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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/R**  
Order Number  
13052732  
Test Number  
13052732.18A

Revision of Test Number 13052732.18 on:  
2019-10-30  
Test Date

2019-10-04 - 2019-10-08

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 enclosure  
**Lamp:** 288 White LEDs  
**Mounting:** Pendant  
**Ballast/Driver:** Two Philips XI040C110V054BST1 Drivers

**Luminaire**



**Luminaire Characteristics**

Luminous Length: 48.00 in.  
Luminous Width: 2.000 in.  
Luminous Height: 5.00 in.

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 5955 Lumens  
Efficacy: 117.24 lm/w  
CCT: 3460 K  
CRI (Ra): 82.8

**Distribution**

Total Luminaire Output: 5725 Lumens  
Luminaire Efficacy: 112.4 lm/w  
Maximum Candela: 1446 Candela

**Electrical Data at 120 VAC**

Test Temperature: 26.0 °C  
Voltage: 120.0 VAC  
Current: 0.4263 A  
Power: 50.79 W  
Power Factor: 0.993  
Frequency: 60 Hz  
Current THD: 9.92 %



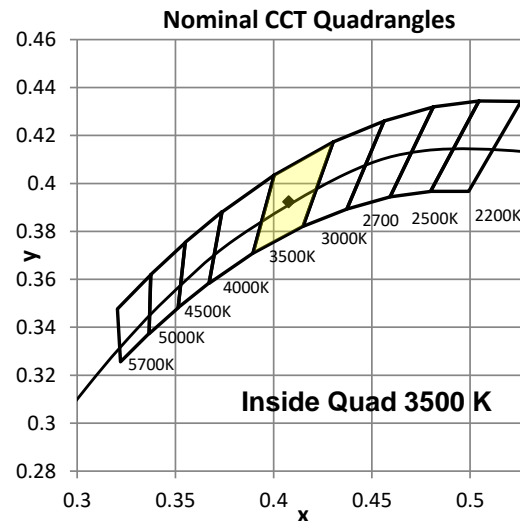
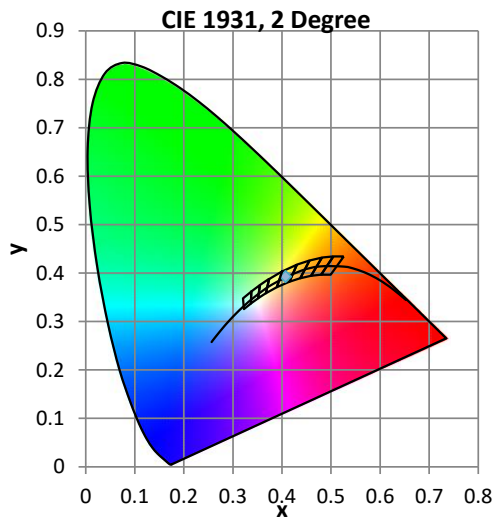
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
26.0 °C	120.0 VAC	0.4263 A	50.79 W	0.993	60 Hz	9.92 %

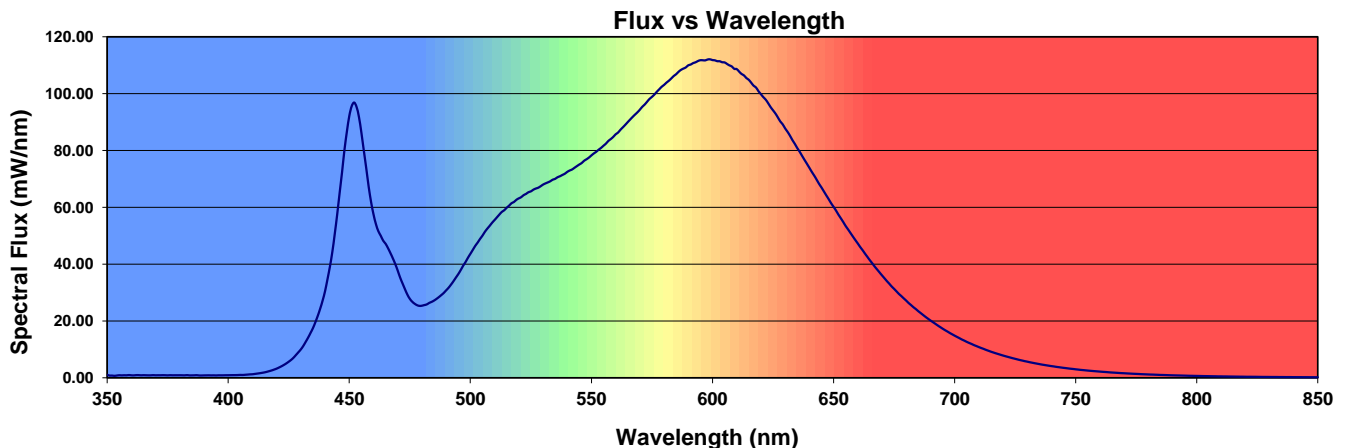
### Summary of Results

<b>Total Output:</b>	5955 Lumens	<b>Chromaticity (x):</b>	0.4077
<b>Efficacy:</b>	117.2 lm/w	<b>Chromaticity (y):</b>	0.3924
<b>CCT:</b>	3460 K	<b>Chromaticity (u'):</b>	0.2366
<b>CRI (Ra):</b>	82.8	<b>Chromaticity (v'):</b>	0.5123
<b>CRI (R9):</b>	6.5	<b>TM-30 Rf:</b>	84.3
<b>Peak Wavelength:</b>	599 nm	<b>TM-30 Rg:</b>	95.2
<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	81.1	81.2	87.1	84.2	61.2	6.5	77.3	80.4	65.0	83.4	98.4	74.0





## Distribution - Goniophotometer

### Distribution Test Conditions

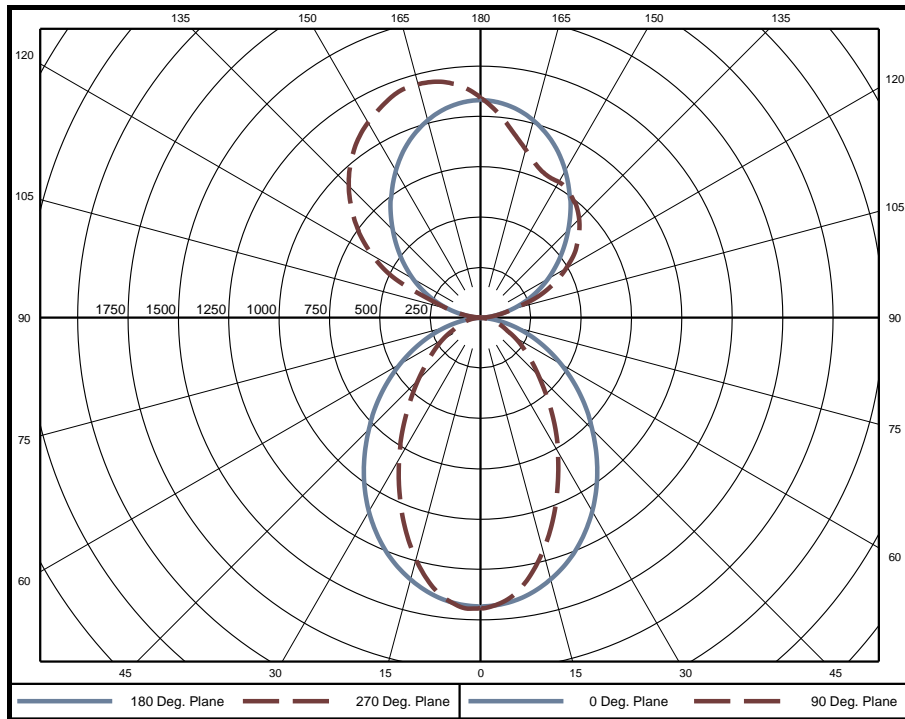
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.8 °C	120.0 VAC	0.4274 A	50.94 W	0.993	60 Hz	9.91 %

### Summary of Results

Spacing Criteria  
0-180: 1.16  
90-270: 0.88

Total Lumen Output: 5725 Lumens  
Luminaire Efficacy: 112.4 lm/w  
Maximum Candela: 1446 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	34.3	0.6%	60-65	125.6	2.2%	120-125	252.1	4.4%
5-10	99.9	1.7%	65-70	95.6	1.7%	125-130	274.1	4.8%
10-15	157.4	2.7%	70-75	68.6	1.2%	130-135	285.7	5.0%
15-20	202.9	3.5%	75-80	44.4	0.8%	135-140	287.2	5.0%
20-25	234.4	4.1%	80-85	23.5	0.4%	140-145	278.4	4.9%
25-30	252.0	4.4%	85-90	6.6	0.1%	145-150	260.0	4.5%
30-35	256.4	4.5%	90-95	6.0	0.1%	150-155	233.9	4.1%
35-40	249.1	4.4%	95-100	30.8	0.5%	155-160	202.6	3.5%
40-45	232.5	4.1%	100-105	71.3	1.2%	160-165	166.0	2.9%
45-50	210.3	3.7%	105-110	122.2	2.1%	165-170	123.8	2.2%
50-55	184.3	3.2%	110-115	175.7	3.1%	170-175	76.6	1.3%
55-60	155.8	2.7%	115-120	219.4	3.8%	175-180	26.0	0.5%

Zone	Lumens	% of Luminaire
0-40	1486	26.0%
0-60	2269	39.6%
0-90	2634	46.0%
90-180	3092	54.0%



### 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	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441
	5	1423	1427	1410	1410	1411	1410	1410	1427	1423	1439	1430	1430	1429	1430	1439
	10	1394	1385	1353	1333	1325	1333	1353	1385	1394	1406	1380	1366	1359	1366	1406
	15	1345	1325	1263	1220	1199	1220	1263	1325	1345	1347	1298	1260	1240	1260	1347
	20	1281	1243	1151	1085	1057	1085	1151	1243	1281	1272	1189	1127	1101	1127	1272
	25	1202	1147	1027	942	908	942	1027	1147	1202	1175	1065	987	952	987	1175
	30	1110	1037	898	804	768	804	898	1037	1110	1065	934	842	807	842	1065
	35	1006	920	769	674	639	674	769	920	1006	944	800	706	672	706	944
	40	897	796	647	546	514	546	647	796	897	821	676	578	545	578	821
	45	785	680	529	437	409	437	529	680	785	708	557	466	437	466	708
	50	678	566	426	348	327	348	426	566	678	592	450	371	348	371	592
	55	569	459	334	274	259	274	334	459	569	482	355	293	278	293	482
	60	464	360	253	210	199	210	253	360	464	379	273	228	217	228	379
	65	364	268	185	150	143	150	185	268	364	286	202	169	157	169	286
	70	270	186	123	111	109	111	123	186	270	202	140	122	120	122	202
	75	181	115	84	78	76	78	84	115	181	129	93	88	86	88	129
	80	103	58	50	47	46	47	50	58	103	67	59	56	55	56	67
	85	41	23	21	19	19	21	23	41	30	27	26	26	26	27	30
	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	28	33	33	28	24	28	33	33	28	26	21	17	17	17	26
	100	86	102	93	91	91	91	93	102	86	96	85	86	84	86	96
	105	157	184	198	176	168	176	198	184	157	185	211	168	165	168	185
	110	234	267	293	300	296	300	293	267	234	284	340	316	277	316	284
	115	311	348	383	398	400	398	383	348	311	387	462	487	482	487	387
	120	387	422	463	485	491	485	463	422	387	491	581	614	619	614	491
	125	462	490	536	562	574	562	536	490	462	595	693	730	736	730	595
	130	538	549	599	627	637	627	599	549	538	695	793	828	834	828	695
	135	616	600	651	681	693	681	651	600	616	783	884	921	924	921	783
	140	695	651	693	725	736	725	693	651	695	866	962	998	1002	998	866
	145	768	705	721	754	764	754	721	705	768	935	1023	1061	1068	1061	935
	150	842	758	744	768	779	768	744	758	842	993	1072	1111	1118	1111	993
	155	911	820	779	777	781	777	779	820	911	1041	1114	1152	1159	1152	1041
	160	968	882	831	814	809	814	831	882	968	1080	1143	1185	1193	1185	1080
	165	1015	946	893	872	866	872	893	946	1015	1107	1159	1194	1200	1194	1107
	170	1051	1006	961	942	935	942	961	1006	1051	1118	1155	1183	1190	1183	1118
	175	1073	1055	1030	1022	1020	1022	1030	1055	1073	1113	1130	1149	1156	1149	1113
	180	1090	1090	1090	1090	1090	1090	1090	1090	1090	1090	1090	1090	1090	1090	1090

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

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
	0	23260	23260
	45	16220	2670
	55	13950	1593
	65	11350	856
	75	8146	459
	85	3472	118



### 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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40
2	89	82	76	72	82	76	71	67	64	60	57	53	50	48	42	41	39	34
3	82	73	66	60	75	67	61	56	57	52	49	47	44	41	38	36	34	30
4	75	65	57	52	69	60	53	48	51	46	42	42	39	36	34	32	30	26
5	69	58	50	45	63	54	47	42	46	41	37	38	34	31	31	29	26	23
6	64	52	45	39	59	49	42	37	41	36	32	35	31	28	29	26	24	21
7	59	47	40	34	54	44	37	33	38	33	29	32	28	25	26	23	21	19
8	55	43	36	31	51	40	34	29	35	29	26	29	25	22	24	21	19	17
9	51	40	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18	15
10	48	36	29	25	44	34	28	24	29	24	21	25	21	19	21	18	16	14

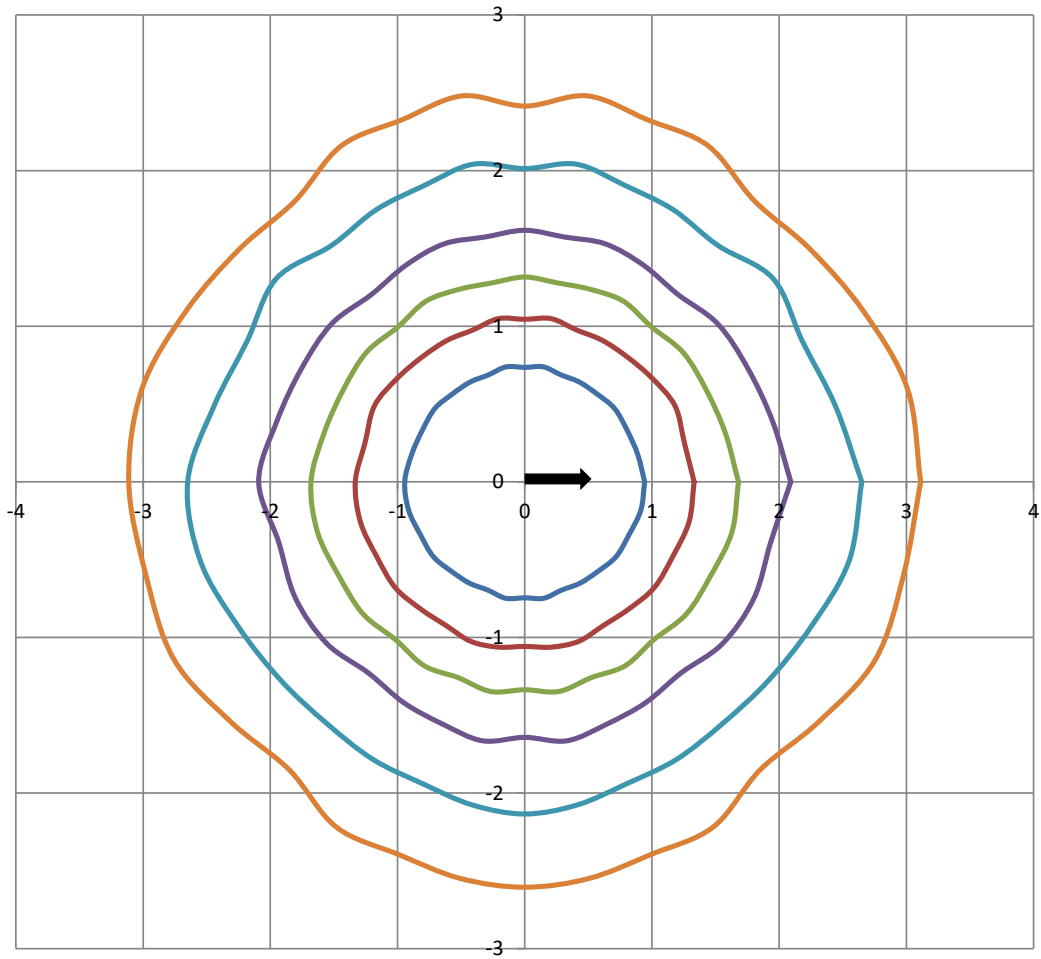
Beam and Field Information	
CIE Type:	Direct/Indirect
Center Beam Intensity:	1441 Candela
Central Cone Intensity:	1435 Candela
Beam Flux:	3161.8 Lumens
Beam Angle (0-180):	96.1 Degrees
Beam Angle (90-270):	65.1 Degrees
Field Angle (0-180):	154.6 Degrees
Field Angle (90-270):	131.2 Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		90.0	4.05
6.00		40.0	6.07
8.00		22.5	8.10
10.0		14.4	10.1
12.0		10.0	12.1
14.0		7.35	14.2
16.0		5.63	16.2



## ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

