



IES INDOOR REPORT

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

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13257153.18 & 13257153.20

[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-RM-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	2276
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	36534	42495	36672
55	22384	25411	22758
65	17268	15974	17129
75	9950	9123	9725
85	4478	4478	4703

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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	3117.961	3117.961	3117.961	3117.961	3117.961	3117.961	3117.961	3117.961	3117.961
2.5	3075.572	3063.012	3067.722	3077.927	3083.422	3077.927	3067.722	3063.012	3075.572
5.0	2945.264	2933.489	2939.769	2947.619	2949.189	2947.619	2939.769	2933.489	2945.264
7.5	2748.233	2742.738	2749.803	2749.803	2748.233	2749.803	2749.803	2742.738	2748.233
10.0	2464.068	2464.853	2478.198	2469.563	2463.283	2469.563	2478.198	2464.853	2464.068
12.5	2061.371	2067.651	2087.275	2080.211	2066.866	2080.211	2087.275	2067.651	2061.371
15.0	1568.400	1588.025	1615.499	1610.004	1588.810	1610.004	1615.499	1588.025	1568.400
17.5	1098.194	1135.088	1171.983	1161.778	1131.949	1161.778	1171.983	1135.088	1098.194
20.0	754.841	796.760	841.504	820.309	788.910	820.309	841.504	796.760	754.841
22.5	556.946	589.680	635.367	603.339	576.336	603.339	635.367	589.680	556.946
25.0	444.694	470.834	511.496	475.622	448.855	475.622	511.496	470.834	444.694
27.5	363.919	390.766	429.858	391.551	362.820	391.551	429.858	390.766	363.919
30.0	293.506	322.315	364.154	322.864	295.311	322.864	364.154	322.315	293.506
32.5	236.516	261.557	304.418	263.676	239.891	263.676	304.418	261.557	236.516
35.0	192.086	212.652	250.724	215.871	196.952	215.871	250.724	212.652	192.086
37.5	164.219	175.837	204.960	179.840	166.103	179.840	204.960	175.837	164.219
40.0	142.632	150.246	169.086	152.208	142.946	152.208	169.086	150.246	142.632
42.5	122.536	129.915	141.612	130.543	122.693	130.543	141.612	129.915	122.536
45.0	103.932	111.782	120.888	111.939	104.324	111.939	120.888	111.782	103.932
47.5	87.212	94.904	102.676	95.140	87.683	95.140	102.676	94.904	87.212
50.0	72.533	79.598	85.955	79.990	73.318	79.990	85.955	79.598	72.533
52.5	60.679	66.488	71.198	67.038	61.621	67.038	71.198	66.488	60.679
55.0	51.652	55.577	58.638	56.284	52.515	56.284	58.638	55.577	51.652
57.5	44.823	47.020	48.355	47.491	45.450	47.491	48.355	47.020	44.823
60.0	39.485	40.191	39.955	40.426	39.485	40.426	39.955	40.191	39.485
62.5	34.383	34.383	33.048	34.304	34.225	34.304	33.048	34.383	34.383
65.0	29.359	28.966	27.160	28.809	29.123	28.809	27.160	28.966	29.359
67.5	24.413	23.942	22.058	23.706	24.178	23.706	22.058	23.942	24.413
70.0	19.625	19.154	17.505	18.918	19.389	18.918	17.505	19.154	19.625
72.5	14.994	14.601	13.345	14.365	14.836	14.365	13.345	14.601	14.994
75.0	10.361	10.361	9.499	10.048	10.126	10.048	9.499	10.361	10.361
77.5	4.945	6.123	6.280	5.966	5.809	5.966	6.280	6.123	4.945
80.0	3.611	3.690	3.925	3.768	3.768	3.768	3.925	3.690	3.611
82.5	2.512	2.590	2.590	2.590	2.590	2.590	2.590	2.590	2.512
85.0	1.570	1.649	1.570	1.570	1.649	1.570	1.570	1.649	1.570
87.5	0.706	0.706	0.706	0.785	0.785	0.785	0.706	0.706	0.706
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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CANDELA TABULATION - (Cont.)

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	698.58	N.A.	30.70
0-30	927.99	N.A.	40.80
0-40	1068.27	N.A.	46.90
0-60	1206.59	N.A.	53.00
0-80	1246.04	N.A.	54.80
0-90	1247.89	N.A.	54.80
10-90	981.79	N.A.	43.10
20-40	369.69	N.A.	16.20
20-50	457.00	N.A.	20.10
40-70	166.84	N.A.	7.30
60-80	39.44	N.A.	1.70
70-80	10.93	N.A.	0.50
80-90	1.85	N.A.	0.10
90-110	0.62	N.A.	0.00
90-120	10.78	N.A.	0.50
90-130	69.67	N.A.	3.10
90-150	368.32	N.A.	16.20
90-180	1027.84	N.A.	45.20
110-180	1027.23	N.A.	45.10
0-180	2275.73	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	266.10
10-20	432.48
20-30	229.41
30-40	140.28
40-50	87.32
50-60	51.01
60-70	28.51
70-80	10.93
80-90	1.85
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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55
1	101	98	95	92	94	91	89	87	79	77	76	68	67	66	57	57	56	51
2	95	89	84	81	88	84	80	76	73	70	68	63	61	60	54	53	52	48
3	89	82	76	71	83	77	72	68	68	64	61	59	57	55	51	50	48	45
4	83	75	69	64	78	71	65	61	63	59	56	56	53	50	49	47	45	42
5	78	69	63	58	74	66	60	56	59	55	51	52	49	47	46	44	43	40
6	74	64	58	53	70	61	56	51	55	51	48	49	46	44	44	42	40	38
7	70	60	54	49	66	57	52	48	52	48	44	47	44	41	42	40	38	36
8	66	56	50	46	63	54	48	45	49	45	42	45	41	39	40	38	36	34
9	63	53	47	43	60	51	46	42	47	42	39	43	39	37	39	36	35	33
10	60	50	44	40	57	48	43	39	44	40	37	41	37	35	37	35	33	31

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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	14.5	15.2	15.5	16.2	17.4	14.6	15.3	15.6	16.3	17.5
	3H	15.6	16.2	16.6	17.2	18.4	15.6	16.3	16.6	17.2	18.5
	4H	15.8	16.4	16.8	17.4	18.6	15.8	16.4	16.8	17.4	18.6
	6H	15.8	16.4	16.8	17.3	18.6	15.8	16.4	16.8	17.4	18.6
	8H	15.8	16.3	16.8	17.3	18.5	15.8	16.3	16.8	17.3	18.6
	12H	15.7	16.2	16.7	17.2	18.5	15.8	16.3	16.8	17.2	18.5

UGR Viewed Endwise

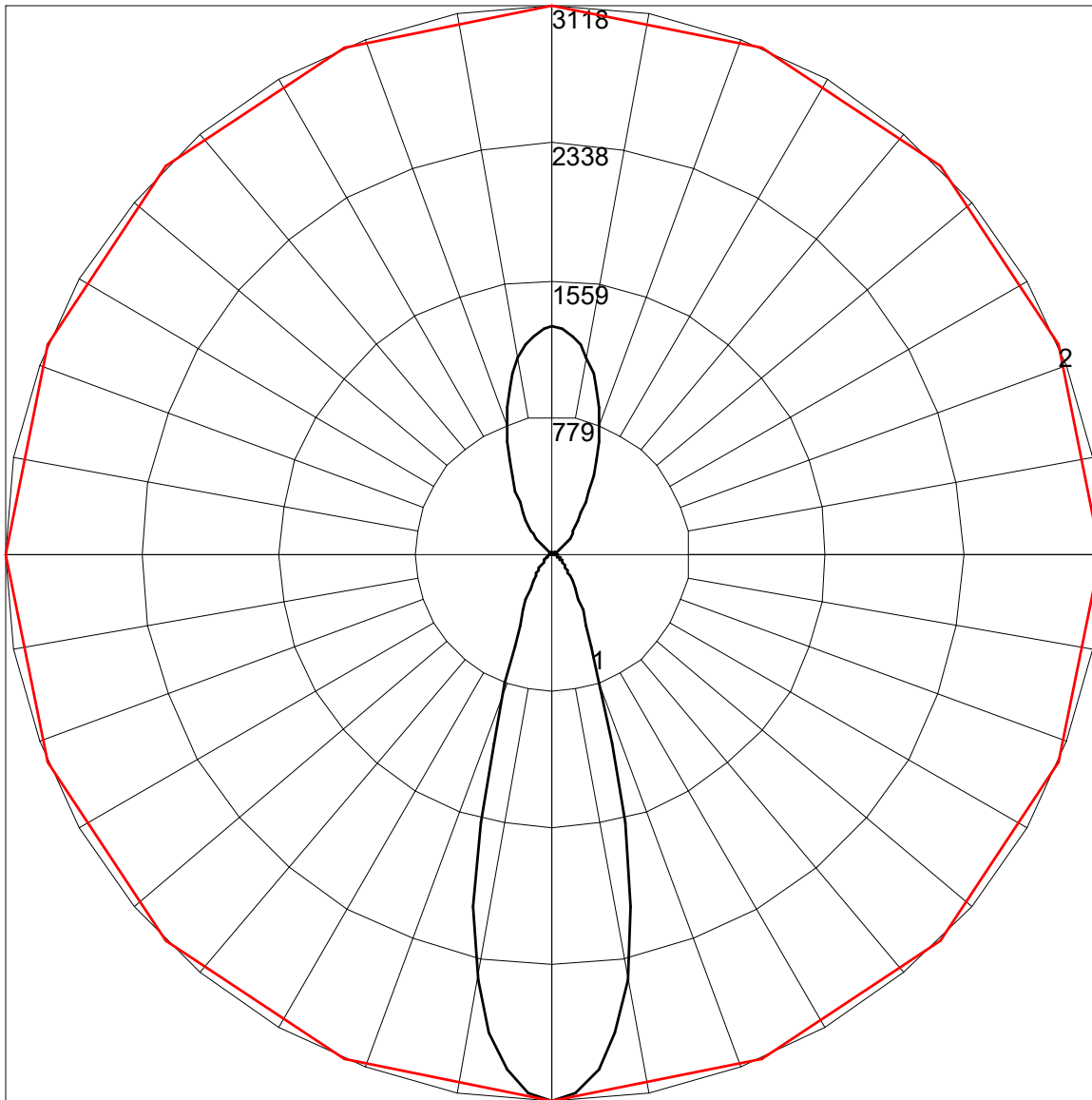
4H	2H	14.8	15.4	15.7	16.3	17.6	14.8	15.4	15.8	16.4	17.6
	3H	16.0	16.5	17.0	17.5	18.7	16.0	16.5	17.0	17.5	18.8
	4H	16.3	16.7	17.3	17.7	19.0	16.3	16.7	17.3	17.7	19.0
	6H	16.3	16.7	17.3	17.7	19.0	16.3	16.7	17.3	17.7	19.0
	8H	16.3	16.7	17.3	17.7	19.0	16.3	16.7	17.3	17.7	19.0
	12H	16.3	16.6	17.3	17.6	18.9	16.3	16.6	17.3	17.6	18.9
8H	4H	16.3	16.6	17.3	17.6	18.9	16.3	16.6	17.3	17.6	18.9
	6H	16.3	16.6	17.4	17.7	19.0	16.4	16.7	17.4	17.7	19.0
	8H	16.4	16.6	17.4	17.6	19.0	16.4	16.6	17.4	17.7	19.0
	12H	16.4	16.6	17.4	17.6	19.0	16.4	16.6	17.4	17.6	19.0
12H	4H	16.2	16.5	17.3	17.6	18.9	16.2	16.5	17.3	17.6	18.9
	6H	16.3	16.6	17.4	17.6	18.9	16.3	16.6	17.4	17.6	18.9
	8H	16.3	16.6	17.4	17.6	18.9	16.4	16.6	17.4	17.6	19.0

Maximum UGR = 19.0

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POLAR GRAPH



Maximum Candela = 3117.961 Located At Horizontal Angle = 0, Vertical Angle = 0

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

2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)