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Photometric Test Report

Relevant Standards
IES LM-79-2008, IES LM-20-2013
ANSI C82.77-2002

Prepared For
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Catalog Number
zPAR38304012T3N
Order Number
10585963
Test Number
830262

Test Date

2014-12-11 - 2014-12-14

Prepared By

Handwritten signature of Jeffrey Lockner in black ink.

Jeffrey Lockner, Project Engineer

Approved By

Handwritten signature of Jeff A. Smith Jr. in black ink.

Jeff Smith Jr., Project Handler

The results contained in this report pertain only to the tested sample.
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Luminaire Description: Molded plastic housing, formed aluminum heatsink patterned plastic optic / enclosure
Lamp: Three white LEDs
Mounting: VBU

Luminaire



Luminaire Characteristics

Luminous Diameter: 2.75 in.

Summary of Results

Integrating Sphere

Luminous Flux: 1174 Lumens
 Efficacy: 95.5 lm/w
 CCT: 3082 K
 CRI (Ra): 83.8

Distribution

Total Luminaire Output: 1150 Lumens
 Luminaire Efficacy: 93.8 lm/w
 Maximum Candela: 2171 Candela

Electrical Data at 120 VAC

Test Temperature: 25.0 °C
 Voltage: 120.0 VAC
 Current: 0.1051 A
 Power: 12.29 W
 Power Factor: 0.975
 Frequency: 60 Hz
 Current THD: 17.5 %



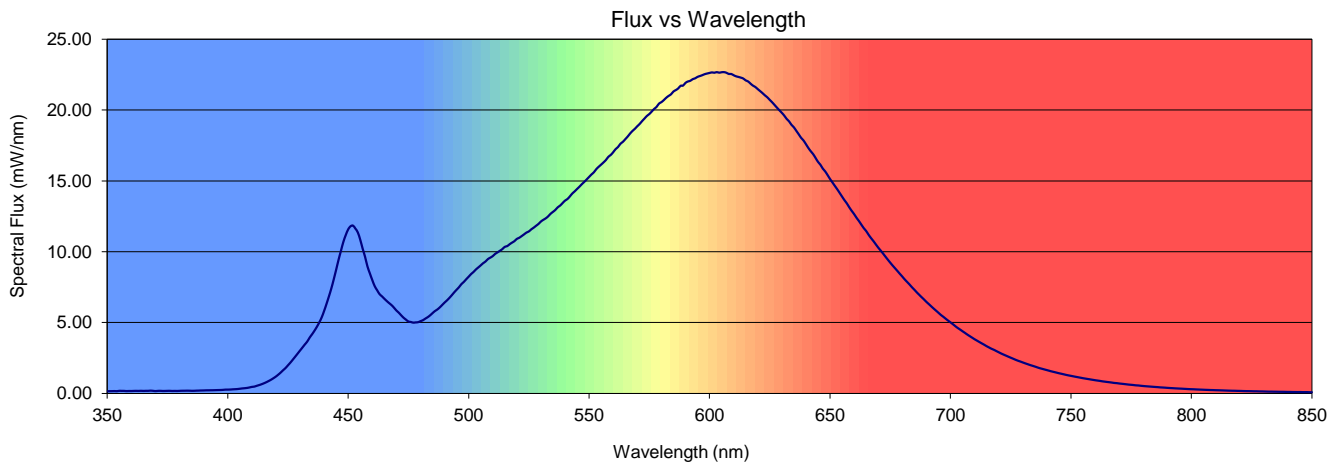
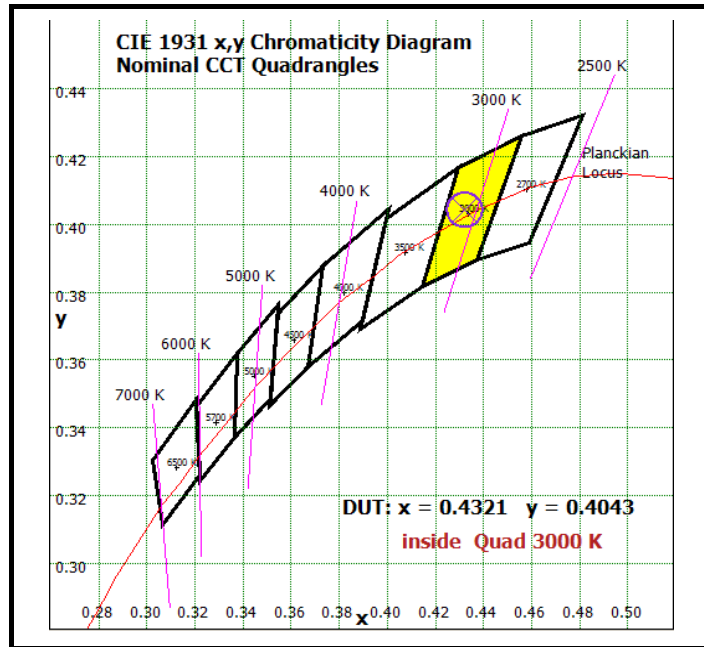
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.0 °C	120.0 VAC	0.1051 A	12.29 W	0.975	60 Hz	17.5 %

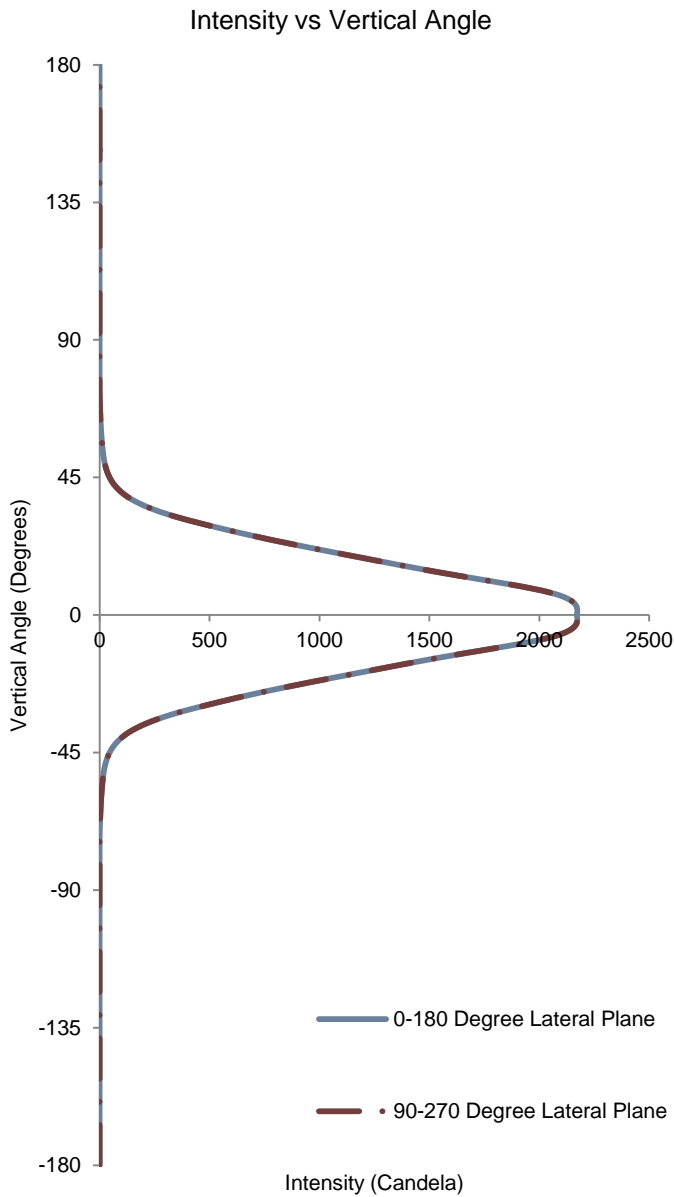
Summary of Results

Luminous Flux:	1174 Lumens
Efficacy:	95.5 lm/w
CCT:	3082 K
CRI (Ra):	83.8
CRI (R9):	17.5
Chromaticity (x):	0.4321
Chromaticity (y):	0.4043
Chromaticity (u):	0.2474
Chromaticity (v):	0.3472
Chromaticity (u')	0.2474
Chromaticity (v')	0.5208
Duv:	0.0002





Distribution - Goniophotometer



Test Conditions	
Test Temperature:	24.4 °C
Voltage:	120.0 VAC
Current:	0.1049 A
Power:	12.26 W
Power Factor:	0.975
Frequency:	60 Hz
Current THD:	17.7 %
Total Lumen Output: 1150 Lumens	
Luminaire Efficacy: 93.8 Lumens/Watt	
CIE Type: Direct	
Spacing Criterion: 0.64 All Directions	
Center Beam Intensity: 2171 Candela	
Central Cone Intensity: 2164 Candela	
Beam Flux: 611.5 Lumens	
Beam Angle 0-180: 40.4 Degrees	
Beam Angle 90-270: 40.4 Degrees	
Field Angle 0-180: 70.7 Degrees	
Field Angle 90-270: 70.7 Degrees	

Data was acquired using the calibrated photodetector method of absolute photometry.



Candela Tabulation
 Lateral Angle (Degrees)

Vertical 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	2171	2171	2171	2171	2171	2171	2171	2171	2171	2171	2171	2171	2171	2171	2171	2171
1	2173	2173	2173	2173	2173	2173	2173	2173	2173	2173	2173	2173	2173	2173	2173	2173
2	2172	2172	2172	2172	2172	2172	2172	2172	2172	2172	2172	2172	2172	2172	2172	2172
3	2168	2168	2168	2168	2168	2168	2168	2168	2168	2168	2168	2168	2168	2168	2168	2168
4	2157	2157	2157	2157	2157	2157	2157	2157	2157	2157	2157	2157	2157	2157	2157	2157
5	2138	2138	2138	2138	2138	2138	2138	2138	2138	2138	2138	2138	2138	2138	2138	2138
6	2108	2108	2108	2108	2108	2108	2108	2108	2108	2108	2108	2108	2108	2108	2108	2108
7	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066
8	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011
9	1943	1943	1943	1943	1943	1943	1943	1943	1943	1943	1943	1943	1943	1943	1943	1943
10	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867
11	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786
12	1703	1703	1703	1703	1703	1703	1703	1703	1703	1703	1703	1703	1703	1703	1703	1703
13	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
14	1541	1541	1541	1541	1541	1541	1541	1541	1541	1541	1541	1541	1541	1541	1541	1541
15	1465	1465	1465	1465	1465	1465	1465	1465	1465	1465	1465	1465	1465	1465	1465	1465
16	1390	1390	1390	1390	1390	1390	1390	1390	1390	1390	1390	1390	1390	1390	1390	1390
17	1317	1317	1317	1317	1317	1317	1317	1317	1317	1317	1317	1317	1317	1317	1317	1317
18	1245	1245	1245	1245	1245	1245	1245	1245	1245	1245	1245	1245	1245	1245	1245	1245
19	1173	1173	1173	1173	1173	1173	1173	1173	1173	1173	1173	1173	1173	1173	1173	1173
20	1101	1101	1101	1101	1101	1101	1101	1101	1101	1101	1101	1101	1101	1101	1101	1101
25	754	754	754	754	754	754	754	754	754	754	754	754	754	754	754	754
30	458	458	458	458	458	458	458	458	458	458	458	458	458	458	458	458
35	229	229	229	229	229	229	229	229	229	229	229	229	229	229	229	229
40	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
50	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
55	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
60	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
65	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
70	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	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	0
100	0	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	0
110	0	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	0
120	0	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	0
130	0	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	0
140	0	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	0
150	0	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	0
160	0	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	0
170	0	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	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Utilization of Lumens - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%												
Ceiling Cavity Reflectance	90				80				70			
Wall Reflectance	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **											
0	1402	1402	1402	1402	1369	1369	1369	1369	1337	1337	1337	1337
1	1341	1308	1279	1253	1312	1282	1256	1233	1284	1258	1234	1213
2	1281	1224	1178	1139	1254	1204	1162	1126	1230	1184	1146	1114
3	1223	1149	1093	1049	1200	1133	1081	1040	1178	1117	1070	1032
4	1168	1083	1021	975	1147	1069	1012	969	1128	1057	1004	963
5	1117	1023	958	912	1098	1012	952	908	1080	1001	945	904
6	1068	969	903	857	1051	960	898	854	1035	951	893	851
7	1022	920	854	809	1007	912	850	807	993	905	846	805
8	980	875	810	766	966	868	807	765	953	862	804	763
9	940	834	770	728	927	828	768	727	916	823	765	726
10	903	797	734	693	891	792	732	693	881	787	730	692

Ceiling Cavity Reflectance	50				30			10			0
Wall Reflectance	70	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	1278	1278	1278	1278	1223	1223	1223	1173	1173	1173	1150
1	1232	1211	1193	1176	1169	1154	1141	1130	1119	1108	1088
2	1184	1147	1116	1089	1114	1088	1066	1082	1062	1044	1026
3	1137	1088	1048	1016	1061	1028	1000	1035	1008	985	968
4	1091	1033	988	952	1010	972	941	990	957	930	914
5	1048	982	933	896	963	921	888	946	910	880	865
6	1006	934	884	846	919	874	840	904	865	835	820
7	967	891	839	801	878	831	797	865	824	793	778
8	929	850	798	760	839	792	757	829	786	754	740
9	894	813	760	723	803	755	721	794	751	719	705
10	861	778	726	690	770	722	688	762	718	686	673

Average Luminance Table (cd/m²)

		Horizontal Angle (Degrees)		
		0	45	90
Vertical Angle (Degree)	0	566600	566600	566600
	45	16830	16830	16830
	55	5795	5795	5795
	65	2218	2218	2218
	75	10	10	10
	85	0	0	0

This test was conducted using photometry techniques according to standard IES procedures. The user must therefore use caution in the following situations: 1) This test was performed using a specific ballast/lamp combination. Extrapolation of this data for other ballast/lamp combinations may produce erroneous results. 2) This test was conducted in a controlled laboratory environment where the ambient temperature was held at 25°C ±1°C. Field performance may differ particularly in regards to change in luminous output as a result of difference in ambient temperature and method of mounting the luminaire.



Zonal Lumen Tabulation (5 degree zones)

Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens
0-5	51.7	45-50	13.0	90-95	0	135-140	0
5-10	144.0	50-55	7.3	95-100	0	140-145	0
10-15	195.8	55-60	4.5	100-105	0	145-150	0
15-20	209.9	60-65	2.5	105-110	0	150-155	0
20-25	192.7	65-70	1.1	110-115	0	155-160	0
25-30	151.4	70-75	0.2	115-120	0	160-165	0
30-35	97.7	75-80	0.0	120-125	0	165-170	0
35-40	52.2	80-85	0	125-130	0	170-175	0
40-45	25.7	85-90	0	130-135	0	175-180	0

Polar Plot (Candela)

