



IES INDOOR REPORT

PHOTOMETRIC FILENAME : NW-4-L54-830-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-L54-830-RA-DIM-UNV

[LAMPCAT] 22 INCH HLM LED ARRAYS

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	5470
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	141
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	9570	8771	9001
55	8161	7601	8003
65	6565	6296	6929
75	5092	5339	5987
85	2389	4813	5574

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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	1766.291	1766.291	1766.291	1766.291	1766.291
5	1781.100	1757.747	1753.191	1753.191	1748.064
10	1748.634	1728.698	1729.838	1734.394	1728.698
15	1689.966	1674.588	1687.118	1700.789	1699.080
20	1614.211	1607.946	1628.451	1653.513	1654.652
25	1509.407	1516.242	1553.265	1586.301	1594.845
30	1398.907	1410.868	1463.840	1506.559	1523.077
35	1261.067	1288.977	1359.036	1414.856	1434.222
40	1129.492	1159.680	1243.979	1322.013	1340.240
45	973.425	1017.283	1119.809	1204.108	1226.892
50	827.611	881.722	993.930	1086.773	1111.835
55	683.505	736.477	865.204	961.464	991.082
60	546.804	606.611	738.755	827.611	861.216
65	415.229	478.454	607.750	721.098	745.590
70	306.438	362.258	497.820	607.750	636.799
75	207.899	269.985	407.255	505.794	527.438
80	115.626	191.381	325.804	415.229	445.987
85	41.010	129.296	258.593	341.753	367.384
90	0.000	85.438	201.634	283.085	299.603
95	0.000	54.680	158.915	231.822	256.884
100	0.000	36.454	121.892	191.951	211.887
105	0.000	24.492	96.260	154.928	177.142
110	0.000	11.392	76.325	127.018	148.093
115	0.000	7.405	60.946	107.082	121.892
120	0.000	0.000	48.415	87.716	103.095
125	0.000	0.000	37.593	70.059	82.021
130	0.000	0.000	29.619	55.250	65.503
135	0.000	0.000	23.923	42.719	52.402
140	0.000	0.000	12.531	32.466	39.871
145	0.000	0.000	4.557	25.062	29.049
150	0.000	0.000	0.000	21.644	24.492
155	0.000	0.000	0.000	20.505	21.644
160	0.000	0.000	0.000	11.961	19.936
165	0.000	0.000	0.000	3.987	6.835
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	643.62	N.A.	11.80
0-30	1358.7	N.A.	24.80
0-40	2205.55	N.A.	40.30
0-60	3825.09	N.A.	69.90
0-80	4831.93	N.A.	88.30
0-90	5090.99	N.A.	93.10
10-90	4924.01	N.A.	90.00
20-40	1561.93	N.A.	28.60
20-50	2420.14	N.A.	44.20
40-70	2213.43	N.A.	40.50
60-80	1006.84	N.A.	18.40
70-80	412.95	N.A.	7.50
80-90	259.06	N.A.	4.70
90-110	256.10	N.A.	4.70
90-120	315.11	N.A.	5.80
90-130	349.02	N.A.	6.40
90-150	374.38	N.A.	6.80
90-180	378.56	N.A.	6.90
110-180	122.46	N.A.	2.20
0-180	5469.54	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	166.97
10-20	476.64
20-30	715.09
30-40	846.85
40-50	858.21
50-60	761.34
60-70	593.88
70-80	412.95
80-90	259.06
90-100	158.54
100-110	97.56
110-120	59.02
120-130	33.91
130-140	17.94
140-150	7.42
150-160	3.46
160-170	0.71
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

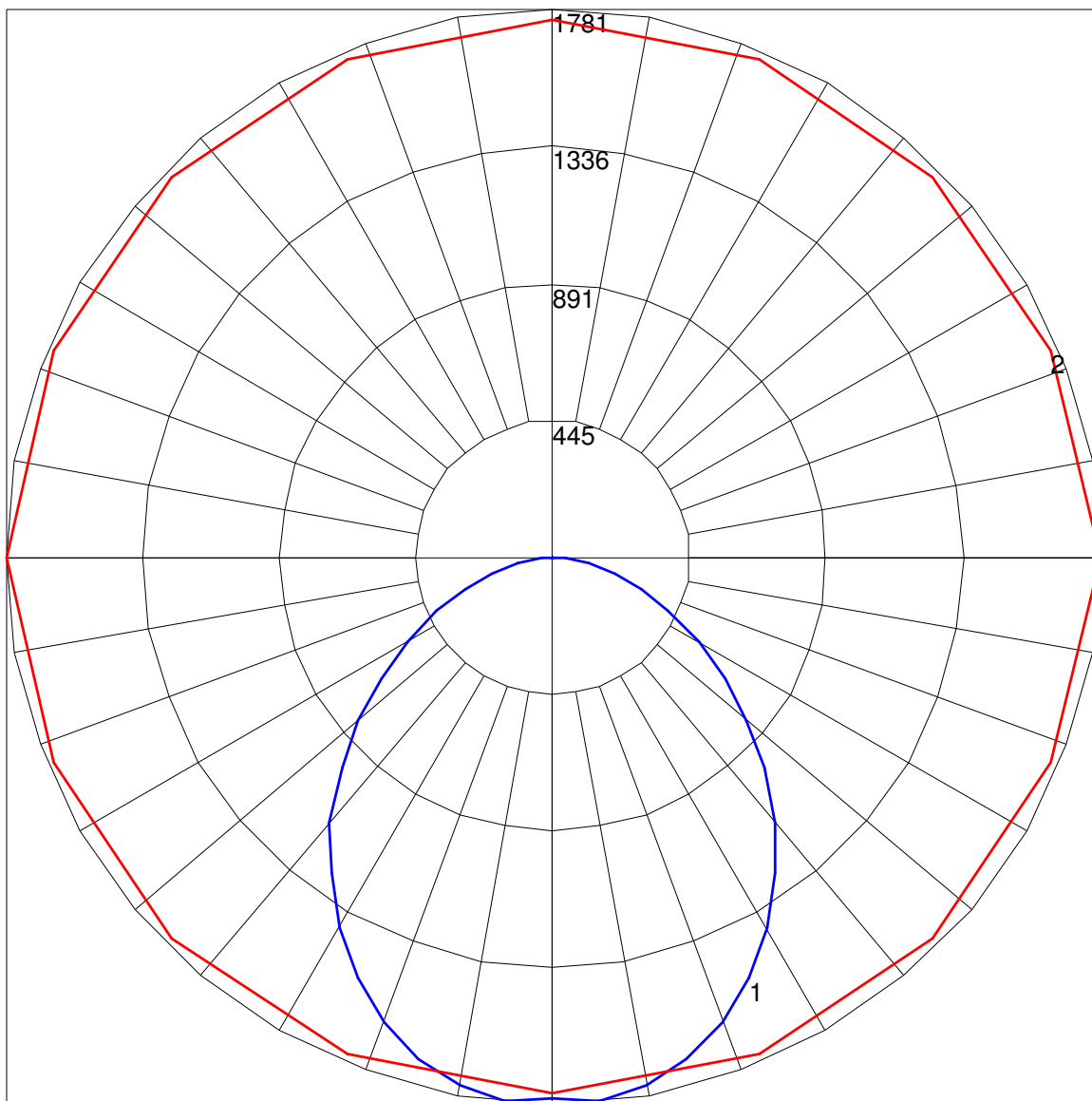
Reflectances

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	16.8	18.3	17.2	18.7	19.2	19.8	21.3	20.3	21.7	22.2
	3H	18.0	19.3	18.5	19.8	20.3	22.0	23.4	22.5	23.9	24.4
	4H	18.4	19.7	18.9	20.1	20.7	23.1	24.4	23.6	24.9	25.4
	6H	18.6	19.8	19.1	20.3	20.8	24.2	25.4	24.7	25.9	26.4
	8H	18.6	19.8	19.2	20.3	20.9	24.8	25.9	25.3	26.4	27.0
	12H	18.6	19.7	19.2	20.3	20.9	25.4	26.5	25.9	27.0	27.6
4H	2H	17.7	19.0	18.2	19.5	20.0	20.1	21.4	20.6	21.9	22.4
	3H	19.2	20.3	19.7	20.8	21.4	22.6	23.7	23.1	24.2	24.8
	4H	19.7	20.7	20.2	21.2	21.8	23.8	24.8	24.3	25.4	26.0
	6H	20.0	20.9	20.5	21.4	22.1	25.1	26.0	25.7	26.6	27.2
	8H	20.1	20.9	20.6	21.5	22.1	25.8	26.6	26.3	27.2	27.8
	12H	20.1	20.9	20.7	21.5	22.1	26.5	27.3	27.1	27.9	28.5
8H	4H	20.4	21.2	21.0	21.8	22.4	24.0	24.8	24.5	25.4	26.0
	6H	20.9	21.6	21.5	22.2	22.9	25.4	26.1	26.0	26.7	27.4
	8H	21.1	21.7	21.7	22.3	23.0	26.2	26.9	26.8	27.5	28.1
	12H	21.2	21.8	21.8	22.4	23.1	27.2	27.7	27.8	28.3	29.0
12H	4H	20.6	21.4	21.2	22.0	22.6	24.0	24.7	24.6	25.3	26.0
	6H	21.2	21.9	21.9	22.5	23.1	25.5	26.1	26.1	26.7	27.4
	8H	21.5	22.1	22.1	22.7	23.4	26.3	26.9	26.9	27.5	28.2

Maximum UGR = 29.0

POLAR GRAPH



Maximum Candela = 1781.1 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.)