



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4CSDI-L12-9DWU-L12-9DWD-XXX-DIM-UNV-LW-WHU-OM-CSD-WM-3000K\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13537338.13 & 13257153.18

[TESTLAB] UL Verification Services Inc.

[ISSUE DATE] 19-APR-21

[MANUFAC] H E Williams Inc

[LUMCAT] 4CSDI-L12-9DWU-L12-9DWD-xxx-DIM-UNV-LW-WHU-OM-CSD-WM-3000k

[LUMINAIRE] 4" Square formed aluminum housing, wide distribution reflector

[MORE] trims, frosted lens enclosures

[LAMP] Two white LEDs (one up/one down)

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

[MORE] hod of absolute photometry.

[\_ CONVERT] Photometric web converted from original test data

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2305
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	49
Total Luminaire Watts	46.6
Ballast Factor	1.00
CIE Type	Semi-Indirect
Spacing Criterion (0-180)	N.A.
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	N.A.
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.33 ft
Luminous Width (90-270)	0.33 ft
Luminous Height	1.42 ft

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3251	2193	3409
55	1301	933	1356
65	29	152	30
75	9	6	9
85	2	1	2

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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>
0.0	1090.698	1090.698	1090.698	1090.698	1090.698	1090.698	1090.698	1090.698	1090.698
2.5	1082.041	1082.041	1079.681	1080.467	1081.254	1080.467	1079.681	1082.041	1082.041
5.0	1052.138	1052.925	1051.351	1051.351	1052.138	1051.351	1051.351	1052.925	1052.138
7.5	1009.643	1009.643	1008.069	1008.069	1008.856	1008.069	1008.069	1009.643	1009.643
10.0	954.557	955.344	954.557	954.557	953.770	954.557	954.557	955.344	954.557
12.5	887.667	890.028	893.176	889.241	886.880	889.241	893.176	890.028	887.667
15.0	813.695	817.630	823.138	817.630	812.908	817.630	823.138	817.630	813.695
17.5	735.631	741.454	746.018	740.903	735.709	740.903	746.018	741.454	735.631
20.0	657.409	663.626	666.931	662.996	656.071	662.996	666.931	663.626	657.409
22.5	581.469	587.529	589.417	585.955	578.164	585.955	589.417	587.529	581.469
25.0	504.664	512.218	513.792	510.173	501.359	510.173	513.792	512.218	504.664
27.5	424.317	436.751	441.237	434.627	422.823	434.627	441.237	436.751	424.317
30.0	348.850	363.409	374.347	362.306	350.424	362.306	374.347	363.409	348.850
32.5	286.525	297.699	312.494	298.171	289.908	298.171	312.494	297.699	286.525
35.0	237.970	244.030	257.015	245.918	242.456	245.918	257.015	244.030	237.970
37.5	200.276	201.614	208.382	204.840	205.785	204.840	208.382	201.614	200.276
40.0	169.900	167.775	167.539	171.946	176.274	171.946	167.539	167.775	169.900
42.5	145.111	140.783	135.904	145.347	151.722	145.347	135.904	140.783	145.111
45.0	124.573	118.985	112.218	123.392	130.632	123.392	112.218	118.985	124.573
47.5	106.080	100.335	93.960	104.584	111.195	104.584	93.960	100.335	106.080
50.0	88.531	83.730	78.773	87.587	92.386	87.587	78.773	83.730	88.531
52.5	71.297	68.778	65.473	72.241	74.209	72.241	65.473	68.778	71.297
55.0	54.456	55.165	52.961	57.919	56.739	57.919	52.961	55.165	54.456
57.5	38.874	42.101	40.921	44.069	40.370	44.069	40.921	42.101	38.874
60.0	23.687	29.274	29.431	30.376	23.844	30.376	29.431	29.274	23.687
62.5	8.814	15.582	18.729	15.818	8.184	15.818	18.729	15.582	8.814
65.0	1.259	3.935	9.207	4.249	1.338	4.249	9.207	3.935	1.259
67.5	0.944	0.866	2.911	0.944	1.023	0.944	2.911	0.866	0.944
70.0	0.708	0.630	0.866	0.708	0.708	0.708	0.866	0.630	0.708
72.5	0.473	0.473	0.473	0.473	0.551	0.473	0.473	0.473	0.473
75.0	0.393	0.393	0.393	0.393	0.393	0.393	0.393	0.393	0.393
77.5	0.236	0.236	0.236	0.236	0.314	0.236	0.236	0.236	0.236
80.0	0.157	0.157	0.157	0.157	0.236	0.157	0.157	0.157	0.157
82.5	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157	0.157
85.0	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079
87.5	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079
90.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
92.5	0.719	1.438	2.217	3.774	3.774	3.774	2.217	1.438	0.719
95.0	2.337	3.115	3.774	5.391	5.511	5.391	3.774	3.115	2.337
97.5	5.332	5.691	6.110	7.787	7.967	7.787	6.110	5.691	5.332
100.0	8.386	8.865	9.225	10.962	11.202	10.962	9.225	8.865	8.386
102.5	11.980	12.579	12.759	14.616	14.916	14.616	12.759	12.579	11.980
105.0	15.814	16.473	16.593	18.689	18.809	18.689	16.593	16.473	15.814
107.5	19.827	20.666	20.845	23.062	23.002	23.062	20.845	20.666	19.827
110.0	24.080	25.099	25.278	27.614	27.554	27.614	25.278	25.099	24.080
112.5	28.632	29.771	29.891	32.526	32.346	32.526	29.891	29.771	28.632
115.0	33.185	34.742	34.922	37.438	37.018	37.438	34.922	34.742	33.185
117.5	37.497	39.534	39.893	42.350	41.571	42.350	39.893	39.534	37.497
120.0	41.990	44.206	44.746	46.842	45.824	46.842	44.746	44.206	41.990
122.5	46.064	48.759	49.477	50.915	49.418	50.915	49.477	48.759	46.064
125.0	49.477	52.832	54.090	54.749	52.653	54.749	54.090	52.832	49.477
127.5	53.071	57.264	59.361	58.882	56.366	58.882	59.361	57.264	53.071
130.0	57.504	63.075	65.831	64.333	60.858	64.333	63.075	63.075	57.504
132.5	64.213	71.041	74.516	71.701	67.687	71.701	74.516	71.041	64.213

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<b>135.0</b>	74.576	82.363	87.335	82.483	78.410	82.483	87.335	82.363	74.576
<b>137.5</b>	89.971	98.956	108.061	97.758	93.864	97.758	108.061	98.956	89.971
<b>140.0</b>	111.774	124.173	142.622	119.801	114.889	119.801	142.622	124.173	111.774
<b>142.5</b>	143.402	163.229	202.284	154.603	145.617	154.603	202.284	163.229	143.402
<b>145.0</b>	190.663	224.387	295.429	210.670	190.663	210.670	295.429	224.387	190.663
<b>147.5</b>	263.083	317.352	426.731	300.700	258.470	300.700	426.731	317.352	263.083
<b>150.0</b>	372.700	452.967	590.318	436.134	367.369	436.134	590.318	452.967	372.700
<b>152.5</b>	538.445	636.741	772.116	616.974	531.557	616.974	772.116	636.741	538.445
<b>155.0</b>	766.725	857.774	967.991	842.799	758.938	842.799	967.991	857.774	766.725
<b>157.5</b>	1046.460	1111.152	1182.434	1102.766	1033.282	1102.766	1182.434	1111.152	1046.460
<b>160.0</b>	1344.165	1375.912	1422.036	1382.501	1337.576	1382.501	1422.036	1375.912	1344.165
<b>162.5</b>	1608.925	1627.494	1651.454	1638.875	1615.514	1638.875	1651.454	1627.494	1608.925
<b>165.0</b>	1835.348	1841.937	1853.917	1849.724	1838.343	1849.724	1853.917	1841.937	1835.348
<b>167.5</b>	2014.451	2009.659	2020.441	2018.644	2013.852	2018.644	2020.441	2009.659	2014.451
<b>170.0</b>	2145.632	2139.642	2139.043	2136.647	2134.850	2136.647	2139.043	2139.642	2145.632
<b>172.5</b>	2221.107	2217.513	2213.919	2208.528	2206.731	2208.528	2213.919	2217.513	2221.107
<b>175.0</b>	2256.448	2254.052	2251.656	2249.859	2248.661	2249.859	2251.656	2254.052	2256.448
<b>177.5</b>	2257.047	2261.839	2263.636	2266.631	2267.829	2266.631	2263.636	2261.839	2257.047
<b>180.0</b>	2265.289	2265.289	2265.289	2265.289	2265.289	2265.289	2265.289	2265.289	2265.289

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Zone	Lumens	%Lamp	%Fixt
0-20	323.90	N.A.	14.10
0-30	556.12	N.A.	24.10
0-40	713.44	N.A.	31.00
0-60	857.60	N.A.	37.20
0-80	866.58	N.A.	37.60
0-90	866.69	N.A.	37.60
10-90	769.38	N.A.	33.40
20-40	389.54	N.A.	16.90
20-50	484.04	N.A.	21.00
40-70	152.73	N.A.	6.60
60-80	8.98	N.A.	0.40
70-80	0.41	N.A.	0.00
80-90	0.11	N.A.	0.00
90-110	23.30	N.A.	1.00
90-120	58.42	N.A.	2.50
90-130	106.26	N.A.	4.60
90-150	328.24	N.A.	14.20
90-180	1438.44	N.A.	62.40
110-180	1415.14	N.A.	61.40
0-180	2305.13	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	97.30
10-20	226.60
20-30	232.21
30-40	157.32
40-50	94.50
50-60	49.66
60-70	8.57
70-80	0.41
80-90	0.11
90-100	4.87
100-110	18.44
110-120	35.11
120-130	47.84
130-140	66.39
140-150	155.59
150-160	395.75
160-170	503.04
170-180	211.41

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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	104	104	104	104	95	95	95	95	76	76	76	60	60	60	45	45	45	38
1	97	93	90	87	88	85	82	80	69	68	66	55	54	53	42	41	41	35
2	89	83	78	74	81	76	72	68	63	60	57	50	49	47	39	38	37	32
3	83	75	69	64	75	69	63	59	57	53	51	46	44	42	36	35	34	30
4	77	68	61	56	70	62	57	52	52	48	45	43	40	38	34	32	31	27
5	71	61	54	49	65	57	51	46	48	43	40	39	37	34	32	30	28	25
6	66	56	49	44	61	52	46	41	44	40	36	37	34	31	30	28	26	23
7	62	51	44	40	57	48	42	37	41	36	33	34	31	29	28	26	24	22
8	58	47	40	36	53	44	38	34	38	33	30	32	29	26	26	24	23	20
9	54	44	37	33	50	41	35	31	35	31	28	30	27	24	25	23	21	19
10	51	41	34	30	47	38	32	28	33	28	26	28	25	23	23	21	20	18

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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	2.9	2.9	3.1	3.7	5.1	2.9	2.9	3.4	4.0	5.4
	3H	2.9	2.9	2.9	3.4	4.9	2.9	2.9	3.2	3.7	5.2
	4H	2.9	2.9	2.9	3.3	4.8	2.9	2.9	3.1	3.6	5.1
	6H	2.9	2.9	2.9	3.1	4.6	2.9	2.9	3.0	3.4	4.9
	8H	2.9	2.9	2.9	3.1	4.5	2.9	2.9	2.9	3.4	4.8
	12H	2.9	2.9	2.9	3.0	4.5	2.9	2.9	2.9	3.3	4.8

### UGR Viewed Endwise

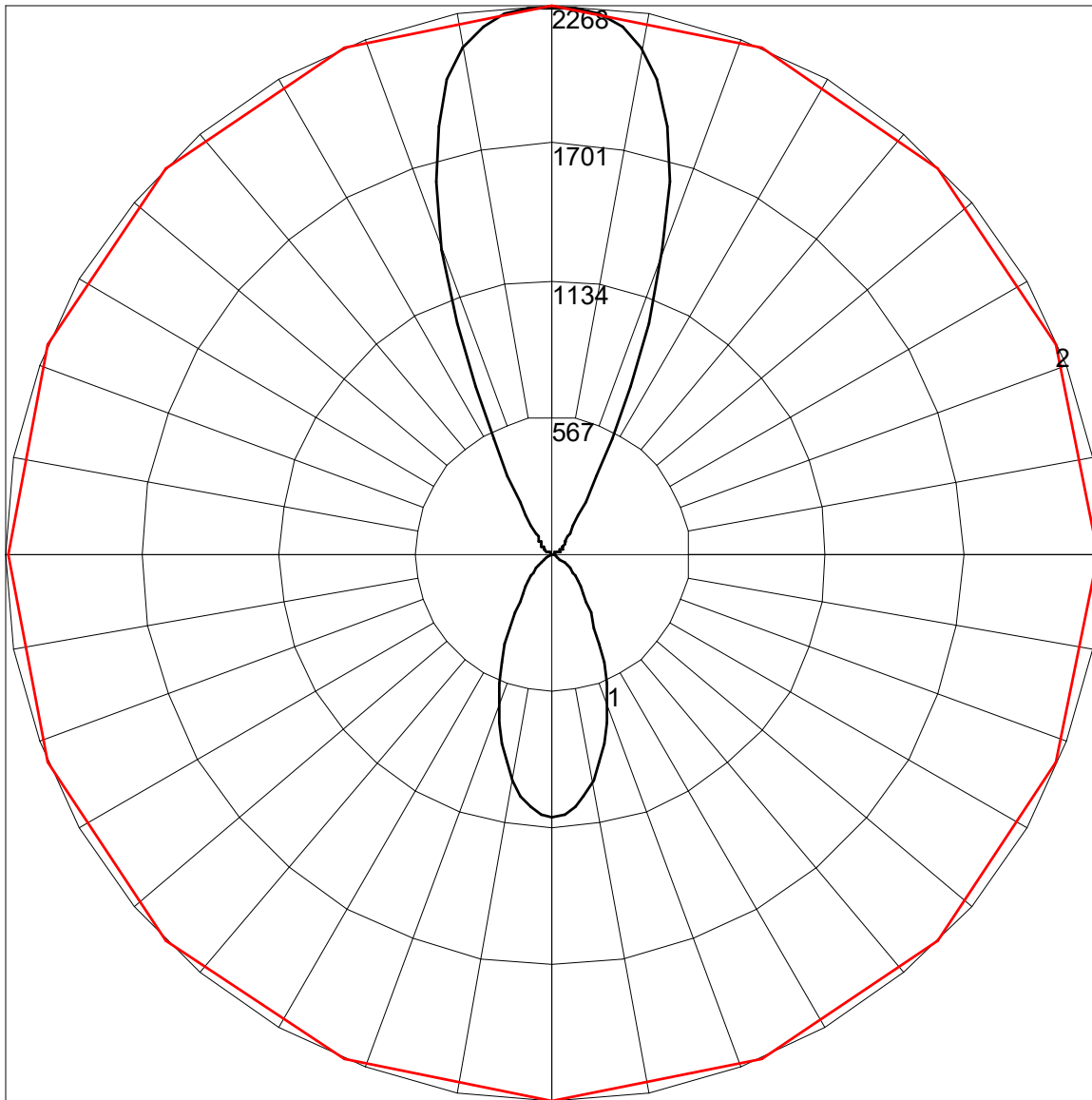
4H	2H	2.9	2.9	2.9	3.4	4.8	2.9	2.9	3.1	3.6	5.1
	3H	2.9	2.9	2.9	3.1	4.6	2.9	2.9	3.0	3.4	4.9
	4H	2.9	2.9	2.9	2.9	4.4	2.9	2.9	2.9	3.2	4.7
	6H	2.9	2.9	2.9	2.9	4.3	2.9	2.9	2.9	3.1	4.6
	8H	2.9	2.9	2.9	2.9	4.2	2.9	2.9	2.9	3.0	4.5
	12H	2.9	2.9	2.9	2.9	4.1	2.9	2.9	2.9	2.9	4.4
8H	4H	2.9	2.9	2.9	2.9	4.2	2.9	2.9	2.9	3.0	4.5
	6H	2.9	2.9	2.9	2.9	4.1	2.9	2.9	2.9	2.9	4.3
	8H	2.9	2.9	2.9	2.9	4.0	2.9	2.9	2.9	2.9	4.3
	12H	2.9	2.9	2.9	2.9	3.9	2.9	2.9	2.9	2.9	4.2
12H	4H	2.9	2.9	2.9	2.9	4.1	2.9	2.9	2.9	2.9	4.4
	6H	2.9	2.9	2.9	2.9	4.0	2.9	2.9	2.9	2.9	4.3
	8H	2.9	2.9	2.9	2.9	3.9	2.9	2.9	2.9	2.9	4.2

Maximum UGR = 5.4

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## POLAR GRAPH



Maximum Candela = 2267.829 Located At Horizontal Angle = 90, Vertical Angle = 177.5

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

# 2 - Horizontal Cone Through Vertical Angle (177.5) (Through Max. Cd.)