



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : 96-4-L110-935-HIAFR-DIM-UNV\_.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
[TEST] GEN FROM BALLABS TEST NO. 19227.0  
[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC  
[ISSUEDATE] 04 MARCH 2024  
[MANUFAC] WILLIAMS INDOOR  
[OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO  
[LUMINAIRE] 4' ENCLOSED & GASKETED LED LUMINAIRE  
[MORE] WHITE REFLECTOR w/FROSTED ACRYLIC LINEAR RIBBED DIFFUSER  
[MORE] 0-10V DIMMING DRIVER  
[LUMCAT] 96-4-L110-935-HIAFR-DIM-UNV  
[LAMPCAT] HLM 90 CRI, 3500K CCT

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	8860
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	101
Total Luminaire Watts	88
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.26
Spacing Criterion (90-270)	1.16
Spacing Criterion (Diagonal)	1.30
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	4.23 ft
Luminous Width (90-270)	0.50 ft
Luminous Height	0.18 ft

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	13352	10527	10251
55	11360	8957	8847
65	8326	7277	7855
75	5106	6136	6774
85	1881	4817	5779

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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>
0	3130.032	3130.032	3130.032	3130.032	3130.032
5	3157.476	3117.033	3096.811	3082.367	3078.034
10	3115.588	3065.034	3033.257	3021.702	3010.146
15	3037.590	2979.814	2932.148	2904.705	2888.816
20	2924.926	2865.706	2794.930	2737.153	2735.709
25	2792.041	2728.487	2624.489	2550.825	2527.714
30	2624.489	2543.603	2403.495	2381.829	2384.718
35	2417.939	2335.608	2202.722	2267.721	2302.386
40	2182.501	2107.391	2042.393	2114.613	2143.502
45	1934.062	1863.286	1873.397	1889.286	1929.729
50	1655.292	1587.404	1648.070	1675.513	1701.513
55	1357.744	1323.078	1414.075	1468.963	1502.184
60	1054.418	1090.528	1175.748	1272.524	1320.189
65	753.981	860.867	967.753	1107.861	1148.304
70	515.654	632.651	800.202	946.087	970.642
75	300.437	440.544	638.428	774.203	800.202
80	141.552	293.215	478.099	608.096	632.651
85	47.665	186.329	346.658	473.766	499.765
90	20.222	112.664	252.771	355.324	381.324
95	15.888	77.998	202.217	280.215	304.770
100	14.444	47.665	166.107	233.994	246.994
105	11.555	28.888	125.664	187.773	200.773
110	7.222	8.666	88.109	145.885	160.329
115	4.333	4.333	57.776	108.331	125.664
120	0.000	0.000	28.888	77.998	93.887
125	0.000	0.000	8.666	47.665	62.110
130	0.000	0.000	0.000	24.555	34.666
135	0.000	0.000	0.000	5.778	13.000
140	0.000	0.000	0.000	0.000	0.000
145	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000
155	0.000	0.000	0.000	0.000	0.000
160	0.000	0.000	0.000	0.000	0.000
165	0.000	0.000	0.000	0.000	0.000
170	0.000	0.000	0.000	0.000	0.000
175	0.000	0.000	0.000	0.000	0.000
180	0.000	0.000	0.000	0.000	0.000

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	1123.9	N.A.	12.70
0-30	2340.61	N.A.	26.40
0-40	3773.92	N.A.	42.60
0-60	6491.89	N.A.	73.30
0-80	8099.13	N.A.	91.40
0-90	8456.85	N.A.	95.40
10-90	8162.35	N.A.	92.10
20-40	2650.01	N.A.	29.90
20-50	4104.63	N.A.	46.30
40-70	3685.2	N.A.	41.60
60-80	1607.25	N.A.	18.10
70-80	640.02	N.A.	7.20
80-90	357.72	N.A.	4.00
90-110	320.01	N.A.	3.60
90-120	379.24	N.A.	4.30
90-130	400.20	N.A.	4.50
90-150	403.51	N.A.	4.60
90-180	403.51	N.A.	4.60
110-180	83.50	N.A.	0.90
0-180	8860.36	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	294.50
10-20	829.41
20-30	1216.71
30-40	1433.3
40-50	1454.62
50-60	1263.35
60-70	967.23
70-80	640.02
80-90	357.72
90-100	200.68
100-110	119.34
110-120	59.23
120-130	20.97
130-140	3.30
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	118	118	118	118	115	115	115	115	109	109	109	103	103	103	98	98	98	95
1	107	102	97	93	104	99	95	91	94	90	87	89	86	84	85	83	81	78
2	97	89	82	76	94	86	80	74	82	77	72	78	73	70	74	71	67	65
3	89	78	69	63	86	76	68	62	72	66	60	69	63	59	66	61	57	55
4	81	69	60	53	78	67	59	53	64	57	51	61	55	50	59	53	49	47
5	75	62	53	46	72	60	52	46	58	50	45	55	49	44	53	47	43	41
6	69	56	47	40	67	54	46	40	52	45	39	50	43	38	48	42	38	36
7	64	50	42	36	62	49	41	35	47	40	35	46	39	34	44	38	34	32
8	60	46	38	32	58	45	37	32	44	36	31	42	35	31	40	35	30	28
9	56	42	34	29	54	42	34	28	40	33	28	39	32	28	37	32	27	25
10	52	39	31	26	51	38	31	26	37	30	25	36	30	25	35	29	25	23

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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	18.3	19.8	18.7	20.2	20.7	20.0	21.5	20.4	21.9	22.4
	3H	19.4	20.8	19.9	21.2	21.7	22.3	23.6	22.7	24.1	24.6
	4H	19.7	21.0	20.2	21.5	22.0	23.3	24.6	23.8	25.1	25.5
	6H	19.8	21.0	20.3	21.5	22.0	24.3	25.5	24.8	26.0	26.5
	8H	19.8	21.0	20.3	21.5	22.0	24.8	25.9	25.3	26.4	26.9
	12H	19.8	20.9	20.3	21.4	22.0	25.3	26.4	25.8	26.9	27.4

UGR Viewed Endwise

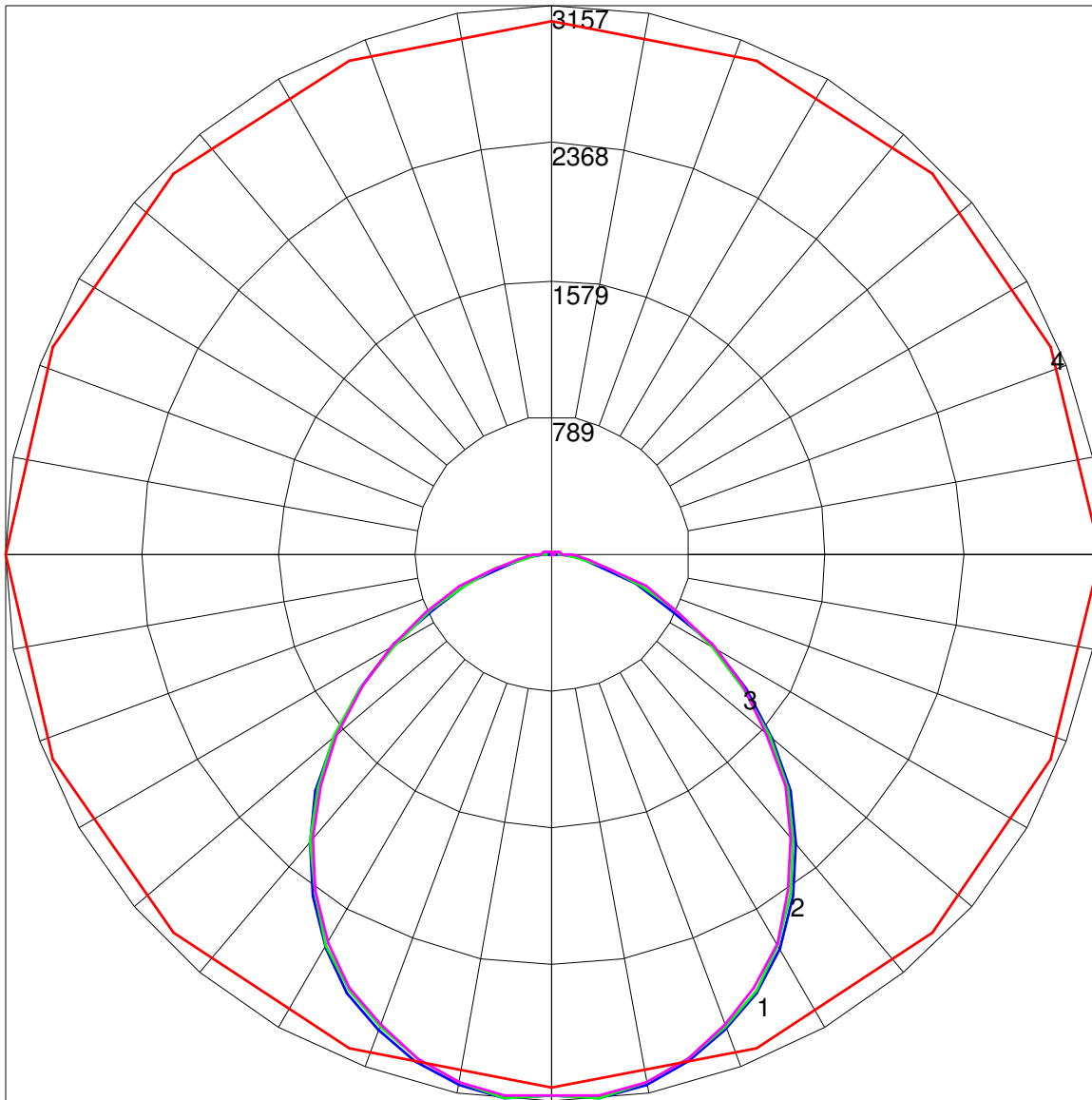
4H	2H	19.0	20.3	19.5	20.7	21.2	20.4	21.7	20.8	22.1	22.6
	3H	20.4	21.5	20.9	22.0	22.5	22.9	24.0	23.4	24.5	25.0
	4H	20.8	21.8	21.3	22.3	22.9	24.1	25.1	24.6	25.6	26.1
	6H	21.0	21.9	21.6	22.5	23.0	25.3	26.1	25.8	26.7	27.2
	8H	21.1	21.9	21.6	22.5	23.0	25.8	26.7	26.4	27.2	27.8
	12H	21.1	21.9	21.7	22.4	23.0	26.5	27.2	27.0	27.8	28.4

8H	4H	21.4	22.2	21.9	22.8	23.4	24.3	25.1	24.8	25.6	26.2
	6H	21.8	22.5	22.4	23.1	23.7	25.6	26.3	26.2	26.9	27.5
	8H	21.9	22.6	22.5	23.1	23.7	26.3	26.9	26.9	27.5	28.1
	12H	22.0	22.6	22.6	23.1	23.8	27.1	27.7	27.7	28.2	28.9

12H	4H	21.6	22.3	22.1	22.9	23.5	24.3	25.0	24.8	25.6	26.2
	6H	22.1	22.7	22.6	23.2	23.9	25.6	26.3	26.2	26.8	27.5
	8H	22.3	22.8	22.8	23.4	24.0	26.4	26.9	27.0	27.5	28.2

Maximum UGR = 28.9

POLAR GRAPH



Maximum Candela = 3157.476 Located At Horizontal Angle = 0, Vertical Angle = 5  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Vertical Plane Through Horizontal Angles (5 - 185)  
# 3 - Vertical Plane Through Horizontal Angles (10 - 190)  
# 4 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)