



IES INDOOR REPORT

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

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13537338.13 & #13257153.14

[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-LW-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	2702
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	2242	2066	2281
55	1347	1075	1369
65	823	608	831
75	388	274	402
85	79	49	85

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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	1458.078	1458.078	1458.078	1458.078	1458.078	1458.078	1458.078	1458.078	1458.078
2.5	1484.059	1462.802	1450.205	1446.269	1444.694	1446.269	1450.205	1462.802	1484.059
5.0	1471.462	1450.205	1438.396	1434.459	1432.885	1434.459	1438.396	1450.205	1471.462
7.5	1450.205	1428.948	1418.713	1415.564	1417.139	1415.564	1418.713	1428.948	1450.205
10.0	1422.650	1402.180	1394.307	1391.945	1391.158	1391.945	1394.307	1402.180	1422.650
12.5	1384.072	1365.964	1359.666	1358.091	1355.729	1358.091	1359.666	1365.964	1384.072
15.0	1330.536	1314.790	1312.428	1309.279	1304.555	1309.279	1312.428	1314.790	1330.536
17.5	1258.892	1246.295	1245.507	1240.784	1232.123	1240.784	1245.507	1246.295	1258.892
20.0	1158.117	1154.968	1161.266	1150.244	1128.987	1150.244	1161.266	1154.968	1158.117
22.5	1015.616	1032.937	1054.194	1027.426	988.061	1027.426	1054.194	1032.937	1015.616
25.0	838.474	877.051	925.864	874.689	817.217	874.689	925.864	877.051	838.474
27.5	643.460	700.382	774.702	701.247	635.665	701.247	774.702	700.382	643.460
30.0	460.570	525.601	612.755	532.057	462.538	532.057	612.755	525.601	460.570
32.5	312.401	372.156	458.916	382.942	320.745	382.942	458.916	372.156	312.401
35.0	212.020	257.998	329.878	269.729	222.255	269.729	329.878	257.998	212.020
37.5	152.106	182.968	235.088	192.416	160.688	192.416	235.088	182.968	152.106
40.0	118.174	137.147	171.080	143.839	123.921	143.839	171.080	137.147	118.174
42.5	98.492	110.143	130.692	114.709	101.562	114.709	130.692	110.143	98.492
45.0	85.895	93.846	105.734	96.444	87.390	96.444	105.734	93.846	85.895
47.5	76.368	82.430	89.358	83.847	77.155	83.847	89.358	82.430	76.368
50.0	68.574	73.455	77.706	74.243	69.282	74.243	77.706	73.455	68.574
52.5	61.960	65.976	68.495	66.841	62.905	66.841	68.495	65.976	61.960
55.0	56.371	59.598	61.016	60.465	57.316	60.465	61.016	59.598	56.371
57.5	51.411	53.851	54.324	54.560	52.276	54.560	54.324	53.851	51.411
60.0	46.765	48.340	48.262	48.970	47.238	48.970	48.262	48.340	46.765
62.5	41.727	43.144	42.514	43.301	41.884	43.301	42.514	43.144	41.727
65.0	36.295	37.633	36.846	37.711	36.689	37.711	36.846	37.633	36.295
67.5	31.335	32.200	31.413	32.437	31.806	32.437	31.413	32.200	31.335
70.0	26.532	27.083	26.375	27.398	27.083	27.398	26.375	27.083	26.532
72.5	21.887	22.202	21.651	22.517	22.517	22.517	21.651	22.202	21.887
75.0	17.478	17.714	17.163	17.951	18.108	17.951	17.163	17.714	17.478
77.5	13.463	13.541	13.070	13.699	14.014	13.699	13.070	13.541	13.463
80.0	9.762	9.762	9.368	9.841	10.235	9.841	9.368	9.762	9.762
82.5	6.456	6.298	5.984	6.378	6.849	6.378	5.984	6.298	6.456
85.0	3.543	3.306	3.070	3.386	3.779	3.386	3.070	3.306	3.543
87.5	0.551	0.708	0.708	0.551	0.551	0.551	0.708	0.708	0.551
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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CANDELA TABULATION - (Cont.)

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	501.17	N.A.	18.50
0-30	892.09	N.A.	33.00
0-40	1072.85	N.A.	39.70
0-60	1203.4	N.A.	44.50
0-80	1259.19	N.A.	46.60
0-90	1263.32	N.A.	46.80
10-90	1126.95	N.A.	41.70
20-40	571.68	N.A.	21.20
20-50	648.64	N.A.	24.00
40-70	167.46	N.A.	6.20
60-80	55.79	N.A.	2.10
70-80	18.88	N.A.	0.70
80-90	4.13	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.	52.40
0-180	2701.76	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	136.37
10-20	364.80
20-30	390.92
30-40	180.76
40-50	76.95
50-60	53.60
60-70	36.91
70-80	18.88
80-90	4.13
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	95	92	89	91	88	85	83	74	72	71	61	60	59	50	49	48	43
2	92	86	81	76	85	79	75	72	68	65	62	57	55	53	46	45	44	40
3	85	78	71	67	79	72	67	63	62	58	55	52	50	48	43	42	40	36
4	80	71	64	59	73	66	60	56	57	53	49	48	46	43	41	39	37	34
5	74	64	58	53	69	60	54	50	52	48	45	45	42	40	38	36	35	31
6	69	59	52	47	64	56	50	45	49	44	41	42	39	36	36	34	32	29
7	65	55	48	43	60	51	45	41	45	41	37	39	36	34	34	32	30	28
8	61	51	44	39	57	48	42	38	42	38	34	37	34	31	32	30	28	26
9	58	47	41	36	54	44	39	35	40	35	32	35	32	29	30	28	26	24
10	54	44	38	33	51	42	36	32	37	33	30	33	30	27	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	3.6	4.3	4.6	5.3	6.6	UGR Viewed Endwise				
	3H	4.6	5.2	5.6	6.2	7.6	3.7	4.4	4.7	5.4	6.7
	4H	4.8	5.4	5.9	6.4	7.8	4.7	5.3	5.7	6.3	7.7
	6H	4.9	5.5	6.0	6.5	7.8	4.9	5.5	6.0	6.5	7.9
	8H	4.9	5.4	6.0	6.4	7.8	5.0	5.6	6.1	6.6	8.0
	12H	4.9	5.3	5.9	6.4	7.8	5.0	5.5	6.1	6.6	7.9

4H	2H	3.8	4.4	4.9	5.4	6.8	3.9	4.5	4.9	5.5	6.8
	3H	4.9	5.4	6.0	6.5	7.8	5.0	5.5	6.1	6.5	7.9
	4H	5.3	5.7	6.3	6.7	8.1	5.3	5.8	6.4	6.8	8.2
	6H	5.4	5.8	6.5	6.8	8.2	5.5	5.9	6.6	6.9	8.3
	8H	5.4	5.8	6.5	6.8	8.2	5.5	5.9	6.6	6.9	8.3
	12H	5.4	5.7	6.5	6.7	8.2	5.5	5.8	6.6	6.8	8.3

8H	4H	5.3	5.6	6.3	6.7	8.1	5.4	5.7	6.4	6.7	8.1
	6H	5.5	5.7	6.5	6.8	8.2	5.6	5.8	6.6	6.9	8.3
	8H	5.5	5.7	6.6	6.8	8.2	5.6	5.8	6.7	6.9	8.3
	12H	5.5	5.7	6.6	6.7	8.2	5.6	5.8	6.7	6.8	8.3

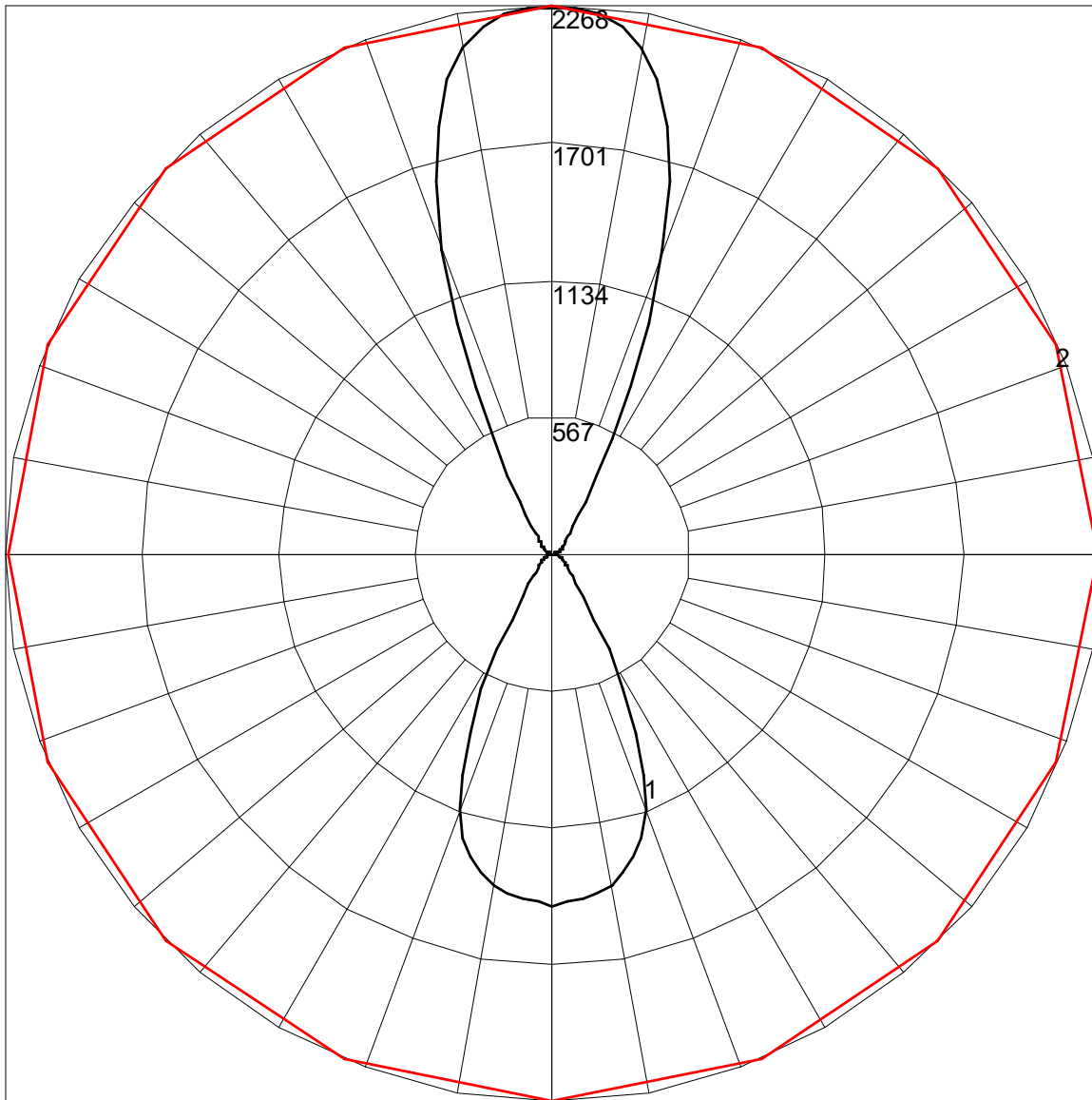
12H	4H	5.2	5.5	6.3	6.6	8.0	5.3	5.6	6.4	6.7	8.1
	6H	5.4	5.7	6.5	6.7	8.2	5.5	5.7	6.6	6.8	8.3
	8H	5.5	5.7	6.5	6.7	8.2	5.5	5.8	6.6	6.8	8.3

Maximum UGR = 8.3

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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.)