



UL Verification Services Inc.
7036 Snowdrift Road
Allentown, PA 18106
610-774-1300

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
zPAR38401512T3N
Order Number
10585963
Test Number
830274

Test Date
2015-01-27 - 2015-01-29

Prepared By

Handwritten signature of Derek Smarr in black ink.

Derek Smarr, Technician

Approved By

Handwritten signature of Jeffrey M. Lockner in black ink.

Jeffrey Lockner, Project Engineer

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

Lamp



Lamp Characteristics

Luminous Diameter: 2.75 in.

Summary of Results

Integrating Sphere

Luminous Flux: 1205 Lumens
Efficacy: 97.2 lm/w
CCT: 4042 K
CRI (Ra): 83.9

Distribution

Total Luminaire Output: 1209 Lumens
Luminaire Efficacy: 97.6 lm/w
Maximum Candela: 13850 Candela

Electrical Data at 120 VAC

Test Temperature: 25.0 °C
Voltage: 120.0 VAC
Current: 0.1059 A
Power: 12.40 W
Power Factor: 0.976
Frequency: 60 Hz
Current THD: 17.3 %



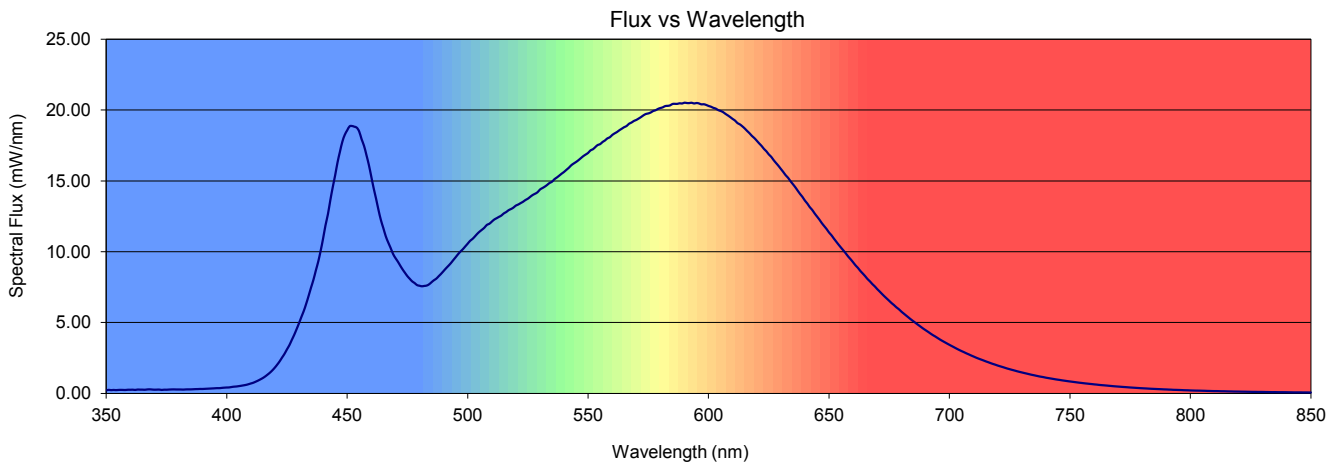
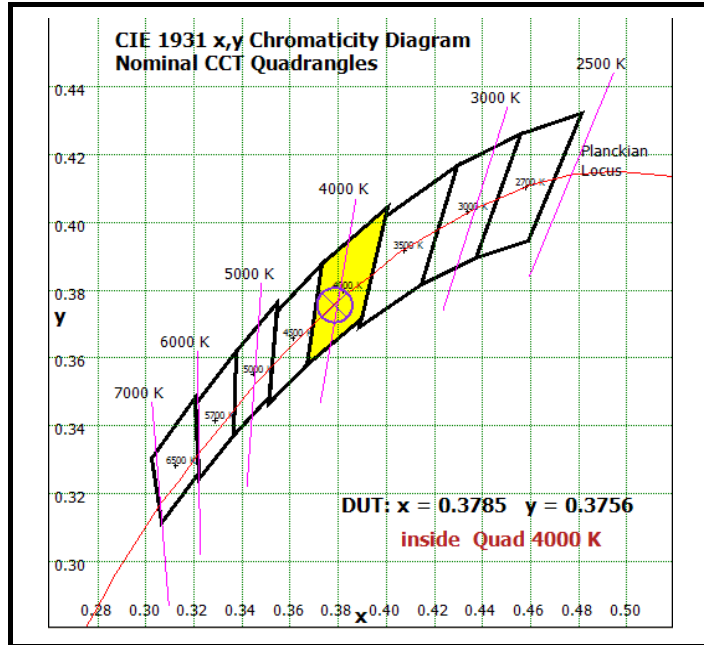
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.0 °C	120.0 VAC	0.1059 A	12.40 W	0.976	60 Hz	17.3 %

Summary of Results

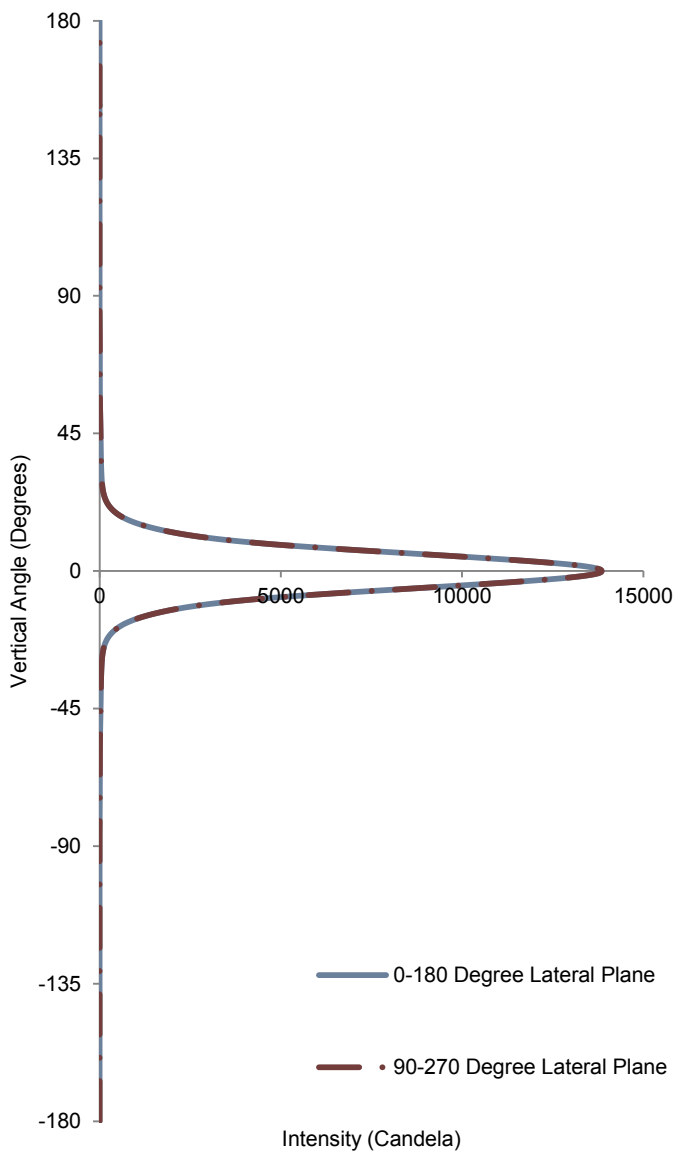
Luminous Flux:	1205 Lumens
Efficacy:	97.2 lm/w
CCT:	4042 K
CRI (Ra):	83.9
CRI (R9):	14.9
Chromaticity (x):	0.3785
Chromaticity (y):	0.3756
Chromaticity (u):	0.2243
Chromaticity (v):	0.3339
Chromaticity (u')	0.2243
Chromaticity (v')	0.5008
Duv:	0.0006





Distribution - Goniophotometer

Intensity vs Vertical Angle



Test Conditions

Test Temperature: 24.6 °C
Voltage: 120.0 VAC
Current: 0.1057 A
Power: 12.38 W
Power Factor: 0.976
Frequency: 60 Hz
Current THD: 17.3 %

Total Lumen Output: 1209 Lumens
Luminaire Efficacy: 97.6 Lumens/Watt
CIE Type: Direct
Spacing Criterion: 0.24 All Directions

Center Beam Intensity: 13850 Candela
Central Cone Intensity: 12262 Candela
Beam Flux: 459.3 Lumens
Beam Angle 0-180: 13.9 Degrees
Beam Angle 90-270: 13.9 Degrees
Field Angle 0-180: 28.7 Degrees
Field Angle 90-270: 28.7 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	13850	13850	13850	13850	13850	13850	13850	13850	13850	13850	13850	13850	13850	13850	13850	13850
1	13670	13670	13670	13670	13670	13670	13670	13670	13670	13670	13670	13670	13670	13670	13670	13670
2	13070	13070	13070	13070	13070	13070	13070	13070	13070	13070	13070	13070	13070	13070	13070	13070
3	12110	12110	12110	12110	12110	12110	12110	12110	12110	12110	12110	12110	12110	12110	12110	12110
4	10910	10910	10910	10910	10910	10910	10910	10910	10910	10910	10910	10910	10910	10910	10910	10910
5	9608	9608	9608	9608	9608	9608	9608	9608	9608	9608	9608	9608	9608	9608	9608	9608
6	8242	8242	8242	8242	8242	8242	8242	8242	8242	8242	8242	8242	8242	8242	8242	8242
7	6878	6878	6878	6878	6878	6878	6878	6878	6878	6878	6878	6878	6878	6878	6878	6878
8	5625	5625	5625	5625	5625	5625	5625	5625	5625	5625	5625	5625	5625	5625	5625	5625
9	4521	4521	4521	4521	4521	4521	4521	4521	4521	4521	4521	4521	4521	4521	4521	4521
10	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620
11	2897	2897	2897	2897	2897	2897	2897	2897	2897	2897	2897	2897	2897	2897	2897	2897
12	2326	2326	2326	2326	2326	2326	2326	2326	2326	2326	2326	2326	2326	2326	2326	2326
13	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867	1867
14	1493	1493	1493	1493	1493	1493	1493	1493	1493	1493	1493	1493	1493	1493	1493	1493
15	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185
16	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935
17	735	735	735	735	735	735	735	735	735	735	735	735	735	735	735	735
18	577	577	577	577	577	577	577	577	577	577	577	577	577	577	577	577
19	454	454	454	454	454	454	454	454	454	454	454	454	454	454	454	454
20	357	357	357	357	357	357	357	357	357	357	357	357	357	357	357	357
25	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117
30	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
35	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
40	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
45	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
50	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
55	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
60	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
65	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
70	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
75	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
80	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
85	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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	1474	1474	1474	1474	1439	1439	1439	1439	1405	1405	1405	1405
1	1425	1397	1373	1352	1395	1371	1349	1330	1366	1345	1326	1309
2	1380	1335	1298	1268	1354	1315	1281	1254	1330	1295	1265	1240
3	1341	1284	1241	1207	1318	1268	1229	1198	1298	1252	1217	1188
4	1305	1241	1196	1161	1286	1229	1187	1154	1268	1216	1178	1148
5	1273	1205	1158	1124	1257	1195	1152	1120	1241	1185	1145	1115
6	1244	1174	1127	1094	1230	1165	1122	1091	1216	1157	1117	1088
7	1218	1146	1101	1069	1205	1139	1097	1067	1193	1133	1093	1064
8	1194	1122	1077	1047	1183	1116	1074	1046	1172	1111	1071	1044
9	1171	1100	1057	1028	1162	1095	1054	1027	1152	1091	1052	1025
10	1151	1080	1038	1011	1142	1076	1036	1010	1134	1072	1034	1009

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	1343	1343	1343	1343	1286	1286	1286	1233	1233	1233	1209
1	1313	1297	1283	1269	1253	1242	1232	1213	1204	1197	1177
2	1285	1258	1234	1213	1223	1205	1188	1192	1177	1164	1147
3	1259	1223	1194	1170	1196	1172	1153	1171	1152	1136	1121
4	1235	1193	1161	1135	1171	1145	1123	1151	1129	1111	1097
5	1213	1166	1132	1106	1149	1120	1097	1133	1108	1088	1076
6	1192	1142	1107	1081	1128	1098	1075	1115	1089	1068	1057
7	1172	1120	1085	1059	1109	1078	1054	1098	1070	1050	1039
8	1153	1100	1065	1040	1090	1059	1036	1081	1053	1033	1023
9	1136	1082	1047	1023	1074	1042	1020	1066	1038	1017	1008
10	1119	1065	1030	1007	1058	1027	1005	1051	1023	1002	993

Average Luminance Table (cd/m²)

		Horizontal Angle (Degrees)		
		0	45	90
Vertical Angle (Degree)	0	3615000	3615000	3615000
	45	9951	9951	9951
	55	5543	5543	5543
	65	4910	4910	4910
	75	5741	5741	5741
	85	1615	1615	1615

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	277.8	45-50	9.4	90-95	0	135-140	0
5-10	432.0	50-55	6.8	95-100	0	140-145	0
10-15	250.4	55-60	4.6	100-105	0	145-150	0
15-20	110.7	60-65	4.0	105-110	0	150-155	0
20-25	43.4	65-70	3.9	110-115	0	155-160	0
25-30	20.4	70-75	3.4	115-120	0	160-165	0
30-35	14.4	75-80	2.5	120-125	0	165-170	0
35-40	12.4	80-85	1.2	125-130	0	170-175	0
40-45	11.3	85-90	0.0	130-135	0	175-180	0

Polar Plot (Candela)

