



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4CSDI-P12-835U-P12-835D-XXX-POE PR-LM-WHU-RW-WHD-WM\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13257153.19 & #13257153.16

[TESTLAB] UL Verification Services Inc.

[ISSUE DATE] 20-APR-2021

[MANUFAC] H E Williams Inc

[LUMCAT] 4CSDI-P12-835U-P12-835D-PoE PR-LM-WHU-RW-WHD-WM

[LUMINAIRE] Aluminum housing, optics, and trim enclosure

[LAMP] Two white LEDs

[OTHER] 25.1 C, 120.077 V, 0.14532 A, 17.3136 W, 0.992212 PF, 60.0001

[MORE] Hz

[OTHER] This test was performed using the calibrated photodetector met

[MORE] hod of absolute photometry.

[ CONVERT] Photometric web converted from original test data

[ CONVERT] Luminaire test position and photometric web converted from original test data

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2776
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	121
Total Luminaire Watts	23
Ballast Factor	1.00
CIE Type	General Diffuse
Spacing Criterion (0-180)	N.A.
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	N.A.
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.21 ft
Luminous Width (90-270)	0.21 ft
Luminous Height	0.00 ft

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	28925	39369	28302
55	20097	21702	19679
65	15580	14396	15627
75	8969	8274	9047
85	4135	4135	4135

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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>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>
<b>0.0</b>	1498.374	1498.374	1498.374	1498.374	1498.374	1498.374	1498.374	1498.374	1498.374
<b>2.5</b>	1495.959	1502.400	1495.154	1489.518	1487.908	1489.518	1495.154	1502.400	1495.959
<b>5.0</b>	1481.466	1487.908	1481.466	1475.025	1473.415	1475.025	1481.466	1487.908	1481.466
<b>7.5</b>	1460.533	1466.169	1459.727	1454.091	1450.871	1454.091	1459.727	1466.169	1460.533
<b>10.0</b>	1432.353	1438.794	1432.353	1425.911	1423.496	1425.911	1432.353	1438.794	1432.353
<b>12.5</b>	1393.706	1400.952	1394.511	1388.875	1385.654	1388.875	1394.511	1400.952	1393.706
<b>15.0</b>	1341.371	1349.423	1344.592	1338.956	1334.125	1338.956	1344.592	1349.423	1341.371
<b>17.5</b>	1272.129	1280.985	1278.570	1272.934	1266.493	1272.934	1278.570	1280.985	1272.129
<b>20.0</b>	1179.537	1191.614	1194.835	1186.783	1175.511	1186.783	1194.835	1191.614	1179.537
<b>22.5</b>	1058.765	1076.479	1089.361	1074.063	1055.545	1074.063	1089.361	1076.479	1058.765
<b>25.0</b>	906.593	936.383	962.953	935.578	904.983	935.578	962.953	936.383	906.593
<b>27.5</b>	736.627	776.965	816.417	775.032	733.084	775.032	816.417	776.965	736.627
<b>30.0</b>	569.962	613.037	658.448	606.274	559.012	606.274	658.448	613.037	569.962
<b>32.5</b>	413.764	458.772	506.838	449.431	396.453	449.431	506.838	458.772	413.764
<b>35.0</b>	276.728	328.982	374.473	317.308	263.202	317.308	374.473	328.982	276.728
<b>37.5</b>	183.895	224.877	273.105	216.503	174.313	216.503	273.105	224.877	183.895
<b>40.0</b>	129.145	156.359	200.883	149.596	122.865	149.596	200.883	156.359	129.145
<b>42.5</b>	99.677	114.653	149.435	110.144	95.731	110.144	149.435	114.653	99.677
<b>45.0</b>	82.285	91.142	111.996	88.405	80.514	88.405	111.996	91.142	82.285
<b>47.5</b>	70.450	76.328	87.439	75.039	69.323	75.039	87.439	76.328	70.450
<b>50.0</b>	61.030	65.539	71.094	64.734	60.064	64.734	71.094	65.539	61.030
<b>52.5</b>	53.059	56.843	59.420	56.119	52.174	56.119	59.420	56.843	53.059
<b>55.0</b>	46.376	49.274	50.080	48.631	45.410	48.631	50.080	49.274	46.376
<b>57.5</b>	40.740	42.673	42.270	42.109	40.016	42.109	42.270	42.673	40.740
<b>60.0</b>	35.828	36.795	35.507	36.473	35.426	36.473	35.507	36.795	35.828
<b>62.5</b>	30.998	31.401	29.710	31.320	30.998	31.320	29.710	31.401	30.998
<b>65.0</b>	26.489	26.409	24.477	26.489	26.570	26.489	24.477	26.409	26.489
<b>67.5</b>	22.061	21.739	19.887	21.900	22.141	21.900	19.887	21.739	22.061
<b>70.0</b>	17.794	17.391	15.781	17.632	17.955	17.632	15.781	17.391	17.794
<b>72.5</b>	13.527	13.284	11.996	13.446	13.768	13.446	11.996	13.284	13.527
<b>75.0</b>	9.339	9.420	8.615	9.581	9.420	9.581	8.615	9.420	9.339
<b>77.5</b>	4.750	5.555	5.717	5.636	5.153	5.636	5.717	5.555	4.750
<b>80.0</b>	3.462	3.462	3.543	3.381	3.381	3.381	3.543	3.462	3.462
<b>82.5</b>	2.415	2.415	2.335	2.335	2.335	2.335	2.335	2.415	2.415
<b>85.0</b>	1.450	1.450	1.450	1.450	1.450	1.450	1.450	1.450	1.450
<b>87.5</b>	0.645	0.645	0.645	0.645	0.645	0.645	0.645	0.645	0.645
<b>90.0</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>92.5</b>	0.731	1.005	1.097	1.187	1.279	1.187	1.097	1.005	0.731
<b>95.0</b>	4.111	3.838	3.655	4.020	4.385	4.020	3.655	3.838	4.111
<b>97.5</b>	7.492	7.218	7.036	7.492	7.858	7.492	7.036	7.218	7.492
<b>100.0</b>	11.421	11.238	10.964	11.512	11.878	11.512	10.964	11.238	11.421
<b>102.5</b>	15.806	15.715	15.349	15.989	16.172	15.989	15.349	15.715	15.806
<b>105.0</b>	20.649	20.649	20.192	21.014	21.106	21.014	20.192	20.649	20.649
<b>107.5</b>	25.948	25.948	25.399	26.496	26.313	26.496	25.399	25.948	25.948
<b>110.0</b>	31.705	31.795	31.248	32.343	31.887	32.343	31.248	31.795	31.705
<b>112.5</b>	37.734	38.100	37.552	38.557	37.825	38.557	37.552	38.100	37.734
<b>115.0</b>	44.130	45.043	44.404	45.226	44.130	45.226	44.404	45.043	44.130
<b>117.5</b>	50.891	52.170	51.714	52.627	50.891	52.627	51.714	52.170	50.891
<b>120.0</b>	57.744	59.205	59.571	60.210	57.926	60.210	59.571	59.205	57.744
<b>122.5</b>	64.048	66.697	68.160	68.068	65.235	68.068	68.160	66.697	64.048
<b>125.0</b>	71.174	75.286	78.027	76.839	72.636	76.839	78.027	75.286	71.174
<b>127.5</b>	79.854	85.244	89.539	86.981	81.408	86.981	89.539	85.244	79.854
<b>130.0</b>	90.726	97.670	103.061	99.133	92.097	99.133	103.061	97.670	90.726
<b>132.5</b>	104.523	112.746	118.868	114.025	105.528	114.025	118.868	112.746	104.523

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<b>135.0</b>	121.060	130.197	136.319	131.202	121.609	131.202	136.319	130.197	121.060
<b>137.5</b>	140.339	149.476	156.602	150.389	140.613	150.389	156.602	149.476	140.339
<b>140.0</b>	162.267	170.855	182.184	172.226	162.267	172.226	182.184	170.855	162.267
<b>142.5</b>	185.657	195.524	215.898	198.448	185.657	198.448	215.898	195.524	185.657
<b>145.0</b>	211.970	227.137	263.409	231.705	214.254	231.705	263.409	227.137	211.970
<b>147.5</b>	248.060	272.455	327.732	276.840	252.171	276.840	327.732	272.455	248.060
<b>150.0</b>	302.331	338.786	404.113	340.614	304.342	340.614	404.113	338.786	302.331
<b>152.5</b>	382.642	422.935	489.450	425.676	380.724	425.676	489.450	422.935	382.642
<b>155.0</b>	485.886	527.093	594.887	534.950	488.993	534.950	594.887	527.093	485.886
<b>157.5</b>	628.236	676.294	748.291	695.572	646.600	695.572	748.291	676.294	628.236
<b>160.0</b>	870.265	926.455	1005.030	959.347	906.538	959.347	1005.030	926.455	870.265
<b>162.5</b>	1285.525	1337.604	1409.783	1370.496	1319.331	1370.496	1409.783	1337.604	1285.525
<b>165.0</b>	1855.651	1891.284	1942.449	1906.817	1863.874	1906.817	1942.449	1891.284	1855.651
<b>167.5</b>	2452.274	2465.979	2489.734	2462.324	2433.087	2462.324	2489.734	2465.979	2452.274
<b>170.0</b>	2924.638	2918.243	2926.466	2915.502	2901.797	2915.502	2926.466	2918.243	2924.638
<b>172.5</b>	3228.889	3217.012	3221.580	3223.407	3222.494	3223.407	3221.580	3217.012	3228.889
<b>175.0</b>	3433.549	3422.585	3428.981	3436.290	3439.945	3436.290	3428.981	3422.585	3433.549
<b>177.5</b>	3577.908	3564.203	3566.944	3576.994	3581.563	3576.994	3566.944	3564.203	3577.908
<b>180.0</b>	3622.807	3622.807	3622.807	3622.807	3622.807	3622.807	3622.807	3622.807	3622.807

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Zone	Lumens	%Lamp	%Fixt
0-20	513.36	N.A.	18.50
0-30	931.79	N.A.	33.60
0-40	1143.78	N.A.	41.20
0-60	1264.35	N.A.	45.50
0-80	1300.29	N.A.	46.80
0-90	1301.97	N.A.	46.90
10-90	1162.22	N.A.	41.90
20-40	630.42	N.A.	22.70
20-50	706.97	N.A.	25.50
40-70	146.48	N.A.	5.30
60-80	35.93	N.A.	1.30
70-80	10.03	N.A.	0.40
80-90	1.68	N.A.	0.10
90-110	27.04	N.A.	1.00
90-120	71.55	N.A.	2.60
90-130	139.97	N.A.	5.00
90-150	391.97	N.A.	14.10
90-180	1474.53	N.A.	53.10
110-180	1447.48	N.A.	52.10
0-180	2776.49	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	139.75
10-20	373.62
20-30	418.42
30-40	211.99
40-50	76.55
50-60	44.02
60-70	25.91
70-80	10.03
80-90	1.68
90-100	4.90
100-110	22.14
110-120	44.51
120-130	68.42
130-140	101.16
140-150	150.84
150-160	258.60
160-170	512.36
170-180	311.60

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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	106	106	106	106	98	98	98	98	82	82	82	67	67	67	53	53	53	47
1	99	96	92	90	91	88	86	83	74	73	71	62	61	60	50	49	49	44
2	92	86	81	77	85	80	76	72	68	65	63	57	55	53	47	46	45	40
3	86	78	72	67	79	73	67	63	62	59	56	53	50	48	44	42	41	37
4	80	71	65	60	74	66	61	56	57	53	50	49	46	44	41	40	38	35
5	75	65	58	53	69	61	55	51	53	49	45	46	43	40	39	37	35	32
6	70	60	53	48	65	56	50	46	49	45	41	43	39	37	37	34	33	30
7	65	55	48	44	61	52	46	42	46	41	38	40	37	34	35	32	31	28
8	62	51	44	40	57	48	42	38	43	38	35	38	34	32	33	30	29	26
9	58	47	41	37	54	45	39	35	40	36	32	35	32	30	31	29	27	25
10	55	44	38	34	51	42	36	33	38	33	30	33	30	28	29	27	25	23

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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

X=2H	Y=2H	13.0	13.6	14.0	14.6	16.0	12.9	13.5	13.9	14.5	15.9
	3H	14.0	14.6	15.1	15.6	17.0	14.0	14.6	15.0	15.6	16.9
	4H	14.3	14.8	15.3	15.8	17.2	14.2	14.8	15.3	15.8	17.2
	6H	14.2	14.8	15.3	15.8	17.2	14.2	14.7	15.3	15.8	17.1
	8H	14.2	14.7	15.3	15.7	17.1	14.2	14.7	15.3	15.7	17.1
	12H	14.2	14.6	15.2	15.7	17.1	14.1	14.6	15.2	15.6	17.0

### UGR Viewed Endwise

4H	2H	13.2	13.7	14.2	14.8	16.1	13.1	13.7	14.2	14.7	16.0
	3H	14.4	14.9	15.5	15.9	17.3	14.4	14.8	15.4	15.9	17.3
	4H	14.7	15.1	15.8	16.2	17.6	14.7	15.1	15.7	16.1	17.5
	6H	14.7	15.1	15.8	16.2	17.6	14.7	15.1	15.8	16.1	17.5
	8H	14.7	15.1	15.8	16.1	17.5	14.7	15.0	15.8	16.1	17.5
	12H	14.7	15.0	15.8	16.1	17.5	14.7	15.0	15.8	16.0	17.5

8H	4H	14.7	15.0	15.8	16.1	17.5	14.7	15.0	15.7	16.1	17.5
	6H	14.8	15.0	15.9	16.1	17.5	14.8	15.0	15.8	16.1	17.5
	8H	14.8	15.0	15.9	16.1	17.5	14.8	15.0	15.9	16.1	17.5
	12H	14.8	15.0	15.9	16.1	17.5	14.8	15.0	15.9	16.0	17.5

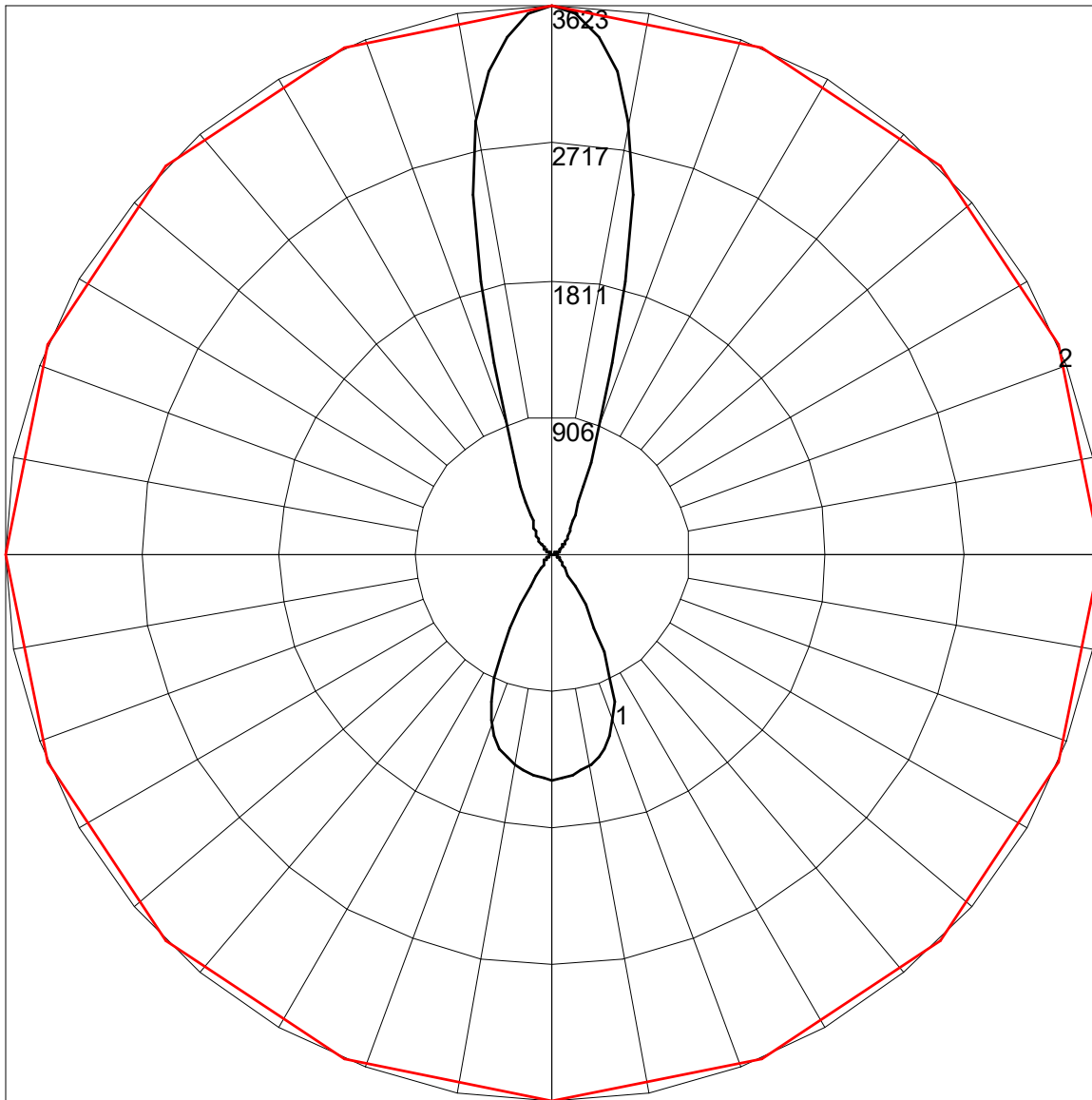
12H	4H	14.6	14.9	15.7	16.0	17.4	14.6	14.9	15.7	16.0	17.4
	6H	14.7	15.0	15.8	16.0	17.5	14.7	14.9	15.8	16.0	17.5
	8H	14.8	15.0	15.8	16.0	17.5	14.7	14.9	15.8	16.0	17.5

Maximum UGR = 17.6

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## POLAR GRAPH



Maximum Candela = 3622.807 Located At Horizontal Angle = 0, Vertical Angle = 180

# 1 - Vertical Plane Through Horizontal Angles (90 - 270)

# 2 - Horizontal Cone Through Vertical Angle (180) (Through Max. Cd.)