



IES INDOOR REPORT

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

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13257153.18 & #13257153.12

[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-OW-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	1943
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	42
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	41204	41425	43169
55	18115	22857	18933
65	787	3658	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	1150.117	1150.117	1150.117	1150.117	1150.117	1150.117	1150.117	1150.117	1150.117
2.5	1149.330	1143.819	1140.670	1139.883	1138.309	1139.883	1140.670	1143.819	1149.330
5.0	1123.352	1118.628	1115.480	1114.692	1113.905	1114.692	1115.480	1118.628	1123.352
7.5	1083.991	1079.268	1076.906	1076.906	1076.119	1076.906	1076.906	1079.268	1083.991
10.0	1033.610	1028.886	1028.099	1027.312	1026.525	1027.312	1028.099	1028.886	1033.610
12.5	969.845	967.484	966.696	965.909	965.122	965.909	966.696	967.484	969.845
15.0	895.060	894.273	895.060	893.486	891.911	893.486	895.060	894.273	895.060
17.5	813.977	813.190	814.765	813.977	811.616	813.977	814.765	813.190	813.977
20.0	728.014	728.407	729.194	728.958	726.125	728.958	729.194	728.407	728.014
22.5	641.184	642.208	642.365	642.444	638.980	642.444	642.365	642.208	641.184
25.0	558.290	560.101	561.518	559.787	555.221	559.787	561.518	560.101	558.290
27.5	471.540	476.735	481.144	476.106	469.651	476.106	481.144	476.735	471.540
30.0	387.465	396.125	404.548	395.180	387.701	395.180	404.548	396.125	387.465
32.5	313.546	320.946	333.227	320.946	314.649	320.946	333.227	320.946	313.546
35.0	253.167	257.024	270.171	258.521	255.372	258.521	270.171	257.024	253.167
37.5	205.934	206.565	216.719	209.398	210.029	209.398	216.719	206.565	205.934
40.0	169.251	167.912	173.502	171.769	174.997	171.769	173.502	167.912	169.251
42.5	140.675	138.234	141.383	142.958	146.737	142.958	141.383	138.234	140.675
45.0	117.216	115.012	117.846	119.892	122.805	119.892	117.846	115.012	117.216
47.5	96.119	95.332	99.189	99.976	100.606	99.976	99.189	95.332	96.119
50.0	76.439	77.855	82.972	81.949	79.902	81.949	82.972	77.855	76.439
52.5	58.254	61.796	67.700	65.260	60.851	65.260	67.700	61.796	58.254
55.0	41.801	46.682	52.743	49.515	43.690	49.515	52.743	46.682	41.801
57.5	27.788	32.748	38.179	34.716	28.733	34.716	38.179	32.748	27.788
60.0	16.452	20.625	24.876	21.727	16.295	21.727	24.876	20.625	16.452
62.5	7.085	10.627	13.855	10.706	6.455	10.706	13.855	10.627	7.085
65.0	1.338	3.149	6.219	2.755	1.338	2.755	6.219	3.149	1.338
67.5	1.023	0.944	2.126	0.944	1.023	0.944	2.126	0.944	1.023
70.0	0.708	0.708	0.787	0.708	0.787	0.708	0.787	0.708	0.708
72.5	0.551	0.551	0.551	0.551	0.551	0.551	0.551	0.551	0.551
75.0	0.393	0.393	0.393	0.393	0.393	0.393	0.393	0.393	0.393
77.5	0.315	0.315	0.315	0.315	0.315	0.315	0.315	0.315	0.315
80.0	0.236	0.236	0.236	0.236	0.236	0.236	0.236	0.236	0.236
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	351.22	N.A.	18.10
0-30	605.88	N.A.	31.20
0-40	772.13	N.A.	39.70
0-60	908.19	N.A.	46.70
0-80	914.96	N.A.	47.10
0-90	915.08	N.A.	47.10
10-90	811.29	N.A.	41.80
20-40	420.90	N.A.	21.70
20-50	513.62	N.A.	26.40
40-70	142.37	N.A.	7.30
60-80	6.77	N.A.	0.30
70-80	0.46	N.A.	0.00
80-90	0.12	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.	3.60
90-150	368.32	N.A.	19.00
90-180	1027.84	N.A.	52.90
110-180	1027.23	N.A.	52.90
0-180	1942.92	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	103.79
10-20	247.43
20-30	254.66
30-40	166.24
40-50	92.72
50-60	43.35
60-70	6.31
70-80	0.46
80-90	0.12
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	98	98	98	98	82	82	82	67	67	67	53	53	53	47
1	99	96	93	90	91	88	86	83	75	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	72	67	79	73	68	63	62	59	56	53	50	48	44	43	41	37
4	80	71	64	59	74	66	61	56	57	53	50	49	46	44	41	39	38	34
5	74	65	58	53	69	61	55	50	53	48	45	46	42	40	39	37	35	32
6	70	59	53	48	65	56	50	45	49	44	41	42	39	37	36	34	32	30
7	65	55	48	43	61	52	46	41	45	41	38	40	36	34	34	32	30	28
8	61	51	44	39	57	48	42	38	42	38	35	37	34	31	32	30	28	26
9	58	47	41	36	54	44	39	35	40	35	32	35	32	29	31	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	12.1	12.8	13.1	13.8	15.1	12.4	13.1	13.5	14.1	15.4
	3H	11.9	12.5	12.9	13.5	14.8	12.3	12.9	13.3	13.9	15.2
	4H	11.8	12.3	12.8	13.4	14.7	12.1	12.7	13.2	13.7	15.1
	6H	11.7	12.2	12.7	13.2	14.6	12.0	12.6	13.1	13.6	14.9
	8H	11.6	12.1	12.7	13.1	14.5	12.0	12.5	13.0	13.5	14.9
	12H	11.5	12.0	12.6	13.0	14.4	11.9	12.4	13.0	13.4	14.8

UGR Viewed Endwise

4H	2H	11.8	12.4	12.9	13.4	14.8	12.2	12.8	13.2	13.8	15.1
	3H	11.6	12.1	12.7	13.2	14.5	12.0	12.5	13.1	13.5	14.9
	4H	11.5	12.0	12.6	13.0	14.4	11.9	12.3	13.0	13.4	14.7
	6H	11.4	11.8	12.5	12.8	14.2	11.8	12.2	12.9	13.2	14.6
	8H	11.4	11.7	12.4	12.8	14.1	11.7	12.1	12.8	13.1	14.5
	12H	11.3	11.6	12.4	12.7	14.1	11.7	12.0	12.7	13.0	14.4

8H	4H	11.4	11.7	12.4	12.8	14.1	11.7	12.1	12.8	13.1	14.5
	6H	11.3	11.5	12.3	12.6	14.0	11.6	11.9	12.7	13.0	14.4
	8H	11.2	11.4	12.3	12.5	13.9	11.6	11.8	12.6	12.9	14.3
	12H	11.1	11.3	12.2	12.4	13.9	11.5	11.7	12.6	12.8	14.2

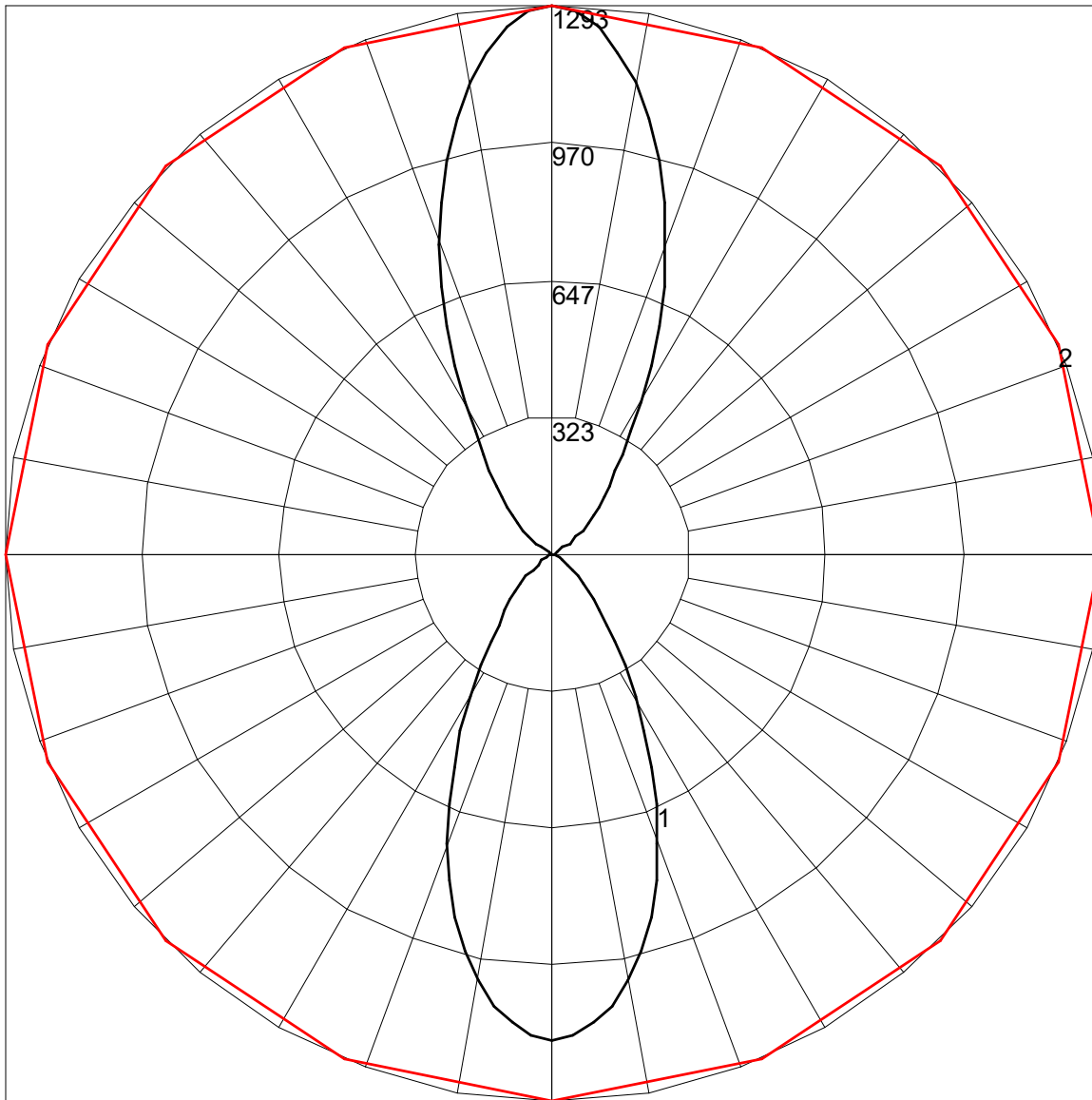
12H	4H	11.3	11.6	12.4	12.7	14.1	11.7	12.0	12.7	13.0	14.4
	6H	11.2	11.4	12.3	12.5	13.9	11.5	11.8	12.6	12.9	14.3
	8H	11.1	11.3	12.2	12.4	13.9	11.5	11.7	12.6	12.8	14.2

Maximum UGR = 15.4

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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.)