



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : NW-4-L54-940-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-L54-940-RA-DIM-UNV  
[LAMPCAT] 22 INCH HLM LED ARRAYS

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4751
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	122
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	8314	7619	7819
55	7089	6603	6952
65	5702	5470	6019
75	4423	4637	5201
85	2075	4181	4842

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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>
<b>0</b>	1534.354	1534.354	1534.354	1534.354	1534.354
<b>5</b>	1547.219	1526.932	1522.974	1522.974	1518.521
<b>10</b>	1519.015	1501.698	1502.687	1506.646	1501.698
<b>15</b>	1468.052	1454.692	1465.578	1477.453	1475.968
<b>20</b>	1402.244	1396.801	1414.614	1436.385	1437.375
<b>25</b>	1311.202	1317.140	1349.301	1377.999	1385.421
<b>30</b>	1215.212	1225.603	1271.619	1308.728	1323.077
<b>35</b>	1095.472	1119.717	1180.577	1229.067	1245.890
<b>40</b>	981.175	1007.399	1080.629	1148.415	1164.249
<b>45</b>	845.602	883.701	972.764	1045.993	1065.785
<b>50</b>	718.935	765.940	863.414	944.066	965.837
<b>55</b>	593.752	639.768	751.591	835.211	860.940
<b>60</b>	475.002	526.955	641.747	718.935	748.127
<b>65</b>	360.704	415.626	527.944	626.408	647.684
<b>70</b>	266.199	314.689	432.449	527.944	553.179
<b>75</b>	180.600	234.532	353.777	439.376	458.179
<b>80</b>	100.443	166.251	283.022	360.704	387.423
<b>85</b>	35.625	112.318	224.636	296.876	319.142
<b>90</b>	0.000	74.219	175.157	245.912	260.261
<b>95</b>	0.000	47.500	138.047	201.381	223.152
<b>100</b>	0.000	31.667	105.886	166.745	184.063
<b>105</b>	0.000	21.276	83.620	134.584	153.881
<b>110</b>	0.000	9.896	66.302	110.339	128.646
<b>115</b>	0.000	6.432	52.943	93.021	105.886
<b>120</b>	0.000	0.000	42.057	76.198	89.558
<b>125</b>	0.000	0.000	32.656	60.860	71.250
<b>130</b>	0.000	0.000	25.729	47.995	56.901
<b>135</b>	0.000	0.000	20.781	37.109	45.521
<b>140</b>	0.000	0.000	10.885	28.203	34.636
<b>145</b>	0.000	0.000	3.958	21.771	25.234
<b>150</b>	0.000	0.000	0.000	18.802	21.276
<b>155</b>	0.000	0.000	0.000	17.813	18.802
<b>160</b>	0.000	0.000	0.000	10.391	17.318
<b>165</b>	0.000	0.000	0.000	3.464	5.938
<b>170</b>	0.000	0.000	0.000	0.000	0.000
<b>175</b>	0.000	0.000	0.000	0.000	0.000
<b>180</b>	0.000	0.000	0.000	0.000	0.000

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	559.10	N.A.	11.80
0-30	1180.29	N.A.	24.80
0-40	1915.93	N.A.	40.30
0-60	3322.81	N.A.	69.90
0-80	4197.43	N.A.	88.30
0-90	4422.47	N.A.	93.10
10-90	4277.43	N.A.	90.00
20-40	1356.83	N.A.	28.60
20-50	2102.34	N.A.	44.20
40-70	1922.77	N.A.	40.50
60-80	874.62	N.A.	18.40
70-80	358.73	N.A.	7.60
80-90	225.04	N.A.	4.70
90-110	222.47	N.A.	4.70
90-120	273.74	N.A.	5.80
90-130	303.19	N.A.	6.40
90-150	325.22	N.A.	6.80
90-180	328.85	N.A.	6.90
110-180	106.38	N.A.	2.20
0-180	4751.32	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	145.05
10-20	414.05
20-30	621.19
30-40	735.64
40-50	745.51
50-60	661.37
60-70	515.90
70-80	358.73
80-90	225.04
90-100	137.72
100-110	84.75
110-120	51.27
120-130	29.46
130-140	15.58
140-150	6.45
150-160	3.01
160-170	0.62
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**

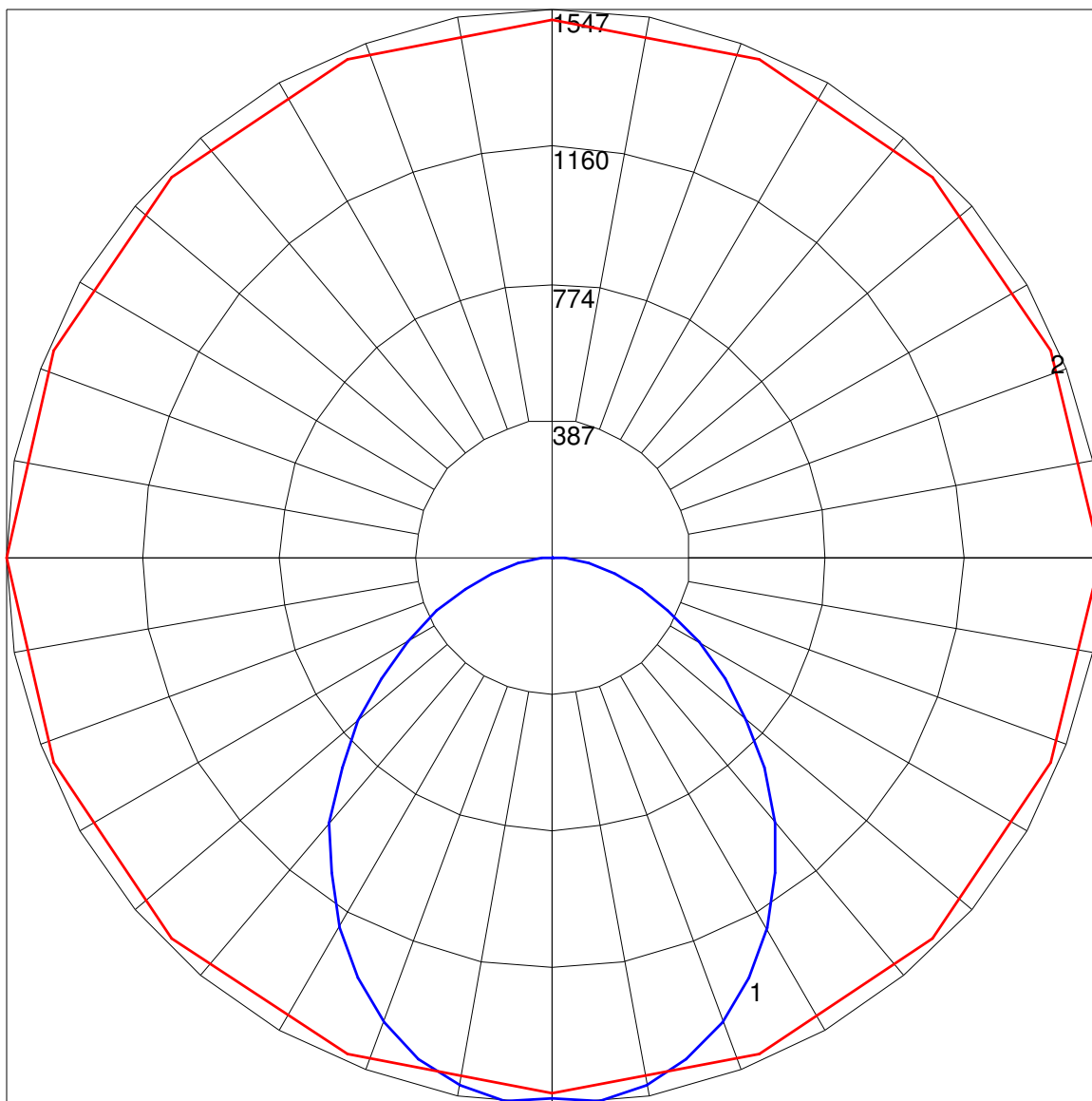
Reflectances

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	16.3	17.8	16.7	18.2	18.7	19.3	20.8	19.8	21.2	21.7
	3H	17.5	18.8	18.0	19.3	19.8	21.5	22.9	22.0	23.4	23.9
	4H	17.9	19.2	18.4	19.6	20.2	22.6	23.9	23.1	24.4	24.9
	6H	18.1	19.3	18.6	19.8	20.3	23.7	24.9	24.2	25.4	25.9
	8H	18.1	19.3	18.7	19.8	20.4	24.2	25.4	24.8	25.9	26.5
	12H	18.1	19.2	18.7	19.8	20.4	24.9	26.0	25.4	26.5	27.1
4H	2H	17.2	18.5	17.7	19.0	19.5	19.6	20.9	20.1	21.4	21.9
	3H	18.7	19.8	19.2	20.3	20.9	22.1	23.2	22.6	23.7	24.3
	4H	19.2	20.2	19.7	20.7	21.3	23.3	24.3	23.8	24.9	25.5
	6H	19.5	20.4	20.0	20.9	21.6	24.6	25.5	25.2	26.1	26.7
	8H	19.6	20.4	20.1	21.0	21.6	25.3	26.1	25.8	26.7	27.3
	12H	19.6	20.4	20.2	21.0	21.6	26.0	26.8	26.6	27.4	28.0
8H	4H	19.9	20.7	20.5	21.3	21.9	23.5	24.3	24.0	24.9	25.5
	6H	20.4	21.1	21.0	21.7	22.4	24.9	25.6	25.5	26.2	26.9
	8H	20.6	21.2	21.2	21.8	22.5	25.7	26.4	26.3	27.0	27.6
	12H	20.7	21.2	21.3	21.9	22.6	26.7	27.2	27.3	27.8	28.5
12H	4H	20.1	20.9	20.7	21.5	22.1	23.5	24.2	24.1	24.8	25.5
	6H	20.7	21.4	21.4	22.0	22.6	25.0	25.6	25.6	26.2	26.9
	8H	21.0	21.6	21.6	22.2	22.9	25.8	26.4	26.4	27.0	27.7

Maximum UGR = 28.5

POLAR GRAPH



Maximum Candela = 1547.219 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.)