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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/D

Order Number

13052732

Test Number

13052732.05A

Revision of Test Number 13052732.05 on:

2019-10-30

Test Date

2019-10-11 - 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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Table of Contents

Summary of Results	Page 3
Integrating Sphere Results	Page 4
Distribution Results	
Conditions / Summary of Results / Polar Plot / Zonal Lumens	Page 5
Candela Tabulation / Average Luminance	Page 6
Coefficients of Utilization / Cone of Light	Page 7
ISOFootcandle Plot	Page 8

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 4π 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: 6150 Lumens
Efficacy: 121.37 lm/w
CCT: 3453 K
CRI (Ra): 82.8

Distribution

Total Luminaire Output: 5884 Lumens
Luminaire Efficacy: 116 lm/w
Maximum Candela: 1206 Candela

Electrical Data at 120 VAC

Test Temperature: 25.9 °C
Voltage: 120.1 VAC
Current: 0.4249 A
Power: 50.67 W
Power Factor: 0.993
Frequency: 60 Hz
Current THD: 10.0 %



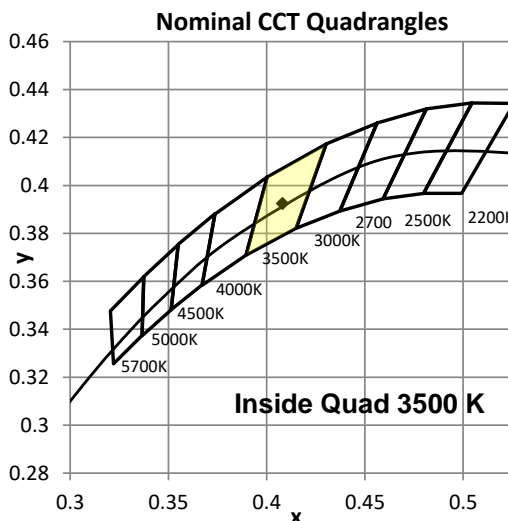
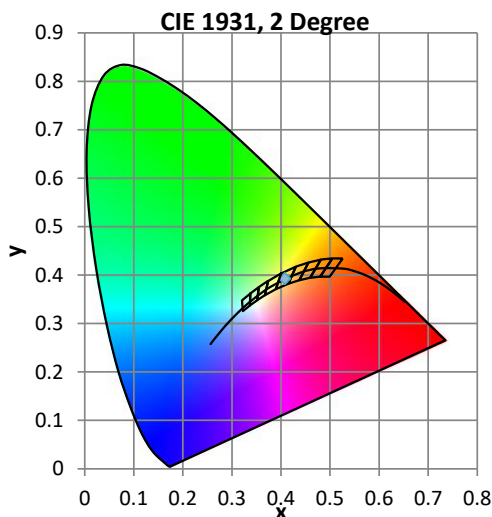
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.9 °C	120.1 VAC	0.4249 A	50.67 W	0.993	60 Hz	10.0 %

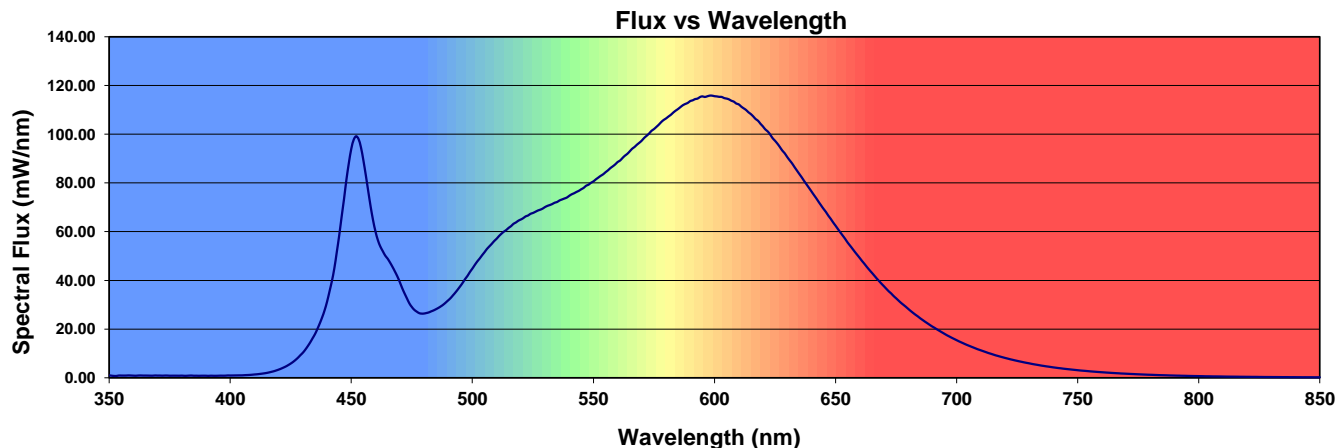
Summary of Results

Total Output:	6150 Lumens	Chromaticity (x):	0.4080
Efficacy:	121.4 lm/w	Chromaticity (y):	0.3925
CCT:	3453 K	Chromaticity (u'):	0.2367
CRI (Ra):	82.8	Chromaticity (v'):	0.5124
CRI (R9):	6.6	TM-30 Rf:	84.3
Peak Wavelength:	599 nm	TM-30 Rg:	95.1
Dominant Wavelength:	581 nm	Duv:	0.0001
S/P Ratio:	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	84.2	61.1	6.6	77.4	80.3	65.0	83.5	98.4	74.2





Distribution - Goniophotometer

Distribution Test Conditions

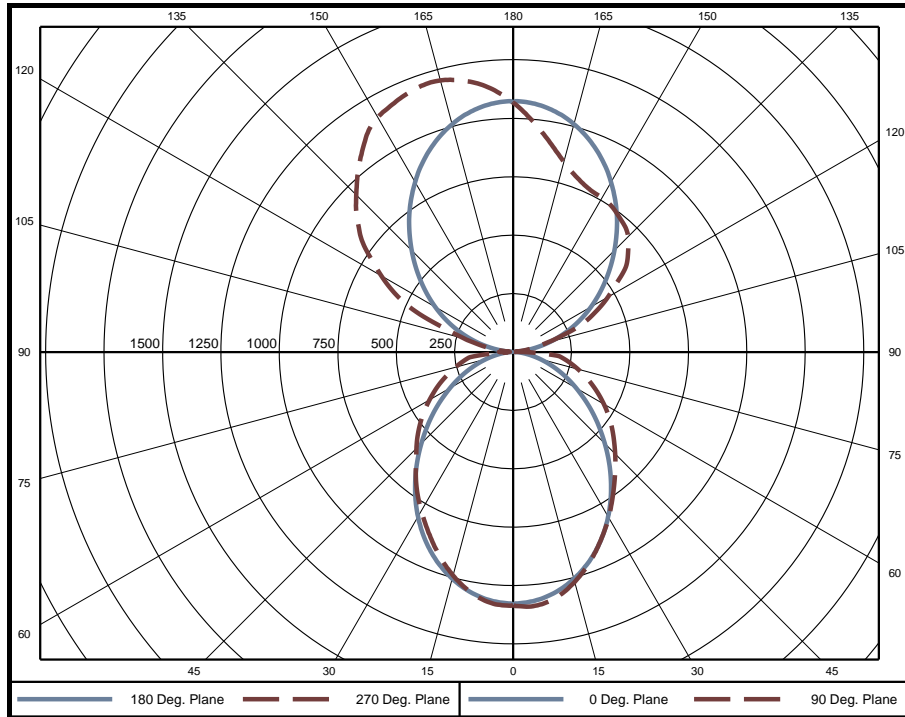
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.1 °C	120.0 VAC	0.4255 A	50.71 W	0.993	60 Hz	10.0 %

Summary of Results

Spacing Criteria
 0-180: 1.13
 90-270: 1.14

Total Lumen Output: 5884 Lumens
Luminaire Efficacy: 116.0 lm/w
Maximum Candela: 1206 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	25.9	0.4%	60-65	172.4	2.9%	120-125	254.3	4.3%
5-10	76.3	1.3%	65-70	149.7	2.5%	125-130	277.4	4.7%
10-15	122.4	2.1%	70-75	125.2	2.1%	130-135	287.3	4.9%
15-20	161.8	2.7%	75-80	100.7	1.7%	135-140	287.6	4.9%
20-25	192.9	3.3%	80-85	76.8	1.3%	140-145	278.6	4.7%
25-30	215.2	3.7%	85-90	32.6	0.6%	145-150	260.5	4.4%
30-35	228.3	3.9%	90-95	9.8	0.2%	150-155	233.7	4.0%
35-40	232.8	4.0%	95-100	35.0	0.6%	155-160	201.4	3.4%
40-45	230.0	3.9%	100-105	75.9	1.3%	160-165	164.2	2.8%
45-50	222.0	3.8%	105-110	127.6	2.2%	165-170	121.8	2.1%
50-55	209.6	3.6%	110-115	179.5	3.1%	170-175	75.1	1.3%
55-60	192.8	3.3%	115-120	221.5	3.8%	175-180	25.4	0.4%

Zone	Lumens	% of Luminaire
0-40	1256	21.3%
0-60	2110	35.9%
0-90	2767	47.0%
90-180	3117	53.0%



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	1083	1083	1083	1083	1083	1083	1083	1083	1083	1083	1083	1083	1083	1083	1083
	5	1068	1082	1080	1087	1090	1087	1080	1082	1068	1076	1070	1075	1078	1075	1070
	10	1044	1062	1061	1066	1067	1066	1061	1062	1044	1050	1041	1043	1045	1043	1041
	15	1005	1028	1021	1023	1019	1023	1021	1028	1005	1010	998	995	991	995	998
	20	953	977	967	963	958	963	967	977	953	957	940	931	926	931	940
	25	889	913	901	895	888	895	901	913	889	892	872	862	855	862	872
	30	813	839	828	823	818	823	828	839	813	819	800	791	785	791	800
	35	731	758	750	748	745	748	750	758	731	738	724	719	718	719	724
	40	644	673	673	678	679	678	673	673	644	653	647	646	647	646	647
	45	555	591	599	612	618	612	599	591	555	569	572	580	584	580	572
	50	471	511	531	551	560	551	531	511	471	490	505	522	528	522	505
	55	390	435	467	495	505	495	467	435	390	416	442	464	471	464	442
	60	314	363	406	438	449	438	406	363	314	345	380	407	413	407	380
	65	245	297	347	382	393	382	347	297	245	280	321	351	359	351	321
	70	180	236	291	327	339	327	291	236	180	219	266	297	305	297	266
	75	122	178	237	275	288	275	237	178	122	162	213	246	256	246	213
	80	70	127	188	226	240	226	188	127	70	112	166	201	212	201	166
	85	32	83	142	181	190	181	142	83	32	70	117	119	116	119	117
	90	7	17	21	22	22	22	21	17	7	27	42	54	60	54	42
	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/m²)

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
	0	17490	17490
	45	11700	5530
	55	9815	4234
	65	7928	3191
	75	5788	2276
	85	2990	1474



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	98	98	98	98	82	82	82	67	67	67	53	53	53	47
1	97	92	88	84	89	85	81	78	71	68	66	58	56	55	46	45	44	39
2	88	80	74	69	80	74	68	64	62	58	54	51	48	45	41	39	37	32
3	80	70	63	57	73	65	58	53	54	50	46	45	41	38	36	33	31	27
4	73	62	54	48	67	57	50	45	48	43	39	40	36	33	32	29	27	23
5	67	55	47	41	61	51	44	39	43	38	33	36	32	28	29	26	23	20
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	21	18
7	57	45	37	31	52	42	34	29	35	30	26	30	25	22	24	21	18	16
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14
9	49	37	30	25	45	35	28	23	30	24	20	25	21	18	20	17	15	13
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	14	12

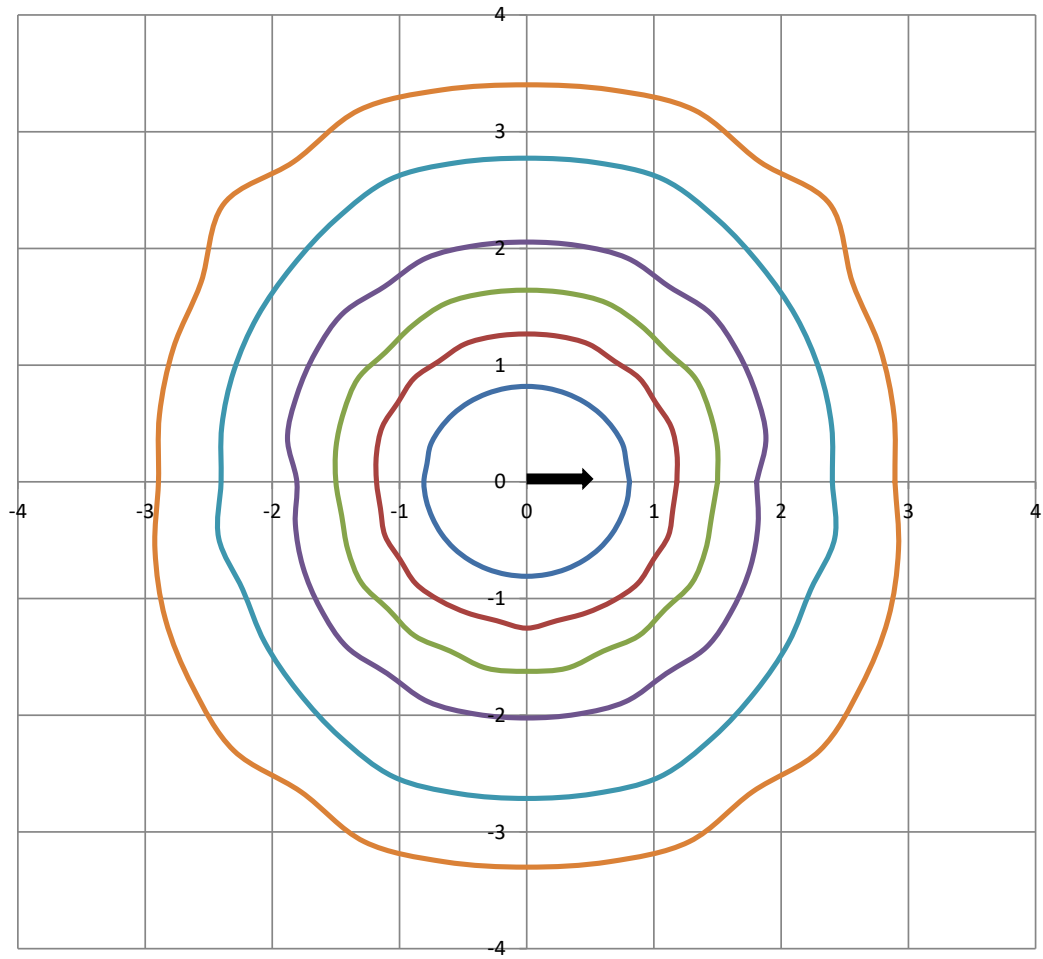
Beam and Field Information	
CIE Type:	Direct/Indirect
Center Beam Intensity:	1083 Candela
Central Cone Intensity:	1082 Candela
Beam Flux:	3985.4 Lumens
Beam Angle (0-180):	91.6 Degrees
Beam Angle (90-270):	100.5 Degrees
Field Angle (0-180):	152.4 Degrees
Field Angle (90-270):	172.4 Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		67.7	4.53
6.00		30.1	6.79
8.00		16.9	9.06
10.0		10.8	11.3
12.0		7.52	13.6
14.0		5.53	15.8
16.0		4.23	18.1



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