



IES INDOOR REPORT

PHOTOMETRIC FILENAME : NW-4-L54-935-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-L54-935-RA-DIM-UNV

[LAMPCAT] 22 INCH HLM LED ARRAYS

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4586
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	118
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	8024	7354	7546
55	6842	6373	6710
65	5504	5279	5809
75	4269	4476	5020
85	2003	4035	4673

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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	1480.830	1480.830	1480.830	1480.830	1480.830
5	1493.246	1473.667	1469.847	1469.847	1465.549
10	1466.027	1449.313	1450.268	1454.088	1449.313
15	1416.841	1403.947	1414.453	1425.914	1424.481
20	1353.329	1348.076	1365.267	1386.279	1387.234
25	1265.463	1271.193	1302.233	1329.930	1337.093
30	1172.821	1182.849	1227.260	1263.075	1276.924
35	1057.258	1080.657	1139.394	1186.192	1202.428
40	946.948	972.257	1042.932	1108.354	1123.635
45	816.104	852.874	938.830	1009.505	1028.606
50	693.856	739.221	833.295	911.133	932.145
55	573.040	617.450	725.373	806.076	830.908
60	458.432	508.573	619.360	693.856	722.030
65	348.122	401.128	509.528	604.557	625.091
70	256.913	303.711	417.364	509.528	533.882
75	174.300	226.351	341.436	424.049	442.196
80	96.939	160.451	273.149	348.122	373.908
85	34.382	108.400	216.800	286.520	308.009
90	0.000	71.630	169.047	237.334	251.182
95	0.000	45.843	133.232	194.356	215.367
100	0.000	30.562	102.192	160.929	177.642
105	0.000	20.534	80.703	129.889	148.513
110	0.000	9.551	63.989	106.490	124.159
115	0.000	6.208	51.096	89.776	102.192
120	0.000	0.000	40.590	73.540	86.433
125	0.000	0.000	31.517	58.737	68.765
130	0.000	0.000	24.832	46.321	54.916
135	0.000	0.000	20.056	35.815	43.933
140	0.000	0.000	10.506	27.219	33.427
145	0.000	0.000	3.820	21.011	24.354
150	0.000	0.000	0.000	18.146	20.534
155	0.000	0.000	0.000	17.191	18.146
160	0.000	0.000	0.000	10.028	16.714
165	0.000	0.000	0.000	3.343	5.730
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	539.60	N.A.	11.80
0-30	1139.11	N.A.	24.80
0-40	1849.09	N.A.	40.30
0-60	3206.9	N.A.	69.90
0-80	4051.01	N.A.	88.30
0-90	4268.2	N.A.	93.10
10-90	4128.21	N.A.	90.00
20-40	1309.5	N.A.	28.60
20-50	2029.00	N.A.	44.20
40-70	1855.7	N.A.	40.50
60-80	844.11	N.A.	18.40
70-80	346.21	N.A.	7.50
80-90	217.19	N.A.	4.70
90-110	214.71	N.A.	4.70
90-120	264.19	N.A.	5.80
90-130	292.62	N.A.	6.40
90-150	313.88	N.A.	6.80
90-180	317.38	N.A.	6.90
110-180	102.67	N.A.	2.20
0-180	4585.58	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	139.99
10-20	399.61
20-30	599.52
30-40	709.98
40-50	719.51
50-60	638.29
60-70	497.90
70-80	346.21
80-90	217.19
90-100	132.92
100-110	81.79
110-120	49.48
120-130	28.43
130-140	15.04
140-150	6.22
150-160	2.90
160-170	0.60
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	87	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

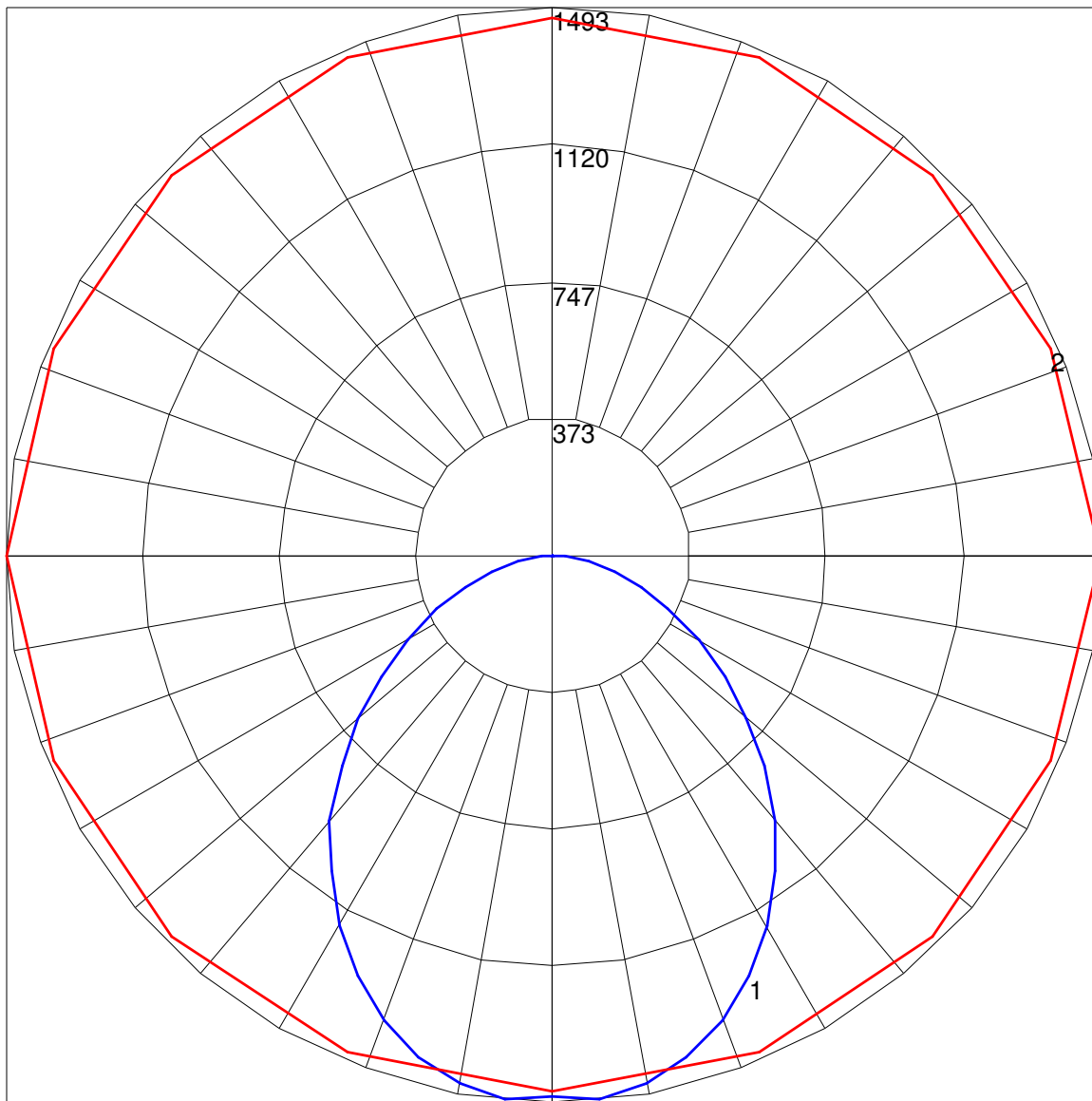
Reflectances

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	16.2	17.7	16.6	18.1	18.6	19.2	20.7	19.7	21.1	21.6
	3H	17.4	18.7	17.9	19.2	19.7	21.4	22.8	21.9	23.3	23.8
	4H	17.8	19.1	18.3	19.5	20.1	22.5	23.8	23.0	24.3	24.8
	6H	18.0	19.2	18.5	19.7	20.2	23.6	24.8	24.1	25.3	25.8
	8H	18.0	19.2	18.6	19.7	20.3	24.2	25.3	24.7	25.8	26.4
	12H	18.0	19.1	18.6	19.7	20.3	24.8	25.9	25.3	26.4	27.0
4H	2H	17.1	18.4	17.6	18.9	19.4	19.5	20.8	20.0	21.3	21.8
	3H	18.6	19.7	19.1	20.2	20.8	22.0	23.1	22.5	23.6	24.2
	4H	19.1	20.1	19.6	20.6	21.2	23.2	24.2	23.7	24.8	25.4
	6H	19.4	20.3	19.9	20.8	21.5	24.5	25.4	25.1	26.0	26.6
	8H	19.5	20.3	20.0	20.9	21.5	25.2	26.0	25.7	26.6	27.2
	12H	19.5	20.3	20.1	20.9	21.5	25.9	26.7	26.5	27.3	27.9
8H	4H	19.8	20.6	20.4	21.2	21.8	23.4	24.2	23.9	24.8	25.4
	6H	20.3	21.0	20.9	21.6	22.3	24.8	25.5	25.4	26.1	26.8
	8H	20.5	21.1	21.1	21.7	22.4	25.6	26.3	26.2	26.9	27.5
	12H	20.6	21.2	21.2	21.8	22.5	26.6	27.1	27.2	27.7	28.4
12H	4H	20.0	20.8	20.6	21.4	22.0	23.4	24.1	24.0	24.7	25.4
	6H	20.6	21.3	21.3	21.9	22.5	24.9	25.5	25.5	26.1	26.8
	8H	20.9	21.5	21.5	22.1	22.8	25.7	26.3	26.3	26.9	27.6

Maximum UGR = 28.4

POLAR GRAPH



Maximum Candela = 1493.246 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.)