



IES INDOOR REPORT

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

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13257153.18 7 #13257153.14

[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-LW-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	2291
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	49
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	30194	37168	30719
55	24429	26442	24838
65	21347	21671	21579
75	16785	16483	17390
85	10104	8755	10777

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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	0.094	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	501.17	N.A.	21.90
0-30	892.09	N.A.	38.90
0-40	1072.85	N.A.	46.80
0-60	1203.4	N.A.	52.50
0-80	1259.19	N.A.	55.00
0-90	1263.32	N.A.	55.10
10-90	1126.95	N.A.	49.20
20-40	571.68	N.A.	25.00
20-50	648.64	N.A.	28.30
40-70	167.46	N.A.	7.30
60-80	55.79	N.A.	2.40
70-80	18.88	N.A.	0.80
80-90	4.13	N.A.	0.20
90-110	0.62	N.A.	0.00
90-120	10.78	N.A.	0.50
90-130	69.67	N.A.	3.00
90-150	368.32	N.A.	16.10
90-180	1027.84	N.A.	44.90
110-180	1027.23	N.A.	44.80
0-180	2291.17	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	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 RW	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55
1	101	98	94	92	94	91	88	86	79	77	75	67	66	65	57	56	56	51
2	94	88	83	79	88	83	78	75	72	69	66	62	60	58	53	52	51	47
3	88	80	74	69	82	75	70	66	66	62	59	58	55	53	50	48	47	43
4	82	73	67	62	77	69	63	59	61	57	54	54	51	48	47	45	43	40
5	77	67	60	56	72	64	58	53	57	52	49	50	47	44	44	42	40	37
6	72	62	55	50	68	59	53	48	53	48	45	47	43	41	42	39	37	35
7	68	57	51	46	64	55	49	44	49	44	41	44	41	38	39	37	35	32
8	64	53	47	42	60	51	45	41	46	41	38	41	38	35	37	35	33	31
9	60	50	43	39	57	48	42	38	43	39	35	39	36	33	35	33	31	29
10	57	47	40	36	54	45	39	35	41	36	33	37	33	31	34	31	29	27

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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	15.5	16.2	16.4	17.2	18.4	15.6	16.3	16.5	17.3	18.5
	3H	16.9	17.6	17.9	18.5	19.7	17.0	17.7	18.0	18.6	19.8
	4H	17.4	18.0	18.4	19.0	20.2	17.5	18.1	18.5	19.1	20.3
	6H	17.7	18.2	18.7	19.2	20.5	17.8	18.4	18.8	19.3	20.6
	8H	17.8	18.3	18.7	19.3	20.5	17.9	18.4	18.9	19.4	20.6
	12H	17.8	18.3	18.8	19.2	20.5	17.9	18.4	18.9	19.4	20.6

UGR Viewed Endwise

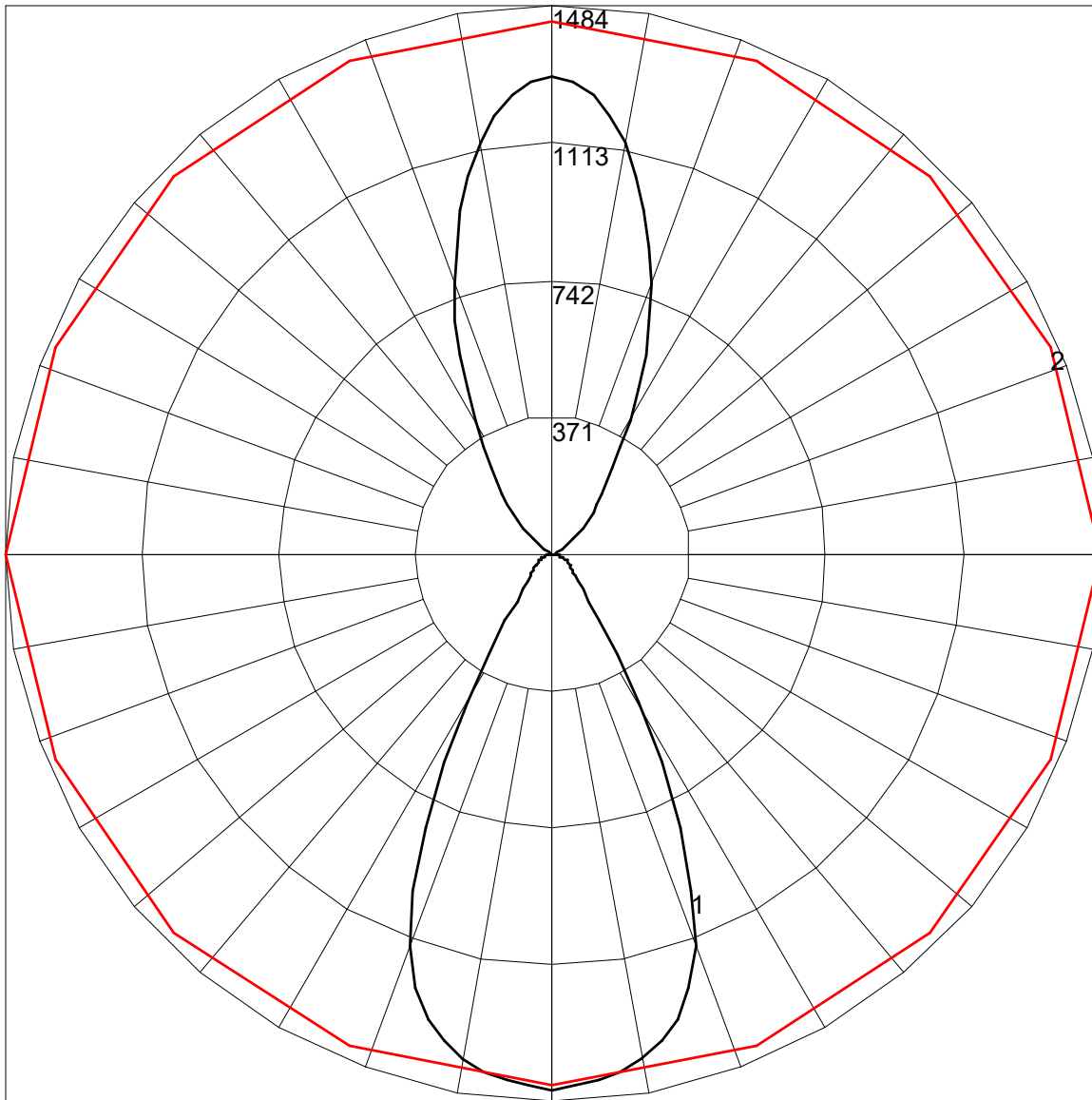
4H	2H	15.9	16.5	16.9	17.5	18.7	16.0	16.6	17.0	17.6	18.8
	3H	17.5	18.1	18.5	19.0	20.3	17.6	18.1	18.6	19.1	20.4
	4H	18.1	18.6	19.1	19.6	20.8	18.2	18.7	19.2	19.7	20.9
	6H	18.5	18.9	19.5	19.9	21.2	18.6	19.0	19.6	20.0	21.3
	8H	18.6	19.0	19.6	20.0	21.3	18.7	19.1	19.7	20.1	21.4
	12H	18.7	19.0	19.7	20.0	21.3	18.8	19.1	19.8	20.1	21.4
8H	4H	18.3	18.6	19.3	19.6	20.9	18.4	18.7	19.4	19.7	21.0
	6H	18.8	19.1	19.8	20.1	21.4	18.9	19.2	19.9	20.2	21.5
	8H	18.9	19.2	20.0	20.2	21.5	19.0	19.3	20.1	20.3	21.6
	12H	19.0	19.2	20.0	20.3	21.6	19.1	19.4	20.2	20.4	21.7
12H	4H	18.3	18.6	19.3	19.6	20.9	18.3	18.7	19.3	19.7	21.0
	6H	18.8	19.0	19.8	20.0	21.4	18.9	19.1	19.9	20.1	21.5
	8H	19.0	19.2	20.0	20.2	21.5	19.1	19.3	20.1	20.3	21.6

Maximum UGR = 21.7

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POLAR GRAPH



Maximum Candela = 1484.059 Located At Horizontal Angle = 0, Vertical Angle = 2.5

1 - Vertical Plane Through Horizontal Angles (90 - 270)

2 - Horizontal Cone Through Vertical Angle (2.5) (Through Max. Cd.)