



IES INDOOR REPORT

PHOTOMETRIC FILENAME : NW-4-L54-950-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-L54-950-RA-DIM-UNV

[LAMPCAT] 22 INCH HLM LED ARRAYS

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4917
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	127
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	8604	7885	8091
55	7336	6833	7195
65	5901	5660	6229
75	4578	4799	5383
85	2148	4326	5011

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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	1587.878	1587.878	1587.878	1587.878	1587.878
5	1601.191	1580.197	1576.101	1576.101	1571.492
10	1572.004	1554.082	1555.106	1559.203	1554.082
15	1519.263	1505.437	1516.702	1528.992	1527.456
20	1451.160	1445.527	1463.961	1486.491	1487.515
25	1356.942	1363.086	1396.370	1426.069	1433.750
30	1257.603	1268.356	1315.977	1354.381	1369.231
35	1133.686	1158.777	1221.760	1271.941	1289.351
40	1015.402	1042.541	1118.325	1188.476	1204.862
45	875.099	914.528	1006.697	1082.481	1102.963
50	744.014	792.659	893.533	976.998	999.528
55	614.464	662.085	777.809	864.346	890.973
60	491.571	545.337	664.133	744.014	774.225
65	373.287	430.125	546.361	648.260	670.278
70	275.485	325.666	447.535	546.361	572.476
75	186.900	242.713	366.118	454.703	474.162
80	103.947	172.050	292.895	373.287	400.938
85	36.868	116.236	232.472	307.232	330.275
90	0.000	76.808	181.267	254.491	269.340
95	0.000	49.157	142.863	208.406	230.936
100	0.000	32.771	109.579	172.562	190.484
105	0.000	22.018	86.537	139.279	159.249
110	0.000	10.241	68.615	114.188	133.134
115	0.000	6.657	54.790	96.266	109.579
120	0.000	0.000	43.525	78.856	92.682
125	0.000	0.000	33.796	62.983	73.736
130	0.000	0.000	26.627	49.669	58.886
135	0.000	0.000	21.506	38.404	47.109
140	0.000	0.000	11.265	29.187	35.844
145	0.000	0.000	4.096	22.530	26.115
150	0.000	0.000	0.000	19.458	22.018
155	0.000	0.000	0.000	18.434	19.458
160	0.000	0.000	0.000	10.753	17.922
165	0.000	0.000	0.000	3.584	6.145
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	578.60	N.A.	11.80
0-30	1221.46	N.A.	24.80
0-40	1982.76	N.A.	40.30
0-60	3438.72	N.A.	69.90
0-80	4343.85	N.A.	88.30
0-90	4576.74	N.A.	93.10
10-90	4426.64	N.A.	90.00
20-40	1404.16	N.A.	28.60
20-50	2175.68	N.A.	44.20
40-70	1989.85	N.A.	40.50
60-80	905.13	N.A.	18.40
70-80	371.24	N.A.	7.60
80-90	232.89	N.A.	4.70
90-110	230.23	N.A.	4.70
90-120	283.28	N.A.	5.80
90-130	313.77	N.A.	6.40
90-150	336.57	N.A.	6.80
90-180	340.32	N.A.	6.90
110-180	110.09	N.A.	2.20
0-180	4917.06	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	150.11
10-20	428.50
20-30	642.85
30-40	761.31
40-50	771.52
50-60	684.44
60-70	533.89
70-80	371.24
80-90	232.89
90-100	142.53
100-110	87.70
110-120	53.05
120-130	30.49
130-140	16.12
140-150	6.67
150-160	3.11
160-170	0.64
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	16.4	17.9	16.8	18.3	18.8	19.4	20.9	19.9	21.3	21.8
	3H	17.6	18.9	18.1	19.4	19.9	21.6	23.0	22.1	23.5	24.0
	4H	18.0	19.3	18.5	19.7	20.3	22.7	24.0	23.2	24.5	25.0
	6H	18.2	19.4	18.7	19.9	20.4	23.8	25.0	24.3	25.5	26.0
	8H	18.2	19.4	18.8	19.9	20.5	24.4	25.5	24.9	26.0	26.6
	12H	18.2	19.3	18.8	19.9	20.5	25.0	26.1	25.5	26.6	27.2

UGR Viewed Endwise

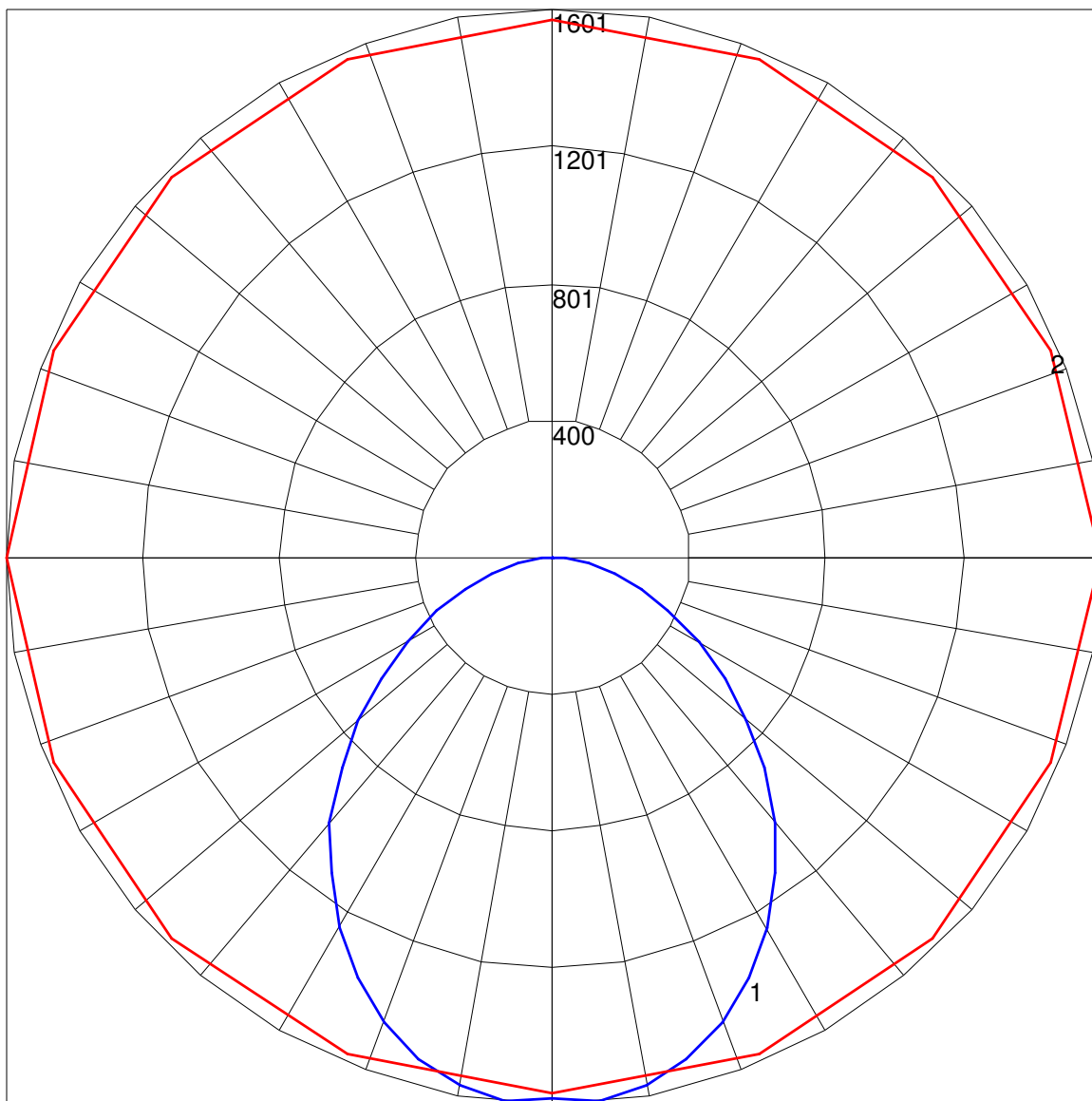
4H	2H	17.3	18.6	17.8	19.1	19.6	19.7	21.0	20.2	21.5	22.0
	3H	18.8	19.9	19.3	20.4	21.0	22.2	23.3	22.7	23.8	24.4
	4H	19.3	20.3	19.8	20.8	21.4	23.4	24.4	23.9	25.0	25.6
	6H	19.6	20.5	20.1	21.0	21.7	24.7	25.6	25.3	26.2	26.8
	8H	19.7	20.5	20.2	21.1	21.7	25.4	26.2	25.9	26.8	27.4
	12H	19.7	20.5	20.3	21.1	21.7	26.1	26.9	26.7	27.5	28.1

8H	4H	20.0	20.8	20.6	21.4	22.0	23.6	24.4	24.1	25.0	25.6
	6H	20.5	21.2	21.1	21.8	22.5	25.0	25.7	25.6	26.3	27.0
	8H	20.7	21.3	21.3	21.9	22.6	25.8	26.5	26.4	27.1	27.7
	12H	20.8	21.4	21.4	22.0	22.7	26.8	27.3	27.4	27.9	28.6

12H	4H	20.2	21.0	20.8	21.6	22.2	23.6	24.3	24.2	24.9	25.6
	6H	20.8	21.5	21.5	22.1	22.7	25.1	25.7	25.7	26.3	27.0
	8H	21.1	21.7	21.7	22.3	23.0	25.9	26.5	26.5	27.1	27.8

Maximum UGR = 28.6

POLAR GRAPH



Maximum Candela = 1601.191 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.)