



IES INDOOR REPORT

PHOTOMETRIC FILENAME : NW-4-L54-930-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-L54-930-RA-DIM-UNV

[LAMPCAT] 22 INCH HLM LED ARRAYS

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4530
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	117
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	7927	7265	7455
55	6759	6296	6629
65	5437	5215	5739
75	4218	4422	4959
85	1979	3986	4617

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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	1462.989	1462.989	1462.989	1462.989	1462.989
5	1475.255	1455.912	1452.138	1452.138	1447.892
10	1448.363	1431.851	1432.795	1436.569	1431.851
15	1399.770	1387.032	1397.411	1408.734	1407.319
20	1337.023	1331.834	1348.818	1369.576	1370.520
25	1250.216	1255.877	1286.543	1313.906	1320.983
30	1158.691	1168.598	1212.474	1247.857	1261.539
35	1044.520	1067.637	1125.666	1171.901	1187.941
40	935.539	960.543	1030.367	1095.000	1110.097
45	806.271	842.598	927.519	997.342	1016.213
50	685.496	730.315	823.255	900.156	920.914
55	566.136	610.011	716.633	796.364	820.897
60	452.908	502.445	611.898	685.496	713.331
65	343.927	396.295	503.389	597.273	617.560
70	253.817	300.052	412.335	503.389	527.450
75	172.200	223.624	337.322	418.940	436.868
80	95.771	158.518	269.858	343.927	369.403
85	33.968	107.094	214.188	283.068	304.298
90	0.000	70.767	167.010	234.474	248.156
95	0.000	45.291	131.627	192.014	212.773
100	0.000	30.194	100.961	158.990	175.502
105	0.000	20.287	79.731	128.324	146.723
110	0.000	9.436	63.218	105.207	122.663
115	0.000	6.133	50.480	88.695	100.961
120	0.000	0.000	40.101	72.654	85.392
125	0.000	0.000	31.137	58.029	67.936
130	0.000	0.000	24.533	45.763	54.255
135	0.000	0.000	19.815	35.383	43.404
140	0.000	0.000	10.379	26.891	33.025
145	0.000	0.000	3.774	20.758	24.061
150	0.000	0.000	0.000	17.928	20.287
155	0.000	0.000	0.000	16.984	17.928
160	0.000	0.000	0.000	9.907	16.512
165	0.000	0.000	0.000	3.302	5.661
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	533.10	N.A.	11.80
0-30	1125.39	N.A.	24.80
0-40	1826.82	N.A.	40.30
0-60	3168.26	N.A.	69.90
0-80	4002.2	N.A.	88.30
0-90	4216.78	N.A.	93.10
10-90	4078.47	N.A.	90.00
20-40	1293.72	N.A.	28.60
20-50	2004.56	N.A.	44.20
40-70	1833.34	N.A.	40.50
60-80	833.94	N.A.	18.40
70-80	342.04	N.A.	7.60
80-90	214.57	N.A.	4.70
90-110	212.12	N.A.	4.70
90-120	261.00	N.A.	5.80
90-130	289.09	N.A.	6.40
90-150	310.09	N.A.	6.80
90-180	313.55	N.A.	6.90
110-180	101.43	N.A.	2.20
0-180	4530.33	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	138.30
10-20	394.79
20-30	592.29
30-40	701.43
40-50	710.84
50-60	630.60
60-70	491.90
70-80	342.04
80-90	214.57
90-100	131.32
100-110	80.81
110-120	48.88
120-130	28.09
130-140	14.86
140-150	6.15
150-160	2.87
160-170	0.59
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

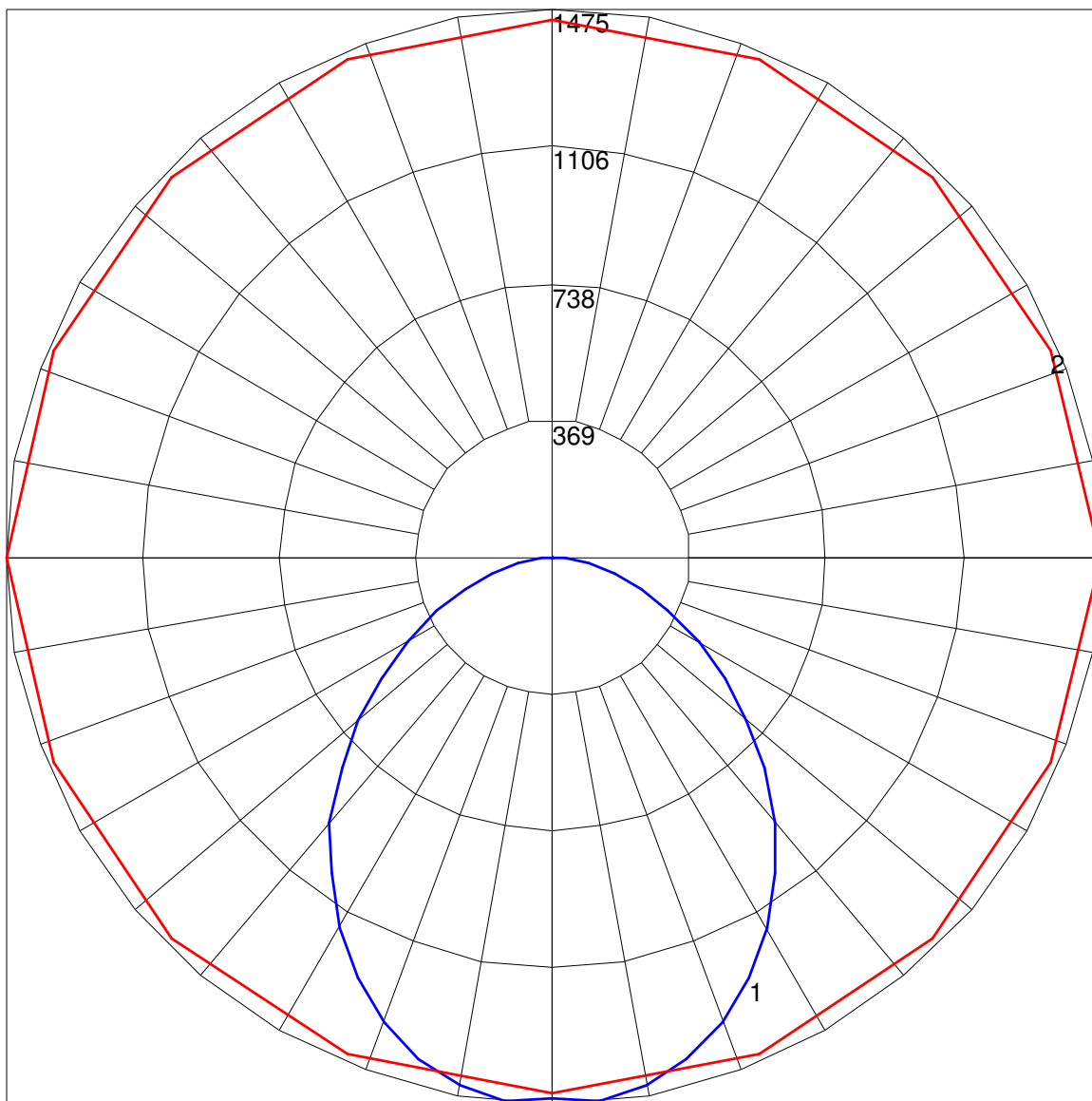
Reflectances

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	16.1	17.6	16.5	18.0	18.5	19.1	20.6	19.6	21.0	21.5
	3H	17.3	18.6	17.8	19.1	19.6	21.3	22.7	21.8	23.2	23.7
	4H	17.7	19.0	18.2	19.4	20.0	22.4	23.7	22.9	24.2	24.7
	6H	17.9	19.1	18.4	19.6	20.1	23.5	24.7	24.0	25.2	25.7
	8H	17.9	19.1	18.5	19.6	20.2	24.0	25.2	24.6	25.7	26.3
	12H	17.9	19.0	18.5	19.6	20.2	24.7	25.8	25.2	26.3	26.9
4H	2H	17.0	18.3	17.5	18.8	19.3	19.4	20.7	19.9	21.2	21.7
	3H	18.5	19.6	19.0	20.1	20.7	21.9	23.0	22.4	23.5	24.1
	4H	19.0	20.0	19.5	20.5	21.1	23.1	24.1	23.6	24.7	25.3
	6H	19.3	20.2	19.8	20.7	21.4	24.4	25.3	25.0	25.9	26.5
	8H	19.4	20.2	19.9	20.8	21.4	25.1	25.9	25.6	26.5	27.1
	12H	19.4	20.2	20.0	20.8	21.4	25.8	26.6	26.4	27.2	27.8
8H	4H	19.7	20.5	20.3	21.1	21.7	23.3	24.1	23.8	24.7	25.3
	6H	20.2	20.9	20.8	21.5	22.2	24.7	25.4	25.3	26.0	26.7
	8H	20.4	21.0	21.0	21.6	22.3	25.5	26.2	26.1	26.8	27.4
	12H	20.5	21.0	21.1	21.7	22.4	26.5	27.0	27.1	27.6	28.3
12H	4H	19.9	20.7	20.5	21.3	21.9	23.3	24.0	23.9	24.6	25.3
	6H	20.5	21.2	21.2	21.8	22.4	24.8	25.4	25.4	26.0	26.7
	8H	20.8	21.4	21.4	22.0	22.7	25.6	26.2	26.2	26.8	27.5

Maximum UGR = 28.3

POLAR GRAPH



Maximum Candela = 1475.255 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.)