



IES INDOOR REPORT

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

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13257153.19 & #13257153.18

[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-OM-CSD-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	2308
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	50
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
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	43790	39447	45920
55	23599	22951	24588
65	740	5415	787
75	377	377	377
85	225	225	225

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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	0.714	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	323.90	N.A.	14.00
0-30	556.12	N.A.	24.10
0-40	713.44	N.A.	30.90
0-60	857.60	N.A.	37.20
0-80	866.58	N.A.	37.50
0-90	866.69	N.A.	37.50
10-90	769.38	N.A.	33.30
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	26.44	N.A.	1.10
90-120	69.95	N.A.	3.00
90-130	136.84	N.A.	5.90
90-150	383.20	N.A.	16.60
90-180	1441.54	N.A.	62.50
110-180	1415.1	N.A.	61.30
0-180	2308.22	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	4.79
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	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	67	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	50	46	44	42	36	35	34	29
4	77	68	61	56	70	62	56	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	13.0	13.7	14.1	14.7	16.2	13.3	14.0	14.4	15.1	16.5
	3H	12.8	13.4	13.9	14.5	16.0	13.1	13.7	14.2	14.8	16.3
	4H	12.7	13.3	13.8	14.4	15.8	13.0	13.6	14.1	14.7	16.1
	6H	12.6	13.1	13.7	14.2	15.7	12.9	13.4	14.0	14.5	16.0
	8H	12.6	13.0	13.7	14.1	15.6	12.9	13.3	14.0	14.4	15.9
	12H	12.5	12.9	13.6	14.0	15.5	12.8	13.2	13.9	14.3	15.8

UGR Viewed Endwise

4H	2H	12.8	13.4	13.9	14.4	15.9	13.1	13.7	14.2	14.7	16.2
	3H	12.6	13.1	13.8	14.2	15.7	12.9	13.4	14.0	14.5	16.0
	4H	12.5	12.9	13.6	14.0	15.5	12.8	13.2	13.9	14.3	15.8
	6H	12.4	12.8	13.5	13.9	15.4	12.7	13.0	13.8	14.2	15.7
	8H	12.3	12.7	13.5	13.8	15.3	12.6	13.0	13.8	14.1	15.6
	12H	12.3	12.6	13.4	13.7	15.2	12.6	12.9	13.7	14.0	15.5

8H	4H	12.3	12.7	13.5	13.8	15.3	12.6	13.0	13.8	14.1	15.6
	6H	12.2	12.5	13.4	13.6	15.2	12.5	12.8	13.7	13.9	15.4
	8H	12.2	12.4	13.3	13.5	15.1	12.5	12.7	13.6	13.8	15.4
	12H	12.1	12.3	13.2	13.4	15.0	12.4	12.6	13.5	13.7	15.3

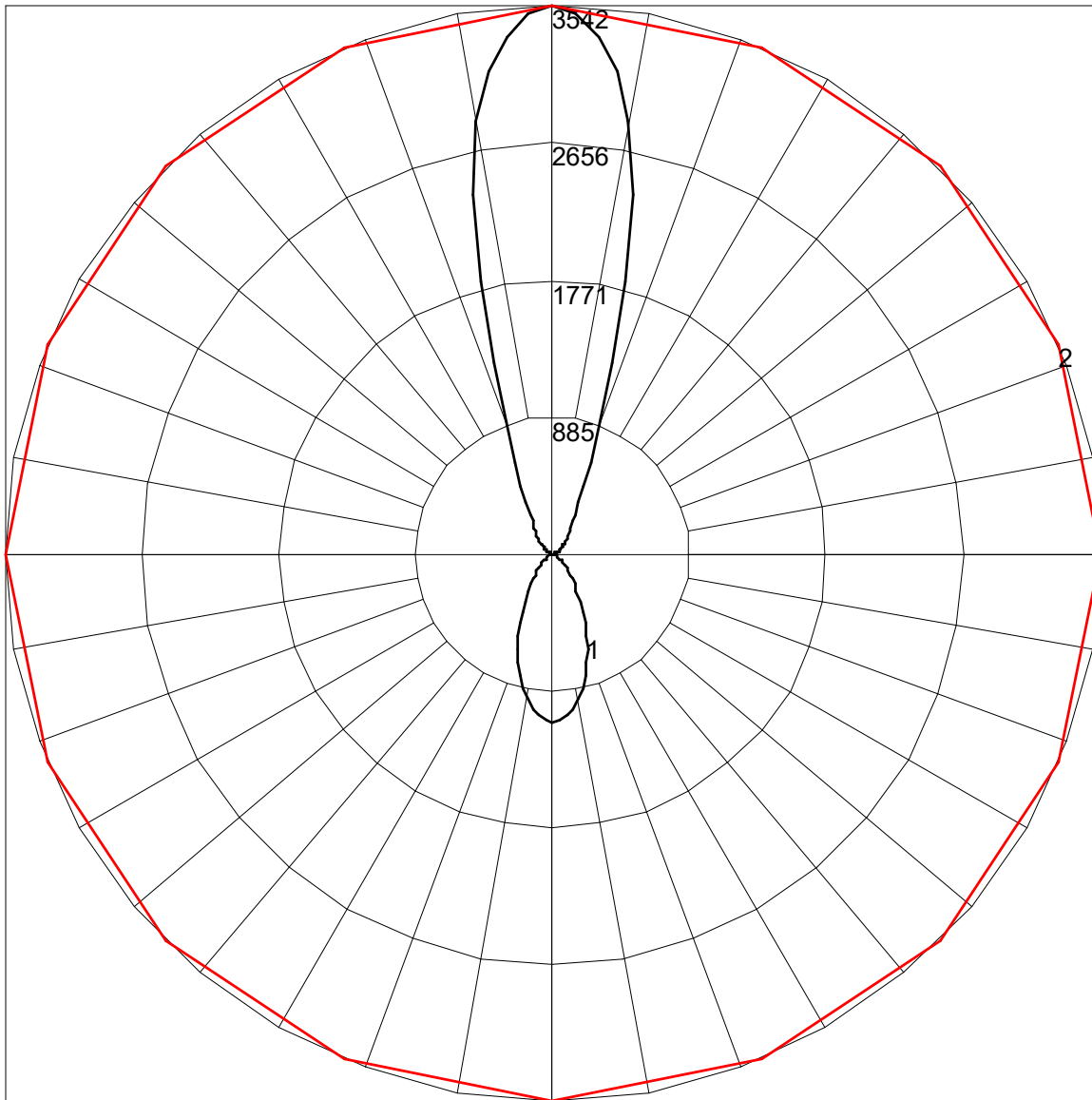
12H	4H	12.3	12.6	13.4	13.7	15.2	12.6	12.9	13.7	14.0	15.5
	6H	12.2	12.4	13.3	13.5	15.1	12.5	12.7	13.6	13.8	15.4
	8H	12.1	12.3	13.2	13.4	15.0	12.4	12.6	13.5	13.7	15.3

Maximum UGR = 16.5

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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.)