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Photometric Test Report

Relevant Standards
IES LM-79-2008, ANSI C82.77-10-2014, UL 1598-2008

Prepared For
H E Williams Inc
831 W Fairview Ave
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Carthage, MO 64836-0837
United States

Catalog Number
MX2DU-4'00-L8/830U/L8/830D-F/F-AC/Dxx-XX-DIM-UNV
Order Number
13012869
Test Number
13012869.08

Test Date

2019-09-05 - 2019-09-13

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



Luminaire Description: Formed White aluminum housing, lens enclosures
Lamp: 144 White Downlight LEDs/144 White Uplight LEDs
Mounting: Pendant
Ballast/Driver: Two Philips Advance XI040C110V054BST1 Driver

Luminaire



Luminaire Characteristics

Luminous Length: 47.50 in.
Luminous Width: 2.000 in.
Luminous Height: 4.00 in.

Summary of Results

Distribution

Total Luminaire Output: 6262 Lumens
Luminaire Efficacy: 123.4 lm/w
Maximum Candela: 1353 Candela

Electrical Data at 277 VAC

Test Temperature: 24.2 °C
Voltage: 277.0 VAC
Current: 0.1970 A
Power: 52.17 W
Power Factor: 0.956
Frequency: 60 Hz
Current THD: 10.3 %

In-Situ

LED Temperature: 45.9 °C
Driver Temperature: 42.0 °C
Measured LED Current: 0.05600 A

Temperature is offset to an ambient temperature of 25°C as described in UL1598-2008.



Distribution - Goniophotometer

Distribution Test Conditions

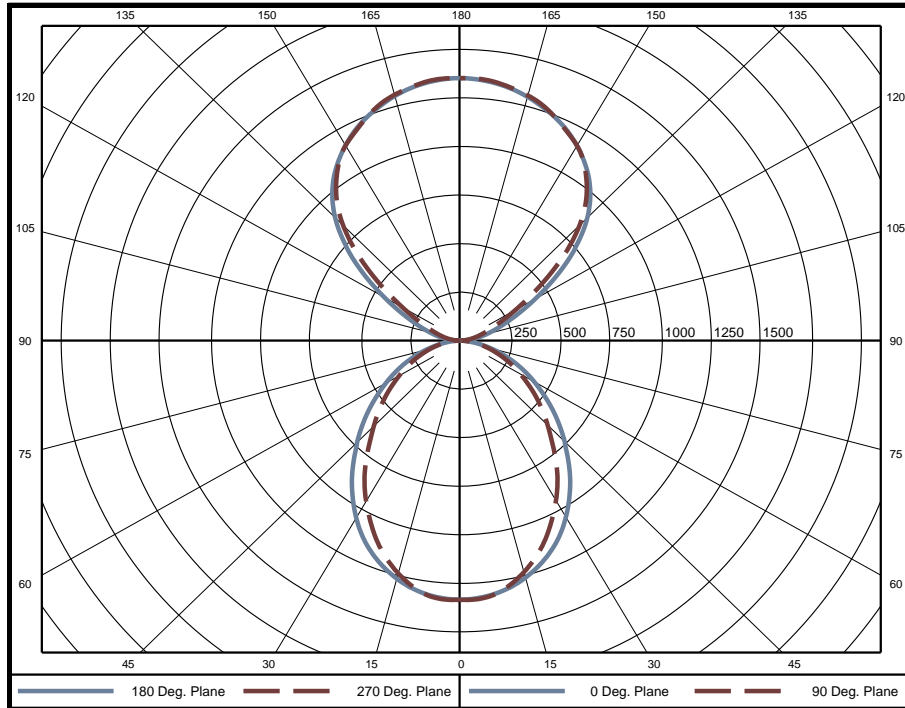
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.1 °C	120.0 VAC	0.4260 A	50.77 W	0.993	60 Hz	10.1 %

Summary of Results

Spacing Criteria
 0-180: 1.17
 90-270: 1.08

Total Lumen Output: 6262 Lumens
Luminaire Efficacy: 123.4 lm/w
Maximum Candela: 1353 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	31.9	0.5%	60-65	166.0	2.7%	120-125	205.8	3.3%
5-10	94.3	1.5%	65-70	132.9	2.1%	125-130	265.1	4.2%
10-15	151.6	2.4%	70-75	98.4	1.6%	130-135	313.2	5.0%
15-20	200.8	3.2%	75-80	65.4	1.0%	135-140	340.0	5.4%
20-25	239.2	3.8%	80-85	36.3	0.6%	140-145	343.9	5.5%
25-30	265.4	4.2%	85-90	12.4	0.2%	145-150	329.0	5.3%
30-35	278.4	4.4%	90-95	8.9	0.1%	150-155	299.6	4.8%
35-40	277.6	4.4%	95-100	28.0	0.4%	155-160	260.1	4.2%
40-45	266.4	4.3%	100-105	50.2	0.8%	160-165	211.7	3.4%
45-50	249.3	4.0%	105-110	75.3	1.2%	165-170	156.2	2.5%
50-55	225.7	3.6%	110-115	107.5	1.7%	170-175	95.7	1.5%
55-60	197.2	3.1%	115-120	150.9	2.4%	175-180	32.2	0.5%

Zone	Lumens	% of Luminaire
0-40	1539	24.6%
0-60	2478	39.6%
0-90	2989	47.7%
90-180	3273	52.3%



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	1337	1337	1337	1337	1337	1337	1337	1337	1337	1337	1337	1337	1337	1337	1337
	5	1326	1337	1327	1332	1331	1332	1327	1337	1326	1337	1327	1332	1331	1332	1327
	10	1301	1314	1302	1298	1295	1298	1302	1314	1301	1314	1302	1298	1295	1298	1302
	15	1261	1273	1252	1240	1230	1240	1252	1273	1261	1273	1252	1240	1230	1240	1252
	20	1204	1213	1181	1163	1150	1163	1181	1213	1204	1213	1181	1163	1150	1163	1181
	25	1133	1138	1096	1065	1050	1065	1096	1138	1133	1138	1096	1065	1050	1065	1096
	30	1043	1047	998	962	945	962	998	1047	1043	1047	998	962	945	962	998
	35	942	939	888	849	834	849	888	939	942	939	888	849	834	849	888
	40	832	826	771	731	713	731	771	826	832	826	771	731	713	731	771
	45	725	717	664	623	608	623	664	717	725	717	664	623	608	623	664
	50	619	611	565	529	514	529	565	611	619	611	565	529	514	529	565
	55	516	509	470	439	426	439	470	509	516	509	470	439	426	439	470
	60	421	414	381	355	344	355	381	414	421	414	381	355	344	355	381
	65	332	326	299	279	271	279	299	326	332	326	299	279	271	279	299
	70	246	242	223	208	202	208	223	242	246	242	223	208	202	208	223
	75	166	164	153	145	142	145	153	164	166	164	153	145	142	145	153
	80	95	96	93	90	89	90	93	96	95	96	93	90	89	90	93
	85	39	42	44	44	44	44	44	42	39	42	44	44	44	44	42
	90	2	4	5	5	4	5	5	4	2	4	5	5	4	5	4
	95	43	36	30	26	25	26	30	36	43	36	30	26	25	26	30
	100	92	84	67	62	59	62	67	84	92	84	67	62	59	62	67
	105	145	137	111	99	97	99	111	137	145	137	111	99	97	99	111
	110	211	202	170	148	144	148	170	202	211	202	170	148	144	148	170
	115	302	291	255	220	211	220	255	291	302	291	255	220	211	220	255
	120	425	412	376	331	316	331	376	412	425	412	376	331	316	331	376
	125	577	564	531	484	464	484	531	564	577	564	531	484	464	484	531
	130	737	728	700	666	647	666	700	728	737	728	700	666	647	666	700
	135	881	874	850	832	825	832	850	874	881	874	850	832	825	832	850
	140	995	994	978	968	967	968	978	994	995	994	978	968	967	968	978
	145	1083	1087	1076	1072	1073	1072	1076	1083	1087	1087	1076	1072	1073	1072	1076
	150	1154	1159	1151	1150	1155	1150	1151	1159	1154	1159	1151	1150	1155	1150	1151
	155	1213	1219	1215	1211	1209	1211	1215	1219	1213	1219	1215	1211	1209	1211	1215
	160	1259	1266	1266	1268	1265	1268	1266	1266	1259	1266	1266	1268	1265	1268	1266
	165	1298	1304	1303	1305	1305	1305	1303	1304	1298	1304	1303	1305	1305	1305	1303
	170	1327	1332	1326	1330	1332	1330	1326	1332	1327	1332	1326	1330	1332	1330	1326
	175	1345	1347	1341	1346	1350	1346	1341	1347	1345	1347	1341	1346	1350	1346	1341
	180	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350

Average Luminance (cd/m²)
Horizontal Angle (Degrees)

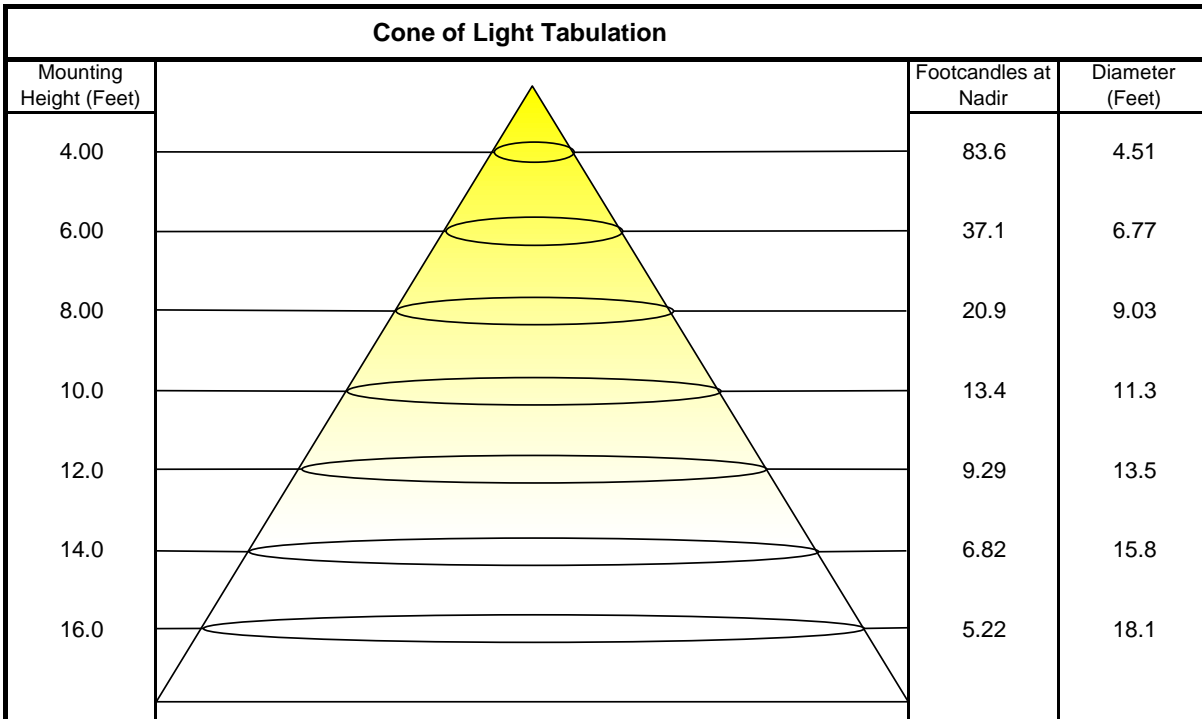
Vertical Angle (Degrees)	0	45	90
	0	21820	21820
	45	15420	4674
	55	13110	3140
	65	10850	1975
	75	7941	1055
	85	3742	347



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	98	98	98	98	82	82	82	67	67	67	54	54	54	48
1	98	93	90	86	90	86	83	80	72	70	68	60	58	57	48	47	46	41
2	89	82	76	71	82	76	70	66	64	60	57	53	50	48	43	41	39	35
3	81	72	65	59	75	67	60	55	56	52	48	47	44	41	38	36	34	30
4	75	64	56	50	68	59	53	47	50	45	41	42	38	35	34	32	29	26
5	69	57	49	43	63	53	46	41	45	40	36	38	34	31	31	28	26	23
6	63	51	43	38	58	48	41	36	41	35	31	34	30	27	28	25	23	20
7	59	47	39	33	54	43	36	31	37	32	28	31	27	24	26	23	20	18
8	54	42	35	29	50	39	33	28	34	29	25	29	25	22	24	21	18	16
9	51	39	31	26	47	36	29	25	31	26	22	26	22	19	22	19	17	15
10	47	36	28	24	44	33	27	22	29	24	20	25	20	18	21	17	15	13

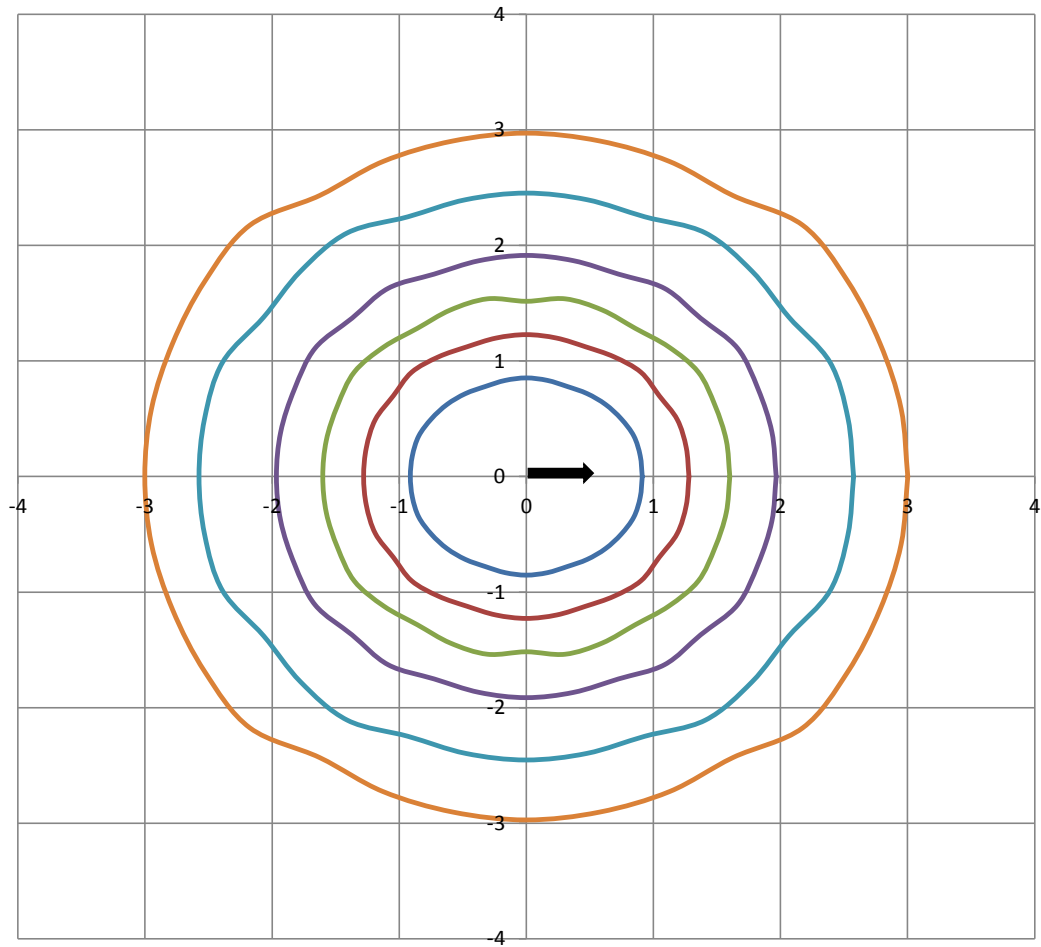
Beam and Field Information	
CIE Type:	Direct/Indirect
Center Beam Intensity:	1337 Candela
Central Cone Intensity:	1335 Candela
Beam Flux:	4239.6 Lumens
Beam Angle (0-180):	95.3 Degrees
Beam Angle (90-270):	83.9 Degrees
Field Angle (0-180):	154.3 Degrees
Field Angle (90-270):	151.4 Degrees





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



In-Situ Test

In-Situ Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
21.8 °C	120.7 VAC	N/A	N/A	N/A	60 Hz	N/A

Summary of Results

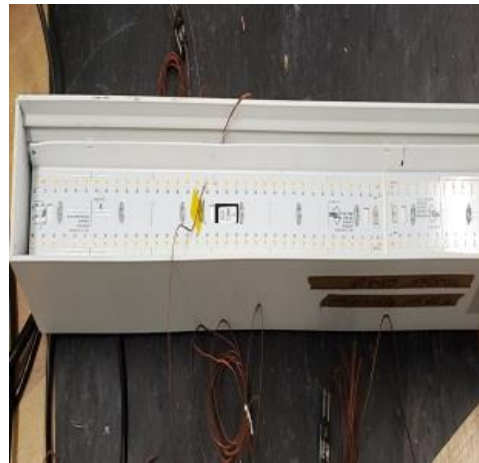
LED Temperature: 45.9 °C
Driver Temperature: 42.0 °C
Measured LED Current: 0.05600 A

Temperatures are offset to an ambient temperature of 25°C as described in UL1598-2008

LED Temperature Location



Thermocouple Reference



Driver Temperature Location

