



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MD4AERLG-4-L20-L50-8TW-A-DALI-UNV ALL ON 4000K_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN FROM BALLABS TEST NO. 20051.0

[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIE, INC

[ISSUEDATE] 28-JUL-2020

[MANUFAC] WILLIAMS INDOOR

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

[LUMINAIRE] LED EXAM, AMBIENT, & READING (LEFT) 4' MEDICAL ASYM TROFFER

[MORE] WHITE REFL w/FROSTED ACRYLIC RIBBED LENS IN DOOR & CLEAR

[MORE] ACRYLIC LENS

[LUMCAT] MD4AERLG-L20-L50-8TW-A-DALI-UNV ALL ON 4000k

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	8001
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	89
Total Luminaire Watts	90.2
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.38
Spacing Criterion (90-270)	1.26
Spacing Criterion (Diagonal)	1.28
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.44 ft
Luminous Width (90-270)	3.77 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	24380	23391	19398
55	22685	21477	15947
65	14930	17620	11797
75	5274	8500	6555
85	182	512	624

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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>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>	<u>202.5</u>
0	3460.819	3460.819	3460.819	3460.819	3460.819	3460.819	3460.819	3460.819	3460.819	3460.819
5	3634.304	3689.207	3675.186	3659.278	3522.429	3306.109	3173.216	3099.090	3192.293	3102.380
10	3411.682	3505.308	3655.876	3706.687	3487.364	3143.351	2957.133	2891.587	2975.250	2906.838
15	3432.564	3453.084	3432.087	3663.427	3417.780	2996.564	2786.758	2684.064	2775.677	2697.222
20	3403.004	3419.842	3399.667	3463.225	3300.685	2826.861	2573.851	2449.843	2522.606	2460.110
25	3327.085	3340.927	3319.267	3206.029	3136.181	2639.984	2364.478	2219.901	2252.898	2228.074
30	3212.624	3222.413	3197.574	3048.489	2944.499	2438.317	2141.890	1988.411	1994.625	1991.401
35	3057.279	3074.310	3032.218	2849.085	2695.667	2195.950	1886.226	1732.226	1731.087	1731.030
40	2877.269	2886.934	2810.305	2618.335	2420.678	1950.532	1630.270	1497.436	1484.419	1485.873
45	2647.795	2661.696	2540.394	2363.168	2106.733	1682.199	1376.294	1292.367	1260.886	1275.122
50	2366.684	2395.297	2224.039	2063.541	1763.446	1390.384	1132.079	1092.125	1058.702	1072.588
55	1998.485	2080.872	1892.013	1710.149	1404.877	1111.626	895.059	891.589	877.362	870.855
60	1507.236	1673.711	1546.733	1342.353	1072.377	828.215	692.915	693.363	688.688	675.022
65	969.109	1158.353	1143.726	998.798	765.725	558.427	499.408	490.083	488.718	480.514
70	530.236	664.597	712.677	673.864	491.639	346.391	309.345	312.401	319.051	301.636
75	209.665	286.950	337.884	337.200	260.571	180.355	159.554	174.186	182.065	163.919
80	53.351	73.093	90.639	92.714	89.710	58.316	59.957	46.286	42.983	41.770
85	2.442	6.800	6.858	6.605	8.347	5.534	4.995	4.066	5.754	3.757
90	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
95	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
105	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
110	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
115	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
120	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
130	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
135	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
145	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
155	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
160	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
165	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
170	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
175	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
180	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Vert. Horizontal Angles

	<u>225.0</u>	<u>247.5</u>	<u>270.0</u>	<u>292.5</u>	<u>315.0</u>	<u>337.5</u>	<u>360.0</u>
0	3460.819	3460.819	3460.819	3460.819	3460.819	3460.819	3460.819
5	3174.312	3312.289	3518.143	3620.005	3626.842	3646.046	3634.304
10	2972.185	3148.733	3481.782	3645.983	3527.191	3436.928	3411.682
15	2796.725	2996.265	3409.108	3550.092	3412.550	3438.331	3432.564
20	2572.256	2820.980	3291.415	3318.591	3383.120	3407.282	3403.004
25	2357.501	2632.109	3130.699	3174.830	3305.013	3330.261	3327.085
30	2131.822	2427.950	2937.123	3035.730	3186.410	3213.044	3212.624
35	1873.468	2191.863	2698.657	2841.410	3025.838	3067.532	3057.279
40	1615.917	1938.571	2428.752	2613.251	2806.816	2881.522	2877.269
45	1368.918	1668.743	2127.565	2359.181	2535.879	2656.573	2647.795
50	1120.217	1386.397	1788.565	2061.746	2220.540	2391.240	2366.684
55	886.785	1111.028	1443.552	1710.826	1890.199	2076.755	1998.485
60	686.635	833.797	1122.914	1344.705	1546.065	1669.405	1507.236

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65	496.318	568.893	820.150	1002.625	1143.547	1153.957	969.109
70	308.947	361.353	545.047	679.236	712.567	660.271	530.236
75	163.192	196.981	301.648	343.221	336.947	284.219	209.665
80	66.825	73.936	113.633	96.901	90.470	71.309	53.351
85	6.241	14.206	15.963	8.279	7.028	6.092	2.442
90	0.000	0.000	0.000	0.000	0.000	0.000	0.000
95	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
105	0.000	0.000	0.000	0.000	0.000	0.000	0.000
110	0.000	0.000	0.000	0.000	0.000	0.000	0.000
115	0.000	0.000	0.000	0.000	0.000	0.000	0.000
120	0.000	0.000	0.000	0.000	0.000	0.000	0.000
125	0.000	0.000	0.000	0.000	0.000	0.000	0.000
130	0.000	0.000	0.000	0.000	0.000	0.000	0.000
135	0.000	0.000	0.000	0.000	0.000	0.000	0.000
140	0.000	0.000	0.000	0.000	0.000	0.000	0.000
145	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000	0.000	0.000
155	0.000	0.000	0.000	0.000	0.000	0.000	0.000
160	0.000	0.000	0.000	0.000	0.000	0.000	0.000
165	0.000	0.000	0.000	0.000	0.000	0.000	0.000
170	0.000	0.000	0.000	0.000	0.000	0.000	0.000
175	0.000	0.000	0.000	0.000	0.000	0.000	0.000
180	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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Zone	Lumens	%Lamp	%Fixt
0-20	1221.08	N.A.	15.30
0-30	2545.61	N.A.	31.80
0-40	4096.28	N.A.	51.20
0-60	6906.23	N.A.	86.30
0-80	7977.7	N.A.	99.70
0-90	8001.28	N.A.	100.00
10-90	7677.82	N.A.	96.00
20-40	2875.19	N.A.	35.90
20-50	4411.43	N.A.	55.10
40-70	3602.91	N.A.	45.00
60-80	1071.47	N.A.	13.40
70-80	278.51	N.A.	3.50
80-90	23.58	N.A.	0.30
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	8001.28	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	323.46
10-20	897.62
20-30	1324.52
30-40	1550.67
40-50	1536.23
50-60	1273.72
60-70	792.96
70-80	278.51
80-90	23.58
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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	106	102	99	108	104	100	97	100	97	94	96	94	92	92	90	89	87
2	101	94	88	82	99	92	86	81	88	84	80	85	81	78	82	79	76	74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	73	69	66	63
4	85	74	66	60	83	73	65	59	70	64	58	68	62	58	66	61	57	55
5	79	67	58	52	77	65	58	52	63	56	51	61	55	50	60	54	50	48
6	73	60	52	46	71	59	51	45	57	50	45	56	49	45	54	49	44	42
7	68	55	46	40	66	54	46	40	52	45	40	51	45	40	50	44	39	38
8	63	50	42	36	62	49	42	36	48	41	36	47	40	36	46	40	35	34
9	59	46	38	33	58	45	38	33	44	37	32	43	37	32	42	36	32	30
10	55	43	35	30	54	42	35	30	41	34	30	40	34	29	39	33	29	28

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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	24.2	25.8	24.6	26.1	26.4	21.6	23.1	21.9	23.4	23.8
	3H	25.0	26.4	25.4	26.7	27.1	22.7	24.1	23.1	24.4	24.7
	4H	25.1	26.4	25.5	26.8	27.1	22.9	24.2	23.3	24.6	24.9
	6H	25.1	26.3	25.5	26.7	27.0	23.0	24.2	23.4	24.5	24.9
	8H	25.1	26.2	25.5	26.6	27.0	23.0	24.1	23.4	24.5	24.9
	12H	25.0	26.1	25.5	26.5	26.9	22.9	24.0	23.4	24.4	24.8

UGR Viewed Endwise

4H	2H	24.6	25.9	25.0	26.3	26.7	22.1	23.4	22.5	23.8	24.2
	3H	25.6	26.7	26.0	27.1	27.5	23.4	24.5	23.8	24.9	25.3
	4H	25.7	26.7	26.2	27.1	27.5	23.7	24.6	24.1	25.0	25.5
	6H	25.7	26.6	26.2	27.0	27.5	23.8	24.6	24.2	25.0	25.5
	8H	25.7	26.5	26.2	26.9	27.4	23.8	24.5	24.2	25.0	25.4
	12H	25.7	26.4	26.2	26.8	27.3	23.7	24.4	24.2	24.9	25.4

8H	4H	25.8	26.6	26.2	27.0	27.5	23.7	24.5	24.2	25.0	25.4
	6H	25.8	26.4	26.3	26.9	27.4	23.8	24.5	24.3	25.0	25.4
	8H	25.7	26.3	26.2	26.8	27.3	23.8	24.4	24.3	24.9	25.4
	12H	25.7	26.2	26.2	26.7	27.3	23.8	24.3	24.3	24.8	25.4

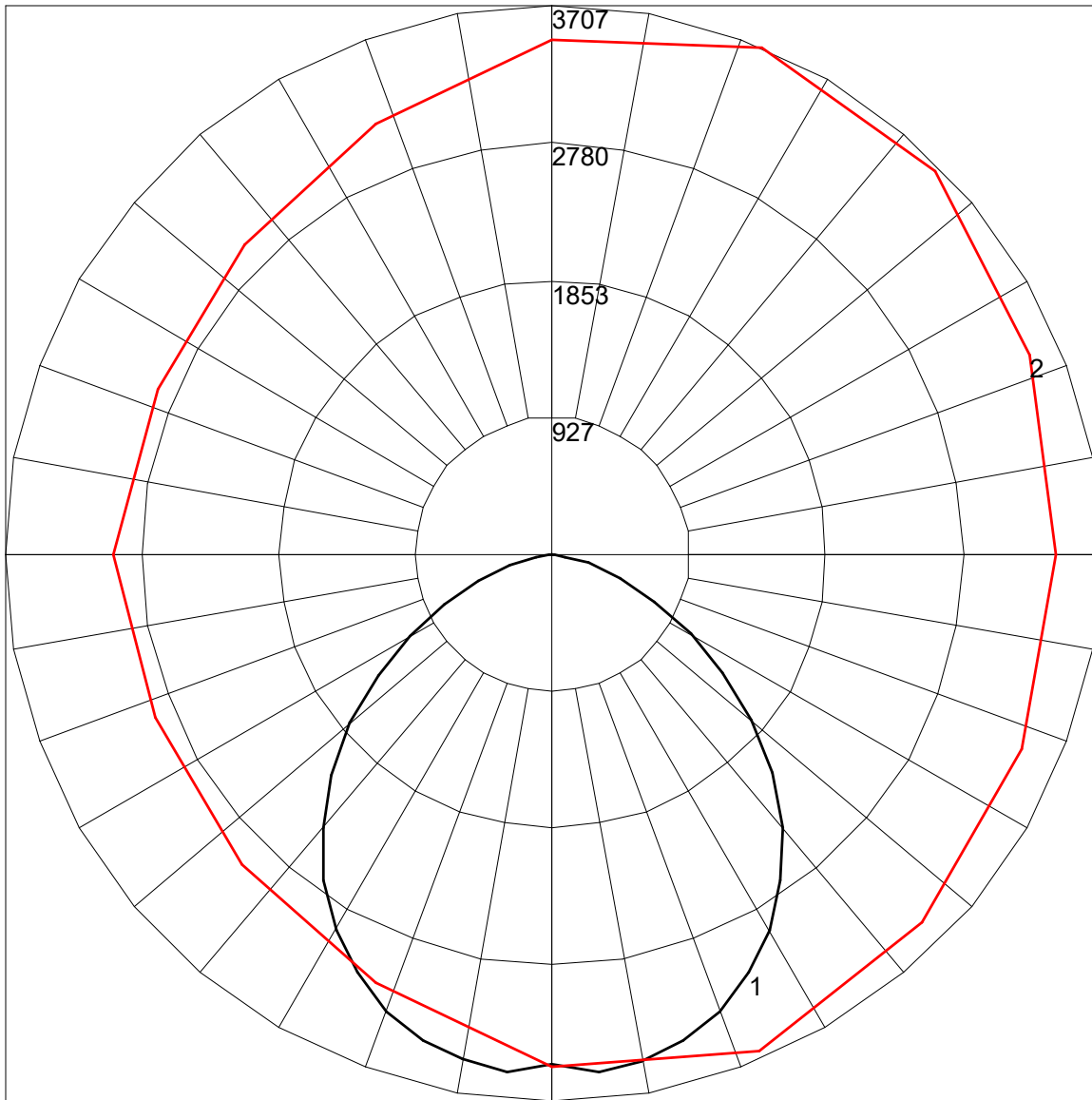
12H	4H	25.8	26.4	26.2	26.9	27.4	23.7	24.4	24.2	24.9	25.4
	6H	25.7	26.3	26.3	26.8	27.3	23.8	24.4	24.3	24.8	25.4
	8H	25.7	26.2	26.2	26.7	27.3	23.8	24.3	24.3	24.8	25.4

Maximum UGR = 27.5

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POLAR GRAPH



Maximum Candela = 3706.687 Located At Horizontal Angle = 67.5, Vertical Angle = 10

1 - Vertical Plane Through Horizontal Angles (90 - 270)

2 - Horizontal Cone Through Vertical Angle (10) (Through Max. Cd.)