REPORT

25800 COMMERCENTRE DRIVE, LAKE FOREST, CA 92630

Project No. G102406056 Date: May 17, 2016

REPORT NO. 102406056LAX-051

TEST OF ONE FLOOD LIGHT

MODEL NO. SR111-12-36D-930-03

RENDERED TO

SORAA INC
6500 KAISER DR
FREMONT, CA 94555-3661

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 A2LA, NIST, or any agency of the federal government.

AUTHORIZATION: The testing performed was authorized by signed quote number Qu-00660665.

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

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number SR111-12-36D-930-03. The sample was received by Intertek on April 7, 2016, in undamaged condition and one sample was tested as received. The sample designation was LAN1604071438-001.

DATES OF TESTS: April 25, 2016

SUMMARY

Model No.:	SR111-12-36D-930-03
Description:	Flood Light

	Result	
Criteria	Sphere	Goniometer
Total Lumen Output (Lumens)	704.0	728.8
Total Power (W)	12.75	12.63
Luminaire Efficacy (LPW)	55.22	57.70

Criteria	Result
Power Factor	0.922
Current ATHD %	41.20
Correlated Color Temperature (CCT - K)	3038
Color Rendering Index (CRI - Ra)	95.5
Color Rendering Index (CRI - R9)	97.4
DUV	0.003
Chromaticity Coordinate (x)	0.438
Chromaticity Coordinate (y)	0.412
Chromaticity Coordinate (u')	0.248
Chromaticity Coordinate (v')	0.525

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date
LapSphere 3M Integrating Sphere	CA-11821-LRT	000830	04/08/16	05/08/16
LabSphere Spectrometer	CDS-3020	000833	04/08/16	05/08/16
California Instruments Power Supply	CSW5550	001338	VBU	VBU
Yokogawa Power Meter	WT333	001319	06/03/15	06/03/16
Extech Instruments Stop Watch	365510	001379	11/19/15	11/19/16
Temperature Humidity Meter	971	001180	05/26/15	05/26/16
DC Power Supply	LPS-100-0833	000836	05/07/15	05/07/16
LSI High Speed Mirror Goniometer	6440T	000943	04/11/16	05/11/16
Elgar Power Supply	CW1251	000944	VBU	VBU
Yokogawa Power Analyzer	WT210	000945	12/04/15	12/04/16
Temperature Humidity Meter	971	001180	05/26/15	05/26/16
Extech Instruments Stop Watch	9/23/2900	001379	11/19/15	11/19/16
Tape Measure	33-430	001491	01/07/16	01/07/17

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 CDS 3020 Spectrometer and 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 Yokogawa Power Analyzer.

The calibration of the sphere spectrometer 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 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

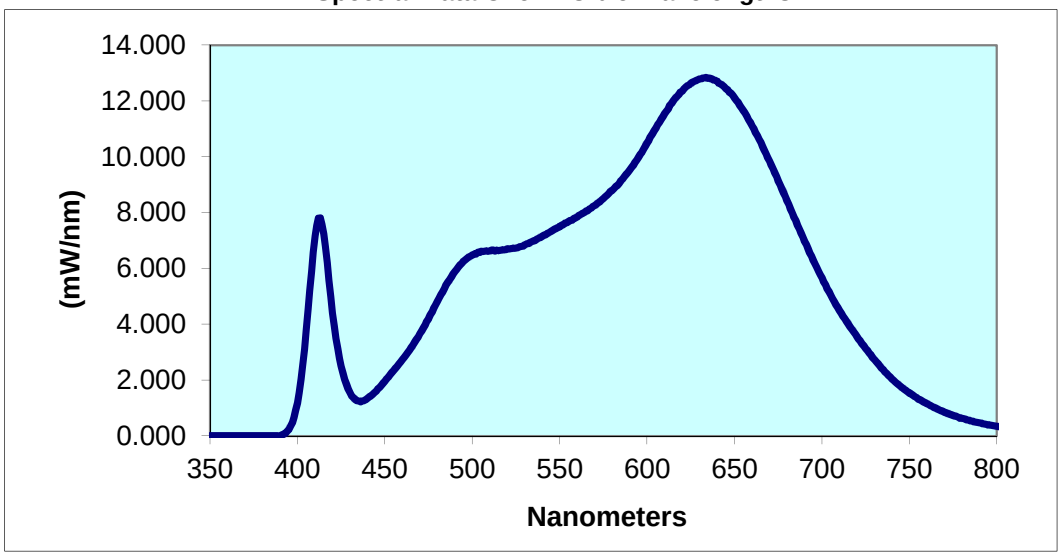
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
LAN1604071438-001	UP	12.05	1143	12.75	0.922	41.20	704.0	55.22

Correlated Color Temperature (K)	CRI -Ra	CRI -R9	DUV	CIE 31' Chromaticity Coordinate	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
3038	95.5	97.4	0.003	0.438	0.412	0.248	0.525

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.005	440	1.342	530	6.851	620	12.350	710	4.497
355	0.005	445	1.609	535	6.986	625	12.640	715	4.004
360	0.005	450	1.961	540	7.154	630	12.790	720	3.553
365	0.005	455	2.344	545	7.335	635	12.810	725	3.136
370	0.005	460	2.745	550	7.497	640	12.710	730	2.730
375	0.005	465	3.162	555	7.680	645	12.450	735	2.370
380	0.005	470	3.656	560	7.846	650	12.100	740	2.044
385	0.005	475	4.209	565	8.053	655	11.660	745	1.769
390	0.015	480	4.820	570	8.256	660	11.120	750	1.542
395	0.236	485	5.406	575	8.509	665	10.500	755	1.323
400	1.185	490	5.895	580	8.798	670	9.842	760	1.155
405	3.781	495	6.259	585	9.147	675	9.130	765	0.995
410	7.171	500	6.481	590	9.534	680	8.426	770	0.849
415	7.238	505	6.604	595	9.973	685	7.704	775	0.737
420	4.409	510	6.629	600	10.490	690	6.979	780	0.630
425	2.507	515	6.645	605	11.030	695	6.294		
430	1.547	520	6.695	610	11.550	700	5.653		
435	1.247	525	6.730	615	12.010	705	5.045		

Spectral Data Over Visible Wavelengths



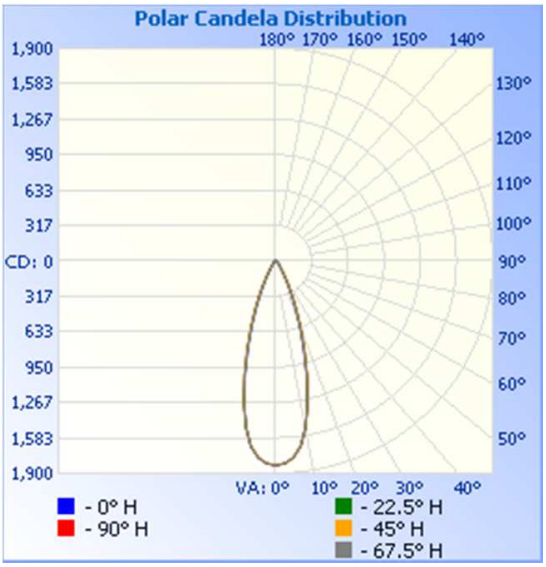
RESULTS OF TEST (cont'd)

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 (Lumens Per Watt)
LAN1604071438-001	UP	12.10	1133	12.63	0.922	728.8	57.70

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	1826	1823	1822	1825	1828
5	1765	1764	1763	1767	1765
10	1505	1504	1507	1505	1509
15	1038	1055	1053	1047	1056
20	603	634	629	613	646
25	305	337	328	312	350
30	140	161	155	142	168
35	71	82	79	73	86
40	45	51	48	46	51
45	34	36	35	35	38
50	29	30	29	28	31
55	25	25	25	23	24
60	20	19	20	20	20
65	16	16	17	16	16
70	11	12	10	12	12
75	7	8	7	7	8
80	5	4	4	4	4
85	3	2	1	1	2
90	0	0	0	0	0

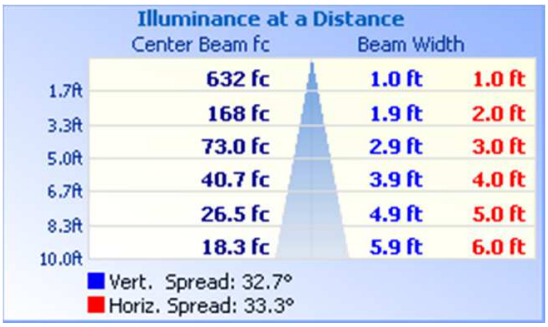


RESULTS OF TEST (cont'd)

Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



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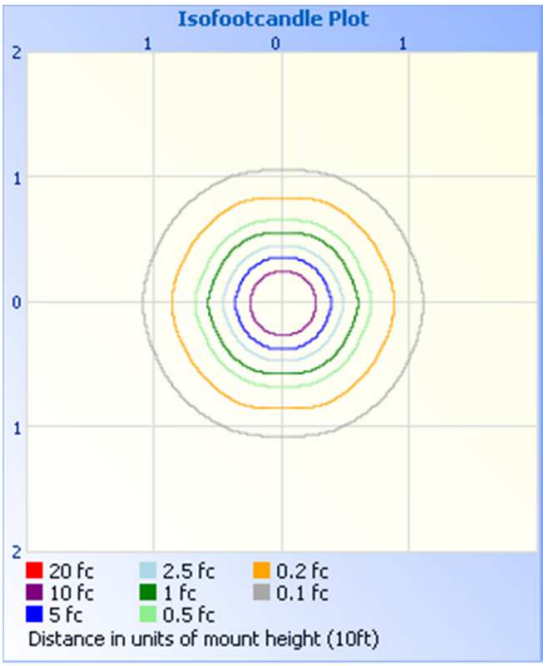

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	600.2	82.4
0-40	653.0	89.6
0-60	703.1	96.5
60-90	25.8	3.5
0-90	728.8	100.0
90-180	0.0	0.0
0-180	728.8	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	159.9	21.9
10-20	285.5	39.2
20-30	154.8	21.2
30-40	52.8	7.2
40-50	28.2	3.9
50-60	21.9	3.0
60-70	16.0	2.2
70-80	8.0	1.1
80-90	1.8	0.2

PICTURE (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:

Jesse Reyna
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Lighting Division

Report Reviewed By:

Kenda Branch
Lighting Performance Team Lead
Lighting Division

Attachment: None