



IES INDOOR REPORT
PHOTOMETRIC FILENAME : NW-4-L54-927-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-L54-927-RA-DIM-UNV
[LAMPCAT] 22 INCH HLM LED ARRAYS

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4420
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	114
Total Luminaire Watts	38.8
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	7734	7088	7273
55	6594	6142	6467
65	5305	5088	5599
75	4115	4314	4838
85	1931	3889	4504

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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	1427.306	1427.306	1427.306	1427.306	1427.306
5	1439.273	1420.402	1416.720	1416.720	1412.577
10	1413.037	1396.928	1397.848	1401.531	1396.928
15	1365.629	1353.202	1363.328	1374.375	1372.994
20	1304.413	1299.350	1315.920	1336.172	1337.092
25	1219.723	1225.246	1255.164	1281.860	1288.764
30	1130.430	1140.096	1182.901	1217.422	1230.769
35	1019.044	1041.597	1098.211	1143.318	1158.967
40	912.721	937.115	1005.236	1068.293	1083.022
45	786.606	822.047	904.896	973.017	991.428
50	668.776	712.502	803.176	878.200	898.452
55	552.327	595.133	699.154	776.940	800.875
60	441.862	490.191	596.974	668.776	695.932
65	335.539	386.629	491.111	582.705	602.497
70	247.627	292.733	402.278	491.111	514.585
75	168.000	218.169	329.095	408.722	426.213
80	93.435	154.652	263.276	335.539	360.394
85	33.140	104.482	208.964	276.164	296.876
90	0.000	69.041	162.937	228.756	242.103
95	0.000	44.186	128.416	187.331	207.583
100	0.000	29.457	98.498	155.112	171.221
105	0.000	19.792	77.786	125.194	143.145
110	0.000	9.205	61.677	102.641	119.671
115	0.000	5.984	49.249	86.531	98.498
120	0.000	0.000	39.123	70.882	83.309
125	0.000	0.000	30.378	56.614	66.279
130	0.000	0.000	23.934	44.646	52.931
135	0.000	0.000	19.331	34.520	42.345
140	0.000	0.000	10.126	26.236	32.219
145	0.000	0.000	3.682	20.252	23.474
150	0.000	0.000	0.000	17.490	19.792
155	0.000	0.000	0.000	16.570	17.490
160	0.000	0.000	0.000	9.666	16.110
165	0.000	0.000	0.000	3.222	5.523
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	520.09	N.A.	11.80
0-30	1097.94	N.A.	24.80
0-40	1782.26	N.A.	40.30
0-60	3090.98	N.A.	69.90
0-80	3904.59	N.A.	88.30
0-90	4113.93	N.A.	93.10
10-90	3979.00	N.A.	90.00
20-40	1262.17	N.A.	28.60
20-50	1955.67	N.A.	44.20
40-70	1788.63	N.A.	40.50
60-80	813.60	N.A.	18.40
70-80	333.70	N.A.	7.60
80-90	209.34	N.A.	4.70
90-110	206.95	N.A.	4.70
90-120	254.64	N.A.	5.80
90-130	282.04	N.A.	6.40
90-150	302.53	N.A.	6.80
90-180	305.90	N.A.	6.90
110-180	98.96	N.A.	2.20
0-180	4419.83	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	134.93
10-20	385.17
20-30	577.85
30-40	684.32
40-50	693.50
50-60	615.22
60-70	479.90
70-80	333.70
80-90	209.34
90-100	128.11
100-110	78.83
110-120	47.69
120-130	27.40
130-140	14.49
140-150	6.00
150-160	2.80
160-170	0.58
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

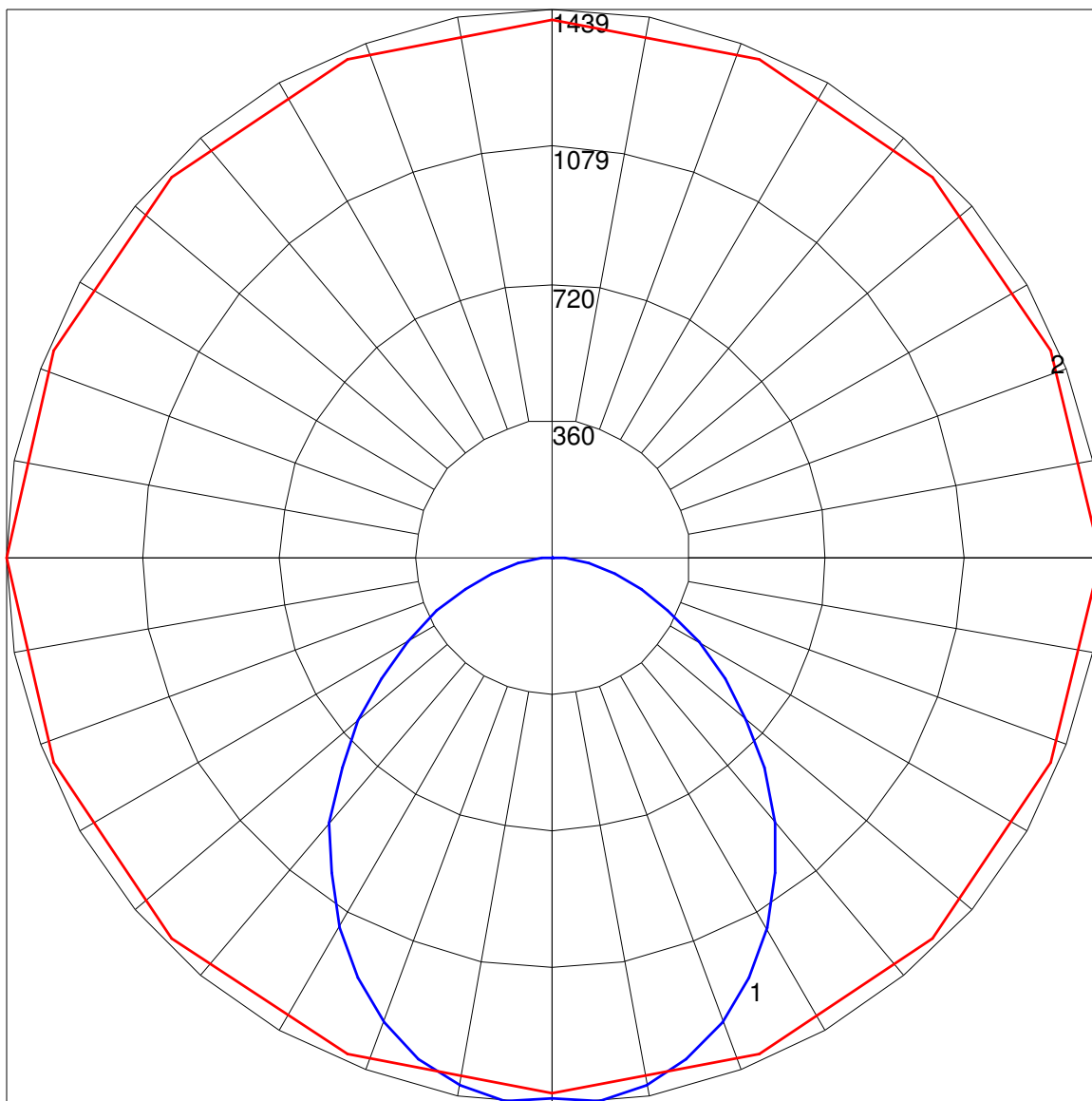
Reflectances

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	16.1	17.6	16.5	18.0	18.5	19.1	20.6	19.6	21.0	21.5
	3H	17.3	18.6	17.8	19.1	19.6	21.3	22.7	21.8	23.2	23.7
	4H	17.7	19.0	18.2	19.4	20.0	22.4	23.7	22.9	24.2	24.7
	6H	17.9	19.1	18.4	19.6	20.1	23.5	24.7	24.0	25.2	25.7
	8H	17.9	19.1	18.5	19.6	20.2	24.1	25.2	24.6	25.7	26.3
	12H	17.9	19.0	18.5	19.6	20.2	24.7	25.8	25.2	26.3	26.9
4H	2H	17.0	18.3	17.5	18.8	19.3	19.4	20.7	19.9	21.2	21.7
	3H	18.5	19.6	19.0	20.1	20.7	21.9	23.0	22.4	23.5	24.1
	4H	19.0	20.0	19.5	20.5	21.1	23.1	24.1	23.6	24.7	25.3
	6H	19.3	20.2	19.8	20.7	21.4	24.4	25.3	25.0	25.9	26.5
	8H	19.4	20.2	19.9	20.8	21.4	25.1	25.9	25.6	26.5	27.1
	12H	19.4	20.2	20.0	20.8	21.4	25.8	26.6	26.4	27.2	27.8
8H	4H	19.7	20.5	20.3	21.1	21.7	23.3	24.1	23.8	24.7	25.3
	6H	20.2	20.9	20.8	21.5	22.2	24.7	25.4	25.3	26.0	26.7
	8H	20.4	21.0	21.0	21.6	22.3	25.5	26.2	26.1	26.8	27.4
	12H	20.5	21.1	21.1	21.7	22.4	26.5	27.0	27.1	27.6	28.3
12H	4H	19.9	20.7	20.5	21.3	21.9	23.3	24.0	23.9	24.6	25.3
	6H	20.5	21.2	21.2	21.8	22.4	24.8	25.4	25.4	26.0	26.7
	8H	20.8	21.4	21.4	22.0	22.7	25.6	26.2	26.2	26.8	27.5

Maximum UGR = 28.3

POLAR GRAPH



Maximum Candela = 1439.273 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.)