



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : NW-4-L93-930-RA-DIM-UNV\_.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
[TEST] GEN FROM BALLABS TEST NO. 20990.0  
[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC  
[ISSUEDATE] 2023-08-09  
[MANUFAC] WILLIAMS INDOOR  
[OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO  
[LUMINAIRE] 48 INCH LINEAR LED SURFACE LUMINAIRE  
[MORE] WHITE REFLECTOR w/RADIAL RIBBED FROST ACRYLIC LENS  
[MORE] 0-10V DIMMING DRIVER  
[LUMCAT] NW-4-L93-930-RA-DIM-UNV  
[LAMPCAT] 22 INCH HLM LED ARRAYS

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	7577
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	108
Total Luminaire Watts	70.1
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.20
Spacing Criterion (90-270)	1.28
Spacing Criterion (Diagonal)	1.36
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	3.98 ft
Luminous Width (90-270)	0.38 ft
Luminous Height	0.15 ft

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	13258	12151	12469
55	11306	10530	11087
65	9094	8723	9600
75	7054	7396	8295
85	3310	6667	7722

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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	2446.964	2446.964	2446.964	2446.964	2446.964
5	2467.481	2435.128	2428.815	2428.815	2421.713
10	2422.503	2394.884	2396.463	2402.775	2394.884
15	2341.226	2319.921	2337.281	2356.219	2353.852
20	2236.278	2227.598	2256.005	2290.725	2292.303
25	2091.085	2100.554	2151.845	2197.612	2209.449
30	1938.002	1954.573	2027.958	2087.140	2110.023
35	1747.043	1785.708	1882.766	1960.097	1986.926
40	1564.763	1606.585	1723.370	1831.475	1856.726
45	1348.553	1409.313	1551.349	1668.134	1699.697
50	1146.546	1221.509	1376.960	1505.581	1540.301
55	946.907	1020.292	1198.626	1331.982	1373.014
60	757.525	840.380	1023.448	1146.546	1193.102
65	575.246	662.835	841.958	998.986	1032.917
70	424.530	501.860	689.664	841.958	882.201
75	288.017	374.028	564.198	700.711	730.696
80	160.185	265.134	451.359	575.246	617.857
85	56.814	179.123	358.246	473.453	508.962
90	0.000	118.363	279.337	392.177	415.061
95	0.000	75.753	220.156	321.159	355.879
100	0.000	50.502	168.865	265.923	293.541
105	0.000	33.931	133.356	214.632	245.407
110	0.000	15.782	105.738	175.967	205.163
115	0.000	10.258	84.433	148.349	168.865
120	0.000	0.000	67.073	121.520	142.825
125	0.000	0.000	52.080	97.058	113.629
130	0.000	0.000	41.033	76.542	90.745
135	0.000	0.000	33.142	59.182	72.596
140	0.000	0.000	17.360	44.978	55.236
145	0.000	0.000	6.313	34.720	40.244
150	0.000	0.000	0.000	29.985	33.931
155	0.000	0.000	0.000	28.407	29.985
160	0.000	0.000	0.000	16.571	27.618
165	0.000	0.000	0.000	5.524	9.469
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	891.64	N.A.	11.80
0-30	1882.3	N.A.	24.80
0-40	3055.5	N.A.	40.30
0-60	5299.16	N.A.	69.90
0-80	6694.00	N.A.	88.30
0-90	7052.89	N.A.	93.10
10-90	6821.57	N.A.	90.00
20-40	2163.85	N.A.	28.60
20-50	3352.78	N.A.	44.20
40-70	3066.41	N.A.	40.50
60-80	1394.84	N.A.	18.40
70-80	572.09	N.A.	7.60
80-90	358.89	N.A.	4.70
90-110	354.79	N.A.	4.70
90-120	436.55	N.A.	5.80
90-130	483.53	N.A.	6.40
90-150	518.66	N.A.	6.80
90-180	524.44	N.A.	6.90
110-180	169.65	N.A.	2.20
0-180	7577.33	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	231.32
10-20	660.33
20-30	990.66
30-40	1173.19
40-50	1188.93
50-60	1054.74
60-70	822.74
70-80	572.09
80-90	358.89
90-100	219.64
100-110	135.15
110-120	81.76
120-130	46.98
130-140	24.85
140-150	10.28
150-160	4.79
160-170	0.99
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	117	117	117	117	114	114	114	114	107	107	107	101	101	101	96	96	96	93
1	106	101	96	92	102	98	93	90	92	89	85	87	84	82	82	80	78	75
2	96	87	80	74	93	85	78	73	80	75	70	76	71	67	72	68	65	62
3	88	77	68	61	84	74	67	60	70	64	58	67	61	57	63	59	55	52
4	80	68	59	52	77	66	58	51	63	55	50	59	53	48	57	51	47	45
5	74	61	51	45	71	59	51	44	56	49	43	53	47	42	51	45	41	39
6	68	55	46	39	66	53	45	39	51	43	38	48	42	37	46	40	36	34
7	63	49	41	34	61	48	40	34	46	39	33	44	38	33	42	36	32	30
8	59	45	37	31	57	44	36	30	42	35	30	40	34	29	39	33	29	27
9	55	41	33	28	53	41	33	27	39	32	27	37	31	26	36	30	26	24
10	51	38	30	25	50	37	30	25	36	29	24	35	28	24	33	28	24	22

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**UGR TABLE - CORRECTED**

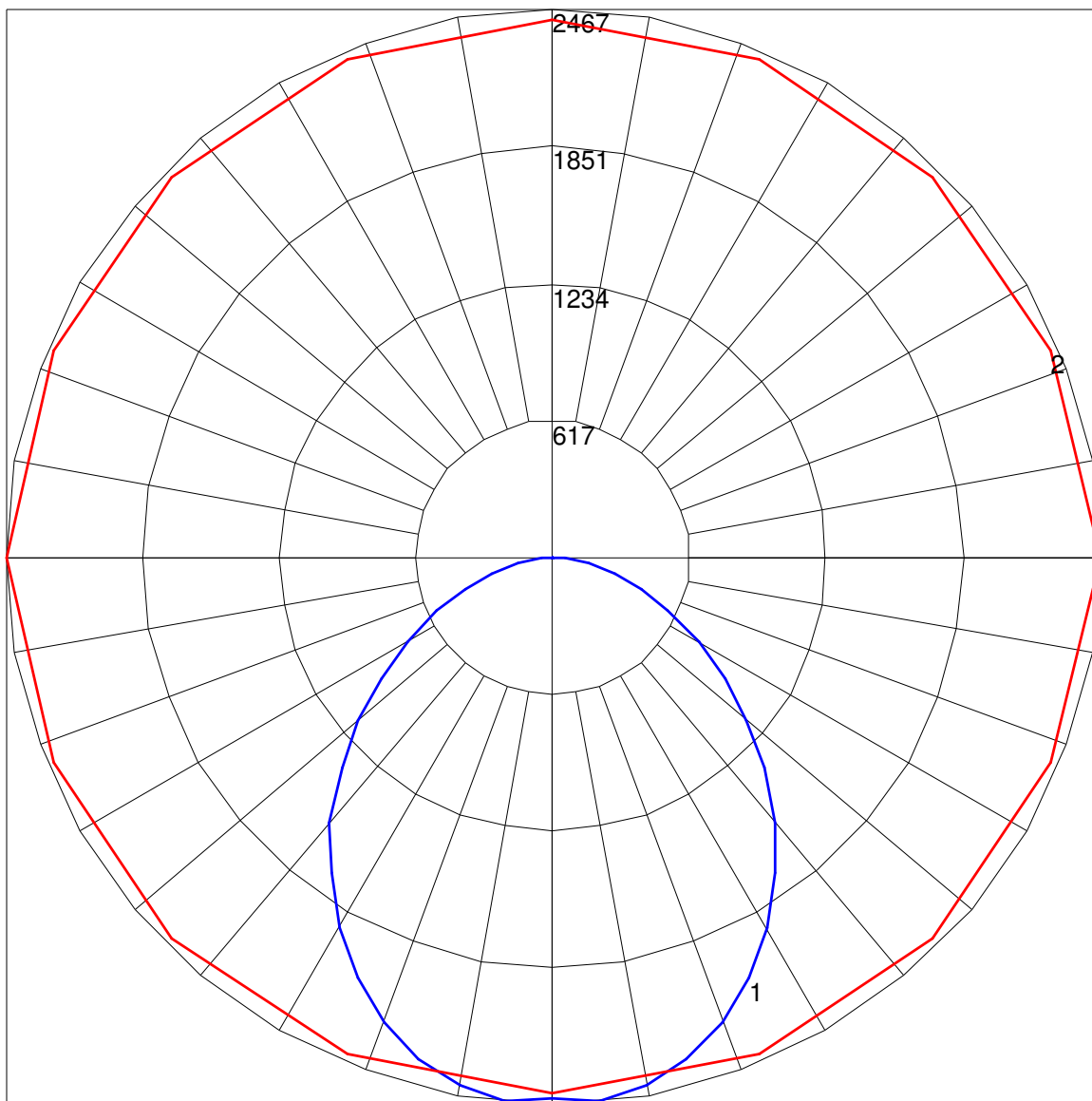
Reflectances

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					UGR Viewed Endwise				
X=2H	Y=2H	17.9	19.4	18.3	19.8	20.3	20.9	22.4	21.4	22.8	23.3
	3H	19.1	20.4	19.6	20.9	21.4	23.1	24.5	23.6	25.0	25.5
	4H	19.5	20.8	20.0	21.2	21.8	24.2	25.5	24.7	26.0	26.5
	6H	19.7	20.9	20.2	21.4	21.9	25.3	26.5	25.8	27.0	27.5
	8H	19.7	20.9	20.3	21.4	22.0	25.9	27.0	26.4	27.5	28.1
	12H	19.7	20.8	20.3	21.4	22.0	26.5	27.6	27.0	28.1	28.7
4H	2H	18.8	20.1	19.3	20.6	21.1	21.2	22.5	21.7	23.0	23.5
	3H	20.3	21.4	20.8	21.9	22.5	23.7	24.8	24.2	25.3	25.9
	4H	20.8	21.8	21.3	22.3	22.9	24.9	25.9	25.4	26.5	27.1
	6H	21.1	22.0	21.6	22.5	23.2	26.2	27.1	26.8	27.7	28.3
	8H	21.2	22.0	21.7	22.6	23.2	26.9	27.7	27.4	28.3	28.9
	12H	21.2	22.0	21.8	22.6	23.2	27.6	28.4	28.2	29.0	29.6
8H	4H	21.5	22.3	22.1	22.9	23.5	25.1	25.9	25.6	26.5	27.1
	6H	22.0	22.7	22.6	23.3	24.0	26.5	27.2	27.1	27.8	28.5
	8H	22.2	22.8	22.8	23.4	24.1	27.3	28.0	27.9	28.6	29.2
	12H	22.3	22.9	22.9	23.5	24.2	28.3	28.8	28.9	29.4	30.1
12H	4H	21.7	22.5	22.3	23.1	23.7	25.1	25.8	25.7	26.4	27.1
	6H	22.3	23.0	23.0	23.6	24.2	26.6	27.2	27.2	27.8	28.5
	8H	22.6	23.2	23.2	23.8	24.5	27.4	28.0	28.0	28.6	29.3

Maximum UGR = 30.1

POLAR GRAPH



Maximum Candela = 2467.481 Located At Horizontal Angle = 0, Vertical Angle = 5  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)