



REPORT

25800 COMMERCE DRIVE, LAKE FOREST, CA 92630

Project No. G103858894

Date: March 13, 2019

REPORT NO. 103858894LAX-001

TEST OF ONE DL RGL H/H 35K 4'

MODEL NO. DL- RGL- H/H- 35K- 4' (DOUBLE-LED REGRESSED LENS)
LED MODEL NO. OSRAM SYLVANIA
DRIVER MODEL NO. OSRAM SYLVANIA

RENDERED TO

PRIMUS LIGHTING INC
3570 LEXINGTON AVE
EL MONTE, CA 91731

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

AUTHORIZATION: The testing performed was authorized by signed quote number Qu-00958862-6.

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: 2015: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number DL- RGL- H/H- 35K- 4' (DOUBLE-LED REGRESSED LENS). The sample was received by Intertek on March 5, 2019, in undamaged condition and one sample was tested as received. The sample designation was LAN1903051054-001A.

DATES OF TESTS: March 7, 2019 through March 8, 2019.

SUMMARY

Model No.: DL- RGL- H/H- 35K- 4' (DOBLE-LED REGRESSED LENS) Description: DL RGL H/H 35K 4'

Criteria	Result
Total Lumen Output (Lumens)	8652
Total Power (W)	109.2
Luminaire Efficacy (LPW)	79.23
Power Factor at 120Vac	0.998
Power Factor at 277Vac	0.978
Current ATHD % at 120Vac	5.92
Current ATHD % at 277Vac	12.20
Correlated Color Temperature (CCT - K)	3461
Color Rendering Index (CRI - Ra)	81.7
Color Rendering Index (CRI - R9)	9.7
DUV	0.001
Chromaticity Coordinate (x)	0.407
Chromaticity Coordinate (y)	0.390
Chromaticity Coordinate (u')	0.237
Chromaticity Coordinate (v')	0.511

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Goniophotometer	6440T	000943	VBV	VBV	03/07/19
AC Source	CW1251P	000944	VBV	VBV	03/07/19
Power Analyzer	WT210	000945	11/28/18	11/28/19	03/07/19
Tape Measure	33-428	001491	04/24/18	04/24/19	03/07/19
Magnetic Level	581-9	001610	10/31/18	10/31/19	03/07/19
Thermometer	DPi8-C24	001782	09/21/18	09/21/19	03/07/19
Temp. & RH Meter	971	001177	01/29/19	01/29/20	03/07/19
3m Sphere	CSTM-LMS-3M-3020	000830	VBV	VBV	03/08/19
Spectrometer	CDS-3020-T	000834	VBV	VBV	03/08/19
Power Supply (AC 3P / DC)	CSW5550-208-LAN	001339	VBV	VBV	03/08/19
Power Meter	WT330	001319	08/13/18	08/13/19	03/08/19
Temp. & RH Meter	971	001177	01/29/19	01/29/20	03/08/19
DC Power Supply	LPS-100-0833	000832	01/31/19	01/31/20	03/08/19
Network TC Reader	iSD-TC	000824	02/01/19	02/01/20	03/08/19



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-3020 High Sensitivity Multi Channel Spectrometer and Two Meter or Three Meter 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

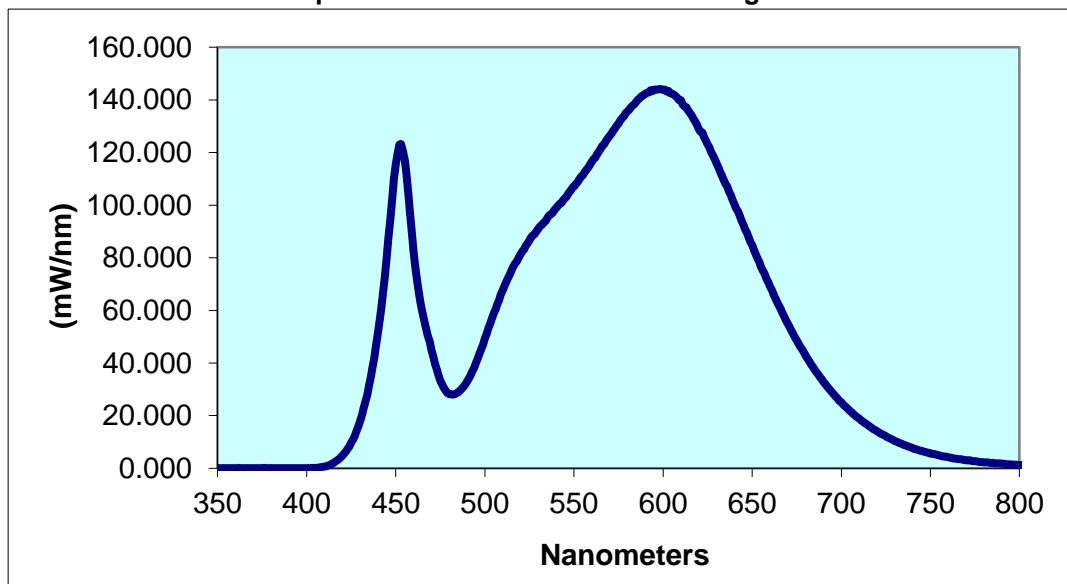
Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method

Intertek				Input	Input	Input	Input	Current
Sample No.		Base Orientation		Voltage {Vac}	Current (mA)	Power (Watts)	Power Factor	ATHD (%)
LAN1903051054-001A		Up		120.0	918.5	110.0	0.998	5.92
				276.9	398.5	108.0	0.978	12.20
				CIE 31'	CIE 31'	CIE 76'	CIE 76'	
Correlated Color Temperature (K)	CRI -Ra	CRI -R9	DUV	Chromaticity Coordinate (x)	Chromaticity Coordinate (y)	Chromaticity Coordinate (u')	Chromaticity Coordinate (v')	
3461	81.7	9.7	0.001	0.407	0.390	0.237	0.511	

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.000	440	51.45	530	91.02	620	129.1	710	18.85
355	0.000	445	80.99	535	94.98	625	123.1	715	16.29
360	0.000	450	115.8	540	98.94	630	115.9	720	14.09
365	0.000	455	117.2	545	102.7	635	108.1	725	12.18
370	0.000	460	82.75	550	107.2	640	100.4	730	10.35
375	0.000	465	59.33	555	111.3	645	92.58	735	8.956
380	0.000	470	45.08	560	116.4	650	84.65	740	7.706
385	0.000	475	33.21	565	121.4	655	76.59	745	6.611
390	0.000	480	28.13	570	126.4	660	69.10	750	5.683
395	0.000	485	28.87	575	131.1	665	61.87	755	4.880
400	0.031	490	32.87	580	135.7	670	54.91	760	4.201
405	0.144	495	39.93	585	139.4	675	48.54	765	3.595
410	0.628	500	49.25	590	142.4	680	42.77	770	3.086
415	1.981	505	58.89	595	143.9	685	37.65	775	2.734
420	4.735	510	67.68	600	143.9	690	32.89	780	2.272
425	9.636	515	75.33	605	142.4	695	28.69		
430	17.84	520	81.40	610	139.9	700	25.04		
435	31.26	525	86.51	615	135.0	705	21.68		

Spectral Data Over Visible Wavelengths



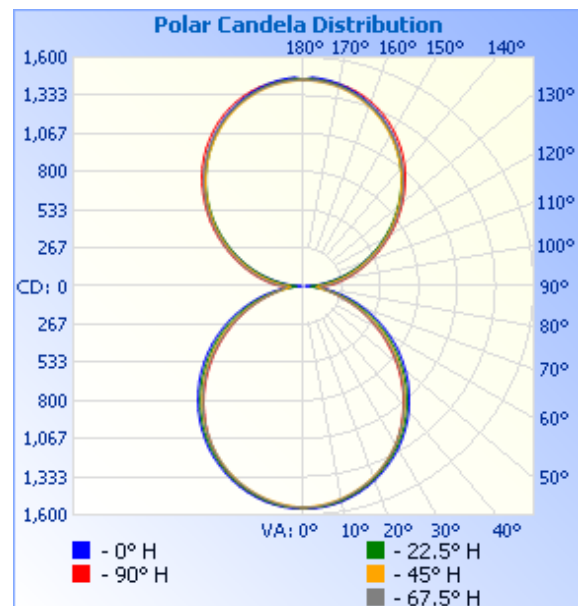
RESULTS OF TEST (cont'd)

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)
LAN1903051054-001A	Up	120.0	911.7	109.2	0.998	8652	79.23

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	1549	1549	1549	1549	1549
5	1551	1544	1535	1540	1545
10	1529	1521	1509	1513	1524
15	1493	1483	1469	1473	1485
20	1445	1433	1418	1421	1432
25	1384	1371	1354	1356	1363
30	1314	1297	1278	1278	1280
35	1230	1213	1191	1188	1185
40	1137	1116	1093	1088	1080
45	1035	1011	986	977	968
50	927	897	871	858	848
55	812	779	751	733	723
60	693	656	626	606	598
65	570	533	499	479	474
70	445	408	373	358	355
75	326	286	254	244	246
80	209	168	146	159	174
85	100	71	102	132	143
90	13	52	95	128	138
95	92	118	170	209	223
100	194	204	248	285	298
105	302	305	338	372	383
110	414	413	437	467	477
115	527	524	543	567	577
120	641	636	651	672	682
125	754	747	760	778	790
130	864	855	863	882	894
135	967	958	962	980	996
140	1063	1054	1054	1071	1093
145	1150	1141	1139	1153	1178
150	1229	1219	1214	1227	1253
155	1298	1287	1280	1291	1319
160	1355	1344	1335	1344	1371
165	1401	1389	1380	1387	1410
170	1436	1422	1413	1418	1434
175	1456	1443	1433	1437	1445
180	1447	1447	1447	1447	1447

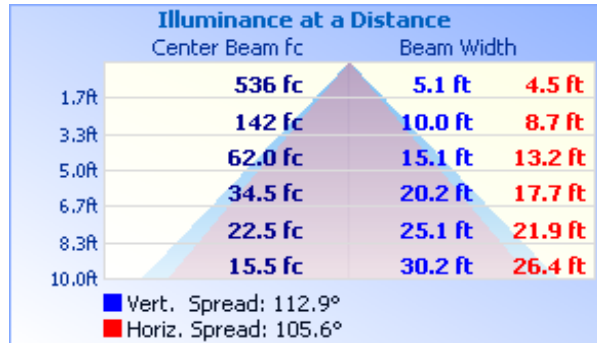


RESULTS OF TEST (cont'd)

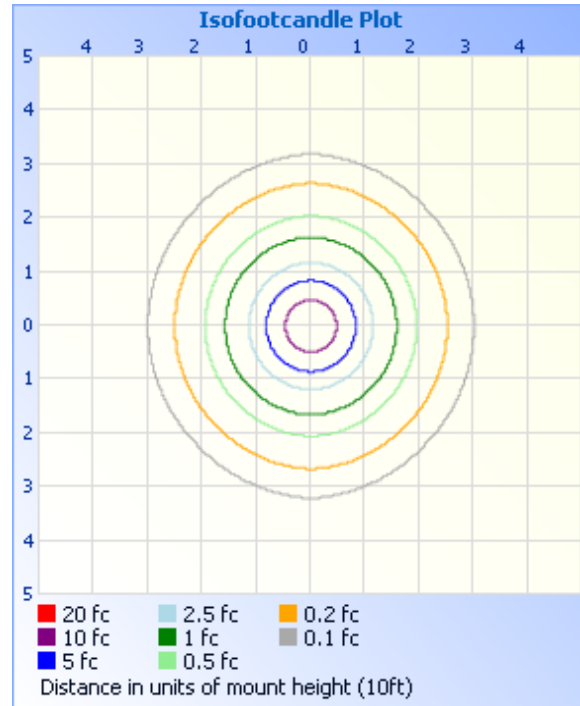
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	1192	13.8
0-40	1942	22.4
0-60	3384	39.1
60-90	912.4	10.5
0-90	4297	49.7
90-180	4356	50.3
0-180	8652	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	146.3	1.7
10-20	417.1	4.8
20-30	628.0	7.3
30-40	750.0	8.7
40-50	766.2	8.9
50-60	676.8	7.8
60-70	502.9	5.8
70-80	285.0	3.3
80-90	124.5	1.4
90-100	180.5	2.1
100-110	359.9	4.2
110-120	541.4	6.3
120-130	683.0	7.9
130-140	748.2	8.6
140-150	718.6	8.3
150-160	594.9	6.9
160-170	392.2	4.5
170-180	136.9	1.6

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
Engineering Supervisor
Lighting Division

Attachment: None

Report Reviewed By:



Erik Linares
Associate Engineer
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