



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MD4AERRG-4-L22-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

[ISSUEDATE] 21-JUL-2020

[MANUFAC] WILLIAMS INDOOR

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

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

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

[MORE] ACRYLIC LENS

[LUMCAT] MD4AERRG-L22-L66-840-A-DIM-UNV ALL ON

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	9854
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	109
Total Luminaire Watts	90.7
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	35742	31861	22805
55	34186	30340	19269
65	22910	25766	14558
75	7922	12697	7990
85	200	546	377

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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	3910.722	3910.722	3910.722	3910.722	3910.722	3910.722	3910.722	3910.722	3910.722	3910.722
5	4211.948	4260.024	4216.372	4167.273	3978.673	3689.139	3501.205	3394.814	3570.876	3398.428
10	4084.739	4162.366	4278.817	4260.850	3938.810	3464.309	3189.160	3082.956	3239.417	3099.713
15	4228.895	4204.653	4111.518	4252.199	3863.575	3271.450	2946.917	2783.778	2951.441	2798.235
20	4336.776	4295.946	4162.365	4082.645	3744.184	3058.820	2652.473	2477.471	2620.515	2488.752
25	4378.054	4342.064	4146.948	3839.962	3570.099	2839.395	2407.622	2225.465	2310.817	2234.446
30	4360.864	4323.340	4086.474	3707.787	3355.141	2617.341	2188.505	1997.645	2040.037	2000.931
35	4278.395	4239.671	3958.640	3514.575	3089.899	2364.122	1929.191	1759.286	1784.547	1757.972
40	4124.941	4078.749	3747.838	3274.987	2804.434	2119.226	1683.420	1548.862	1552.820	1536.157
45	3881.769	3839.606	3460.326	2997.158	2476.722	1845.366	1452.435	1365.392	1344.183	1346.444
50	3525.245	3519.417	3096.612	2651.094	2101.399	1542.317	1222.724	1182.709	1159.539	1161.242
55	3011.642	3106.624	2672.891	2219.290	1697.540	1247.378	992.282	1000.395	995.466	977.614
60	2299.589	2538.904	2216.158	1751.092	1310.717	937.075	789.995	807.571	814.058	787.419
65	1487.092	1766.328	1672.476	1339.495	944.978	632.930	581.802	586.122	591.259	575.607
70	813.437	1010.745	1066.696	919.621	607.480	407.456	373.850	379.070	392.562	367.242
75	314.912	427.883	504.725	467.837	317.610	232.383	195.113	206.257	222.193	194.976
80	71.994	100.512	130.283	133.310	106.468	78.875	74.598	56.884	56.521	51.923
85	2.683	8.218	7.309	4.512	5.053	6.828	5.662	4.068	7.068	3.729
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	3910.722	3910.722	3910.722	3910.722	3910.722	3910.722	3910.722
5	3502.410	3695.929	3973.964	4124.121	4163.252	4212.600	4211.948
10	3205.698	3470.223	3932.677	4194.150	4137.421	4087.233	4084.739
15	2957.869	3271.122	3854.046	4127.670	4090.051	4188.444	4228.895
20	2650.721	3052.359	3733.998	3923.725	4144.184	4282.146	4336.776
25	2399.955	2830.743	3564.076	3805.681	4131.286	4330.345	4378.054
30	2177.443	2605.951	3347.036	3693.768	4074.207	4313.045	4360.864
35	1915.172	2359.631	3093.185	3506.141	3951.630	4232.223	4278.395
40	1667.648	2106.083	2813.306	3269.401	3744.005	4072.802	4124.941
45	1444.330	1830.580	2499.612	2992.778	3455.365	3833.977	3881.769
50	1209.691	1537.936	2128.999	2649.122	3092.768	3514.959	3525.245
55	983.192	1246.721	1740.035	2220.035	2670.898	3102.101	3011.642
60	783.095	943.208	1366.246	1753.676	2215.424	2534.173	2299.589

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65	578.407	644.430	1004.779	1343.701	1672.279	1761.498	1487.092
70	373.411	423.896	666.163	925.525	1066.576	1005.992	813.437
75	199.111	250.651	362.745	474.452	503.695	424.882	314.912
80	82.145	96.037	132.754	137.910	130.097	98.551	71.994
85	7.031	16.356	13.421	6.352	7.496	7.441	2.683
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	1387.31	N.A.	14.10
0-30	2926.77	N.A.	29.70
0-40	4792.54	N.A.	48.60
0-60	8380.83	N.A.	85.00
0-80	9824.46	N.A.	99.70
0-90	9854.46	N.A.	100.00
10-90	9488.81	N.A.	96.30
20-40	3405.23	N.A.	34.60
20-50	5331.49	N.A.	54.10
40-70	4654.56	N.A.	47.20
60-80	1443.63	N.A.	14.60
70-80	377.36	N.A.	3.80
80-90	29.99	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	9854.46	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	365.64
10-20	1021.67
20-30	1539.46
30-40	1865.77
40-50	1926.27
50-60	1662.02
60-70	1066.27
70-80	377.36
80-90	29.99
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

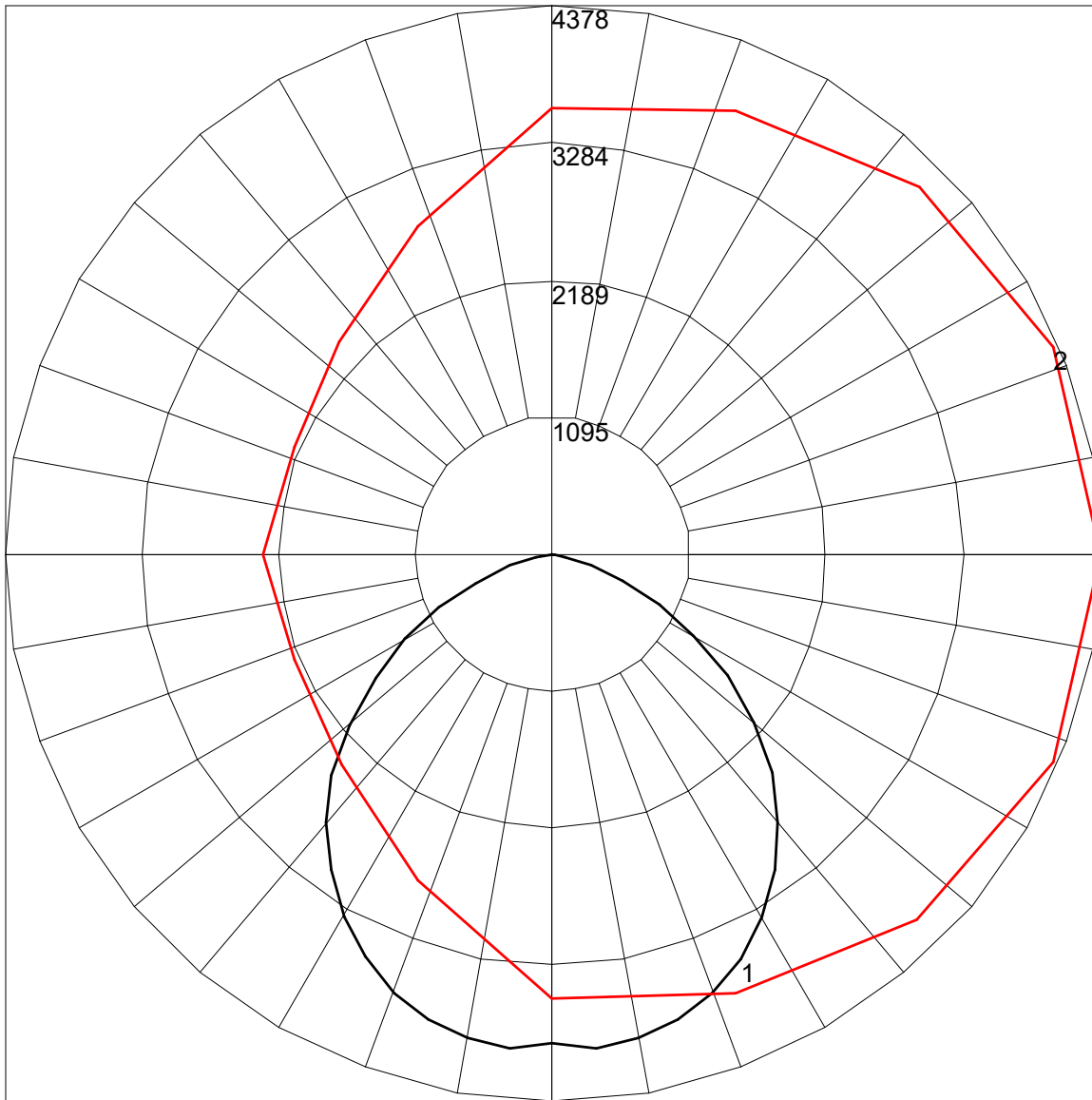
X=2H	Y=2H	26.3	27.9	26.7	28.2	28.5	22.3	23.9	22.7	24.2	24.5
	3H	27.1	28.5	27.5	28.9	29.2	23.4	24.9	23.8	25.2	25.5
	4H	27.2	28.5	27.6	28.9	29.3	23.7	25.0	24.1	25.4	25.7
	6H	27.2	28.4	27.6	28.8	29.2	23.8	25.0	24.2	25.3	25.7
	8H	27.1	28.3	27.6	28.7	29.1	23.7	24.9	24.2	25.3	25.7
	12H	27.1	28.2	27.6	28.6	29.0	23.7	24.8	24.1	25.2	25.6

UGR Viewed Endwise

4H	2H	26.7	28.0	27.1	28.4	28.7	23.1	24.4	23.5	24.8	25.1
	3H	27.7	28.8	28.1	29.2	29.6	24.4	25.5	24.8	25.9	26.3
	4H	27.8	28.8	28.2	29.2	29.6	24.7	25.6	25.1	26.1	26.5
	6H	27.8	28.6	28.3	29.1	29.5	24.8	25.6	25.2	26.1	26.5
	8H	27.8	28.6	28.2	29.0	29.5	24.7	25.5	25.2	26.0	26.4
	12H	27.7	28.4	28.2	28.9	29.4	24.7	25.4	25.2	25.9	26.4
8H	4H	27.8	28.6	28.3	29.1	29.5	24.8	25.6	25.2	26.0	26.5
	6H	27.8	28.5	28.3	29.0	29.5	24.9	25.5	25.4	26.0	26.5
	8H	27.8	28.4	28.3	28.9	29.4	24.9	25.5	25.4	26.0	26.4
	12H	27.8	28.3	28.3	28.8	29.3	24.8	25.4	25.4	25.9	26.4
12H	4H	27.8	28.5	28.3	29.0	29.5	24.8	25.5	25.2	25.9	26.4
	6H	27.8	28.4	28.3	28.9	29.4	24.9	25.4	25.4	25.9	26.4
	8H	27.8	28.3	28.3	28.8	29.4	24.9	25.4	25.4	25.9	26.4

Maximum UGR = 29.6

POLAR GRAPH



Maximum Candela = 4378.054 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.)