



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MD4AERLG-4-L26-L66-840-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

[ISSUE DATE] 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-L26-L66-840-A-DIM-UNV ALL ON

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	10188
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	109
Total Luminaire Watts	93.8
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	36953	32941	23578
55	35344	31369	19922
65	23686	26639	15052
75	8190	13127	8260
85	207	565	390

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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	4043.264	4043.264	4043.264	4043.264	4043.264	4043.264	4043.264	4043.264	4043.264	4043.264
5	4354.699	4404.405	4359.273	4308.510	4113.519	3814.171	3619.868	3509.871	3691.900	3513.608
10	4223.179	4303.437	4423.835	4405.259	4072.304	3581.721	3297.247	3187.444	3349.208	3204.769
15	4372.220	4347.157	4250.866	4396.314	3994.519	3382.326	3046.794	2878.126	3051.471	2893.073
20	4483.758	4441.544	4303.436	4221.014	3871.082	3162.490	2742.371	2561.437	2709.329	2573.101
25	4526.435	4489.225	4287.496	3970.106	3691.097	2935.628	2489.221	2300.890	2389.135	2310.176
30	4508.663	4469.867	4224.973	3833.452	3468.853	2706.048	2262.678	2065.349	2109.178	2068.747
35	4423.398	4383.362	4092.806	3633.691	3194.622	2444.247	1994.575	1818.912	1845.029	1817.553
40	4264.743	4216.986	3874.860	3385.983	2899.482	2191.051	1740.474	1601.356	1605.448	1588.220
45	4013.330	3969.738	3577.604	3098.738	2560.663	1907.909	1501.661	1411.668	1389.740	1392.078
50	3644.723	3638.697	3201.563	2740.945	2172.620	1594.589	1264.165	1222.793	1198.838	1200.599
55	3113.713	3211.914	2763.481	2294.507	1755.073	1289.654	1025.913	1034.300	1029.204	1010.747
60	2377.526	2624.953	2291.268	1810.440	1355.140	968.834	816.769	834.941	841.648	814.106
65	1537.492	1826.193	1729.160	1384.893	977.005	654.382	601.521	605.987	611.298	595.116
70	841.006	1045.001	1102.849	950.789	628.069	421.266	386.520	391.918	405.867	379.688
75	325.585	442.384	521.831	483.692	328.374	240.258	201.726	213.247	229.724	201.584
80	74.434	103.919	134.698	137.828	110.077	81.548	77.127	58.812	58.436	53.682
85	2.774	8.497	7.557	4.664	5.224	7.059	5.853	4.206	7.308	3.855
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	4043.264	4043.264	4043.264	4043.264	4043.264	4043.264	4043.264
5	3621.113	3821.192	4108.649	4263.895	4304.353	4355.373	4354.699
10	3314.345	3587.836	4065.963	4336.298	4277.647	4225.757	4223.179
15	3058.117	3381.987	3984.667	4267.565	4228.672	4330.398	4372.220
20	2740.559	3155.809	3860.551	4056.708	4284.639	4427.277	4483.758
25	2481.294	2926.682	3684.869	3934.663	4271.303	4477.109	4526.435
30	2251.241	2694.272	3460.474	3818.957	4212.290	4459.222	4508.663
35	1980.081	2439.604	3198.019	3624.971	4085.559	4375.662	4423.398
40	1724.168	2177.463	2908.654	3380.208	3870.896	4210.838	4264.743
45	1493.281	1892.622	2584.329	3094.209	3572.474	3963.918	4013.330
50	1250.690	1590.060	2201.155	2738.907	3197.588	3634.088	3644.723
55	1016.514	1288.974	1799.008	2295.277	2761.420	3207.237	3113.713
60	809.635	975.175	1412.551	1813.112	2290.509	2620.061	2377.526

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65	598.011	666.271	1038.832	1389.242	1728.956	1821.199	1537.492
70	386.067	438.263	688.741	956.892	1102.724	1040.087	841.006
75	205.859	259.146	375.039	490.532	520.766	439.282	325.585
80	84.929	99.292	137.253	142.584	134.506	101.892	74.434
85	7.269	16.910	13.876	6.567	7.750	7.693	2.774
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	1434.33	N.A.	14.10
0-30	3025.96	N.A.	29.70
0-40	4954.97	N.A.	48.60
0-60	8664.87	N.A.	85.00
0-80	10157.43	N.A.	99.70
0-90	10188.44	N.A.	100.00
10-90	9810.41	N.A.	96.30
20-40	3520.64	N.A.	34.60
20-50	5512.19	N.A.	54.10
40-70	4812.31	N.A.	47.20
60-80	1492.56	N.A.	14.60
70-80	390.15	N.A.	3.80
80-90	31.01	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	10188.44	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	378.04
10-20	1056.29
20-30	1591.63
30-40	1929.01
40-50	1991.55
50-60	1718.35
60-70	1102.41
70-80	390.15
80-90	31.01
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	82	98	91	85	81	88	83	79	84	80	77	82	78	75	73
3	92	82	75	68	90	81	74	68	78	72	67	75	70	65	72	68	64	62
4	85	73	65	58	82	72	64	58	69	63	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

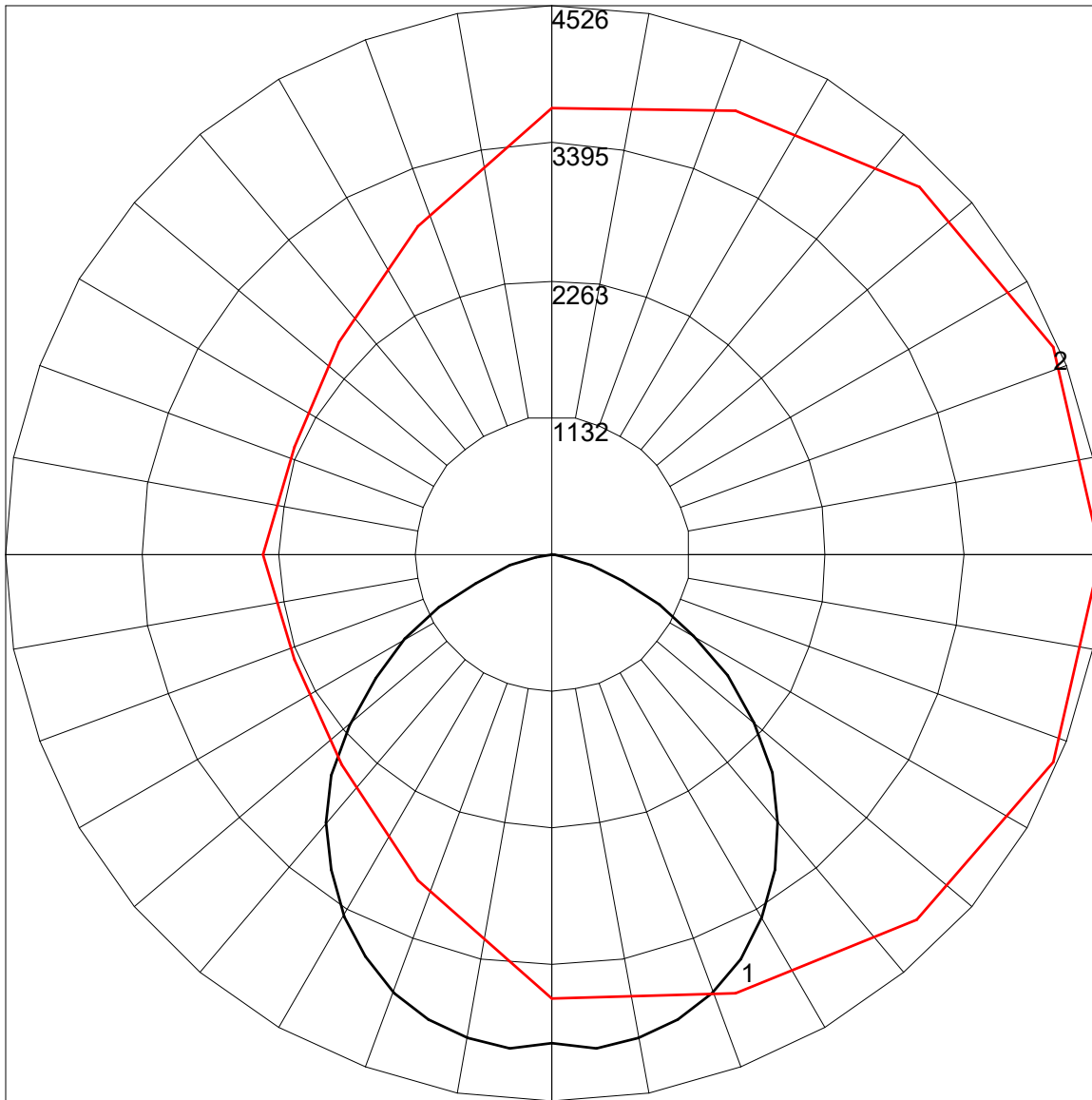
X=2H	Y=2H	26.5	28.1	26.9	28.4	28.7	22.5	24.1	22.9	24.4	24.7
	3H	27.3	28.7	27.7	29.1	29.4	23.6	25.1	24.0	25.4	25.7
	4H	27.4	28.7	27.8	29.1	29.5	23.9	25.2	24.3	25.6	25.9
	6H	27.4	28.6	27.8	29.0	29.4	24.0	25.2	24.4	25.5	25.9
	8H	27.3	28.5	27.8	28.9	29.3	23.9	25.1	24.4	25.5	25.9
	12H	27.3	28.4	27.8	28.8	29.2	23.9	25.0	24.3	25.4	25.8

UGR Viewed Endwise

4H	2H	26.9	28.2	27.3	28.6	28.9	23.3	24.6	23.7	25.0	25.3
	3H	27.9	29.0	28.3	29.4	29.8	24.6	25.7	25.0	26.1	26.5
	4H	28.0	29.0	28.4	29.4	29.8	24.9	25.8	25.3	26.3	26.7
	6H	28.0	28.8	28.5	29.3	29.7	25.0	25.8	25.4	26.3	26.7
	8H	28.0	28.8	28.4	29.2	29.7	24.9	25.7	25.4	26.2	26.6
	12H	27.9	28.6	28.4	29.1	29.6	24.9	25.6	25.4	26.1	26.6
8H	4H	28.0	28.8	28.5	29.3	29.7	25.0	25.8	25.4	26.2	26.7
	6H	28.0	28.7	28.5	29.2	29.7	25.1	25.7	25.6	26.2	26.7
	8H	28.0	28.6	28.5	29.1	29.6	25.1	25.7	25.6	26.2	26.6
	12H	28.0	28.5	28.5	29.0	29.5	25.0	25.6	25.6	26.1	26.6
12H	4H	28.0	28.7	28.5	29.2	29.7	25.0	25.7	25.4	26.1	26.6
	6H	28.0	28.6	28.5	29.1	29.6	25.1	25.6	25.6	26.1	26.6
	8H	28.0	28.5	28.5	29.0	29.6	25.1	25.6	25.6	26.1	26.6

Maximum UGR = 29.8

POLAR GRAPH



Maximum Candela = 4526.435 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.)