



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : AW-4-L54-827-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] AW-4-L54-827-RA-DIM-UNV

[LAMPCAT] 22 INCH HLM LED ARRAYS

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	5359
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	138
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	9377	8594	8819
55	7996	7448	7841
65	6432	6169	6789
75	4989	5231	5866
85	2341	4715	5462

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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>	1730.609	1730.609	1730.609	1730.609	1730.609
<b>5</b>	1745.119	1722.237	1717.773	1717.773	1712.750
<b>10</b>	1713.308	1693.775	1694.891	1699.356	1693.775
<b>15</b>	1655.826	1640.758	1653.035	1666.429	1664.755
<b>20</b>	1581.601	1575.462	1595.553	1620.109	1621.225
<b>25</b>	1478.914	1485.611	1521.886	1554.255	1562.626
<b>30</b>	1370.646	1382.366	1434.268	1476.124	1492.308
<b>35</b>	1235.591	1262.937	1331.581	1386.273	1405.247
<b>40</b>	1106.674	1136.252	1218.848	1295.306	1313.164
<b>45</b>	953.760	996.732	1097.187	1179.783	1202.106
<b>50</b>	810.891	863.909	973.851	1064.818	1089.374
<b>55</b>	669.697	721.598	847.725	942.040	971.061
<b>60</b>	535.758	594.356	723.831	810.891	843.818
<b>65</b>	406.841	468.788	595.472	706.530	730.528
<b>70</b>	300.247	354.939	487.763	595.472	623.934
<b>75</b>	203.699	264.530	399.028	495.576	516.783
<b>80</b>	113.290	187.515	319.222	406.841	436.977
<b>85</b>	40.182	126.684	253.369	334.848	359.962
<b>90</b>	0.000	83.712	197.561	277.366	293.550
<b>95</b>	0.000	53.576	155.705	227.139	251.694
<b>100</b>	0.000	35.717	119.429	188.073	207.606
<b>105</b>	0.000	23.997	94.316	151.798	173.563
<b>110</b>	0.000	11.162	74.783	124.452	145.101
<b>115</b>	0.000	7.255	59.715	104.919	119.429
<b>120</b>	0.000	0.000	47.437	85.944	101.013
<b>125</b>	0.000	0.000	36.833	68.644	80.364
<b>130</b>	0.000	0.000	29.020	54.134	64.179
<b>135</b>	0.000	0.000	23.439	41.856	51.343
<b>140</b>	0.000	0.000	12.278	31.811	39.066
<b>145</b>	0.000	0.000	4.465	24.556	28.462
<b>150</b>	0.000	0.000	0.000	21.207	23.997
<b>155</b>	0.000	0.000	0.000	20.091	21.207
<b>160</b>	0.000	0.000	0.000	11.720	19.533
<b>165</b>	0.000	0.000	0.000	3.907	6.697
<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	630.61	N.A.	11.80
0-30	1331.25	N.A.	24.80
0-40	2160.99	N.A.	40.30
0-60	3747.82	N.A.	69.90
0-80	4734.31	N.A.	88.30
0-90	4988.14	N.A.	93.10
10-90	4824.54	N.A.	90.00
20-40	1530.38	N.A.	28.60
20-50	2371.25	N.A.	44.20
40-70	2168.71	N.A.	40.50
60-80	986.49	N.A.	18.40
70-80	404.61	N.A.	7.60
80-90	253.82	N.A.	4.70
90-110	250.92	N.A.	4.70
90-120	308.75	N.A.	5.80
90-130	341.97	N.A.	6.40
90-150	366.82	N.A.	6.80
90-180	370.91	N.A.	6.90
110-180	119.98	N.A.	2.20
0-180	5359.05	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	163.60
10-20	467.01
20-30	700.64
30-40	829.74
40-50	840.87
50-60	745.96
60-70	581.88
70-80	404.61
80-90	253.82
90-100	155.34
100-110	95.59
110-120	57.82
120-130	33.23
130-140	17.57
140-150	7.27
150-160	3.39
160-170	0.70
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**

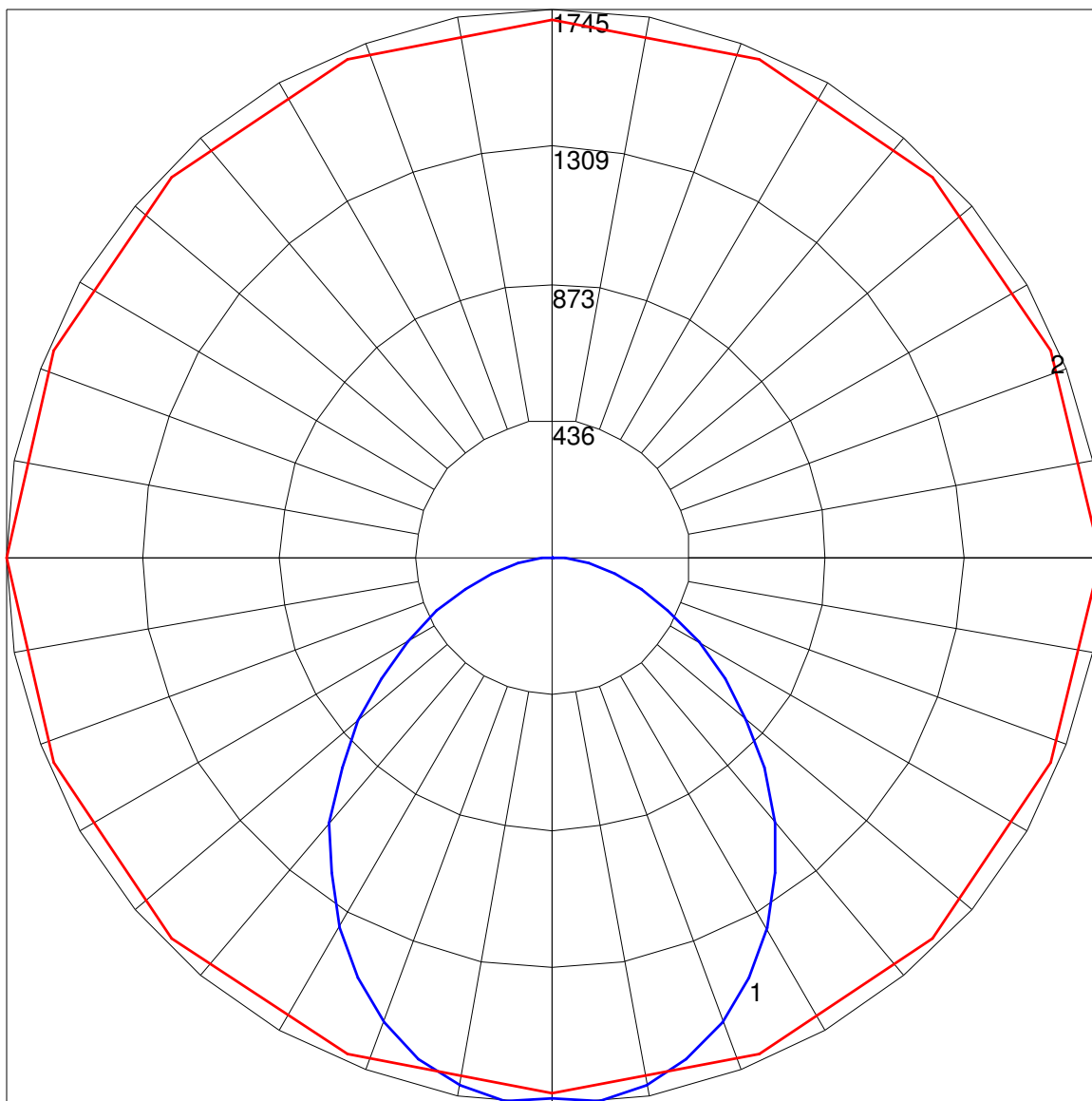
Reflectances

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	16.7	18.2	17.1	18.6	19.1	19.7	21.2	20.2	21.6	22.1
	3H	17.9	19.2	18.4	19.7	20.2	21.9	23.3	22.4	23.8	24.3
	4H	18.3	19.6	18.8	20.0	20.6	23.0	24.3	23.5	24.8	25.3
	6H	18.5	19.7	19.0	20.2	20.7	24.1	25.3	24.6	25.8	26.3
	8H	18.5	19.7	19.1	20.2	20.8	24.7	25.8	25.2	26.3	26.9
	12H	18.5	19.6	19.1	20.2	20.8	25.3	26.4	25.8	26.9	27.5
4H	2H	17.6	18.9	18.1	19.4	19.9	20.0	21.3	20.5	21.8	22.3
	3H	19.1	20.2	19.6	20.7	21.3	22.5	23.6	23.0	24.1	24.7
	4H	19.6	20.6	20.1	21.1	21.7	23.7	24.7	24.2	25.3	25.9
	6H	19.9	20.8	20.4	21.3	22.0	25.0	25.9	25.6	26.5	27.1
	8H	20.0	20.8	20.5	21.4	22.0	25.7	26.5	26.2	27.1	27.7
	12H	20.0	20.8	20.6	21.4	22.0	26.4	27.2	27.0	27.8	28.4
8H	4H	20.3	21.1	20.9	21.7	22.3	23.9	24.7	24.4	25.3	25.9
	6H	20.8	21.5	21.4	22.1	22.8	25.3	26.0	25.9	26.6	27.3
	8H	21.0	21.6	21.6	22.2	22.9	26.1	26.8	26.7	27.4	28.0
	12H	21.1	21.7	21.7	22.3	23.0	27.1	27.6	27.7	28.2	28.9
12H	4H	20.5	21.3	21.1	21.9	22.5	23.9	24.6	24.5	25.2	25.9
	6H	21.1	21.8	21.8	22.4	23.0	25.4	26.0	26.0	26.6	27.3
	8H	21.4	22.0	22.0	22.6	23.3	26.2	26.8	26.8	27.4	28.1

Maximum UGR = 28.9

POLAR GRAPH



Maximum Candela = 1745.119 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.)