



IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4CSDI-L12-9DWU-L12-9DWD-XXX-DIM-UNV-LM-WHU-RW-WHD-WM-3000K_.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] 19-APR-2021

[MANUFAC] H E Williams Inc

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

[LUMINAIRE] 4" Square Aluminum housing, optics, and trim enclosure

[LAMP] Two white LEDs

[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	2715
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
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	28281	38492	27672
55	19650	21219	19241
65	15233	14075	15279
75	8769	8089	8845
85	4041	4041	4041

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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	0.714	0.983	1.072	1.161	1.250	1.161	1.072	0.983	0.714
95.0	4.019	3.752	3.573	3.930	4.287	3.930	3.573	3.752	4.019
97.5	7.325	7.056	6.878	7.325	7.682	7.325	6.878	7.056	7.325
100.0	11.165	10.986	10.719	11.255	11.612	11.255	10.719	10.986	11.165
102.5	15.452	15.364	15.006	15.631	15.810	15.631	15.006	15.364	15.452
105.0	20.187	20.187	19.740	20.544	20.634	20.544	19.740	20.187	20.187
107.5	25.367	25.367	24.831	25.903	25.724	25.903	24.831	25.367	25.367
110.0	30.995	31.084	30.549	31.620	31.173	31.620	30.549	31.084	30.995
112.5	36.890	37.248	36.712	37.694	36.979	37.694	36.712	37.248	36.890
115.0	43.142	44.035	43.411	44.215	43.142	44.215	43.411	44.035	43.142
117.5	49.753	51.003	50.557	51.450	49.753	51.450	50.557	51.003	49.753
120.0	56.452	57.880	58.239	58.863	56.630	58.863	58.239	57.880	56.452
122.5	62.615	65.205	66.635	66.545	63.776	66.545	66.635	65.205	62.615
125.0	69.582	73.601	76.281	75.120	71.011	75.120	76.281	73.601	69.582
127.5	78.067	83.337	87.536	85.035	79.586	85.035	87.536	83.337	78.067
130.0	88.697	95.485	100.755	96.915	90.036	96.915	100.755	95.485	88.697
132.5	102.184	110.223	116.208	111.474	103.167	111.474	116.208	110.223	102.184

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135.0	118.352	127.284	133.269	128.267	118.888	128.267	133.269	127.284	118.352
137.5	137.199	146.131	153.098	147.025	137.467	147.025	153.098	146.131	137.199
140.0	158.637	167.033	178.108	168.372	158.637	168.372	178.108	167.033	158.637
142.5	181.503	191.150	211.068	194.008	181.503	194.008	211.068	191.150	181.503
145.0	207.228	222.055	257.516	226.521	209.461	226.521	257.516	222.055	207.228
147.5	242.510	266.359	320.399	270.646	246.529	270.646	320.399	266.359	242.510
150.0	295.567	331.207	395.072	332.993	297.533	332.993	395.072	331.207	295.567
152.5	374.081	413.473	478.500	416.152	372.206	416.152	478.500	413.473	374.081
155.0	475.015	515.300	581.577	522.982	478.053	522.982	581.577	515.300	475.015
157.5	614.180	661.164	731.549	680.010	632.134	680.010	731.549	661.164	614.180
160.0	850.795	905.728	982.545	937.884	886.256	937.884	982.545	905.728	850.795
162.5	1256.764	1307.678	1378.243	1339.834	1289.813	1339.834	1378.243	1307.678	1256.764
165.0	1814.135	1848.971	1898.991	1864.156	1822.174	1864.156	1898.991	1848.971	1814.135
167.5	2397.410	2410.808	2434.032	2407.235	2378.652	2407.235	2434.032	2410.808	2397.410
170.0	2859.206	2852.953	2860.992	2850.273	2836.875	2850.273	2860.992	2852.953	2859.206
172.5	3156.650	3145.038	3149.504	3151.290	3150.397	3151.290	3149.504	3145.038	3156.650
175.0	3356.731	3346.012	3352.265	3359.410	3362.983	3359.410	3352.265	3346.012	3356.731
177.5	3497.860	3484.461	3487.141	3496.967	3501.433	3496.967	3487.141	3484.461	3497.860
180.0	3541.754	3541.754	3541.754	3541.754	3541.754	3541.754	3541.754	3541.754	3541.754

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Zone	Lumens	%Lamp	%Fixt
0-20	501.93	N.A.	18.50
0-30	911.03	N.A.	33.60
0-40	1118.31	N.A.	41.20
0-60	1236.19	N.A.	45.50
0-80	1271.32	N.A.	46.80
0-90	1272.97	N.A.	46.90
10-90	1136.33	N.A.	41.90
20-40	616.38	N.A.	22.70
20-50	691.23	N.A.	25.50
40-70	143.21	N.A.	5.30
60-80	35.13	N.A.	1.30
70-80	9.80	N.A.	0.40
80-90	1.65	N.A.	0.10
90-110	26.44	N.A.	1.00
90-120	69.95	N.A.	2.60
90-130	136.84	N.A.	5.00
90-150	383.20	N.A.	14.10
90-180	1441.54	N.A.	53.10
110-180	1415.1	N.A.	52.10
0-180	2714.5	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	4.79
100-110	21.64
110-120	43.51
120-130	66.89
130-140	98.90
140-150	147.46
150-160	252.82
160-170	500.89
170-180	304.63

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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	12.9	13.5	13.9	14.5	15.9	12.8	13.4	13.8	14.4	15.8
	3H	13.9	14.5	15.0	15.5	16.9	13.9	14.5	14.9	15.5	16.8
	4H	14.2	14.7	15.2	15.7	17.1	14.1	14.7	15.2	15.7	17.1
	6H	14.1	14.7	15.2	15.7	17.0	14.1	14.6	15.2	15.6	17.0
	8H	14.1	14.6	15.2	15.6	17.0	14.1	14.6	15.2	15.6	17.0
	12H	14.1	14.5	15.1	15.6	17.0	14.0	14.5	15.1	15.5	16.9

UGR Viewed Endwise

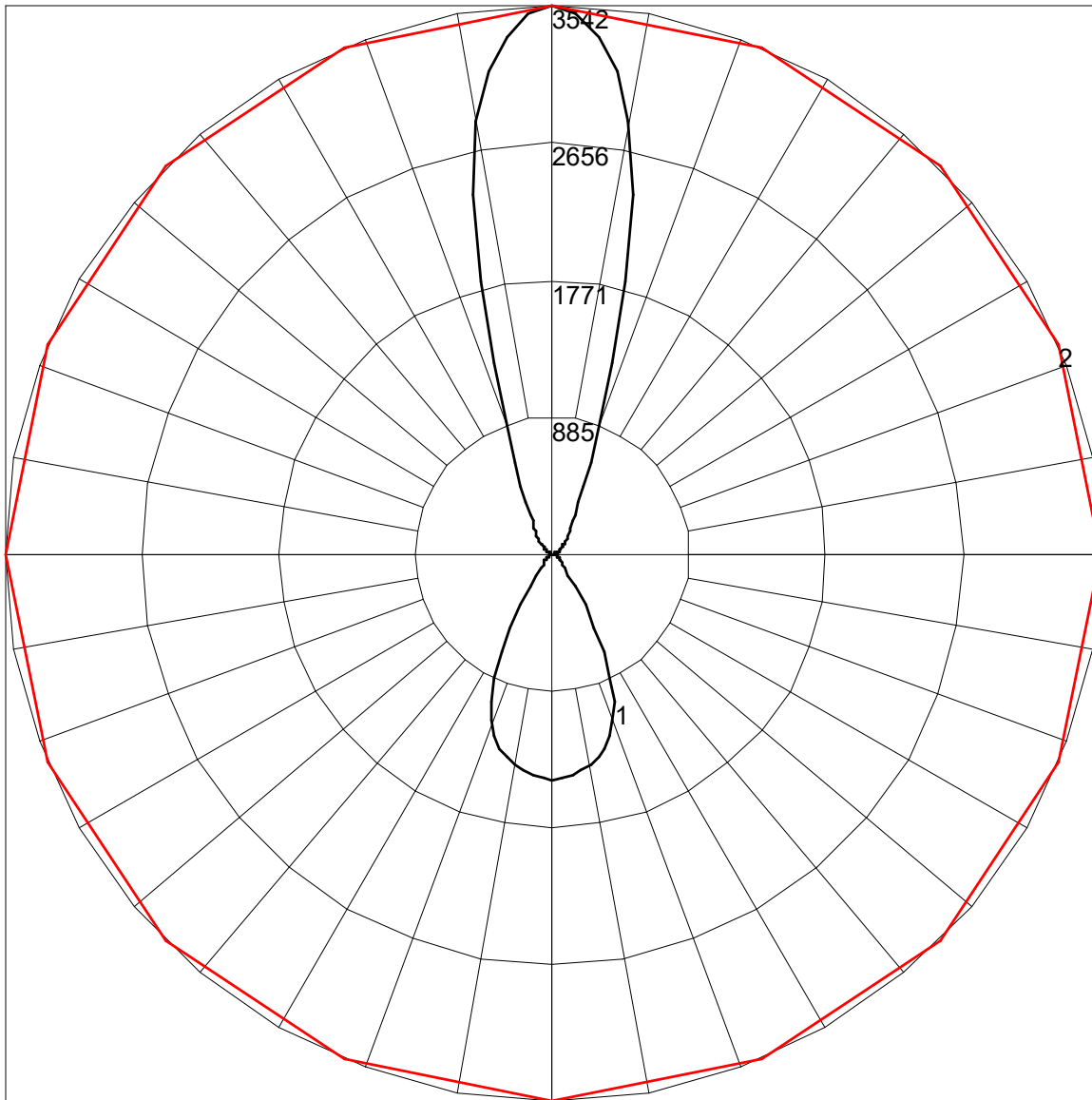
4H	2H	13.1	13.6	14.1	14.7	16.0	13.0	13.6	14.1	14.6	15.9
	3H	14.3	14.8	15.4	15.8	17.2	14.3	14.7	15.3	15.8	17.1
	4H	14.6	15.0	15.7	16.1	17.5	14.6	15.0	15.6	16.0	17.4
	6H	14.6	15.0	15.7	16.1	17.5	14.6	15.0	15.7	16.0	17.4
	8H	14.6	15.0	15.7	16.0	17.4	14.6	14.9	15.7	16.0	17.4
	12H	14.6	14.9	15.7	16.0	17.4	14.6	14.9	15.7	15.9	17.4
8H	4H	14.6	14.9	15.7	16.0	17.4	14.6	14.9	15.6	16.0	17.4
	6H	14.7	14.9	15.8	16.0	17.4	14.7	14.9	15.7	16.0	17.4
	8H	14.7	14.9	15.8	16.0	17.4	14.7	14.9	15.8	16.0	17.4
	12H	14.7	14.9	15.8	16.0	17.4	14.7	14.9	15.8	15.9	17.4
12H	4H	14.5	14.8	15.6	15.9	17.3	14.5	14.8	15.6	15.9	17.3
	6H	14.6	14.9	15.7	15.9	17.4	14.6	14.8	15.7	15.9	17.4
	8H	14.6	14.9	15.7	15.9	17.4	14.6	14.8	15.7	15.9	17.4

Maximum UGR = 17.5

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POLAR GRAPH



Maximum Candela = 3541.754 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.)