



IES INDOOR REPORT

PHOTOMETRIC FILENAME : NW-4-L93-950-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-L93-950-RA-DIM-UNV

[LAMPCAT] 22 INCH HLM LED ARRAYS

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	8224
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	117
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	14390	13189	13534
55	12271	11429	12034
65	9871	9468	10419
75	7656	8027	9003
85	3592	7236	8381

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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	2655.852	2655.852	2655.852	2655.852	2655.852
5	2678.119	2643.005	2636.153	2636.153	2628.445
10	2629.302	2599.326	2601.039	2607.890	2599.326
15	2541.087	2517.963	2536.805	2557.360	2554.791
20	2427.180	2417.759	2448.591	2486.275	2487.987
25	2269.593	2279.870	2335.539	2385.213	2398.060
30	2103.441	2121.427	2201.077	2265.310	2290.148
35	1896.180	1938.147	2043.490	2127.422	2156.541
40	1698.341	1743.732	1870.487	1987.821	2015.227
45	1463.673	1529.620	1683.781	1810.535	1844.793
50	1244.422	1325.785	1494.505	1634.107	1671.791
55	1027.740	1107.390	1300.948	1445.688	1490.223
60	822.192	912.119	1110.816	1244.422	1294.953
65	624.352	719.418	913.832	1084.266	1121.093
70	460.770	544.702	748.537	913.832	957.511
75	312.604	405.957	612.362	760.528	793.073
80	173.859	287.767	489.889	624.352	670.600
85	61.664	194.414	388.828	513.870	552.410
90	0.000	128.468	303.183	425.656	450.493
95	0.000	82.219	238.950	348.575	386.259
100	0.000	54.813	183.280	288.624	318.599
105	0.000	36.827	144.740	232.954	266.356
110	0.000	17.129	114.764	190.988	222.677
115	0.000	11.134	91.640	161.013	183.280
120	0.000	0.000	72.798	131.893	155.017
125	0.000	0.000	56.526	105.343	123.329
130	0.000	0.000	44.535	83.076	98.492
135	0.000	0.000	35.971	64.234	78.793
140	0.000	0.000	18.842	48.818	59.952
145	0.000	0.000	6.852	37.684	43.679
150	0.000	0.000	0.000	32.545	36.827
155	0.000	0.000	0.000	30.832	32.545
160	0.000	0.000	0.000	17.985	29.976
165	0.000	0.000	0.000	5.995	10.277
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	967.76	N.A.	11.80
0-30	2042.99	N.A.	24.80
0-40	3316.33	N.A.	40.30
0-60	5751.53	N.A.	69.90
0-80	7265.44	N.A.	88.30
0-90	7654.97	N.A.	93.10
10-90	7403.9	N.A.	90.00
20-40	2348.57	N.A.	28.60
20-50	3639.00	N.A.	44.20
40-70	3328.18	N.A.	40.50
60-80	1513.91	N.A.	18.40
70-80	620.93	N.A.	7.60
80-90	389.53	N.A.	4.70
90-110	385.08	N.A.	4.70
90-120	473.82	N.A.	5.80
90-130	524.80	N.A.	6.40
90-150	562.93	N.A.	6.80
90-180	569.21	N.A.	6.90
110-180	184.13	N.A.	2.20
0-180	8224.18	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	251.07
10-20	716.69
20-30	1075.23
30-40	1273.34
40-50	1290.43
50-60	1144.77
60-70	892.98
70-80	620.93
80-90	389.53
90-100	238.39
100-110	146.69
110-120	88.74
120-130	50.99
130-140	26.97
140-150	11.16
150-160	5.20
160-170	1.07
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

X=2H	Y=2H	18.2	19.7	18.6	20.1	20.6	21.2	22.7	21.7	23.1	23.6
	3H	19.4	20.7	19.9	21.2	21.7	23.4	24.8	23.9	25.3	25.8
	4H	19.8	21.1	20.3	21.5	22.1	24.5	25.8	25.0	26.3	26.8
	6H	20.0	21.2	20.5	21.7	22.2	25.6	26.8	26.1	27.3	27.8
	8H	20.0	21.2	20.6	21.7	22.3	26.2	27.3	26.7	27.8	28.4
	12H	20.0	21.1	20.6	21.7	22.3	26.8	27.9	27.3	28.4	29.0

UGR Viewed Endwise

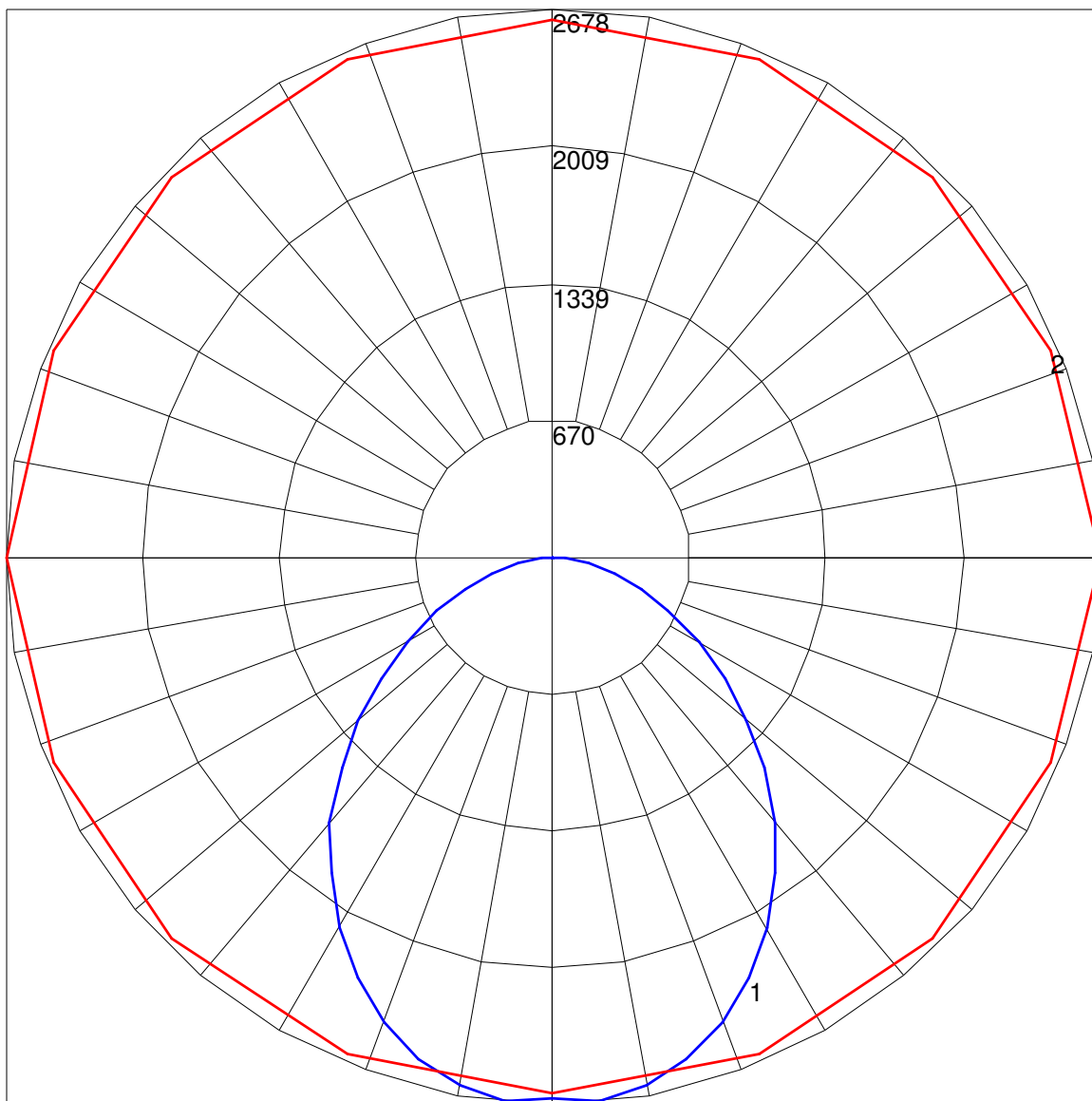
4H	2H	19.1	20.4	19.6	20.9	21.4	21.5	22.8	22.0	23.3	23.8
	3H	20.6	21.7	21.1	22.2	22.8	24.0	25.1	24.5	25.6	26.2
	4H	21.1	22.1	21.6	22.6	23.2	25.2	26.2	25.7	26.8	27.4
	6H	21.4	22.3	21.9	22.8	23.5	26.5	27.4	27.1	28.0	28.6
	8H	21.5	22.3	22.0	22.9	23.5	27.2	28.0	27.7	28.6	29.2
	12H	21.5	22.3	22.1	22.9	23.5	27.9	28.7	28.5	29.3	29.9

8H	4H	21.8	22.6	22.4	23.2	23.8	25.4	26.2	25.9	26.8	27.4
	6H	22.3	23.0	22.9	23.6	24.3	26.8	27.5	27.4	28.1	28.8
	8H	22.5	23.1	23.1	23.7	24.4	27.6	28.3	28.2	28.9	29.5
	12H	22.6	23.2	23.2	23.8	24.5	28.6	29.1	29.2	29.7	30.4

12H	4H	22.0	22.8	22.6	23.4	24.0	25.4	26.1	26.0	26.7	27.4
	6H	22.6	23.3	23.3	23.9	24.5	26.9	27.5	27.5	28.1	28.8
	8H	22.9	23.5	23.5	24.1	24.8	27.7	28.3	28.3	28.9	29.6

Maximum UGR = 30.4

POLAR GRAPH



Maximum Candela = 2678.119 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.)