



IES INDOOR REPORT

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

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #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-OM-CSU-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	1895
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	41
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	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	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094
95.0	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094	0.094
97.5	0.187	0.187	0.187	0.187	0.187	0.187	0.187	0.187	0.187
100.0	0.187	0.187	0.187	0.187	0.280	0.187	0.187	0.187	0.187
102.5	0.280	0.280	0.280	0.280	0.373	0.280	0.280	0.280	0.280
105.0	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467
107.5	0.560	0.560	0.560	0.560	0.654	0.560	0.560	0.560	0.560
110.0	0.840	0.747	1.027	0.840	0.840	0.840	1.027	0.747	0.840
112.5	1.120	1.027	3.454	1.120	1.214	1.120	3.454	1.027	1.120
115.0	1.493	4.666	10.920	5.040	1.587	5.040	10.920	4.666	1.493
117.5	10.453	18.479	22.212	18.759	9.706	18.759	22.212	18.479	10.453
120.0	28.092	34.718	34.904	36.024	28.278	36.024	34.904	34.718	28.092
122.5	46.103	49.930	48.530	52.263	47.877	52.263	48.530	49.930	46.103
125.0	64.582	65.422	62.809	68.688	67.289	68.688	62.809	65.422	64.582
127.5	84.554	81.567	77.648	85.674	88.007	85.674	77.648	81.567	84.554
130.0	104.993	99.300	93.420	103.873	109.565	103.873	93.420	99.300	104.993
132.5	125.804	118.992	111.432	124.032	131.871	124.032	111.432	118.992	125.804

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135.0	147.737	141.110	133.084	146.336	154.922	146.336	133.084	141.110	147.737
137.5	172.094	166.962	161.176	172.375	179.934	172.375	161.176	166.962	172.094
140.0	201.493	198.972	198.693	203.919	209.052	203.919	198.693	198.972	201.493
142.5	237.517	239.103	247.129	242.930	244.050	242.930	247.129	239.103	237.517
145.0	282.220	289.406	304.805	291.646	287.540	291.646	304.805	289.406	282.220
147.5	339.803	353.055	370.601	353.615	343.815	353.615	370.601	353.055	339.803
150.0	413.717	430.982	443.955	429.676	415.584	429.676	443.955	430.982	413.717
152.5	503.217	517.963	523.283	515.444	501.445	515.444	523.283	517.963	503.217
155.0	598.504	607.464	609.330	605.037	594.585	605.037	609.330	607.464	598.504
157.5	689.591	696.777	699.017	694.910	685.671	694.910	699.017	696.777	689.591
160.0	779.651	787.024	790.944	786.277	778.065	786.277	790.944	787.024	779.651
162.5	872.417	879.324	884.737	878.671	872.511	878.671	884.737	879.324	872.417
165.0	964.997	969.664	976.197	969.664	964.064	969.664	976.197	969.664	964.997
167.5	1052.725	1055.524	1059.257	1054.591	1051.791	1054.591	1059.257	1055.524	1052.725
170.0	1132.052	1132.985	1132.052	1132.052	1131.119	1132.052	1132.052	1132.985	1132.052
172.5	1197.381	1197.381	1195.514	1195.514	1196.448	1195.514	1195.514	1197.381	1197.381
175.0	1247.777	1248.710	1246.844	1246.844	1247.777	1246.844	1246.844	1248.710	1247.777
177.5	1283.241	1283.241	1280.442	1281.375	1282.308	1281.375	1280.442	1283.241	1283.241
180.0	1293.442	1293.442	1293.442	1293.442	1293.442	1293.442	1293.442	1293.442	1293.442

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Zone	Lumens	%Lamp	%Fixt
0-20	323.90	N.A.	17.10
0-30	556.12	N.A.	29.40
0-40	713.44	N.A.	37.70
0-60	857.60	N.A.	45.30
0-80	866.58	N.A.	45.70
0-90	866.69	N.A.	45.70
10-90	769.38	N.A.	40.60
20-40	389.54	N.A.	20.60
20-50	484.04	N.A.	25.50
40-70	152.73	N.A.	8.10
60-80	8.98	N.A.	0.50
70-80	0.41	N.A.	0.00
80-90	0.11	N.A.	0.00
90-110	0.62	N.A.	0.00
90-120	10.78	N.A.	0.60
90-130	69.67	N.A.	3.70
90-150	368.32	N.A.	19.40
90-180	1027.84	N.A.	54.30
110-180	1027.23	N.A.	54.20
0-180	1894.53	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	0.13
100-110	0.49
110-120	10.16
120-130	58.89
130-140	112.07
140-150	186.58
150-160	275.39
160-170	268.73
170-180	115.40

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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	97	97	97	97	81	81	81	66	66	66	52	52	52	46
1	99	95	92	89	91	88	85	83	74	72	70	61	60	59	49	48	48	42
2	92	86	81	76	84	79	75	71	67	64	62	56	54	52	46	45	44	39
3	85	77	71	67	78	72	67	62	61	58	55	52	49	47	43	41	40	36
4	79	70	64	59	73	65	60	55	56	52	49	48	45	43	40	38	37	33
5	74	64	57	52	68	60	54	49	52	47	44	44	41	39	37	35	34	31
6	69	59	52	47	64	55	49	44	48	43	40	41	38	35	35	33	31	28
7	64	54	47	42	60	51	45	40	44	40	36	38	35	33	33	31	29	26
8	60	50	43	38	56	47	41	37	41	37	33	36	33	30	31	29	27	25
9	57	46	40	35	53	44	38	34	39	34	31	34	30	28	29	27	25	23
10	54	43	37	32	50	41	35	31	36	32	29	32	28	26	28	25	24	22

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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	14.0	14.6	15.0	15.6	17.0	14.3	14.9	15.3	16.0	17.3
	3H	13.8	14.4	14.8	15.4	16.8	14.1	14.7	15.1	15.7	17.1
	4H	13.7	14.2	14.7	15.2	16.6	14.0	14.5	15.0	15.6	16.9
	6H	13.6	14.1	14.6	15.1	16.5	13.9	14.4	14.9	15.4	16.8
	8H	13.5	14.0	14.5	15.0	16.4	13.8	14.3	14.9	15.3	16.7
	12H	13.4	13.9	14.5	14.9	16.3	13.7	14.2	14.8	15.2	16.6

UGR Viewed Endwise

4H	2H	13.8	14.3	14.8	15.3	16.7	14.1	14.6	15.1	15.6	17.0
	3H	13.6	14.0	14.6	15.1	16.5	13.9	14.3	14.9	15.4	16.8
	4H	13.4	13.9	14.5	14.9	16.3	13.7	14.2	14.8	15.2	16.6
	6H	13.3	13.7	14.4	14.8	16.2	13.6	14.0	14.7	15.1	16.5
	8H	13.3	13.6	14.3	14.7	16.1	13.6	13.9	14.6	15.0	16.4
	12H	13.2	13.5	14.3	14.6	16.0	13.5	13.8	14.6	14.9	16.3

8H	4H	13.3	13.6	14.3	14.7	16.1	13.6	13.9	14.6	15.0	16.4
	6H	13.2	13.4	14.2	14.5	15.9	13.4	13.7	14.5	14.8	16.2
	8H	13.1	13.3	14.2	14.4	15.9	13.4	13.6	14.5	14.7	16.2
	12H	13.0	13.2	14.1	14.3	15.8	13.3	13.5	14.4	14.6	16.1

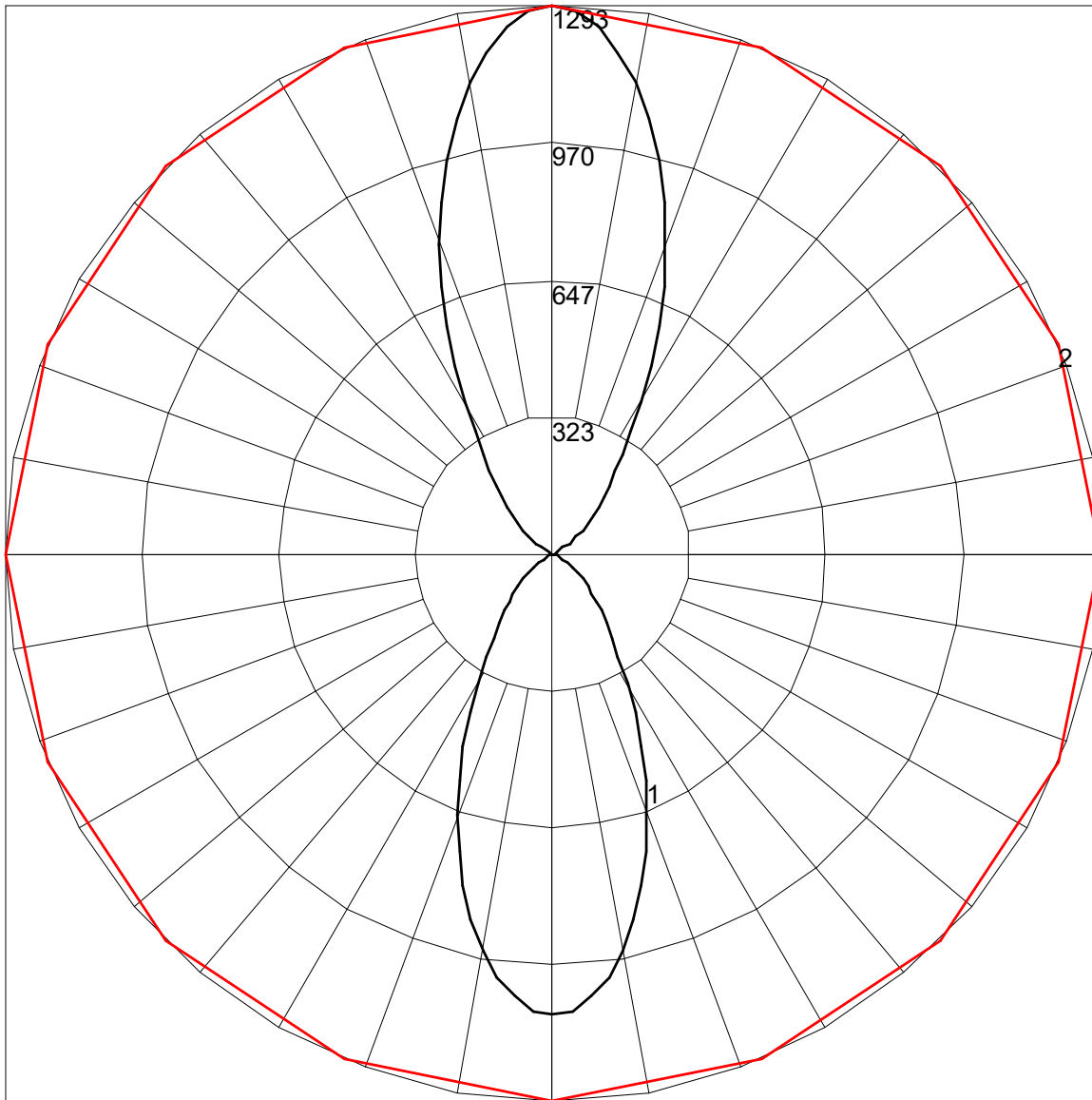
12H	4H	13.2	13.5	14.3	14.6	16.0	13.5	13.8	14.6	14.9	16.3
	6H	13.1	13.3	14.2	14.4	15.9	13.4	13.6	14.5	14.7	16.2
	8H	13.0	13.2	14.1	14.3	15.8	13.3	13.5	14.4	14.6	16.1

Maximum UGR = 17.3

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POLAR GRAPH



Maximum Candela = 1293.442 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.)