



IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4CSDI-L12-9DWU-L12-9DWD-XXX-DIM-UNV-LW-WHU-LM-WHD-WM-3000K_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13537338.13 & #13257153.19

[TESTLAB] UL Verification Services Inc.

[ISSUE DATE] 19-APR-2021

[MANUFAC] H E Williams Inc

[LUMCAT] 4CSDI-L12-9DWU-L12-9DWD-xxx-DIM-UNV-LW-WHU-LM-WHD-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	2705
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	58
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	2715	2289	2727
55	1461	1181	1491
65	859	630	859
75	394	277	403
85	79	50	84

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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	3113.485	3113.485	3113.485	3113.485	3113.485	3113.485	3113.485	3113.485	3113.485
2.5	3074.232	3062.457	3064.812	3073.447	3077.372	3073.447	3064.812	3062.457	3074.232
5.0	2950.195	2940.775	2946.270	2952.550	2955.691	2952.550	2946.270	2940.775	2950.195
7.5	2774.345	2764.140	2768.065	2769.635	2768.850	2769.635	2768.065	2764.140	2774.345
10.0	2512.926	2507.431	2514.496	2505.075	2493.300	2505.075	2514.496	2507.431	2512.926
12.5	2107.058	2118.834	2139.245	2115.694	2090.572	2115.694	2139.245	2118.834	2107.058
15.0	1594.424	1625.041	1669.004	1638.387	1601.490	1638.387	1669.004	1625.041	1594.424
17.5	1104.557	1149.304	1211.323	1177.566	1133.604	1177.566	1211.323	1149.304	1104.557
20.0	747.754	796.035	863.548	824.296	778.920	824.296	863.548	796.035	747.754
22.5	539.797	581.089	642.951	597.654	555.575	597.654	642.951	581.089	539.797
25.0	417.487	452.891	511.143	459.643	420.155	459.643	511.143	452.891	417.487
27.5	328.777	363.396	420.548	365.752	327.128	365.752	420.548	363.396	328.777
30.0	259.771	291.095	347.225	292.665	261.499	292.665	347.225	291.095	259.771
32.5	213.139	234.100	281.595	237.868	216.672	237.868	281.595	234.100	213.139
35.0	182.130	195.162	226.328	199.088	184.093	199.088	226.328	195.162	182.130
37.5	159.521	167.999	185.506	170.511	159.521	170.511	185.506	167.999	159.521
40.0	139.424	146.803	156.537	147.981	139.424	147.981	156.537	146.803	139.424
42.5	120.583	128.434	134.556	129.219	120.818	129.219	134.556	128.434	120.583
45.0	104.018	111.869	117.128	112.733	104.490	112.733	117.128	111.869	104.018
47.5	89.809	96.874	102.135	97.974	90.673	97.974	102.135	96.874	89.809
50.0	77.955	83.921	88.553	85.177	79.133	85.177	88.553	83.921	77.955
52.5	68.612	73.245	76.934	74.736	69.948	74.736	76.934	73.245	68.612
55.0	61.155	64.687	67.042	66.023	62.411	66.023	67.042	64.687	61.155
57.5	55.032	57.308	58.565	58.486	56.052	58.486	58.565	57.308	55.032
60.0	49.615	50.871	51.185	51.734	49.771	51.734	51.185	50.871	49.615
62.5	43.727	44.826	44.434	45.219	43.727	45.219	44.434	44.826	43.727
65.0	37.918	38.703	38.154	38.860	37.918	38.860	38.154	38.703	37.918
67.5	32.423	32.736	32.266	33.129	32.500	33.129	32.266	32.736	32.423
70.0	27.241	27.320	26.848	27.790	27.398	27.790	26.848	27.320	27.241
72.5	22.295	22.295	21.824	22.766	22.609	22.766	21.824	22.295	22.295
75.0	17.742	17.742	17.350	18.056	18.135	18.056	17.350	17.742	17.742
77.5	13.581	13.503	13.189	13.738	13.895	13.738	13.189	13.503	13.581
80.0	9.813	9.656	9.421	9.892	10.206	9.892	9.421	9.656	9.813
82.5	6.437	6.201	6.045	6.437	6.752	6.437	6.045	6.201	6.437
85.0	3.533	3.297	3.140	3.454	3.768	3.454	3.140	3.297	3.533
87.5	0.628	0.864	0.942	1.021	1.099	1.021	0.942	0.864	0.628
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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135.0	74.576	82.363	87.335	82.483	78.410	82.483	87.335	82.363	74.576
137.5	89.971	98.956	108.061	97.758	93.864	97.758	108.061	98.956	89.971
140.0	111.774	124.173	142.622	119.801	114.889	119.801	142.622	124.173	111.774
142.5	143.402	163.229	202.284	154.603	145.617	154.603	202.284	163.229	143.402
145.0	190.663	224.387	295.429	210.670	190.663	210.670	295.429	224.387	190.663
147.5	263.083	317.352	426.731	300.700	258.470	300.700	426.731	317.352	263.083
150.0	372.700	452.967	590.318	436.134	367.369	436.134	590.318	452.967	372.700
152.5	538.445	636.741	772.116	616.974	531.557	616.974	772.116	636.741	538.445
155.0	766.725	857.774	967.991	842.799	758.938	842.799	967.991	857.774	766.725
157.5	1046.460	1111.152	1182.434	1102.766	1033.282	1102.766	1182.434	1111.152	1046.460
160.0	1344.165	1375.912	1422.036	1382.501	1337.576	1382.501	1422.036	1375.912	1344.165
162.5	1608.925	1627.494	1651.454	1638.875	1615.514	1638.875	1651.454	1627.494	1608.925
165.0	1835.348	1841.937	1853.917	1849.724	1838.343	1849.724	1853.917	1841.937	1835.348
167.5	2014.451	2009.659	2020.441	2018.644	2013.852	2018.644	2020.441	2009.659	2014.451
170.0	2145.632	2139.642	2139.043	2136.647	2134.850	2136.647	2139.043	2139.642	2145.632
172.5	2221.107	2217.513	2213.919	2208.528	2206.731	2208.528	2213.919	2217.513	2221.107
175.0	2256.448	2254.052	2251.656	2249.859	2248.661	2249.859	2251.656	2254.052	2256.448
177.5	2257.047	2261.839	2263.636	2266.631	2267.829	2266.631	2263.636	2261.839	2257.047
180.0	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	707.97	N.A.	26.20
0-30	930.17	N.A.	34.40
0-40	1059.77	N.A.	39.20
0-60	1205.48	N.A.	44.60
0-80	1262.74	N.A.	46.70
0-90	1266.95	N.A.	46.80
10-90	999.21	N.A.	36.90
20-40	351.80	N.A.	13.00
20-50	438.72	N.A.	16.20
40-70	183.95	N.A.	6.80
60-80	57.26	N.A.	2.10
70-80	19.02	N.A.	0.70
80-90	4.21	N.A.	0.20
90-110	23.30	N.A.	0.90
90-120	58.42	N.A.	2.20
90-130	106.26	N.A.	3.90
90-150	328.24	N.A.	12.10
90-180	1438.44	N.A.	53.20
110-180	1415.14	N.A.	52.30
0-180	2705.39	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	267.74
10-20	440.23
20-30	222.20
30-40	129.60
40-50	86.92
50-60	58.79
60-70	38.24
70-80	19.02
80-90	4.21
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	106	106	106	106	98	98	98	98	82	82	82	67	67	67	53	53	53	47
1	99	96	93	90	91	88	86	83	74	73	71	62	61	60	50	50	49	44
2	92	86	81	77	85	80	76	72	68	65	63	57	55	54	47	46	45	40
3	86	78	73	68	79	73	68	64	63	59	56	53	51	49	45	43	42	38
4	80	72	65	61	74	67	62	57	58	54	51	50	47	45	42	40	39	35
5	75	66	59	55	70	62	56	52	54	50	47	47	44	42	40	38	36	33
6	71	61	54	50	66	57	52	47	51	46	43	44	41	39	38	36	34	32
7	67	57	50	46	62	54	48	44	47	43	40	42	39	36	36	34	33	30
8	63	53	47	42	59	50	45	41	45	40	37	40	36	34	35	33	31	29
9	60	50	44	39	56	47	42	38	42	38	35	38	35	32	33	31	29	28
10	57	47	41	37	53	45	39	36	40	36	33	36	33	31	32	30	28	26

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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	4.0	4.7	5.0	5.7	7.0	4.1	4.8	5.1	5.8	7.1
	3H	4.9	5.5	5.9	6.5	7.9	5.0	5.6	6.0	6.6	8.0
	4H	5.1	5.7	6.2	6.7	8.1	5.2	5.8	6.3	6.8	8.2
	6H	5.2	5.7	6.3	6.8	8.1	5.3	5.9	6.4	6.9	8.2
	8H	5.2	5.7	6.2	6.7	8.1	5.3	5.8	6.4	6.8	8.2
	12H	5.1	5.6	6.2	6.6	8.0	5.3	5.7	6.3	6.8	8.2

UGR Viewed Endwise

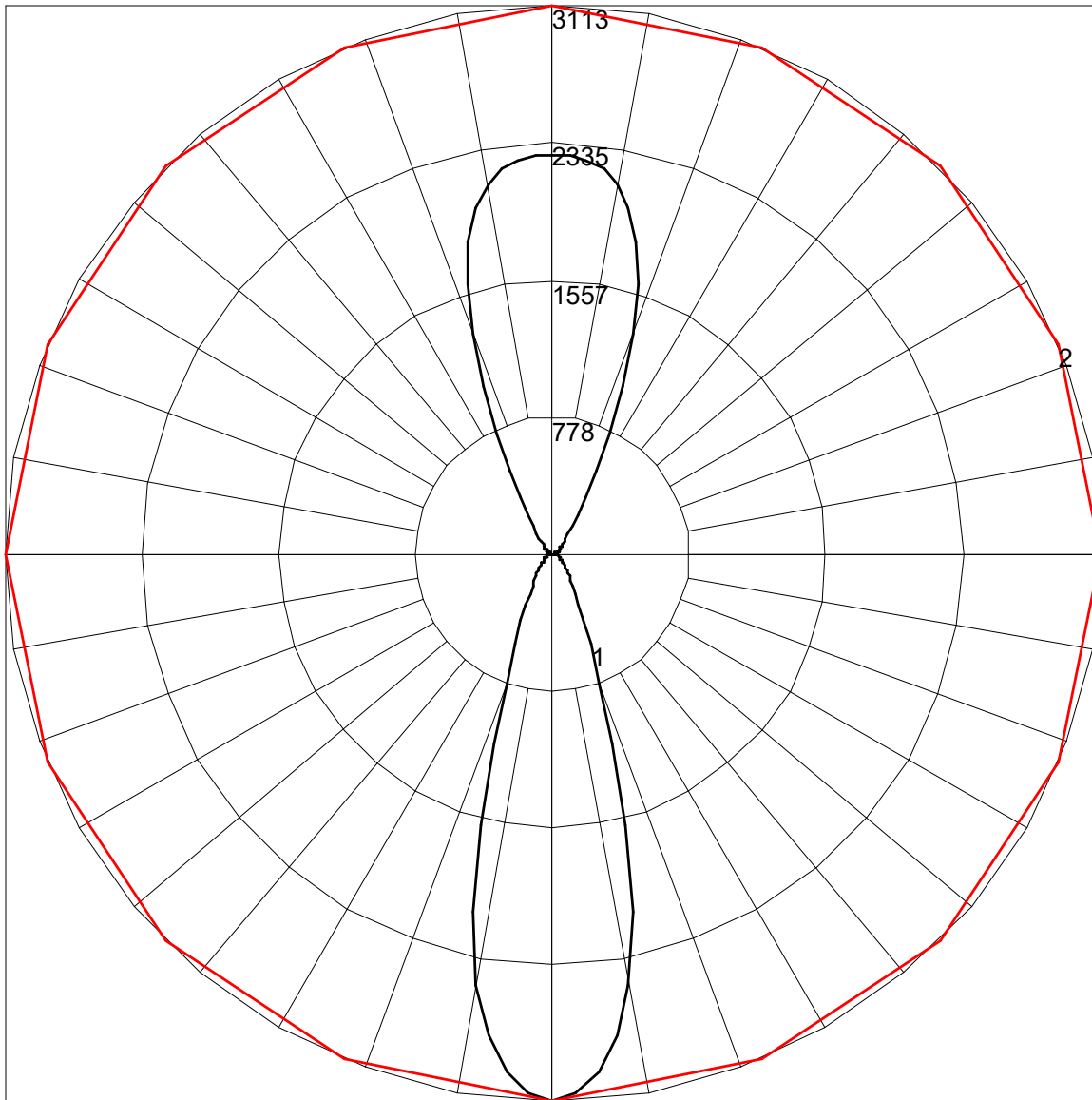
4H	2H	4.2	4.7	5.2	5.8	7.1	4.3	4.9	5.3	5.9	7.2
	3H	5.2	5.7	6.3	6.7	8.1	5.3	5.8	6.4	6.9	8.2
	4H	5.5	6.0	6.6	7.0	8.4	5.6	6.1	6.7	7.1	8.5
	6H	5.6	6.0	6.7	7.1	8.5	5.8	6.1	6.8	7.2	8.6
	8H	5.6	6.0	6.7	7.0	8.4	5.7	6.1	6.8	7.2	8.6
	12H	5.6	5.9	6.7	7.0	8.4	5.7	6.0	6.8	7.1	8.5
8H	4H	5.5	5.9	6.6	6.9	8.3	5.6	6.0	6.7	7.0	8.4
	6H	5.7	6.0	6.8	7.1	8.5	5.8	6.1	6.9	7.2	8.6
	8H	5.7	5.9	6.8	7.0	8.4	5.8	6.1	6.9	7.1	8.6
	12H	5.7	5.9	6.8	7.0	8.4	5.8	6.0	6.9	7.1	8.5
12H	4H	5.5	5.8	6.5	6.8	8.2	5.6	5.9	6.6	6.9	8.3
	6H	5.6	5.9	6.7	7.0	8.4	5.7	6.0	6.8	7.1	8.5
	8H	5.7	5.9	6.8	7.0	8.4	5.8	6.0	6.9	7.1	8.5

Maximum UGR = 8.6

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POLAR GRAPH



Maximum Candela = 3113.485 Located At Horizontal Angle = 0, Vertical Angle = 0

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

2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)