



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
Jared Coello
622 Banyan Trail, Suite 200
Boca Raton, FL 33431

Catalog Number
zPAR30x304012T3N
Order Number
10585963
Test Number
830266

Test Date

2014-12-11 - 2014-12-12

Prepared By

A handwritten signature in black ink, appearing to read 'Jeffrey M. Lockner'.

Jeffrey Lockner, Project Engineer

Approved By

A handwritten signature in black ink, appearing to read 'Jeff A. Smith Jr.'.

Jeff Smith Jr., Project Handler

The results contained in this report pertain only to the tested sample.
This report shall not be reproduced, except in full, without written approval of Underwriters Laboratories.



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: 1177 Lumens
 Efficacy: 95.3 lm/w
 CCT: 3093 K
 CRI (Ra): 83.4

Distribution

Total Luminaire Output: 1155 Lumens
 Luminaire Efficacy: 93.7 lm/w
 Maximum Candela: 2484 Candela

Electrical Data at 120 VAC

Test Temperature: 24.9 °C
 Voltage: 120.0 VAC
 Current: 0.1054 A
 Power: 12.35 W
 Power Factor: 0.976
 Frequency: 60 Hz
 Current THD: 16.9 %



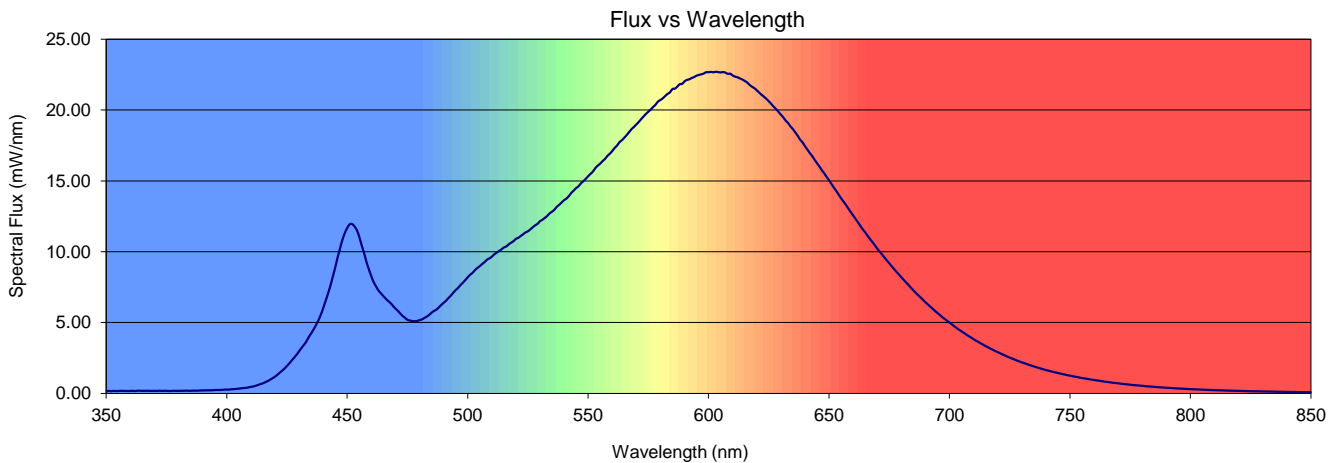
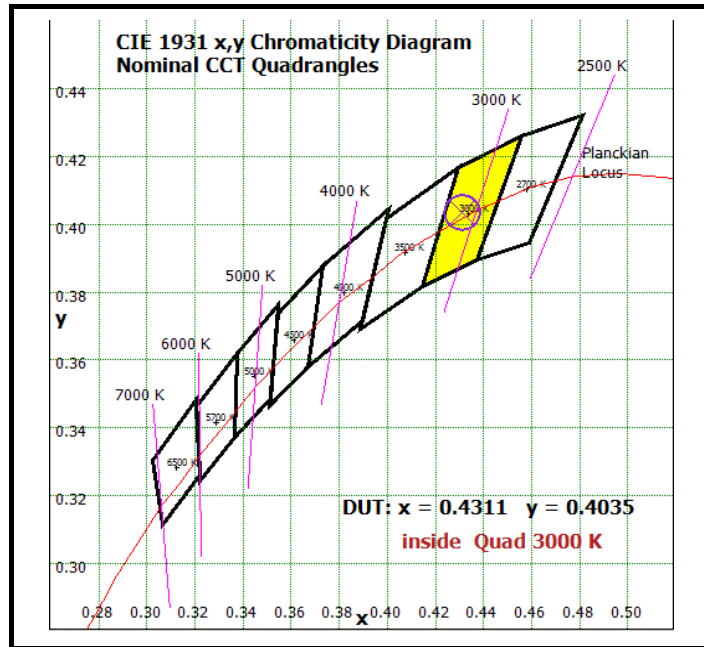
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	120.0 VAC	0.1054 A	12.35 W	0.976	60 Hz	16.9 %

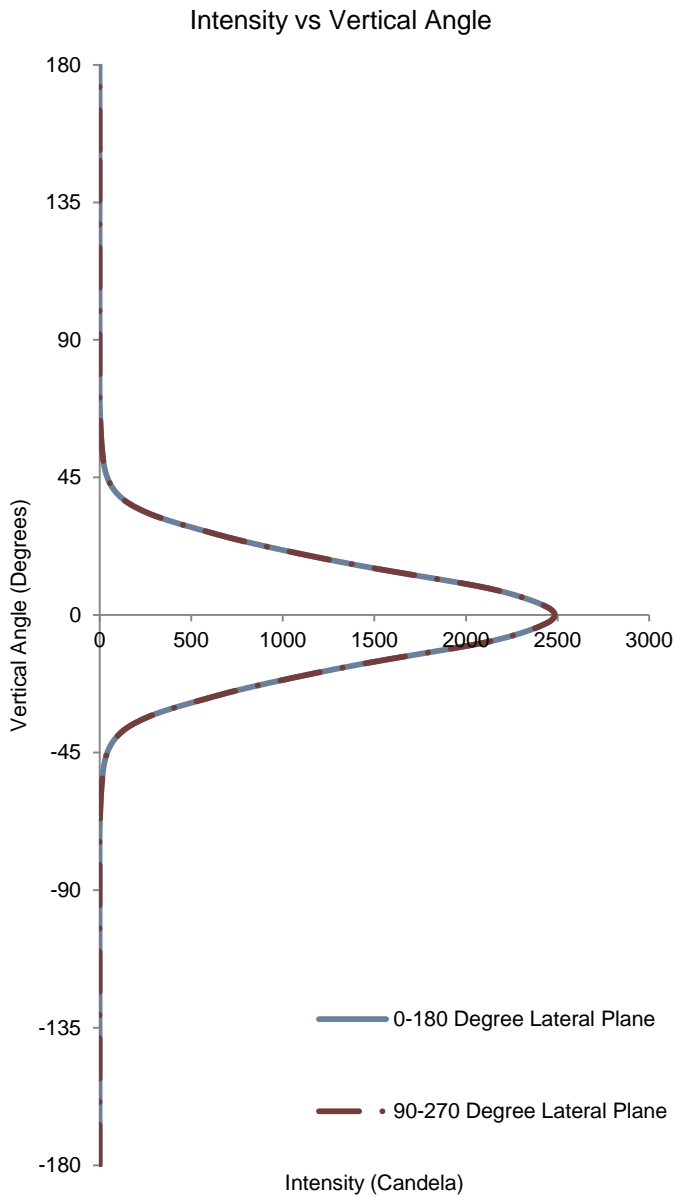
Summary of Results

Luminous Flux: 1177 Lumens
Efficacy: 95.3 lm/w
CCT: 3093 K
CRI (Ra): 83.4
CRI (R9): 16.2
 Chromaticity (x): 0.4311
 Chromaticity (y): 0.4035
 Chromaticity (u): 0.2471
 Chromaticity (v): 0.3469
 Chromaticity (u'): 0.2471
 Chromaticity (v'): 0.5203
 Duv: 0.0001





Distribution - Goniophotometer



Test Conditions	
Test Temperature:	24.5 °C
Voltage:	120.0 VAC
Current:	0.1052 A
Power:	12.32 W
Power Factor:	0.976
Frequency:	60 Hz
Current THD:	16.9 %
Total Lumen Output: 1155 Lumens	
Luminaire Efficacy: 93.7 Lumens/Watt	
CIE Type: Direct	
Spacing Criterion: 0.59 All Directions	
Center Beam Intensity: 2484 Candela	
Central Cone Intensity: 2433 Candela	
Beam Flux: 562.2 Lumens	
Beam Angle 0-180: 36.5 Degrees	
Beam Angle 90-270: 36.5 Degrees	
Field Angle 0-180: 67.5 Degrees	
Field Angle 90-270: 67.5 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	2484	2484	2484	2484	2484	2484	2484	2484	2484	2484	2484	2484	2484	2484	2484	2484
1	2478	2478	2478	2478	2478	2478	2478	2478	2478	2478	2478	2478	2478	2478	2478	2478
2	2460	2460	2460	2460	2460	2460	2460	2460	2460	2460	2460	2460	2460	2460	2460	2460
3	2428	2428	2428	2428	2428	2428	2428	2428	2428	2428	2428	2428	2428	2428	2428	2428
4	2391	2391	2391	2391	2391	2391	2391	2391	2391	2391	2391	2391	2391	2391	2391	2391
5	2346	2346	2346	2346	2346	2346	2346	2346	2346	2346	2346	2346	2346	2346	2346	2346
6	2296	2296	2296	2296	2296	2296	2296	2296	2296	2296	2296	2296	2296	2296	2296	2296
7	2239	2239	2239	2239	2239	2239	2239	2239	2239	2239	2239	2239	2239	2239	2239	2239
8	2175	2175	2175	2175	2175	2175	2175	2175	2175	2175	2175	2175	2175	2175	2175	2175
9	2101	2101	2101	2101	2101	2101	2101	2101	2101	2101	2101	2101	2101	2101	2101	2101
10	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015
11	1920	1920	1920	1920	1920	1920	1920	1920	1920	1920	1920	1920	1920	1920	1920	1920
12	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
13	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
14	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624
15	1527	1527	1527	1527	1527	1527	1527	1527	1527	1527	1527	1527	1527	1527	1527	1527
16	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434
17	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346
18	1261	1261	1261	1261	1261	1261	1261	1261	1261	1261	1261	1261	1261	1261	1261	1261
19	1178	1178	1178	1178	1178	1178	1178	1178	1178	1178	1178	1178	1178	1178	1178	1178
20	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098
25	728	728	728	728	728	728	728	728	728	728	728	728	728	728	728	728
30	426	426	426	426	426	426	426	426	426	426	426	426	426	426	426	426
35	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205
40	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91
45	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
50	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
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	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
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	1408	1408	1408	1408	1375	1375	1375	1375	1343	1343	1343	1343
1	1348	1315	1287	1261	1318	1289	1264	1240	1290	1265	1242	1221
2	1289	1233	1187	1149	1262	1212	1171	1136	1238	1193	1155	1123
3	1232	1159	1104	1061	1209	1143	1092	1052	1187	1127	1081	1044
4	1178	1094	1034	988	1158	1081	1025	982	1138	1068	1016	976
5	1128	1036	972	926	1109	1025	966	922	1092	1014	959	918
6	1080	983	919	873	1064	974	913	870	1048	965	908	867
7	1036	935	871	826	1021	927	867	824	1007	920	863	822
8	994	891	828	785	980	885	824	783	968	878	821	781
9	955	851	789	747	943	846	786	746	931	840	783	745
10	918	814	753	713	907	810	751	712	897	805	749	711

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	1283	1283	1283	1283	1229	1229	1229	1178	1178	1178	1155
1	1238	1218	1200	1183	1176	1161	1148	1136	1125	1115	1095
2	1192	1156	1125	1099	1122	1097	1076	1091	1071	1053	1035
3	1146	1098	1059	1027	1071	1038	1011	1045	1019	996	979
4	1102	1044	1000	965	1022	984	954	1001	970	943	927
5	1060	995	947	910	976	935	902	959	923	895	880
6	1019	949	899	862	933	889	856	919	880	850	836
7	981	906	855	818	893	848	814	881	840	810	795
8	944	867	815	778	855	809	775	845	803	772	758
9	910	830	778	742	820	774	740	811	769	738	724
10	877	796	745	709	788	741	708	780	737	706	693

Average Luminance Table (cd/m²)

		Horizontal Angle (Degrees)		
		0	45	90
Vertical Angle (Degree)	0	648200	648200	648200
	45	15540	15540	15540
	55	5721	5721	5721
	65	2005	2005	2005
	75	0	0	0
	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	57.7	45-50	12.1	90-95	0	135-140	0
5-10	156.1	50-55	7.2	95-100	0	140-145	0
10-15	208.3	55-60	4.3	100-105	0	145-150	0
15-20	213.7	60-65	2.4	105-110	0	150-155	0
20-25	188.9	65-70	1.0	110-115	0	155-160	0
25-30	144.3	70-75	0.1	115-120	0	160-165	0
30-35	89.1	75-80	0	120-125	0	165-170	0
35-40	46.3	80-85	0	125-130	0	170-175	0
40-45	23.3	85-90	0	130-135	0	175-180	0

Polar Plot (Candela)

