



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MD4AERLG-4-L26-L52-840-A-DIM-UNV ALL ON_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN FROM BALLABS TEST NO. 20050.0

[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC

[ISSUEDATE] 21-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-4-L26-L52-840-A-DIM-UNV ALL ON

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	8886
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	105
Total Luminaire Watts	84.6
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.62
Spacing Criterion (90-270)	1.28
Spacing Criterion (Diagonal)	1.34
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	32228	28729	20562
55	30824	27357	17374
65	20657	23232	13127
75	7143	11448	7204
85	181	492	340

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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	3526.198	3526.198	3526.198	3526.198	3526.198	3526.198	3526.198	3526.198	3526.198	3526.198
5	3797.806	3841.155	3801.795	3757.524	3587.468	3326.402	3156.947	3061.017	3219.768	3064.276
10	3683.105	3753.100	3858.100	3841.900	3551.525	3123.679	2875.584	2779.823	2920.900	2794.933
15	3813.087	3791.229	3707.251	3834.099	3483.687	2949.783	2657.160	2510.062	2661.239	2523.097
20	3910.361	3873.545	3753.099	3681.217	3376.035	2758.060	2391.668	2233.872	2362.851	2244.044
25	3947.580	3915.128	3739.197	3462.396	3219.068	2560.210	2170.891	2006.645	2083.605	2014.743
30	3932.080	3898.246	3684.669	3343.217	3025.245	2359.990	1973.319	1801.226	1839.450	1804.188
35	3857.720	3822.803	3569.405	3169.003	2786.083	2131.668	1739.503	1586.303	1609.081	1585.118
40	3719.354	3677.704	3379.330	2952.972	2528.687	1910.852	1517.897	1396.569	1400.138	1385.114
45	3500.092	3462.075	3120.088	2702.461	2233.197	1663.920	1309.624	1231.139	1212.016	1214.054
50	3178.624	3173.369	2792.137	2390.424	1894.778	1390.668	1102.499	1066.418	1045.527	1047.062
55	2715.521	2801.164	2410.078	2001.078	1530.628	1124.729	894.716	902.030	897.586	881.489
60	2073.481	2289.265	1998.253	1578.915	1181.840	844.936	712.318	728.166	734.016	709.995
65	1340.873	1592.653	1508.029	1207.789	852.063	570.697	524.596	528.491	533.123	519.010
70	733.455	911.363	961.813	829.199	547.749	367.393	337.091	341.798	353.963	331.132
75	283.948	385.811	455.097	421.836	286.381	209.533	175.929	185.977	200.346	175.805
80	64.915	90.629	117.473	120.202	96.000	71.119	67.263	51.291	50.963	46.817
85	2.420	7.410	6.591	4.068	4.556	6.156	5.105	3.668	6.373	3.362
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. Angles **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	3526.198	3526.198	3526.198	3526.198	3526.198	3526.198	3526.198
5	3158.034	3332.525	3583.222	3718.614	3753.899	3798.394	3797.806
10	2890.496	3129.012	3545.995	3781.758	3730.607	3685.354	3683.105
15	2667.035	2949.487	3475.095	3721.815	3687.895	3776.613	3813.087
20	2390.087	2752.234	3366.851	3537.923	3736.705	3861.102	3910.361
25	2163.978	2552.409	3213.636	3431.485	3725.075	3904.561	3947.580
30	1963.345	2349.719	3017.937	3330.577	3673.609	3888.963	3932.080
35	1726.862	2127.619	2789.046	3161.398	3563.084	3816.088	3857.720
40	1503.676	1899.002	2536.686	2947.936	3375.874	3672.342	3719.354
45	1302.316	1650.588	2253.837	2698.511	3115.614	3456.999	3500.092
50	1090.748	1386.718	1919.664	2388.646	2788.670	3169.349	3178.624
55	886.519	1124.136	1568.945	2001.749	2408.280	2797.085	2715.521
60	706.096	850.467	1231.909	1581.245	1997.591	2284.999	2073.481

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65	521.535	581.067	905.983	1211.581	1507.852	1588.298	1340.873
70	336.696	382.216	600.662	834.522	961.704	907.077	733.455
75	179.533	226.006	327.078	427.801	454.169	383.105	283.948
80	74.068	86.594	119.701	124.350	117.305	88.861	64.915
85	6.339	14.748	12.101	5.727	6.759	6.709	2.420
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	1250.9	N.A.	14.10
0-30	2638.99	N.A.	29.70
0-40	4321.31	N.A.	48.60
0-60	7556.78	N.A.	85.00
0-80	8858.47	N.A.	99.70
0-90	8885.51	N.A.	100.00
10-90	8555.82	N.A.	96.30
20-40	3070.41	N.A.	34.60
20-50	4807.27	N.A.	54.10
40-70	4196.9	N.A.	47.20
60-80	1301.69	N.A.	14.60
70-80	340.26	N.A.	3.80
80-90	27.05	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	8885.51	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	329.69
10-20	921.21
20-30	1388.09
30-40	1682.32
40-50	1736.86
50-60	1498.61
60-70	961.43
70-80	340.26
80-90	27.05
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	107	104	100	97	99	96	94	95	93	91	92	90	88	86
2	101	93	87	81	98	91	85	81	88	83	79	84	80	77	81	78	75	73
3	92	82	75	68	90	81	74	68	78	72	67	75	70	65	72	68	64	62
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56	54
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41
7	67	53	45	39	65	53	45	39	51	44	39	50	43	38	48	43	38	36
8	62	49	41	35	61	48	40	35	47	40	34	46	39	34	44	39	34	32
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	41	34	28	53	41	33	28	40	33	28	39	33	28	38	32	28	26

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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	26.0	27.6	26.4	27.9	28.2	22.0	23.6	22.4	23.9	24.2
	3H	26.8	28.2	27.2	28.6	28.9	23.1	24.6	23.5	24.9	25.2
	4H	26.9	28.2	27.3	28.6	29.0	23.4	24.7	23.8	25.1	25.4
	6H	26.9	28.1	27.3	28.5	28.9	23.5	24.7	23.9	25.0	25.4
	8H	26.8	28.0	27.3	28.4	28.8	23.4	24.6	23.9	25.0	25.4
	12H	26.8	27.9	27.3	28.3	28.7	23.4	24.5	23.8	24.9	25.3

UGR Viewed Endwise

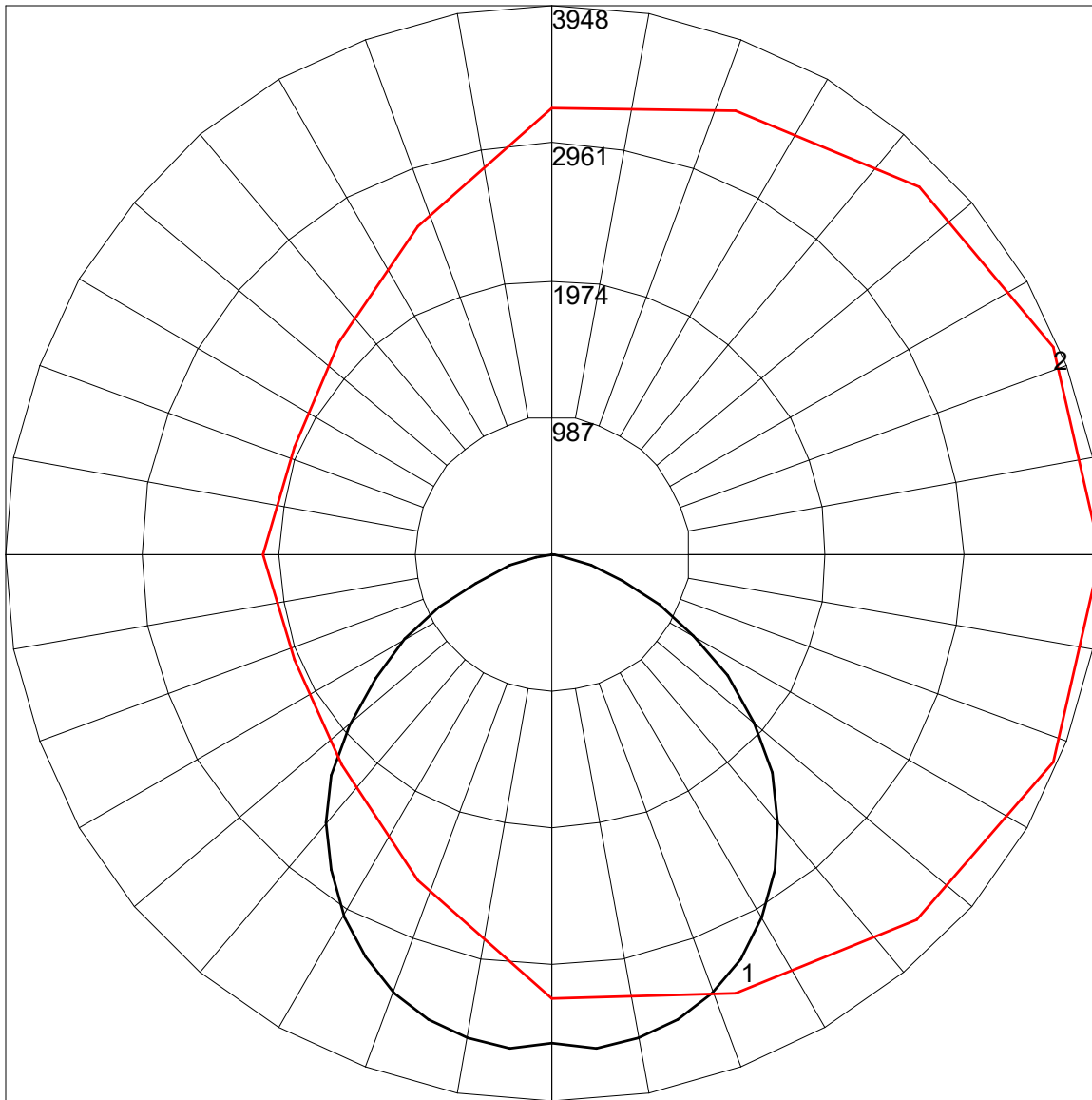
4H	2H	26.4	27.7	26.8	28.1	28.4	22.8	24.1	23.2	24.5	24.8
	3H	27.4	28.5	27.8	28.9	29.3	24.1	25.2	24.5	25.6	26.0
	4H	27.5	28.5	27.9	28.9	29.3	24.4	25.3	24.8	25.8	26.2
	6H	27.5	28.3	28.0	28.8	29.2	24.5	25.3	24.9	25.8	26.2
	8H	27.5	28.3	27.9	28.7	29.2	24.4	25.2	24.9	25.7	26.1
	12H	27.4	28.1	27.9	28.6	29.1	24.4	25.1	24.9	25.6	26.1

8H	4H	27.5	28.3	28.0	28.8	29.2	24.5	25.3	24.9	25.7	26.2
	6H	27.5	28.2	28.0	28.7	29.2	24.6	25.2	25.1	25.7	26.2
	8H	27.5	28.1	28.0	28.6	29.1	24.6	25.2	25.1	25.7	26.1
	12H	27.5	28.0	28.0	28.5	29.0	24.5	25.1	25.1	25.6	26.1

12H	4H	27.5	28.2	28.0	28.7	29.2	24.5	25.2	24.9	25.6	26.1
	6H	27.5	28.1	28.0	28.6	29.1	24.6	25.1	25.1	25.6	26.1
	8H	27.5	28.0	28.0	28.5	29.1	24.6	25.1	25.1	25.6	26.1

Maximum UGR = 29.3

POLAR GRAPH



Maximum Candela = 3947.58 Located At Horizontal Angle = 0, Vertical Angle = 25
1 - Vertical Plane Through Horizontal Angles (90 - 270)
2 - Horizontal Cone Through Vertical Angle (25) (Through Max. Cd.)