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Photometric Test Report

Relevant Standards
IES LM-79-2008, IES LM-35-2002 (Withdrawn)
ANSI C78.377-2011, ANSI C82.77-2002
CIE 13.3-1995, CIE 15-2004, IES TM-30-15

Prepared For
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Catalog Number
DE-LED-x60-SP-9 SN-DE-LED-x60-SP-9 ST-DE-LED-x60-SP-9 SM-DE-LED-x60-SP-9
UL-DE-LED-x60-SP-9 CK-LED-x60-SP-9 OL-LED-x60-SP-9
Order Number
11353040
Test Number
11353040.27

Test Date

2016-09-08

Prepared By

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Approved By

Eric Gaudreau, Senior Engineering Associate

The results contained in this report pertain only to the tested sample.
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Laboratory results may not be representative of field performance
Ballast factors have not been applied

Testing was performed in a 2-meter integrating sphere using the 4π geometry method.
Absorption correction was employed for Sphere measurement



Luminaire Description: Circular black aluminum housing, semi-specular linear reflector and glass lens
Lamp: One (1) White LED
Mounting: VBU
Ballast/Driver: PowerSelect PS60U700C14T

Luminaire



Luminaire Characteristics
Luminous Diameter: 2.75 in.

Summary of Results

Integrating Sphere

Luminous Flux: 871 Lumens
Efficacy: 70.8 lm/w
CCT: 4034 K
CRI (Ra): 79.5

Distribution

Total Luminaire Output: 851.3 Lumens
Luminaire Efficacy: 69.3 lm/w
Maximum Candela: 4561 Candela

Electrical Data at 120 VAC

Test Temperature: 25.6 °C
Voltage: 120.1 VAC
Current: 0.1053 A
Power: 12.30 W
Power Factor: 0.972
Frequency: 60 Hz
Current THD: 14.2 %



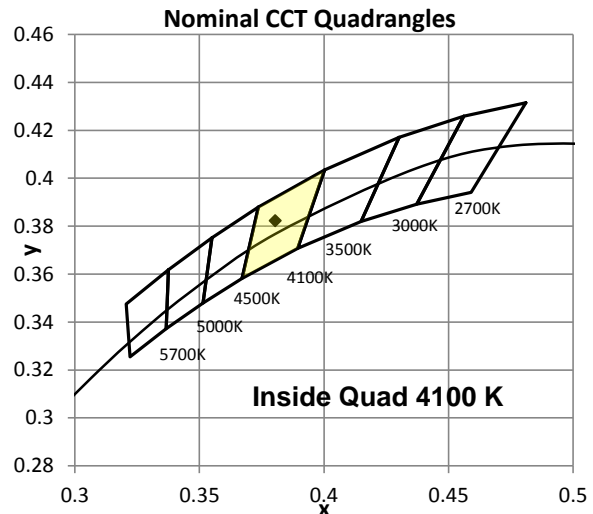
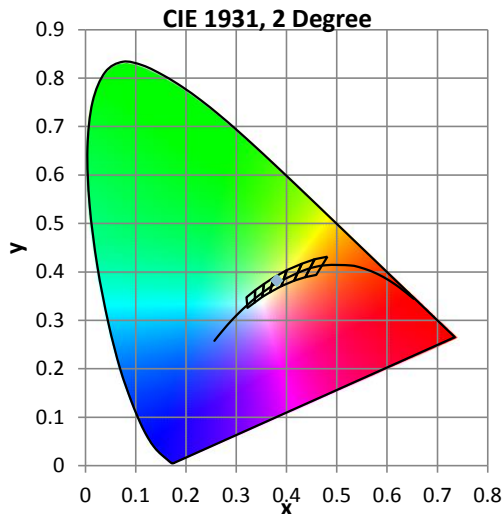
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.6 °C	120.1 VAC	0.1053 A	12.30 W	0.972	60 Hz	14.2 %

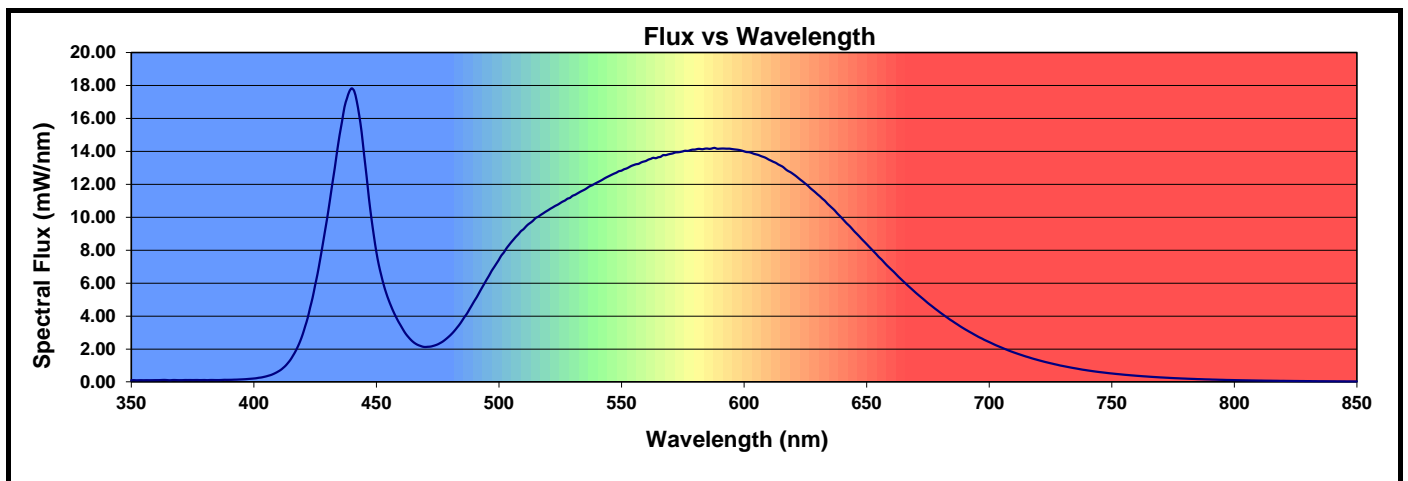
Summary of Results

Total Output:	871 Lumens	Chromaticity (x):	0.3805
Efficacy:	70.8 lm/w	Chromaticity (y):	0.3822
CCT:	4034 K	Chromaticity (u'):	0.2230
CRI (Ra):	79.5	Chromaticity (v'):	0.5040
CRI (R9):	11.0	TM-30 R _f :	77.6
Peak Wavelength:	439.9 nm	TM-30 R _g :	99.9
Dominant Wavelength:	577.6 nm	Duv:	0.0018
S/P Ratio:	1.6		



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
79.5	78.6	82.4	86.6	81.2	78.9	77.3	83.8	67.4	11.0	59.9	82.1	62.5	78.3	92.3





Distribution - Goniophotometer

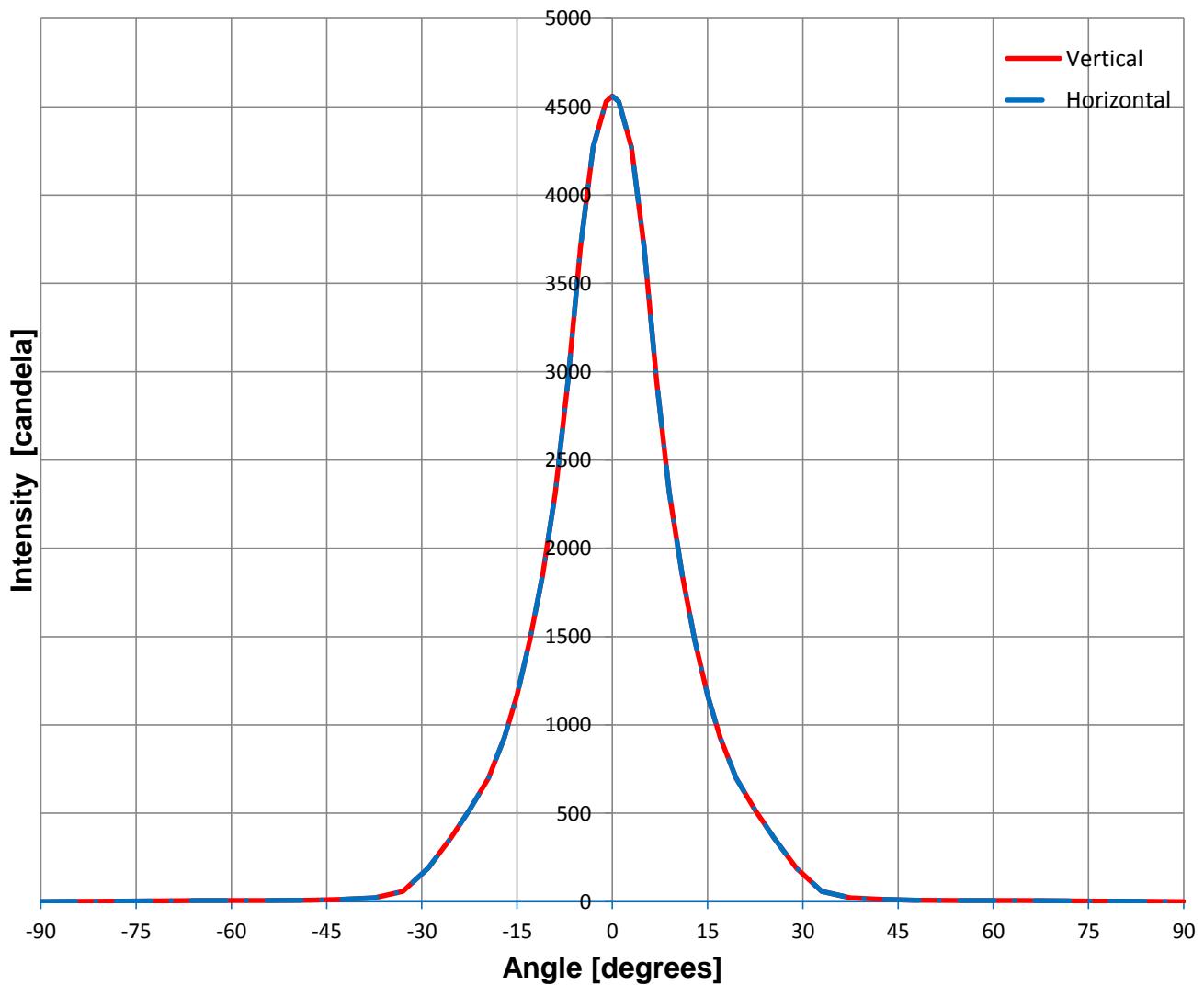
Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.2 °C	120.1 VAC	0.1052 A	12.28 W	0.972	60 Hz	14.1 %

Summary of Results

Total Lumen Output:	851.3 Lumens	Maximum Candela:	4560.6 Candela
Luminaire Efficacy:	69.3 Lumens/Watt	Maximum Angle:	0 H 0 V
Field Lumens:	711.6 Lumens	Field Angle :	47.3 H X 47.3 V
Beam Lumens:	266.3 Lumens	Beam Angle :	18.3 H X 18.3 V
Spill Light Lumens:	139.7 Lumens	IESNA Type:	4 H X 4 V

Maximum Candlepower Plot





Candela Tabulation

Lateral Angle (Degrees)

Vertical Angle (Degrees)	Lateral Angle (Degrees)										
	0	1	3	5	7	9	11	13	15	17	19.5
85.0	1	1	1	1	1	1	1	1	1	1	1
75.0	3	3	3	3	3	3	3	3	3	3	3
65.0	6	6	6	6	6	6	6	6	6	6	6
55.0	6	6	6	6	6	6	6	6	6	6	6
47.5	9	9	8	8	8	8	8	8	8	7	7
42.5	13	13	12	12	12	12	11	11	11	10	10
37.5	21	21	21	20	20	19	18	17	16	15	13
33.0	57	57	55	51	46	39	33	28	25	23	20
29.0	189	188	183	173	159	141	119	97	74	53	35
25.5	357	356	349	333	311	283	250	214	176	138	92
22.5	517	516	507	489	463	429	388	341	289	236	172
19.5	698	697	682	653	618	576	528	475	414	349	265
17.0	928	925	902	857	796	724	650	582	516	444	349
15.0	1169	1165	1132	1068	982	884	780	679	593	516	414
13.0	1474	1468	1420	1327	1207	1071	932	799	679	582	475
11.0	1848	1839	1770	1640	1472	1288	1104	932	780	650	528
9.0	2311	2298	2192	2003	1772	1527	1288	1071	884	724	576
7.0	2943	2918	2733	2428	2093	1772	1472	1207	982	796	618
5.0	3709	3672	3393	2920	2428	2003	1640	1327	1068	857	653
3.0	4273	4234	3954	3393	2733	2192	1770	1420	1132	902	682
1.0	4530	4491	4234	3672	2918	2298	1839	1468	1165	925	697
0.0	4561	4530	4273	3709	2943	2311	1848	1474	1169	928	698
-1.0	4530	4491	4234	3672	2918	2298	1839	1468	1165	925	697
-3.0	4273	4234	3954	3393	2733	2192	1770	1420	1132	902	682
-5.0	3709	3672	3393	2920	2428	2003	1640	1327	1068	857	653
-7.0	2943	2918	2733	2428	2093	1772	1472	1207	982	796	618
-9.0	2311	2298	2192	2003	1772	1527	1288	1071	884	724	576
-11.0	1848	1839	1770	1640	1472	1288	1104	932	780	650	528
-13.0	1474	1468	1420	1327	1207	1071	932	799	679	582	475
-15.0	1169	1165	1132	1068	982	884	780	679	593	516	414
-17.0	928	925	902	857	796	724	650	582	516	444	349
-19.5	698	697	682	653	618	576	528	475	414	349	265
-22.5	517	516	507	489	463	429	388	341	289	236	172
-25.5	357	356	349	333	311	283	250	214	176	138	92
-29.0	189	188	183	173	159	141	119	97	74	53	35
-33.0	57	57	55	51	46	39	33	28	25	23	20
-37.5	21	21	21	20	20	19	18	17	16	15	13
-42.5	13	13	12	12	12	12	11	11	11	10	10
-47.5	9	9	8	8	8	8	8	8	8	7	7
-55.0	6	6	6	6	6	6	6	6	6	6	6
-65.0	6	6	6	6	6	6	6	6	6	6	6
-75.0	3	3	3	3	3	3	3	3	3	3	3
-85.0	1	1	1	1	1	1	1	1	1	1	1



Candela Tabulation

Lateral Angle (Degrees)

Vertical Angle (Degrees)

	22.5	25.5	29	33	37.5	42.5	47.5	55	65	75	85
85.0	1	1	1	1	1	1	1	1	0	0	0
75.0	3	3	3	3	2	2	2	2	2	1	0
65.0	5	5	5	4	4	4	3	3	2	2	0
55.0	6	6	6	6	6	6	5	4	3	2	1
47.5	7	7	6	6	6	6	6	5	3	2	1
42.5	9	8	7	7	6	6	6	6	4	2	1
37.5	12	11	10	8	7	6	6	6	4	2	1
33.0	17	14	12	10	8	7	6	6	4	3	1
29.0	24	20	16	12	10	7	6	6	5	3	1
25.5	48	27	20	14	11	8	7	6	5	3	1
22.5	101	48	24	17	12	9	7	6	5	3	1
19.5	172	92	35	20	13	10	7	6	6	3	1
17.0	236	138	53	23	15	10	7	6	6	3	1
15.0	289	176	74	25	16	11	8	6	6	3	1
13.0	341	214	97	28	17	11	8	6	6	3	1
11.0	388	250	119	33	18	11	8	6	6	3	1
9.0	429	283	141	39	19	12	8	6	6	3	1
7.0	463	311	159	46	20	12	8	6	6	3	1
5.0	489	333	173	51	20	12	8	6	6	3	1
3.0	507	349	183	55	21	12	8	6	6	3	1
1.0	516	356	188	57	21	13	9	6	6	3	1
0.0	517	357	189	57	21	13	9	6	6	3	1
-1.0	516	356	188	57	21	13	9	6	6	3	1
-3.0	507	349	183	55	21	12	8	6	6	3	1
-5.0	489	333	173	51	20	12	8	6	6	3	1
-7.0	463	311	159	46	20	12	8	6	6	3	1
-9.0	429	283	141	39	19	12	8	6	6	3	1
-11.0	388	250	119	33	18	11	8	6	6	3	1
-13.0	341	214	97	28	17	11	8	6	6	3	1
-15.0	289	176	74	25	16	11	8	6	6	3	1
-17.0	236	138	53	23	15	10	7	6	6	3	1
-19.5	172	92	35	20	13	10	7	6	6	3	1
-22.5	101	48	24	17	12	9	7	6	5	3	1
-25.5	48	27	20	14	11	8	7	6	5	3	1
-29.0	24	20	16	12	10	7	6	6	5	3	1
-33.0	17	14	12	10	8	7	6	6	4	3	1
-37.5	12	11	10	8	7	6	6	6	4	2	1
-42.5	9	8	7	7	6	6	6	6	4	2	1
-47.5	7	7	6	6	6	6	6	5	3	2	1
-55.0	6	6	6	6	6	6	5	4	3	2	1
-65.0	5	5	5	4	4	4	3	3	2	2	0
-75.0	3	3	3	3	2	2	2	2	2	1	0
-85.0	1	1	1	1	1	1	1	1	0	0	0



Isocandela Diagram (Percent of Maximum Intensity)

