



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
MSI, LLC
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Boca Raton, FL 33431

Catalog Number
zPAR30x402512T3N
Order Number
10585963
Test Number
830270

Test Date
2015-01-27 - 2015-01-30

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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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: 1236 Lumens
Efficacy: 100.4 lm/w
CCT: 4079 K
CRI (Ra): 84.4

Distribution

Total Luminaire Output: 1230 Lumens
Luminaire Efficacy: 100.0 lm/w
Maximum Candela: 5697 Candela

Electrical Data at 120 VAC

Test Temperature: 24.8 °C
Voltage: 120.0 VAC
Current: 0.1051 A
Power: 12.31 W
Power Factor: 0.976
Frequency: 60 Hz
Current THD: 16.9 %



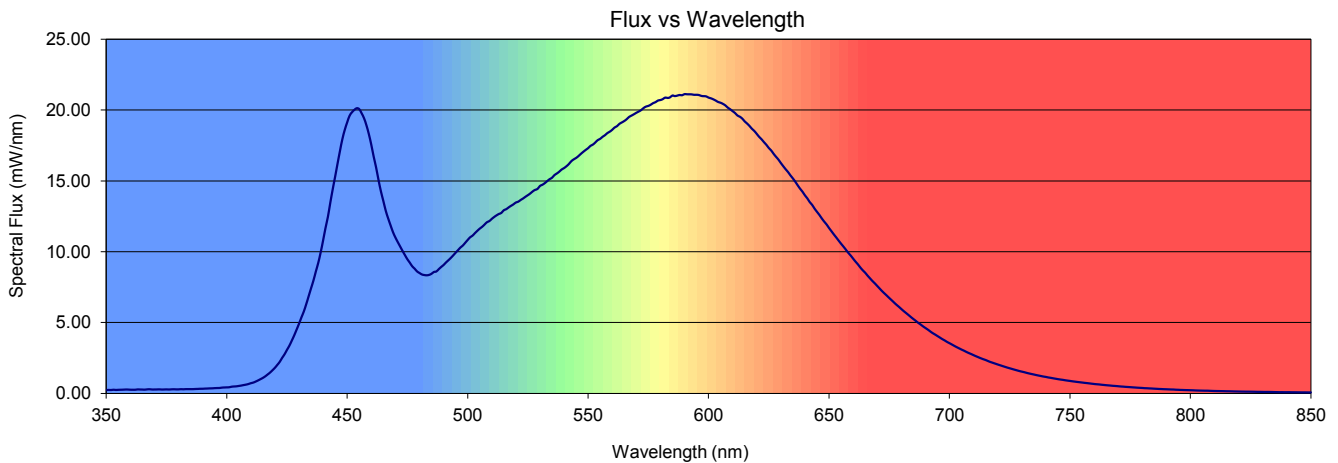
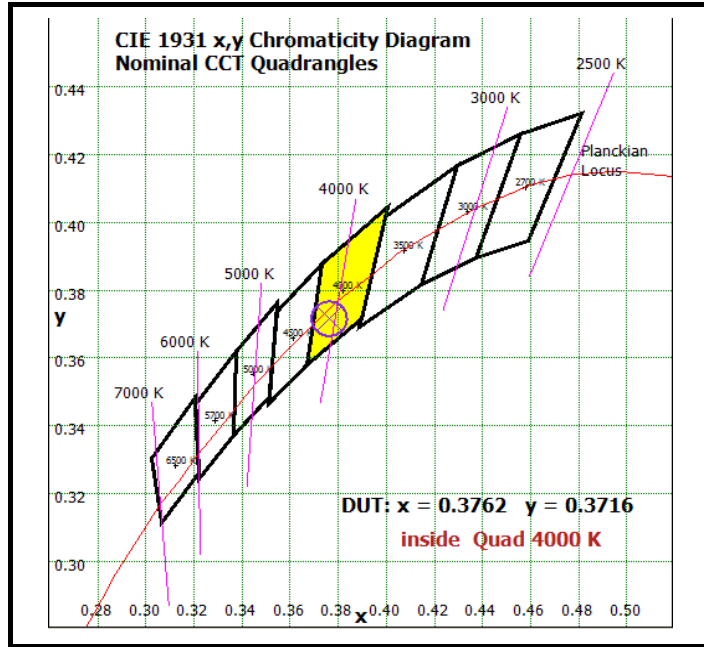
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.8 °C	120.0 VAC	0.1051 A	12.31 W	0.976	60 Hz	16.9 %

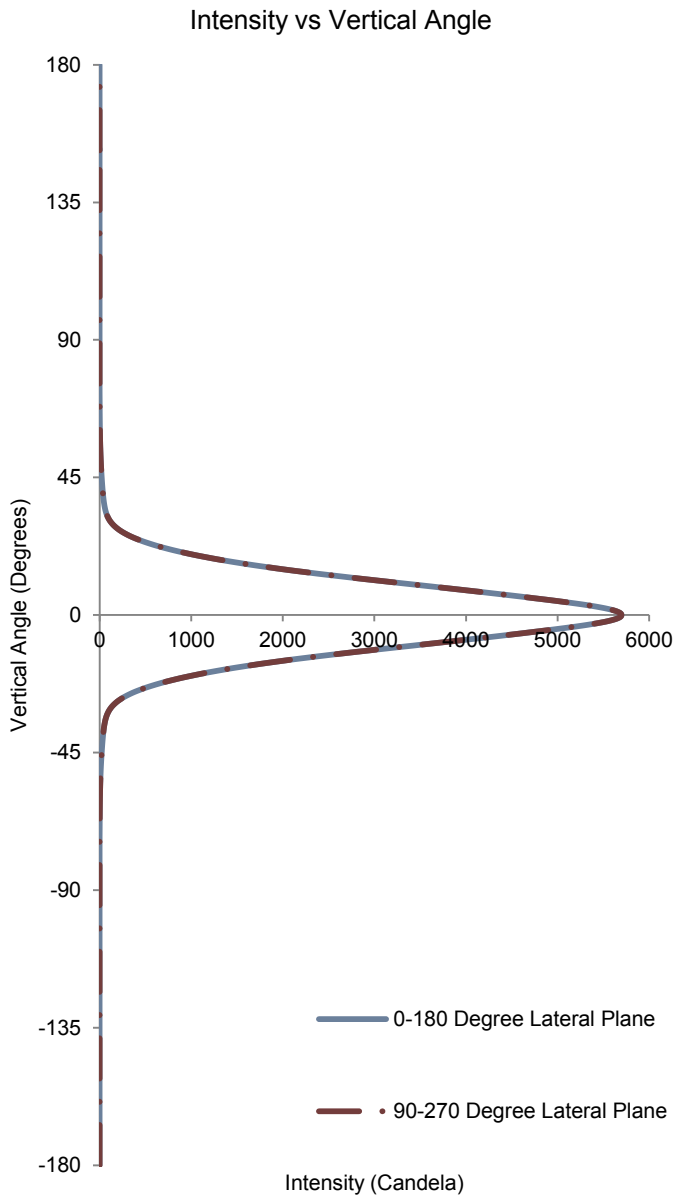
Summary of Results

Luminous Flux:	1236 Lumens
Efficacy:	100.4 lm/w
CCT:	4079 K
CRI (Ra):	84.4
CRI (R9):	17.3
Chromaticity (x):	0.3762
Chromaticity (y):	0.3716
Chromaticity (u):	0.2243
Chromaticity (v):	0.3325
Chromaticity (u')	0.2243
Chromaticity (v')	0.4987
Duv:	-0.0017





Distribution - Goniophotometer



Test Conditions

Test Temperature: 24.5 °C
Voltage: 120.0 VAC
Current: 0.1049 A
Power: 12.29 W
Power Factor: 0.976
Frequency: 60 Hz
Current THD: 17.1 %

Total Lumen Output: 1230 Lumens
Luminaire Efficacy: 100 Lumens/Watt
CIE Type: Direct
Spacing Criterion: 0.40 All Directions

Center Beam Intensity: 5697 Candela
Central Cone Intensity: 5395 Candela
Beam Flux: 538.7 Lumens
Beam Angle 0-180: 23.8 Degrees
Beam Angle 90-270: 23.8 Degrees
Field Angle 0-180: 46.3 Degrees
Field Angle 90-270: 46.3 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	5697	5697	5697	5697	5697	5697	5697	5697	5697	5697	5697	5697	5697	5697	5697	5697
1	5661	5661	5661	5661	5661	5661	5661	5661	5661	5661	5661	5661	5661	5661	5661	5661
2	5550	5550	5550	5550	5550	5550	5550	5550	5550	5550	5550	5550	5550	5550	5550	5550
3	5370	5370	5370	5370	5370	5370	5370	5370	5370	5370	5370	5370	5370	5370	5370	5370
4	5140	5140	5140	5140	5140	5140	5140	5140	5140	5140	5140	5140	5140	5140	5140	5140
5	4882	4882	4882	4882	4882	4882	4882	4882	4882	4882	4882	4882	4882	4882	4882	4882
6	4607	4607	4607	4607	4607	4607	4607	4607	4607	4607	4607	4607	4607	4607	4607	4607
7	4321	4321	4321	4321	4321	4321	4321	4321	4321	4321	4321	4321	4321	4321	4321	4321
8	4025	4025	4025	4025	4025	4025	4025	4025	4025	4025	4025	4025	4025	4025	4025	4025
9	3725	3725	3725	3725	3725	3725	3725	3725	3725	3725	3725	3725	3725	3725	3725	3725
10	3423	3423	3423	3423	3423	3423	3423	3423	3423	3423	3423	3423	3423	3423	3423	3423
11	3118	3118	3118	3118	3118	3118	3118	3118	3118	3118	3118	3118	3118	3118	3118	3118
12	2818	2818	2818	2818	2818	2818	2818	2818	2818	2818	2818	2818	2818	2818	2818	2818
13	2529	2529	2529	2529	2529	2529	2529	2529	2529	2529	2529	2529	2529	2529	2529	2529
14	2253	2253	2253	2253	2253	2253	2253	2253	2253	2253	2253	2253	2253	2253	2253	2253
15	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993
16	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
17	1531	1531	1531	1531	1531	1531	1531	1531	1531	1531	1531	1531	1531	1531	1531	1531
18	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330
19	1147	1147	1147	1147	1147	1147	1147	1147	1147	1147	1147	1147	1147	1147	1147	1147
20	982	982	982	982	982	982	982	982	982	982	982	982	982	982	982	982
25	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395
30	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134
35	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
40	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
50	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
55	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
60	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
65	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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	1500	1500	1500	1500	1465	1465	1465	1465	1430	1430	1430	1430
1	1445	1415	1388	1365	1414	1388	1364	1343	1385	1362	1341	1322
2	1393	1343	1301	1267	1367	1322	1284	1253	1341	1301	1268	1239
3	1345	1281	1231	1192	1322	1264	1219	1183	1300	1248	1207	1174
4	1301	1226	1173	1133	1280	1213	1164	1126	1261	1200	1155	1120
5	1259	1178	1123	1083	1241	1167	1116	1078	1224	1157	1109	1074
6	1220	1135	1079	1040	1204	1126	1074	1037	1189	1118	1069	1033
7	1183	1096	1041	1003	1169	1089	1037	1000	1156	1082	1033	998
8	1149	1061	1006	969	1137	1055	1003	967	1125	1049	1000	966
9	1117	1028	975	939	1106	1023	972	938	1095	1018	969	936
10	1087	998	946	912	1077	994	944	911	1067	989	942	909

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	1367	1367	1367	1367	1309	1309	1309	1255	1255	1255	1230
1	1331	1313	1296	1281	1268	1255	1243	1226	1217	1208	1187
2	1295	1263	1236	1212	1228	1206	1187	1195	1178	1163	1145
3	1259	1217	1183	1156	1189	1161	1138	1163	1141	1121	1105
4	1226	1176	1137	1107	1153	1121	1095	1132	1105	1083	1068
5	1193	1137	1096	1065	1119	1083	1056	1101	1071	1047	1033
6	1162	1101	1059	1027	1086	1049	1021	1072	1040	1014	1001
7	1132	1068	1025	993	1055	1017	988	1043	1010	984	971
8	1103	1037	993	962	1026	987	958	1016	981	955	943
9	1076	1008	964	934	999	959	931	990	955	928	917
10	1050	981	937	907	973	933	905	966	929	903	892

Average Luminance Table (cd/m²)

		Horizontal Angle (Degrees)		
		0	45	90
Vertical Angle (Degree)	0	1487000	1487000	1487000
	45	8552	8552	8552
	55	3394	3394	3394
	65	1239	1239	1239
	75	23	23	23
	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	126.1	45-50	7.3	90-95	0	135-140	0
5-10	292.5	50-55	4.5	95-100	0	140-145	0
10-15	312.9	55-60	2.6	100-105	0	145-150	0
15-20	234.9	60-65	1.4	105-110	0	150-155	0
20-25	135.6	65-70	0.7	110-115	0	155-160	0
25-30	60.3	70-75	0.2	115-120	0	160-165	0
30-35	25.4	75-80	0	120-125	0	165-170	0
35-40	15.1	80-85	0	125-130	0	170-175	0
40-45	10.7	85-90	0	130-135	0	175-180	0

Polar Plot (Candela)

