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**IES INDOOR REPORT  
PHOTOMETRIC FILENAME : FSN-8998-WEVE.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
[TEST] 13560404.01  
[TESTLAB] UL Verification Services Inc.  
[ISSUE DATE] 3/4/2021  
[MANUFAC] JUSTICE DESIGN GROUP L L C  
[LUMCAT] FSN-8998-WEVE  
[LUMINAIRE] Circular metal housing and frosted glass lens  
[LAMP] White LED array  
[BALLAST] Internal  
[OTHER] 24.3 C, 120.12 V, 0.401504 A, 44.7167 W, 0.927179 PF, 59.9894  
[MORE] Hz  
[OTHER] This test was performed using the calibrated photodetector met  
[MORE] hod of absolute photometry.

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2404
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	54
Total Luminaire Watts	44.7167
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.28
Spacing Criterion (90-270)	1.28
Spacing Criterion (Diagonal)	1.40
Basic Luminous Shape	Circular w/ Sides
Luminous Length (0-180)	1.54 ft (Diameter)
Luminous Width (90-270)	1.54 ft (Diameter)
Luminous Height	0.29 ft

**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3377	3377	3377
55	3109	3109	3109
65	2778	2778	2778
75	2316	2316	2316
85	1811	1811	1811

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CANDELA TABULATION

	<u>0</u>
0.0	745.402
0.5	743.226
1.0	742.190
1.5	744.470
2.0	743.434
2.5	740.740
3.0	741.880
3.5	741.880
4.0	739.600
4.5	740.429
5.0	741.776
5.5	738.772
6.0	736.285
6.5	736.389
7.0	737.218
7.5	735.974
8.0	735.871
8.5	734.110
9.0	734.835
9.5	733.695
10.0	731.002
10.5	731.002
11.0	730.276
11.5	727.583
12.0	726.236
12.5	727.894
13.0	726.547
13.5	723.853
14.0	723.750
14.5	722.817
15.0	721.470
15.5	721.263
16.0	720.124
16.5	716.808
17.0	715.669
17.5	713.804
18.0	713.908
18.5	710.074
19.0	708.106
19.5	706.863
20.0	704.169
20.5	700.647
21.0	699.093
21.5	697.539
22.0	693.706
22.5	690.287
23.0	687.282
23.5	683.346
24.0	681.584
24.5	678.580
25.0	675.886
25.5	670.810
26.0	667.702
26.5	664.076

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**CANDELA TABULATION - (Cont.)**

<b>27.0</b>	661.279
<b>27.5</b>	658.792
<b>28.0</b>	655.063
<b>28.5</b>	652.473
<b>29.0</b>	647.293
<b>29.5</b>	642.942
<b>30.0</b>	640.559
<b>30.5</b>	637.762
<b>31.0</b>	634.136
<b>31.5</b>	630.820
<b>32.0</b>	627.194
<b>32.5</b>	622.947
<b>33.0</b>	619.217
<b>33.5</b>	615.073
<b>34.0</b>	610.929
<b>34.5</b>	606.785
<b>35.0</b>	602.330
<b>35.5</b>	599.015
<b>36.0</b>	596.218
<b>36.5</b>	592.178
<b>37.0</b>	587.723
<b>37.5</b>	583.372
<b>38.0</b>	577.881
<b>38.5</b>	572.183
<b>39.0</b>	567.935
<b>39.5</b>	564.413
<b>40.0</b>	560.165
<b>40.5</b>	555.089
<b>41.0</b>	550.427
<b>41.5</b>	546.076
<b>42.0</b>	541.517
<b>42.5</b>	536.544
<b>43.0</b>	532.297
<b>43.5</b>	529.189
<b>44.0</b>	524.630
<b>44.5</b>	518.000
<b>45.0</b>	514.685
<b>45.5</b>	509.816
<b>46.0</b>	504.325
<b>46.5</b>	500.699
<b>47.0</b>	495.933
<b>47.5</b>	490.546
<b>48.0</b>	486.816
<b>48.5</b>	482.362
<b>49.0</b>	477.492
<b>49.5</b>	472.209
<b>50.0</b>	466.925
<b>50.5</b>	462.885
<b>51.0</b>	458.119
<b>51.5</b>	452.525
<b>52.0</b>	446.309
<b>52.5</b>	441.750
<b>53.0</b>	437.606
<b>53.5</b>	431.805
<b>54.0</b>	425.900
<b>54.5</b>	420.927

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**CANDELA TABULATION - (Cont.)**

<b>55.0</b>	416.368
<b>55.5</b>	410.256
<b>56.0</b>	404.972
<b>56.5</b>	399.792
<b>57.0</b>	394.405
<b>57.5</b>	389.536
<b>58.0</b>	384.045
<b>58.5</b>	378.244
<b>59.0</b>	372.442
<b>59.5</b>	367.780
<b>60.0</b>	363.014
<b>60.5</b>	357.420
<b>61.0</b>	352.136
<b>61.5</b>	346.956
<b>62.0</b>	341.673
<b>62.5</b>	336.078
<b>63.0</b>	330.588
<b>63.5</b>	325.511
<b>64.0</b>	320.020
<b>64.5</b>	314.633
<b>65.0</b>	309.350
<b>65.5</b>	303.444
<b>66.0</b>	297.643
<b>66.5</b>	292.152
<b>67.0</b>	286.972
<b>67.5</b>	281.688
<b>68.0</b>	275.887
<b>68.5</b>	270.292
<b>69.0</b>	264.905
<b>69.5</b>	259.104
<b>70.0</b>	253.613
<b>70.5</b>	248.433
<b>71.0</b>	242.424
<b>71.5</b>	236.933
<b>72.0</b>	231.339
<b>72.5</b>	226.055
<b>73.0</b>	220.668
<b>73.5</b>	214.659
<b>74.0</b>	209.376
<b>74.5</b>	204.092
<b>75.0</b>	197.772
<b>75.5</b>	192.592
<b>76.0</b>	187.723
<b>76.5</b>	182.232
<b>77.0</b>	176.534
<b>77.5</b>	171.044
<b>78.0</b>	166.071
<b>78.5</b>	160.891
<b>79.0</b>	155.711
<b>79.5</b>	151.049
<b>80.0</b>	146.076
<b>80.5</b>	141.207
<b>81.0</b>	136.545
<b>81.5</b>	131.986
<b>82.0</b>	127.532
<b>82.5</b>	123.284

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**CANDELA TABULATION - (Cont.)**

83.0	118.726
83.5	114.582
84.0	110.852
84.5	107.019
85.0	102.927
85.5	99.104
86.0	95.675
86.5	91.955
87.0	88.091
87.5	84.154
88.0	80.508
88.5	77.058
89.0	73.732
89.5	70.873
90.0	67.879
90.5	65.289
91.0	63.414
91.5	61.922
92.0	60.150
92.5	57.581
93.0	54.473
93.5	50.329
94.0	46.506
94.5	42.963
95.0	39.244
95.5	35.452
96.0	32.085
96.5	28.697
97.0	25.133
97.5	21.611
98.0	18.213
98.5	14.939
99.0	11.841
99.5	9.106
100.0	6.869
100.5	4.962
101.0	3.357
101.5	2.155
102.0	1.254
102.5	0.663
103.0	0.300
103.5	0.093
104.0	0.010
104.5	0.000
105.0	0.000
105.5	0.000
106.0	0.000
106.5	0.000
107.0	0.000
107.5	0.000
108.0	0.000
108.5	0.000
109.0	0.000
109.5	0.000
110.0	0.000
110.5	0.000

**IES INDOOR REPORT**  
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**CANDELA TABULATION - (Cont.)**

111.0	0.000
111.5	0.000
112.0	0.000
112.5	0.000
113.0	0.000
113.5	0.000
114.0	0.000
114.5	0.000
115.0	0.000
115.5	0.000
116.0	0.000
116.5	0.000
117.0	0.000
117.5	0.000
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118.5	0.000
119.0	0.000
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120.0	0.000
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133.5	0.000
134.0	0.000
134.5	0.000
135.0	0.000
135.5	0.000
136.0	0.000
136.5	0.000
137.0	0.000
137.5	0.000
138.0	0.000
138.5	0.000

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**CANDELA TABULATION - (Cont.)**

139.0	0.000
139.5	0.000
140.0	0.000
140.5	0.000
141.0	0.000
141.5	0.000
142.0	0.000
142.5	0.000
143.0	0.000
143.5	0.000
144.0	0.000
144.5	0.000
145.0	0.000
145.5	0.000
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161.0	0.000
161.5	0.000
162.0	0.000
162.5	0.000
163.0	0.000
163.5	0.000
164.0	0.000
164.5	0.000
165.0	0.000
165.5	0.000
166.0	0.000
166.5	0.000

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**CANDELA TABULATION - (Cont.)**

<b>167.0</b>	<b>0.000</b>
<b>167.5</b>	<b>0.000</b>
<b>168.0</b>	<b>0.000</b>
<b>168.5</b>	<b>0.000</b>
<b>169.0</b>	<b>0.000</b>
<b>169.5</b>	<b>0.000</b>
<b>170.0</b>	<b>0.000</b>
<b>170.5</b>	<b>0.000</b>
<b>171.0</b>	<b>0.000</b>
<b>171.5</b>	<b>0.000</b>
<b>172.0</b>	<b>0.000</b>
<b>172.5</b>	<b>0.000</b>
<b>173.0</b>	<b>0.000</b>
<b>173.5</b>	<b>0.000</b>
<b>174.0</b>	<b>0.000</b>
<b>174.5</b>	<b>0.000</b>
<b>175.0</b>	<b>0.000</b>
<b>175.5</b>	<b>0.000</b>
<b>176.0</b>	<b>0.000</b>
<b>176.5</b>	<b>0.000</b>
<b>177.0</b>	<b>0.000</b>
<b>177.5</b>	<b>0.000</b>
<b>178.0</b>	<b>0.000</b>
<b>178.5</b>	<b>0.000</b>
<b>179.0</b>	<b>0.000</b>
<b>179.5</b>	<b>0.000</b>
<b>180.0</b>	<b>0.000</b>



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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	274.13	N.A.	11.40
0-30	585.20	N.A.	24.30
0-40	962.58	N.A.	40.00
0-60	1731.53	N.A.	72.00
0-80	2247.09	N.A.	93.50
0-90	2360.61	N.A.	98.20
10-90	2290.25	N.A.	95.30
20-40	688.44	N.A.	28.60
20-50	1085.56	N.A.	45.20
40-70	1074.68	N.A.	44.70
60-80	515.56	N.A.	21.40
70-80	209.84	N.A.	8.70
80-90	113.51	N.A.	4.70
90-110	43.32	N.A.	1.80
90-120	43.32	N.A.	1.80
90-130	43.32	N.A.	1.80
90-150	43.32	N.A.	1.80
90-180	43.32	N.A.	1.80
110-180	0.00	N.A.	0.00
0-180	2403.92	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	70.36
10-20	203.78
20-30	311.06
30-40	377.38
40-50	397.12
50-60	371.84
60-70	305.72
70-80	209.84
80-90	113.51
90-100	42.44
100-110	0.87
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

Effective Floor Cavity Reflectance 0.20

RC RW	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	110	110	110	105	105	105	100	100	100	98
1	107	101	96	92	104	99	94	90	94	91	87	90	87	84	86	84	81	79
2	96	88	80	74	94	85	79	73	81	76	71	78	73	69	75	71	67	65
3	88	76	68	61	85	75	67	60	71	64	59	68	62	57	65	60	56	54
4	80	67	58	51	78	66	57	51	63	56	50	61	54	49	58	53	48	46
5	73	60	51	44	71	59	50	43	56	49	43	54	47	42	52	46	41	39
6	68	54	45	38	66	53	44	38	51	43	37	49	42	37	47	41	36	34
7	63	49	40	33	61	48	39	33	46	38	33	45	38	32	43	37	32	30
8	58	44	36	30	57	44	35	30	42	35	29	41	34	29	39	33	29	27
9	55	41	32	27	53	40	32	27	39	31	26	38	31	26	36	30	26	24
10	51	38	30	24	50	37	29	24	36	29	24	35	28	24	34	28	23	22

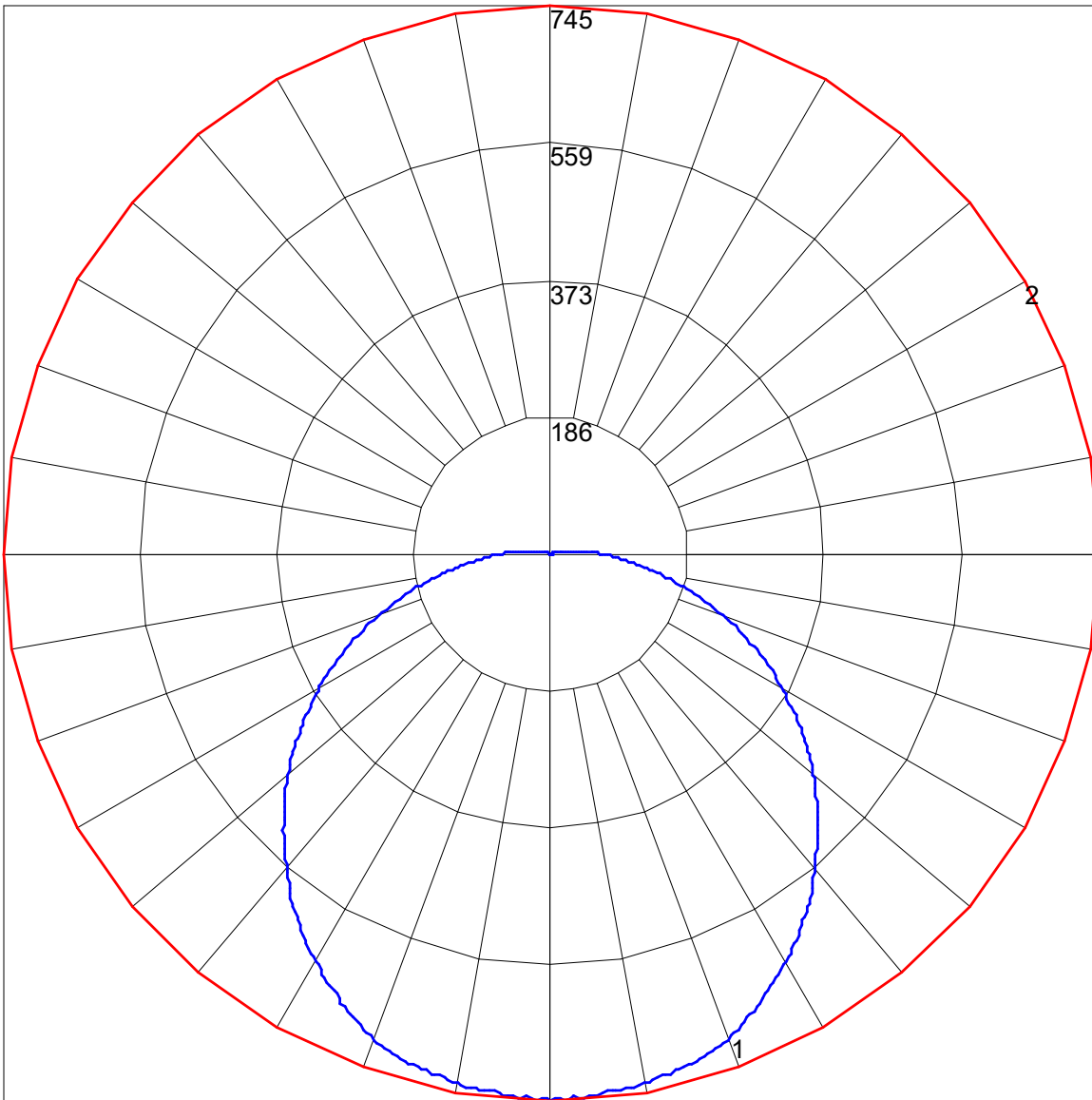
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**UGR TABLE - CORRECTED**

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	15.0	16.7	15.4	17.0	17.4	15.0	16.7	15.4	17.0	17.4
	3H	17.0	18.5	17.4	18.8	19.3	17.0	18.5	17.4	18.8	19.3
	4H	17.7	19.2	18.2	19.6	20.0	17.7	19.2	18.2	19.6	20.0
	6H	18.4	19.7	18.9	20.1	20.6	18.4	19.7	18.9	20.1	20.6
	8H	18.7	19.9	19.1	20.4	20.8	18.7	19.9	19.1	20.4	20.8
	12H	18.9	20.1	19.4	20.6	21.0	18.9	20.1	19.4	20.6	21.0
4H	2H	15.6	17.1	16.1	17.5	17.9	15.6	17.1	16.1	17.5	17.9
	3H	17.8	19.0	18.2	19.5	19.9	17.8	19.0	18.2	19.5	19.9
	4H	18.7	19.8	19.2	20.3	20.8	18.7	19.8	19.2	20.3	20.8
	6H	19.5	20.5	20.0	21.0	21.5	19.5	20.5	20.0	21.0	21.5
	8H	19.9	20.8	20.3	21.2	21.8	19.9	20.8	20.3	21.2	21.8
	12H	20.2	21.0	20.7	21.5	22.0	20.2	21.0	20.7	21.5	22.0
8H	4H	19.1	20.0	19.6	20.5	21.0	19.1	20.0	19.6	20.5	21.0
	6H	20.0	20.8	20.5	21.3	21.8	20.0	20.8	20.5	21.3	21.8
	8H	20.4	21.1	21.0	21.7	22.2	20.4	21.1	21.0	21.7	22.2
	12H	20.9	21.5	21.4	22.0	22.6	20.9	21.5	21.4	22.0	22.6
12H	4H	19.1	19.9	19.6	20.5	21.0	19.1	19.9	19.6	20.5	21.0
	6H	20.1	20.8	20.7	21.3	21.9	20.1	20.8	20.7	21.3	21.9
	8H	20.6	21.2	21.1	21.7	22.3	20.6	21.2	21.1	21.7	22.3

Maximum UGR = 22.6

POLAR GRAPH



Maximum Candela = 745.402 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)