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## Photometric Test Report

Relevant Standards  
IES LM-79-2008, ANSI C82.77-10-2014, CIE 13.3-1995  
CIE 15-2004, ANSI C78.377-2017, IES TM-30-2018

**Prepared For**  
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**Catalog Number**  
**MX2UD-4-L8/835U/L8/835D-FA/F**

Order Number

13052732

Test Number

13052732.03A

Revision of Test Number 13052732.03 on:

2019-10-30

Test Date

2019-10-10 - 2019-10-15

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  $4\pi$  geometry method.  
Absorption correction was employed for Sphere measurement



**Luminaire Description:** Formed White aluminum housing,frosted lens enclosures  
**Lamp:** 288 White LEDs  
**Mounting:** Pendant  
**Ballast/Driver:** Two Philips XI040C110V054BST1 Driver

#### Luminaire



#### Luminaire Characteristics

Luminous Length: 48.00 in.  
Luminous Width: 2.000 in.  
Luminous Height: 4.00 in.

#### Summary of Results

##### Integrating Sphere

Luminous Flux: 6227 Lumens  
Efficacy: 122.9 lm/w  
CCT: 3455 K  
CRI (Ra): 82.8

##### Distribution

Total Luminaire Output: 6190 Lumens  
Luminaire Efficacy: 122.2 lm/w  
Maximum Candela: 1369 Candela

##### Electrical Data at 120 VAC

Test Temperature: 25.4 °C  
Voltage: 120.1 VAC  
Current: 0.4249 A  
Power: 50.67 W  
Power Factor: 0.993  
Frequency: 60 Hz  
Current THD: 10.0 %



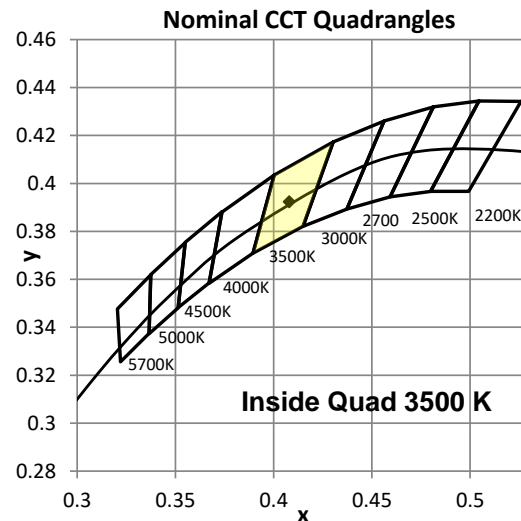
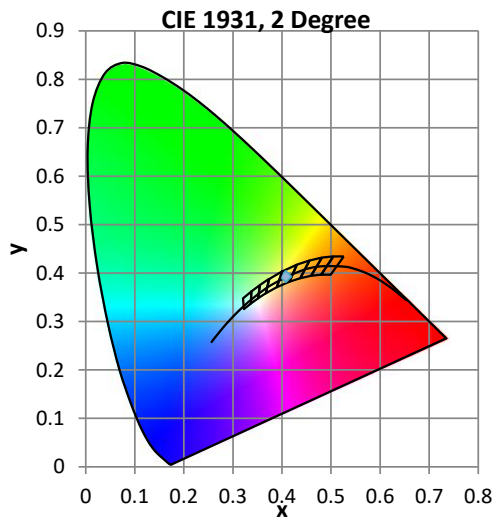
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.4 °C	120.1 VAC	0.4249 A	50.67 W	0.993	60 Hz	10.0 %

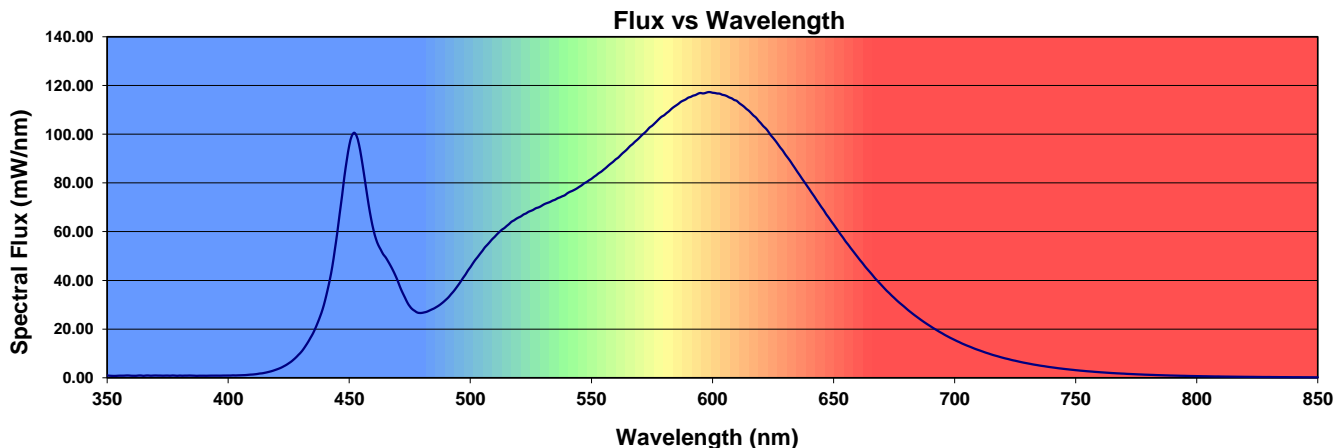
### Summary of Results

<b>Total Output:</b>	6227 Lumens	<b>Chromaticity (x):</b>	0.4079
<b>Efficacy:</b>	122.9 lm/w	<b>Chromaticity (y):</b>	0.3924
<b>CCT:</b>	3455 K	<b>Chromaticity (u'):</b>	0.2367
<b>CRI (Ra):</b>	82.8	<b>Chromaticity (v'):</b>	0.5124
<b>CRI (R9):</b>	6.4	<b>TM-30 Rf:</b>	84.3
<b>Peak Wavelength:</b>	599 nm	<b>TM-30 Rg:</b>	95.1
<b>Dominant Wavelength:</b>	581 nm	<b>Duv:</b>	0.0001
<b>S/P Ratio:</b>	1.52		



### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
82.8	81.1	90.3	96.3	81.0	81.2	87.2	84.1	61.1	6.4	77.3	80.3	65.0	83.4	98.4	74.0





## Distribution - Goniophotometer

### Distribution Test Conditions

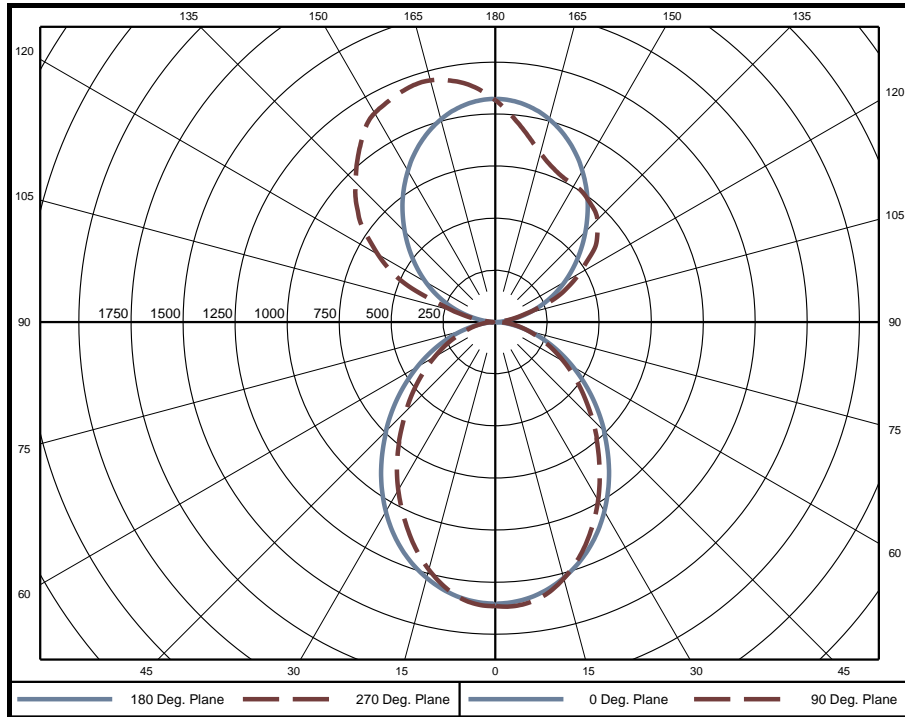
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.6 °C	120.1 VAC	0.4250 A	50.66 W	0.993	60 Hz	10.0 %

### Summary of Results

**Spacing Criteria**  
 0-180: 1.15  
 90-270: 1.10

**Total Lumen Output:** 6190 Lumens  
**Luminaire Efficacy:** 122.2 lm/w  
**Maximum Candela:** 1369 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	32.5	0.5%	60-65	172.3	2.8%	120-125	254.3	4.1%
5-10	95.8	1.5%	65-70	138.0	2.2%	125-130	277.4	4.5%
10-15	153.9	2.5%	70-75	103.2	1.7%	130-135	287.3	4.6%
15-20	203.4	3.3%	75-80	70.2	1.1%	135-140	287.6	4.6%
20-25	242.0	3.9%	80-85	40.6	0.7%	140-145	278.6	4.5%
25-30	268.6	4.3%	85-90	16.0	0.3%	145-150	260.5	4.2%
30-35	282.3	4.6%	90-95	9.8	0.2%	150-155	233.7	3.8%
35-40	283.5	4.6%	95-100	35.0	0.6%	155-160	201.4	3.3%
40-45	274.6	4.4%	100-105	75.9	1.2%	160-165	164.2	2.7%
45-50	258.0	4.2%	105-110	127.6	2.1%	165-170	121.8	2.0%
50-55	234.1	3.8%	110-115	179.5	2.9%	170-175	75.1	1.2%
55-60	205.0	3.3%	115-120	221.5	3.6%	175-180	25.4	0.4%

Zone	Lumens	% of Luminaire
0-40	1562	25.2%
0-60	2534	40.9%
0-90	3074	49.7%
90-180	3117	50.3%



### Candela Tabulation

Horizontal 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	1363	1363	1363	1363	1363	1363	1363	1363	1363	1363	1363	1363	1363	1363	1363
	5	1344	1362	1358	1364	1365	1364	1358	1362	1344	1354	1346	1350	1353	1350	1346
	10	1317	1339	1334	1338	1336	1338	1334	1339	1317	1323	1310	1307	1306	1307	1310
	15	1272	1297	1286	1284	1276	1284	1286	1297	1272	1276	1252	1240	1231	1240	1252
	20	1213	1239	1219	1205	1194	1205	1219	1239	1213	1211	1175	1152	1140	1152	1175
	25	1138	1163	1134	1112	1097	1112	1134	1163	1138	1131	1085	1053	1037	1053	1085
	30	1049	1073	1036	1006	990	1006	1036	1073	1049	1039	987	950	931	950	987
	35	951	970	927	893	877	893	927	970	951	935	879	838	822	838	879
	40	845	863	818	782	765	782	818	863	845	826	768	728	710	728	768
	45	741	756	713	677	662	677	713	756	741	719	662	621	605	621	662
	50	636	652	609	575	561	575	609	652	636	612	562	523	511	523	562
	55	533	547	510	480	470	480	510	547	533	511	466	433	420	433	466
	60	434	446	416	392	383	392	416	446	434	414	376	348	337	348	376
	65	340	352	329	311	303	311	329	352	340	322	292	271	263	271	292
	70	253	264	250	237	231	237	250	264	253	238	216	202	194	202	216
	75	171	184	177	171	167	171	177	184	171	160	148	141	134	141	148
	80	100	112	113	112	111	112	113	112	100	94	91	89	89	89	91
	85	44	55	59	61	62	61	59	55	44	42	43	45	46	45	43
	90	6	10	13	17	19	17	13	10	6	8	8	7	10	7	8
	95	33	31	26	21	20	21	26	31	33	43	45	37	35	37	45
	100	90	97	82	78	76	78	82	97	90	114	115	114	116	114	115
	105	160	178	186	157	147	157	186	178	160	204	246	213	212	213	246
	110	235	266	277	280	268	280	277	266	235	299	365	378	347	378	365
	115	310	343	368	376	377	376	368	343	310	394	483	520	529	520	483
	120	385	417	468	466	468	466	468	417	385	494	606	638	650	638	606
	125	460	487	541	567	563	567	541	487	460	593	702	764	770	764	702
	130	536	547	599	635	641	635	599	547	536	689	799	854	867	854	799
	135	613	598	647	682	696	682	647	598	613	779	887	936	948	936	887
	140	691	646	687	713	727	713	687	646	691	864	967	1016	1027	1016	967
	145	767	693	712	740	749	740	712	693	767	935	1035	1089	1103	1089	1035
	150	838	743	730	754	761	754	730	743	838	994	1086	1140	1158	1140	1086
	155	905	801	764	766	769	766	764	801	905	1041	1121	1166	1183	1166	1121
	160	962	864	812	799	795	799	812	864	962	1070	1141	1188	1201	1188	1141
	165	1008	929	873	851	841	851	873	929	1008	1090	1146	1189	1202	1189	1146
	170	1044	987	938	916	909	916	938	987	1044	1096	1133	1167	1176	1167	1133
	175	1066	1035	1003	990	989	990	1003	1035	1066	1089	1105	1125	1133	1125	1105
	180	1066	1066	1066	1066	1066	1066	1066	1066	1066	1066	1066	1066	1066	1066	1066

### Average Luminance (cd/m<sup>2</sup>)

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
	0	22010	22010
	45	15610	6583
	55	13410	4621
	65	11020	3024
	75	8149	1699
	85	4153	614



### Coefficients of Utilization - 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 percent of total lumen output delivered to the task surface **																	
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	98	94	90	86	90	87	83	80	73	71	69	61	59	58	50	49	47	42
2	89	82	76	71	82	76	71	66	64	61	57	54	51	49	44	42	40	36
3	82	72	65	59	75	67	61	56	57	52	48	48	44	41	39	37	35	31
4	75	64	56	51	69	60	53	47	51	46	42	43	39	36	35	32	30	27
5	69	57	49	43	63	53	46	41	46	40	36	39	34	31	32	29	26	23
6	63	52	44	38	58	48	41	36	41	36	32	35	31	27	29	26	23	21
7	59	47	39	33	54	43	36	31	37	32	28	32	28	24	27	23	21	18
8	55	42	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16
9	51	39	31	26	47	36	30	25	31	26	22	27	23	20	23	19	17	15
10	48	36	28	24	44	33	27	23	29	24	20	25	21	18	21	18	16	14

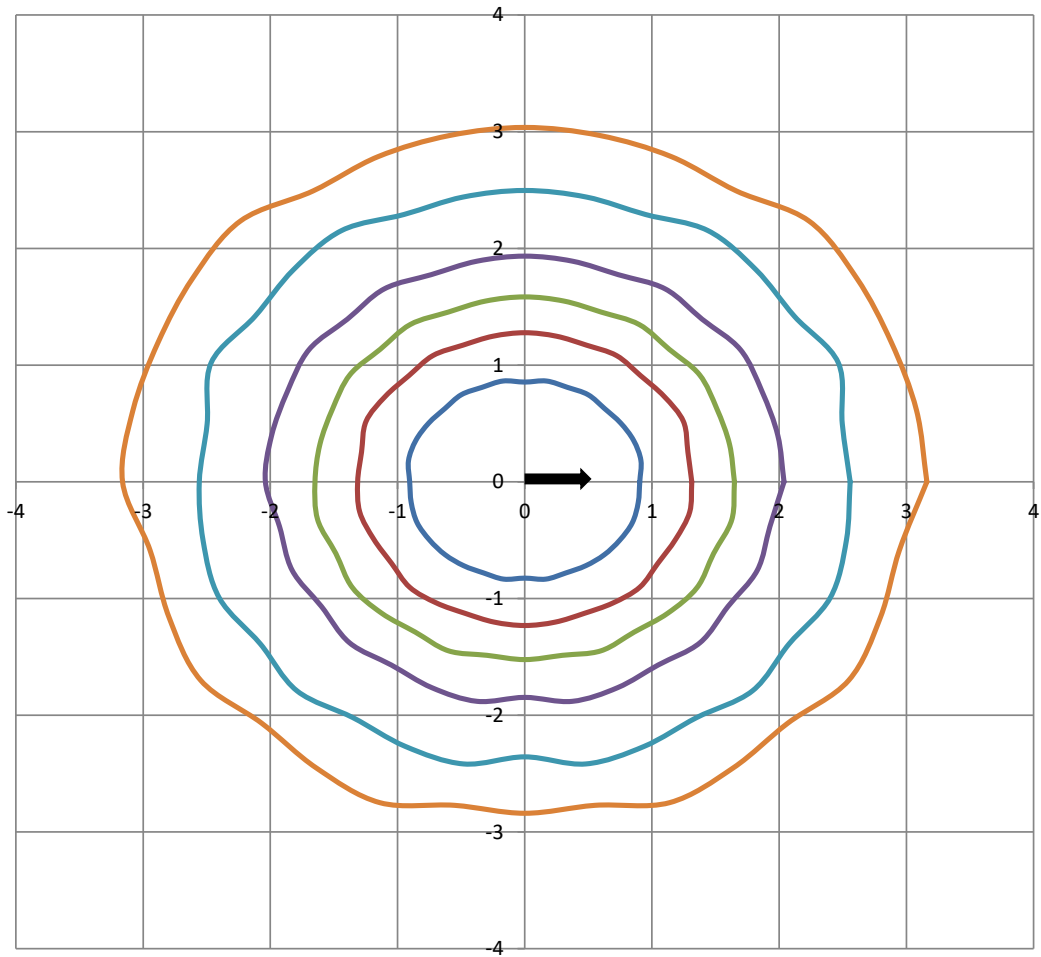
Beam and Field Information	
CIE Type:	Direct/Indirect
Center Beam Intensity:	1363 Candela
Central Cone Intensity:	1360 Candela
Beam Flux:	3721.9 Lumens
Beam Angle (0-180):	95.7 Degrees
Beam Angle (90-270):	85.4 Degrees
Field Angle (0-180):	154.7 Degrees
Field Angle (90-270):	152.5 Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		85.2	4.49
6.00		37.9	6.73
8.00		21.3	8.97
10.0		13.6	11.2
12.0		9.47	13.5
14.0		6.95	15.7
16.0		5.32	17.9



## ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

5 fc    2 fc    1 fc    0.5 fc    0.2 fc    0.1 fc