



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4CSDI-L12-9DWU-L12-9DWD-XXX-DIM-UNV-OW-CSU-RW-WHD-WM-3000K\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13537338.12 & #13257153.16

[TESTLAB] UL Verification Services Inc.

[ISSUE DATE] 19-APR-2021

[MANUFAC] H E Williams Inc

[LUMCAT] 4CSDI-L12-9DWU-L12-9DWD-xxx-DIM-UNV-OW-CSU-RW-WHD-WM-3000k

[LUMINAIRE] 4" Square White 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	2357
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	51
Total Luminaire Watts	46.6
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 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	2100	2140	2054
55	1083	863	1061
65	587	395	589
75	203	135	204
85	32	23	32

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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	1465.001	1465.001	1465.001	1465.001	1465.001	1465.001	1465.001	1465.001	1465.001
2.5	1462.639	1468.937	1461.852	1456.341	1454.767	1456.341	1461.852	1468.937	1462.639
5.0	1448.469	1454.767	1448.469	1442.171	1440.597	1442.171	1448.469	1454.767	1448.469
7.5	1428.002	1433.512	1427.214	1421.704	1418.555	1421.704	1427.214	1433.512	1428.002
10.0	1400.449	1406.747	1400.449	1394.152	1391.790	1394.152	1400.449	1406.747	1400.449
12.5	1362.663	1369.748	1363.450	1357.940	1354.791	1357.940	1363.450	1369.748	1362.663
15.0	1311.494	1319.366	1314.643	1309.133	1304.409	1309.133	1314.643	1319.366	1311.494
17.5	1243.794	1252.453	1250.092	1244.581	1238.284	1244.581	1250.092	1252.453	1243.794
20.0	1153.265	1165.073	1168.222	1160.350	1149.329	1160.350	1168.222	1165.073	1153.265
22.5	1035.183	1052.502	1065.097	1050.140	1032.034	1050.140	1065.097	1052.502	1035.183
25.0	886.400	915.527	941.505	914.740	884.826	914.740	941.505	915.527	886.400
27.5	720.219	759.659	798.232	757.770	716.756	757.770	798.232	759.659	720.219
30.0	557.267	599.383	643.782	592.770	546.561	592.770	643.782	599.383	557.267
32.5	404.548	448.553	495.549	439.421	387.623	439.421	495.549	448.553	404.548
35.0	270.565	321.654	366.132	310.240	257.339	310.240	366.132	321.654	270.565
37.5	179.799	219.868	267.022	211.681	170.431	211.681	267.022	219.868	179.799
40.0	126.269	152.876	196.409	146.264	120.128	146.264	196.409	152.876	126.269
42.5	97.457	112.099	146.106	107.691	93.599	107.691	146.106	112.099	97.457
45.0	80.453	89.112	109.501	86.436	78.721	86.436	109.501	89.112	80.453
47.5	68.881	74.628	85.491	73.368	67.779	73.368	85.491	74.628	68.881
50.0	59.671	64.079	69.511	63.292	58.726	63.292	69.511	64.079	59.671
52.5	51.877	55.577	58.097	54.869	51.012	54.869	58.097	55.577	51.877
55.0	45.343	48.177	48.964	47.548	44.399	47.548	48.964	48.177	45.343
57.5	39.833	41.722	41.328	41.171	39.125	41.171	41.328	41.722	39.833
60.0	35.030	35.976	34.716	35.661	34.637	35.661	34.716	35.976	35.030
62.5	30.307	30.701	29.048	30.622	30.307	30.622	29.048	30.701	30.307
65.0	25.899	25.821	23.931	25.899	25.978	25.899	23.931	25.821	25.899
67.5	21.570	21.255	19.444	21.412	21.648	21.412	19.444	21.255	21.570
70.0	17.398	17.004	15.429	17.240	17.555	17.240	15.429	17.004	17.398
72.5	13.226	12.989	11.729	13.147	13.462	13.147	11.729	12.989	13.226
75.0	9.131	9.210	8.423	9.368	9.210	9.368	8.423	9.210	9.131
77.5	4.644	5.431	5.589	5.510	5.038	5.510	5.589	5.431	4.644
80.0	3.385	3.385	3.464	3.306	3.306	3.306	3.464	3.385	3.385
82.5	2.362	2.362	2.283	2.283	2.283	2.283	2.283	2.362	2.362
85.0	1.417	1.417	1.417	1.417	1.417	1.417	1.417	1.417	1.417
87.5	0.630	0.630	0.630	0.630	0.630	0.630	0.630	0.630	0.630
90.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
92.5	0.719	0.958	1.557	2.935	2.816	2.935	1.557	0.958	0.719
95.0	0.839	1.139	1.677	2.995	2.935	2.995	1.677	1.139	0.839
97.5	0.958	1.258	1.857	3.115	2.995	3.115	1.857	1.258	0.958
100.0	1.078	1.438	2.037	3.234	3.115	3.234	2.037	1.438	1.078
102.5	1.198	1.557	2.217	3.354	3.295	3.354	2.217	1.557	1.198
105.0	1.378	1.797	2.396	3.534	3.415	3.534	2.396	1.797	1.378
107.5	1.618	2.037	2.635	3.714	3.654	3.714	2.635	2.037	1.618
110.0	1.857	2.336	3.055	3.894	3.894	3.894	3.055	2.336	1.857
112.5	2.217	2.696	4.193	4.193	4.193	4.193	2.696	2.217	2.217
115.0	2.635	4.313	7.547	6.889	4.672	6.889	7.547	4.313	2.635
117.5	4.253	8.505	14.375	12.459	9.764	12.459	14.375	8.505	4.253
120.0	12.160	18.030	24.438	22.042	16.472	22.042	24.438	18.030	12.160
122.5	22.702	31.866	37.796	34.442	28.751	34.442	37.796	31.866	22.702
125.0	39.413	48.817	52.470	49.595	43.546	49.595	52.470	48.817	39.413
127.5	59.479	66.846	67.864	66.247	61.575	66.247	67.864	66.846	59.479
130.0	79.964	84.575	84.575	83.857	81.580	83.857	84.575	84.575	79.964
132.5	102.845	103.383	103.084	102.964	104.402	102.964	103.084	103.383	102.845

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135.0	127.043	124.048	123.929	124.168	128.720	124.168	123.929	124.048	127.043
137.5	153.159	148.127	149.025	148.846	155.075	148.846	149.025	148.127	153.159
140.0	182.748	178.255	182.927	180.292	185.264	180.292	182.927	178.255	182.748
142.5	219.824	217.728	229.408	222.400	224.796	222.400	229.408	217.728	219.824
145.0	267.683	272.834	291.222	277.506	275.289	277.506	291.222	272.834	267.683
147.5	333.629	347.107	367.352	350.581	342.794	350.581	367.352	347.107	333.629
150.0	423.476	440.247	456.419	441.565	429.646	441.565	456.419	440.247	423.476
152.5	540.336	548.782	554.113	540.995	531.411	540.995	554.113	548.782	540.336
155.0	667.858	668.457	660.071	647.493	638.508	647.493	660.071	668.457	667.858
157.5	794.841	793.643	776.272	763.694	755.308	763.694	776.272	793.643	794.841
160.0	916.433	914.636	899.063	887.083	879.296	887.083	899.063	914.636	916.433
162.5	1036.827	1032.634	1018.858	1006.279	997.893	1006.279	1018.858	1032.634	1036.827
165.0	1147.038	1147.637	1137.455	1123.678	1116.491	1123.678	1137.455	1147.637	1147.038
167.5	1247.666	1247.666	1241.677	1232.093	1226.103	1232.093	1241.677	1247.666	1247.666
170.0	1345.898	1342.903	1338.711	1332.721	1329.127	1332.721	1338.711	1342.903	1345.898
172.5	1424.364	1420.770	1418.374	1414.781	1412.984	1414.781	1418.374	1420.770	1424.364
175.0	1481.866	1478.871	1476.475	1474.678	1474.678	1474.678	1476.475	1478.871	1481.866
177.5	1515.408	1513.013	1510.617	1511.815	1511.216	1511.815	1510.617	1513.013	1515.408
180.0	1522.275	1522.275	1522.275	1522.275	1522.275	1522.275	1522.275	1522.275	1522.275

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Zone	Lumens	%Lamp	%Fixt
0-20	501.93	N.A.	21.30
0-30	911.03	N.A.	38.70
0-40	1118.31	N.A.	47.50
0-60	1236.19	N.A.	52.50
0-80	1271.32	N.A.	53.90
0-90	1272.97	N.A.	54.00
10-90	1136.33	N.A.	48.20
20-40	616.38	N.A.	26.20
20-50	691.23	N.A.	29.30
40-70	143.21	N.A.	6.10
60-80	35.13	N.A.	1.50
70-80	9.80	N.A.	0.40
80-90	1.65	N.A.	0.10
90-110	4.58	N.A.	0.20
90-120	12.21	N.A.	0.50
90-130	55.95	N.A.	2.40
90-150	333.35	N.A.	14.10
90-180	1083.7	N.A.	46.00
110-180	1079.12	N.A.	45.80
0-180	2356.67	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	136.63
10-20	365.30
20-30	409.10
30-40	207.27
40-50	74.85
50-60	43.04
60-70	25.33
70-80	9.80
80-90	1.65
90-100	1.88
100-110	2.71
110-120	7.63
120-130	43.74
130-140	97.86
140-150	179.53
150-160	300.39
160-170	313.43
170-180	136.54

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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	108	108	108	108	100	100	100	100	86	86	86	72	72	72	60	60	60	54
1	101	98	94	92	94	91	88	86	78	77	75	67	66	65	56	56	55	50
2	94	88	83	79	88	83	78	75	72	69	66	62	60	58	53	52	50	46
3	88	80	74	70	82	75	70	66	66	62	59	58	55	53	50	48	46	43
4	82	73	67	62	77	69	64	59	61	57	54	54	51	48	47	45	43	40
5	77	67	61	56	72	64	58	53	57	52	49	50	47	44	44	42	40	37
6	72	62	55	51	67	59	53	49	53	48	45	47	43	41	41	39	37	35
7	68	57	51	46	64	55	49	45	49	45	41	44	40	38	39	37	35	32
8	64	53	47	42	60	51	45	41	46	41	38	41	38	35	37	34	33	30
9	60	50	43	39	57	48	42	38	43	39	35	39	35	33	35	32	31	29
10	57	47	40	36	54	45	39	35	41	36	33	37	33	31	33	31	29	27

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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	3.0	3.2	3.5	4.1	5.4	3.0	3.1	3.4	4.0	5.3
	3H	3.2	3.8	4.2	4.8	6.0	3.2	3.8	4.1	4.7	6.0
	4H	3.3	3.9	4.3	4.9	6.1	3.3	3.8	4.2	4.8	6.1
	6H	3.2	3.8	4.2	4.8	6.0	3.2	3.7	4.2	4.7	6.0
	8H	3.2	3.7	4.2	4.7	6.0	3.2	3.7	4.1	4.6	5.9
	12H	3.1	3.6	4.1	4.6	5.9	3.1	3.6	4.1	4.6	5.8

### UGR Viewed Endwise

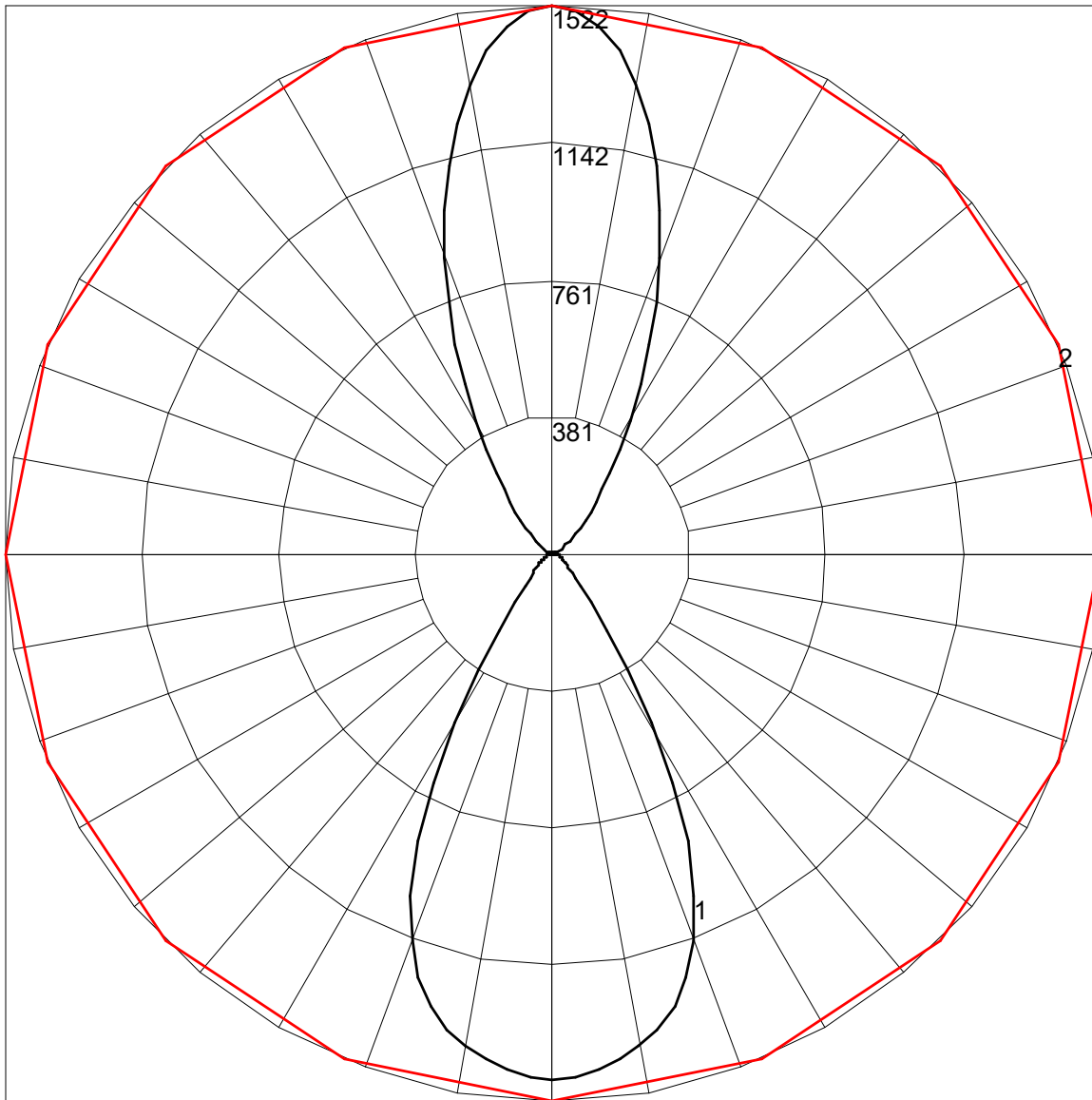
4H	2H	3.0	3.2	3.6	4.1	5.4	3.0	3.1	3.5	4.0	5.3
	3H	3.4	3.9	4.4	4.9	6.1	3.3	3.8	4.3	4.8	6.1
	4H	3.5	4.0	4.5	4.9	6.2	3.5	3.9	4.5	4.9	6.2
	6H	3.5	3.9	4.5	4.9	6.2	3.4	3.8	4.4	4.8	6.1
	8H	3.4	3.8	4.4	4.8	6.1	3.4	3.8	4.4	4.7	6.0
	12H	3.4	3.7	4.4	4.7	6.0	3.3	3.7	4.4	4.7	6.0
8H	4H	3.4	3.8	4.4	4.8	6.1	3.4	3.8	4.4	4.7	6.0
	6H	3.4	3.7	4.4	4.7	6.0	3.4	3.7	4.4	4.7	6.0
	8H	3.4	3.6	4.4	4.7	6.0	3.3	3.6	4.4	4.6	5.9
	12H	3.3	3.5	4.3	4.6	5.9	3.3	3.5	4.3	4.5	5.9
12H	4H	3.4	3.7	4.4	4.7	6.0	3.3	3.6	4.3	4.7	6.0
	6H	3.3	3.6	4.4	4.6	6.0	3.3	3.6	4.4	4.6	5.9
	8H	3.3	3.5	4.3	4.6	5.9	3.3	3.5	4.3	4.5	5.9

Maximum UGR = 6.2

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## POLAR GRAPH



Maximum Candela = 1522.275 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.)