



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4D-4-00-P7-8TW-F-A-POE 4000K\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN FROM BALLABS TEST NO. 29653.0

[TESTLABV] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC

[ISSUEDATE] 13-MAR-2020

[MANUFAC] WILLIAMS INDOOR

[OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO

[LUMINAIRE] 2-72 LED 23.75" ARRAYS 2' DOWNLIGHT LUMINAIRE

[MORE] WHITE ALUM BODY w/WHITE REFL & FLAT FROST LENS

[LUMCAT] MX4D-4-00-P7-8TW-F-A-PoE 4000k

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2812
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	141
Total Luminaire Watts	20
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.22
Spacing Criterion (90-270)	1.16
Spacing Criterion (Diagonal)	1.28
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	4.00 ft
Luminous Width (90-270)	0.32 ft
Luminous Height	0.00 ft

### LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	8074	7829	7707
55	7415	7113	6912
65	6311	6209	6004
75	4790	5013	4735
85	2316	2977	2812

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CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
<b>0</b>	1144.240	1144.240	1144.240	1144.240	1144.240
<b>5</b>	1149.356	1137.419	1132.303	1128.893	1128.893
<b>10</b>	1128.893	1116.956	1111.840	1108.429	1105.019
<b>15</b>	1089.671	1081.145	1072.619	1069.208	1064.092
<b>20</b>	1043.629	1031.692	1024.871	1014.639	1011.229
<b>25</b>	983.944	970.302	963.481	951.544	949.839
<b>30</b>	924.260	908.912	895.270	891.859	883.333
<b>35</b>	840.701	830.469	818.532	806.596	806.596
<b>40</b>	762.258	752.027	736.679	733.269	721.332
<b>45</b>	675.289	665.058	654.826	644.594	644.594
<b>50</b>	593.436	579.794	571.267	564.446	555.920
<b>55</b>	503.056	491.119	482.593	474.067	468.951
<b>60</b>	409.266	402.445	397.329	390.508	385.392
<b>65</b>	315.476	313.771	310.360	301.834	300.129
<b>70</b>	233.623	231.918	226.802	223.391	219.981
<b>75</b>	146.654	151.770	153.475	148.359	144.948
<b>80</b>	75.032	78.443	78.443	80.148	81.853
<b>85</b>	23.874	25.579	30.695	27.284	28.990
<b>90</b>	0.000	0.000	0.000	0.000	0.000

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	410.52	N.A.	14.60
0-30	854.76	N.A.	30.40
0-40	1368.41	N.A.	48.70
0-60	2308.45	N.A.	82.10
0-80	2775.31	N.A.	98.70
0-90	2811.74	N.A.	100.00
10-90	2704.09	N.A.	96.20
20-40	957.89	N.A.	34.10
20-50	1464.83	N.A.	52.10
40-70	1247.15	N.A.	44.40
60-80	466.87	N.A.	16.60
70-80	159.76	N.A.	5.70
80-90	36.43	N.A.	1.30
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	2811.74	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	107.66
10-20	302.86
20-30	444.24
30-40	513.65
40-50	506.94
50-60	433.10
60-70	307.11
70-80	159.76
80-90	36.43
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	163	163	163	163	160	160	160	160	153	153	153	146	146	146	140	140	140	137
1	150	144	138	133	146	141	136	131	135	131	127	130	126	123	125	122	120	117
2	137	126	117	110	134	124	116	109	119	112	106	114	109	104	110	106	101	98
3	125	112	101	92	122	109	99	91	105	97	90	102	94	88	98	92	87	84
4	115	99	88	79	112	97	87	78	94	85	77	91	83	76	88	81	75	72
5	106	89	77	68	103	87	76	68	85	75	67	82	73	66	79	72	66	63
6	98	80	68	60	96	79	68	60	77	67	59	74	65	59	72	64	58	55
7	91	73	61	53	89	72	61	53	70	60	53	68	59	52	66	58	52	49
8	85	67	55	48	83	66	55	47	64	54	47	62	53	47	61	53	47	44
9	80	61	50	43	78	61	50	43	59	49	43	58	49	42	56	48	42	40
10	75	57	46	39	73	56	46	39	55	45	39	53	45	39	52	44	38	36

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## UGR TABLE - CORRECTED

### Reflectances

Ceiling Cavity	70	70	50	50	30	70	70	50	50	30
Walls	50	30	50	30	30	50	30	50	30	30
Floor Cavity	20	20	20	20	20	20	20	20	20	20

### Room Size UGR Viewed Crosswise

X=2H	Y=2H	17.8	19.4	18.2	19.7	20.0	17.5	19.1	17.9	19.4	19.8
	3H	19.4	20.8	19.8	21.1	21.5	19.1	20.5	19.5	20.8	21.2
	4H	19.9	21.2	20.3	21.6	22.0	19.6	21.0	20.0	21.3	21.7
	6H	20.2	21.5	20.6	21.8	22.2	20.0	21.2	20.4	21.6	22.0
	8H	20.3	21.5	20.7	21.9	22.3	20.1	21.3	20.5	21.7	22.1
	12H	20.3	21.4	20.7	21.8	22.3	20.1	21.3	20.6	21.7	22.1

### UGR Viewed Endwise

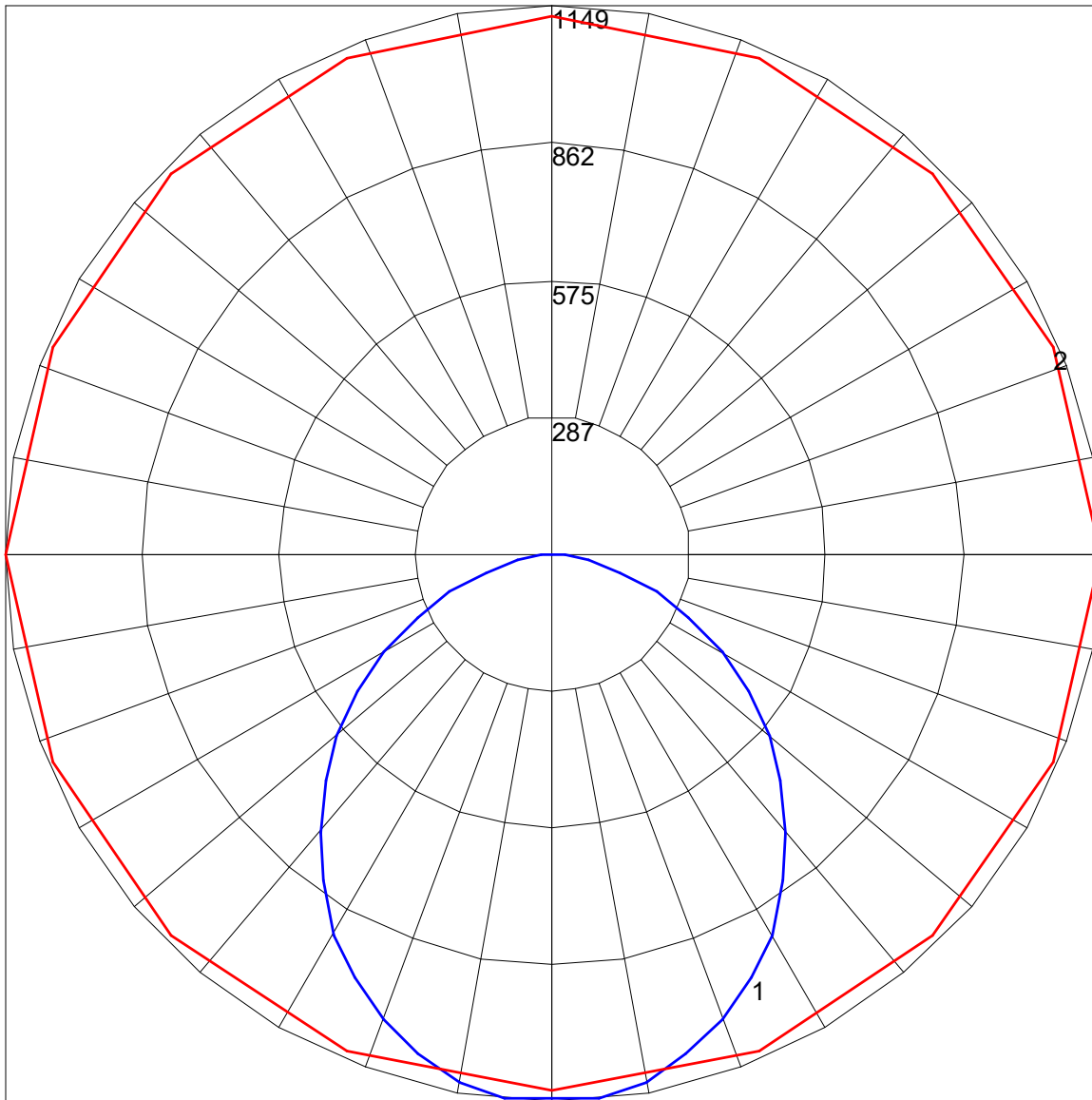
4H	2H	18.3	19.7	18.7	20.0	20.4	18.1	19.5	18.5	19.8	20.2
	3H	20.1	21.3	20.5	21.7	22.1	19.9	21.0	20.3	21.4	21.8
	4H	20.8	21.8	21.2	22.2	22.6	20.5	21.6	21.0	22.0	22.4
	6H	21.2	22.1	21.6	22.5	23.0	21.0	21.9	21.5	22.3	22.8
	8H	21.3	22.1	21.7	22.5	23.0	21.1	22.0	21.6	22.4	22.9
	12H	21.3	22.1	21.8	22.5	23.0	21.2	22.0	21.7	22.4	22.9

8H	4H	21.0	21.8	21.5	22.3	22.7	20.8	21.6	21.3	22.1	22.5
	6H	21.5	22.2	22.0	22.7	23.1	21.4	22.0	21.8	22.5	23.0
	8H	21.6	22.3	22.1	22.8	23.3	21.5	22.1	22.0	22.7	23.1
	12H	21.7	22.3	22.2	22.8	23.3	21.7	22.2	22.2	22.7	23.3

12H	4H	21.0	21.8	21.5	22.2	22.7	20.8	21.6	21.3	22.0	22.5
	6H	21.5	22.1	22.0	22.6	23.1	21.4	22.0	21.9	22.5	23.0
	8H	21.7	22.3	22.2	22.7	23.3	21.6	22.1	22.1	22.6	23.2

Maximum UGR = 23.3

POLAR GRAPH



Maximum Candela = 1149.356 Located At Horizontal Angle = 0, Vertical Angle = 5  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)