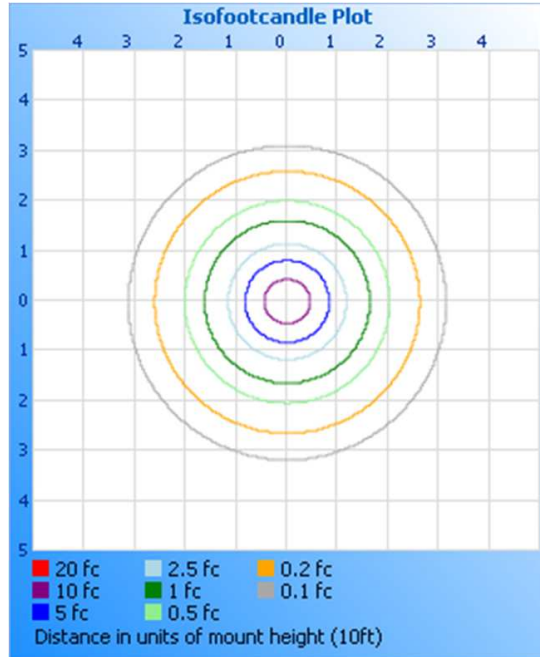
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



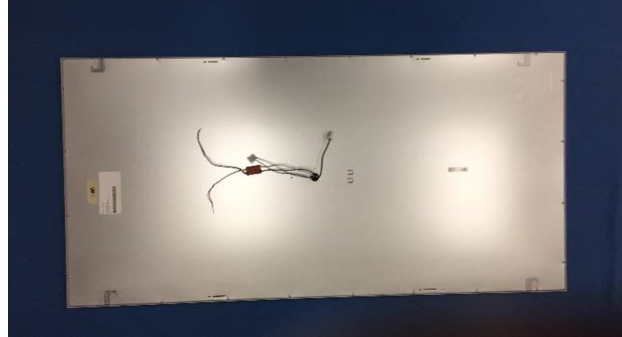
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	1132	26.6
0-40	1861	43.7
0-60	3322	78.0
60-90	938.7	22.0
0-90	4261	100.0
90-180	0.9	0.0
0-180	4262	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	137.3	3.2
10-20	394.1	9.2
20-30	600.3	14.1
30-40	729.5	17.1
40-50	763.8	17.9
50-60	697.4	16.4
60-70	537.2	12.6
70-80	311.9	7.3
80-90	89.7	2.1
90-100	0.9	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:



Hector Huitron
Associate Engineer
Lighting Division

Attachment: None

Report Reviewed By:



Timothy Quigley
Engineer
Lighting Division