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Photometric Test Report

Relevant Standards
IES LM-79-2008
ANSI C82.77-2002

Prepared For
LF Illumination LLC

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Catalog Number
MF31BNT23L8030NTDLDUWW

Order Number
10804087
Test Number
1096472

Test Date

2015-06-11 - 2015-06-12

Prepared By

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Approved By

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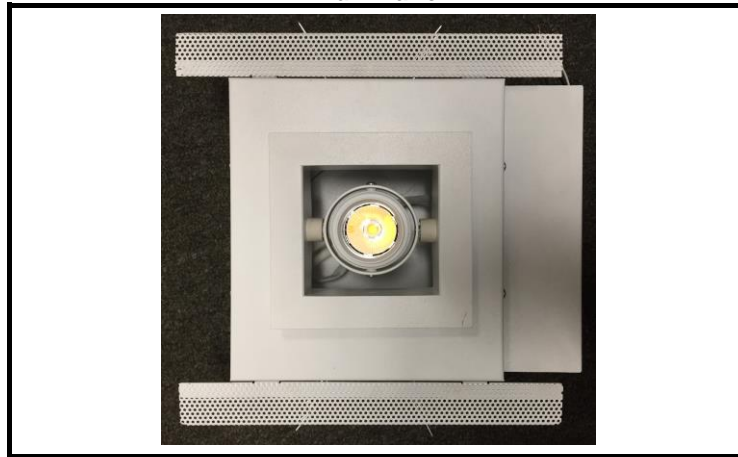
Laboratory results may not be representative of field performance
Ballast factors have not been applied

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



Luminaire Description: Aluminum housing, faceted specular plastic reflector, no enclosure
Lamp: One white LED
Mounting: Recessed
Ballast/Driver: ERP ESS030W-0700-42

Luminaire



Luminaire Characteristics
Luminous Diameter: 2.00 in.

Summary of Results

Integrating Sphere

Luminous Flux: 1639 Lumens
Efficacy: 68.6 lm/w
CCT: 3101 K
CRI (Ra): 81.8

Distribution

Total Luminaire Output: 1635 Lumens
Luminaire Efficacy: 68.4 lm/w
Maximum Candela: 6181 Candela

Electrical Data at 120 VAC

Test Temperature: 25.4 °C
Voltage: 120.0 VAC
Current: 0.2022 A
Power: 23.90 W
Power Factor: 0.985
Frequency: 60 Hz
Current THD: 12.2 %



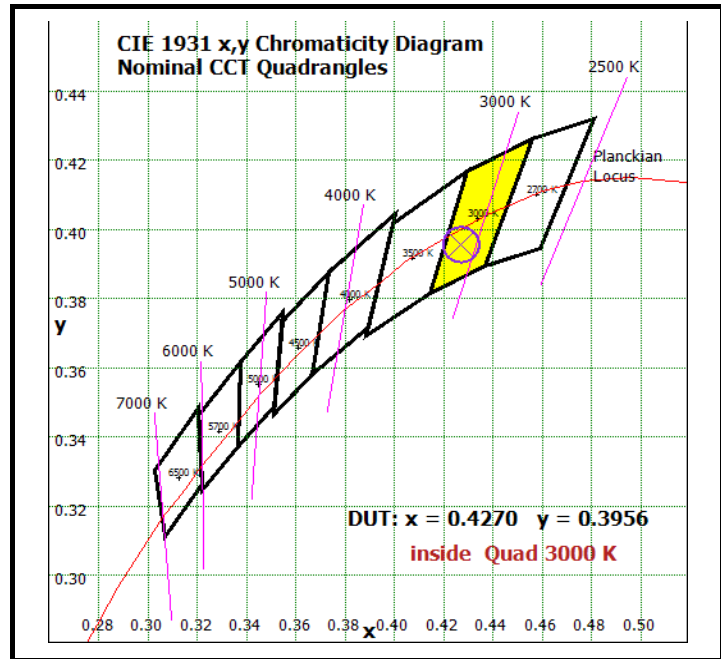
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.4 °C	120.0 VAC	0.2022 A	23.90 W	0.985	60 Hz	12.2 %

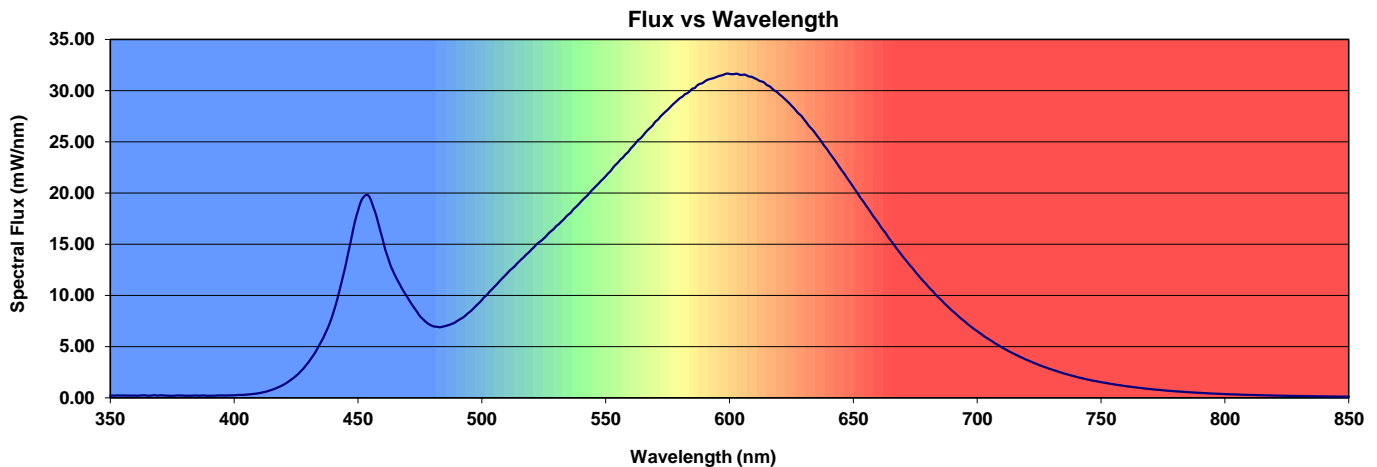
Summary of Results

Total Output:	1639 Lumens
Efficacy:	68.6 lm/w
CCT:	3101 K
CRI (Ra):	81.8
CRI (R9):	13.1
Chromaticity (x):	0.4270
Chromaticity (y):	0.3956
Chromaticity (u):	0.2478
Chromaticity (v):	0.3443
Chromaticity (u')	0.2478
Chromaticity (v')	0.5165
Duv:	-0.0025



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
81.8	79.9	90.0	95.9	77.9	79.4	85.8	83.7	61.7	13.1	75.8	74.4	66.6	82.1	97.9





Distribution - Goniophotometer

Distribution Test Conditions

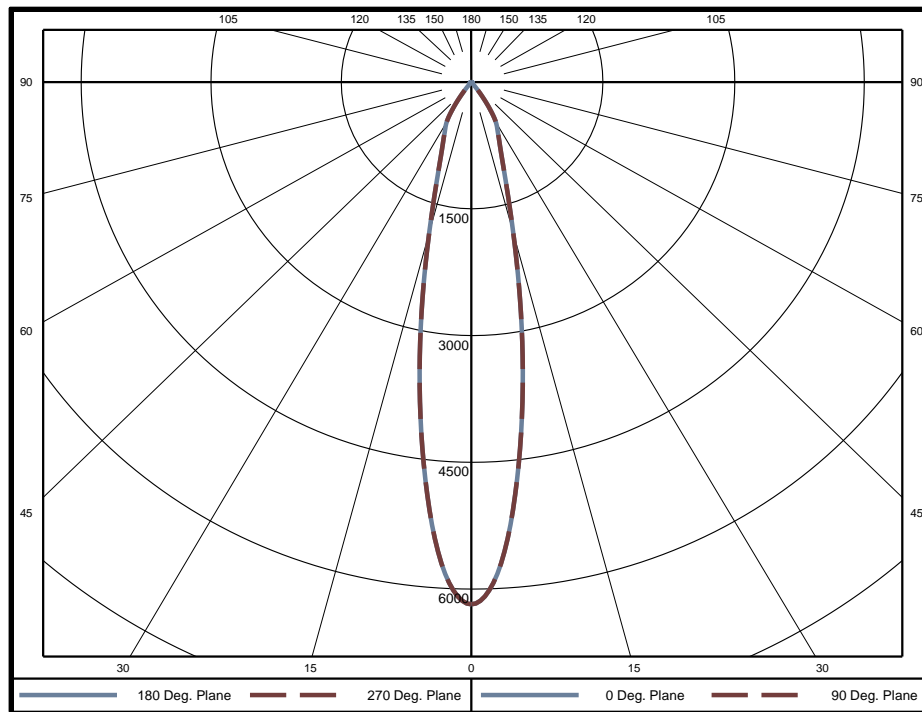
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.0 °C	120.0 VAC	0.2021 A	23.91 W	0.986	60 Hz	12.3 %

Summary of Results

Spacing Criteria
 0-180: 0.38
 90-270: 0.38

Total Lumen Output: 1635 Lumens
Luminaire Efficacy: 68.4 lm/w
Maximum Candela: 6181 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	136.6	8.4%	60-65	9.3	0.6%	120-125	0	0.0%
5-10	305.9	18.7%	65-70	8.4	0.5%	125-130	0	0.0%
10-15	309.7	18.9%	70-75	7.5	0.5%	130-135	0	0.0%
15-20	240.1	14.7%	75-80	6.7	0.4%	135-140	0	0.0%
20-25	193.1	11.8%	80-85	4.4	0.3%	140-145	0	0.0%
25-30	171.3	10.5%	85-90	1.8	0.1%	145-150	0	0.0%
30-35	142.5	8.7%	90-95	0	0.0%	150-155	0	0.0%
35-40	62.5	3.8%	95-100	0	0.0%	155-160	0	0.0%
40-45	10.0	0.6%	100-105	0	0.0%	160-165	0	0.0%
45-50	7.7	0.5%	105-110	0	0.0%	165-170	0	0.0%
50-55	8.1	0.5%	110-115	0	0.0%	170-175	0	0.0%
55-60	9.0	0.6%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	1562	95.5%
0-60	1597	97.6%
0-90	1635	100.0%
90-180	0	0.0%



Candela Tabulation

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	Horizontal Angle (Degrees)															
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
	0	6181	6181	6181	6181	6181	6181	6181	6181	6181	6181	6181	6181	6181	6181	6181
	5	5261	5261	5261	5261	5261	5261	5261	5261	5261	5261	5261	5261	5261	5261	5261
	10	3473	3473	3473	3473	3473	3473	3473	3473	3473	3473	3473	3473	3473	3473	3473
	15	1943	1943	1943	1943	1943	1943	1943	1943	1943	1943	1943	1943	1943	1943	1943
	20	1124	1124	1124	1124	1124	1124	1124	1124	1124	1124	1124	1124	1124	1124	1124
	25	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777
	30	598	598	598	598	598	598	598	598	598	598	598	598	598	598	598
	35	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342
	40	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
	45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	50	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	55	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	60	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	65	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
	70	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
75	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
80	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
85	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Average Luminance (cd/m²)

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	Horizontal Angle (Degrees)			
	0	45	90	
	0	3050000	3050000	3050000
	45	13870	13870	13870
	55	16210	16210	16210
	65	21060	21060	21060
	75	26470	26470	26470
85	29800	29800	29800	



Utilization of Lumens - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%

Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **																	
0	1946	1946	1946	1946	1901	1901	1901	1901	1817	1817	1817	1739	1739	1739	1668	1668	1668	1635
1	1864	1823	1786	1752	1825	1788	1754	1724	1722	1696	1671	1662	1641	1622	1606	1590	1575	1546
2	1787	1716	1657	1608	1752	1688	1635	1590	1636	1593	1555	1589	1553	1523	1544	1516	1491	1466
3	1715	1623	1552	1496	1684	1601	1536	1484	1559	1505	1461	1521	1476	1438	1485	1448	1416	1393
4	1647	1541	1464	1405	1620	1524	1452	1397	1490	1429	1380	1458	1407	1365	1429	1386	1349	1327
5	1584	1469	1388	1328	1560	1454	1379	1322	1426	1361	1311	1401	1344	1300	1376	1328	1289	1268
6	1525	1403	1321	1262	1504	1391	1314	1258	1368	1300	1250	1347	1287	1242	1327	1275	1234	1214
7	1470	1344	1262	1205	1451	1334	1256	1201	1314	1246	1195	1296	1235	1189	1279	1225	1184	1164
8	1419	1290	1209	1153	1401	1281	1204	1151	1265	1196	1146	1250	1187	1142	1235	1179	1137	1119
9	1371	1241	1161	1107	1355	1233	1157	1105	1219	1150	1102	1206	1143	1098	1194	1137	1095	1077
10	1326	1195	1117	1065	1312	1189	1114	1064	1177	1108	1061	1166	1103	1059	1155	1097	1056	1038

Cone of Light Tabulation

Mounting Height	Footcandles at Nadir	Diameter (Feet)
4.00	386	1.50
6.00	172	2.25
8.00	96.6	3.00
10.0	61.8	3.75
12.0	42.9	4.50
14.0	31.5	5.25
16.0	24.1	6.00

Cone of Light Plot

