



IES INDOOR REPORT

PHOTOMETRIC FILENAME : NW-4-L93-827-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-L93-827-RA-DIM-UNV

[LAMPCAT] 22 INCH HLM LED ARRAYS

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	8963
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	128
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	15684	14374	14750
55	13374	12457	13115
65	10758	10319	11356
75	8345	8749	9812
85	3915	7887	9135

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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	2894.580	2894.580	2894.580	2894.580	2894.580
5	2918.849	2880.579	2873.111	2873.111	2864.710
10	2865.644	2832.973	2834.840	2842.308	2832.973
15	2769.500	2744.297	2764.833	2787.235	2784.435
20	2645.353	2635.085	2668.689	2709.760	2711.627
25	2473.601	2484.802	2545.476	2599.615	2613.616
30	2292.515	2312.117	2398.926	2468.934	2496.004
35	2066.624	2112.362	2227.175	2318.651	2350.388
40	1851.000	1900.472	2038.621	2166.501	2196.371
45	1595.239	1667.114	1835.132	1973.280	2010.618
50	1356.280	1444.956	1628.843	1780.993	1822.064
55	1120.121	1206.931	1417.887	1575.637	1624.176
60	896.097	994.108	1210.664	1356.280	1411.353
65	680.474	784.085	995.975	1181.728	1221.866
70	502.188	593.664	815.822	995.975	1043.580
75	340.704	442.448	667.406	828.890	864.360
80	189.487	313.634	533.924	680.474	730.879
85	67.207	211.890	423.779	560.061	602.065
90	0.000	140.015	330.436	463.917	490.987
95	0.000	89.610	260.428	379.908	420.979
100	0.000	59.740	199.755	314.567	347.238
105	0.000	40.138	157.750	253.894	290.298
110	0.000	18.669	125.080	208.156	242.693
115	0.000	12.135	99.877	175.486	199.755
120	0.000	0.000	79.342	143.749	168.952
125	0.000	0.000	61.607	114.812	134.415
130	0.000	0.000	48.539	90.543	107.345
135	0.000	0.000	39.204	70.008	85.876
140	0.000	0.000	20.536	53.206	65.340
145	0.000	0.000	7.467	41.071	47.605
150	0.000	0.000	0.000	35.471	40.138
155	0.000	0.000	0.000	33.604	35.471
160	0.000	0.000	0.000	19.602	32.670
165	0.000	0.000	0.000	6.534	11.201
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	1054.75	N.A.	11.80
0-30	2226.63	N.A.	24.80
0-40	3614.43	N.A.	40.30
0-60	6268.52	N.A.	69.90
0-80	7918.51	N.A.	88.30
0-90	8343.06	N.A.	93.10
10-90	8069.42	N.A.	90.00
20-40	2559.68	N.A.	28.60
20-50	3966.1	N.A.	44.20
40-70	3627.34	N.A.	40.50
60-80	1649.99	N.A.	18.40
70-80	676.75	N.A.	7.60
80-90	424.54	N.A.	4.70
90-110	419.69	N.A.	4.70
90-120	516.41	N.A.	5.80
90-130	571.98	N.A.	6.40
90-150	613.53	N.A.	6.80
90-180	620.37	N.A.	6.90
110-180	200.68	N.A.	2.20
0-180	8963.43	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	273.63
10-20	781.12
20-30	1171.88
30-40	1387.8
40-50	1406.42
50-60	1247.68
60-70	973.25
70-80	676.75
80-90	424.54
90-100	259.81
100-110	159.88
110-120	96.71
120-130	55.57
130-140	29.39
140-150	12.16
150-160	5.67
160-170	1.17
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

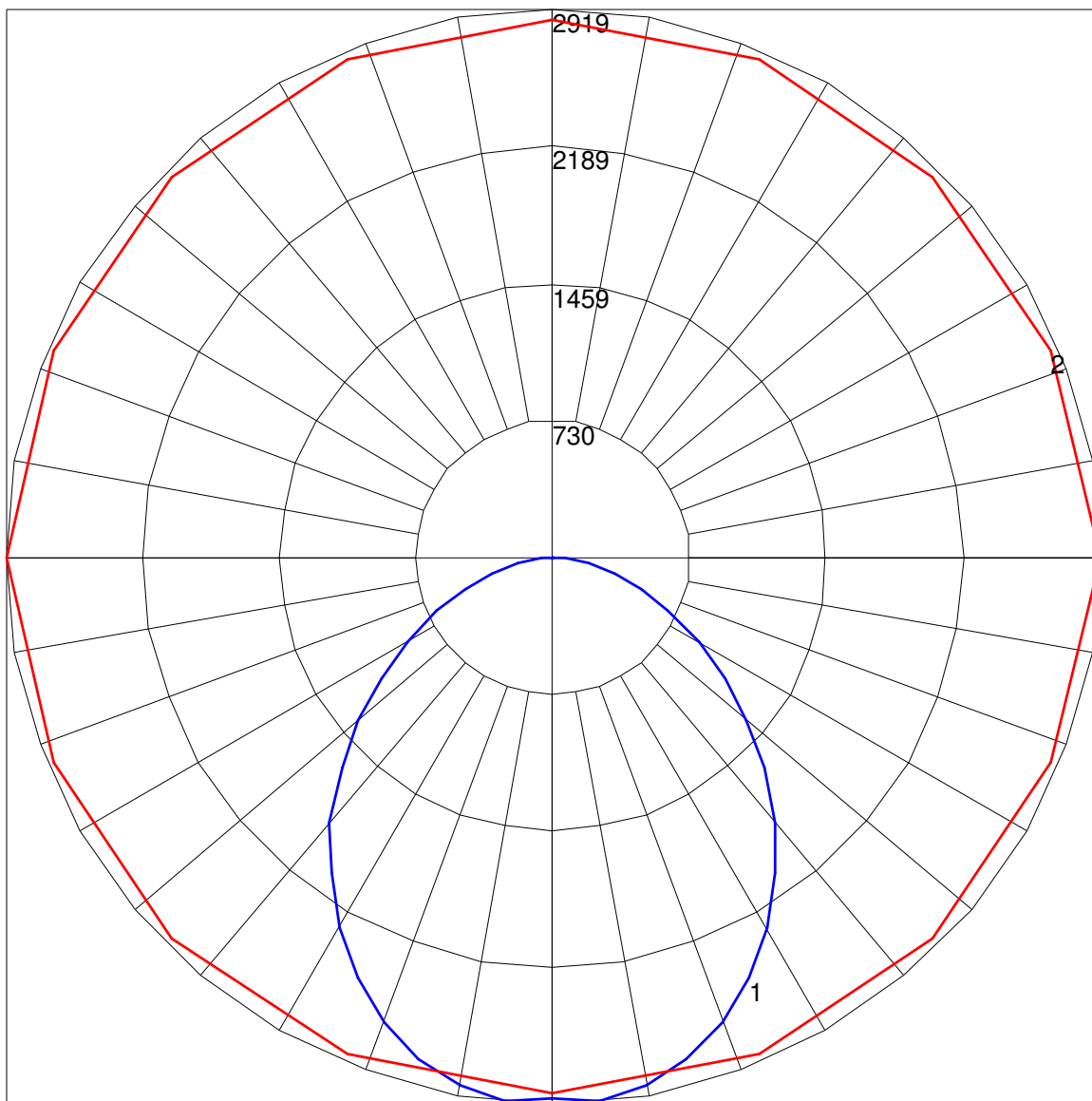
Reflectances

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	18.5	20.0	18.9	20.4	20.9	21.5	23.0	22.0	23.4	23.9
	3H	19.7	21.0	20.2	21.5	22.0	23.7	25.1	24.2	25.6	26.1
	4H	20.1	21.4	20.6	21.8	22.4	24.8	26.1	25.3	26.6	27.1
	6H	20.3	21.5	20.8	22.0	22.5	25.9	27.1	26.4	27.6	28.1
	8H	20.3	21.5	20.9	22.0	22.6	26.5	27.6	27.0	28.1	28.7
	12H	20.3	21.4	20.9	22.0	22.6	27.1	28.2	27.6	28.7	29.3
4H	2H	19.4	20.7	19.9	21.2	21.7	21.8	23.1	22.3	23.6	24.1
	3H	20.9	22.0	21.4	22.5	23.1	24.3	25.4	24.8	25.9	26.5
	4H	21.4	22.4	21.9	22.9	23.5	25.5	26.5	26.0	27.1	27.7
	6H	21.7	22.6	22.2	23.1	23.8	26.8	27.7	27.4	28.3	28.9
	8H	21.8	22.6	22.3	23.2	23.8	27.5	28.3	28.0	28.9	29.5
	12H	21.8	22.6	22.4	23.2	23.8	28.2	29.0	28.8	29.6	30.2
8H	4H	22.1	22.9	22.7	23.5	24.1	25.7	26.5	26.2	27.1	27.7
	6H	22.6	23.3	23.2	23.9	24.6	27.1	27.8	27.7	28.4	29.1
	8H	22.8	23.4	23.4	24.0	24.7	27.9	28.6	28.5	29.2	29.8
	12H	22.9	23.5	23.5	24.1	24.8	28.9	29.4	29.5	30.0	30.7
12H	4H	22.3	23.1	22.9	23.7	24.3	25.7	26.4	26.3	27.0	27.7
	6H	22.9	23.6	23.6	24.2	24.8	27.2	27.8	27.8	28.4	29.1
	8H	23.2	23.8	23.8	24.4	25.1	28.0	28.6	28.6	29.2	29.9

Maximum UGR = 30.7

POLAR GRAPH



Maximum Candela = 2918.849 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.)