



IES INDOOR REPORT

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

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13257153.19 & #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-LM-WHU-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	2689
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	58
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	0.714	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	698.58	N.A.	26.00
0-30	927.99	N.A.	34.50
0-40	1068.27	N.A.	39.70
0-60	1206.59	N.A.	44.90
0-80	1246.04	N.A.	46.30
0-90	1247.89	N.A.	46.40
10-90	981.79	N.A.	36.50
20-40	369.69	N.A.	13.70
20-50	457.00	N.A.	17.00
40-70	166.84	N.A.	6.20
60-80	39.44	N.A.	1.50
70-80	10.93	N.A.	0.40
80-90	1.85	N.A.	0.10
90-110	26.44	N.A.	1.00
90-120	69.95	N.A.	2.60
90-130	136.84	N.A.	5.10
90-150	383.20	N.A.	14.20
90-180	1441.54	N.A.	53.60
110-180	1415.1	N.A.	52.60
0-180	2689.42	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	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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46
1	99	96	93	90	91	88	86	83	74	73	71	62	61	60	50	49	49	43
2	92	87	82	78	85	80	76	73	68	65	63	57	55	54	47	46	45	41
3	86	79	73	68	80	73	68	64	63	59	57	53	51	49	45	43	42	38
4	81	72	66	61	75	67	62	58	58	54	51	50	47	45	42	40	39	36
5	76	66	60	55	70	62	56	52	54	50	47	47	44	42	40	38	37	34
6	71	61	55	50	66	58	52	48	51	46	43	44	41	39	38	36	35	32
7	67	57	51	46	62	54	48	44	48	43	40	42	39	36	36	34	33	30
8	63	53	47	43	59	50	45	41	45	41	38	40	37	34	35	33	31	29
9	60	50	44	40	56	47	42	38	42	38	35	38	35	32	33	31	30	28
10	57	47	41	37	53	45	39	36	40	36	33	36	33	31	32	30	28	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	13.7	14.4	14.7	15.4	16.7	13.8	14.5	14.8	15.5	16.8
	3H	14.8	15.4	15.8	16.4	17.8	14.8	15.4	15.8	16.4	17.8
	4H	15.0	15.6	16.1	16.6	18.0	15.0	15.6	16.1	16.6	18.0
	6H	15.0	15.5	16.0	16.5	17.9	15.0	15.5	16.1	16.6	17.9
	8H	15.0	15.5	16.0	16.5	17.9	15.0	15.5	16.1	16.5	17.9
	12H	14.9	15.4	16.0	16.4	17.8	15.0	15.4	16.0	16.5	17.8

UGR Viewed Endwise

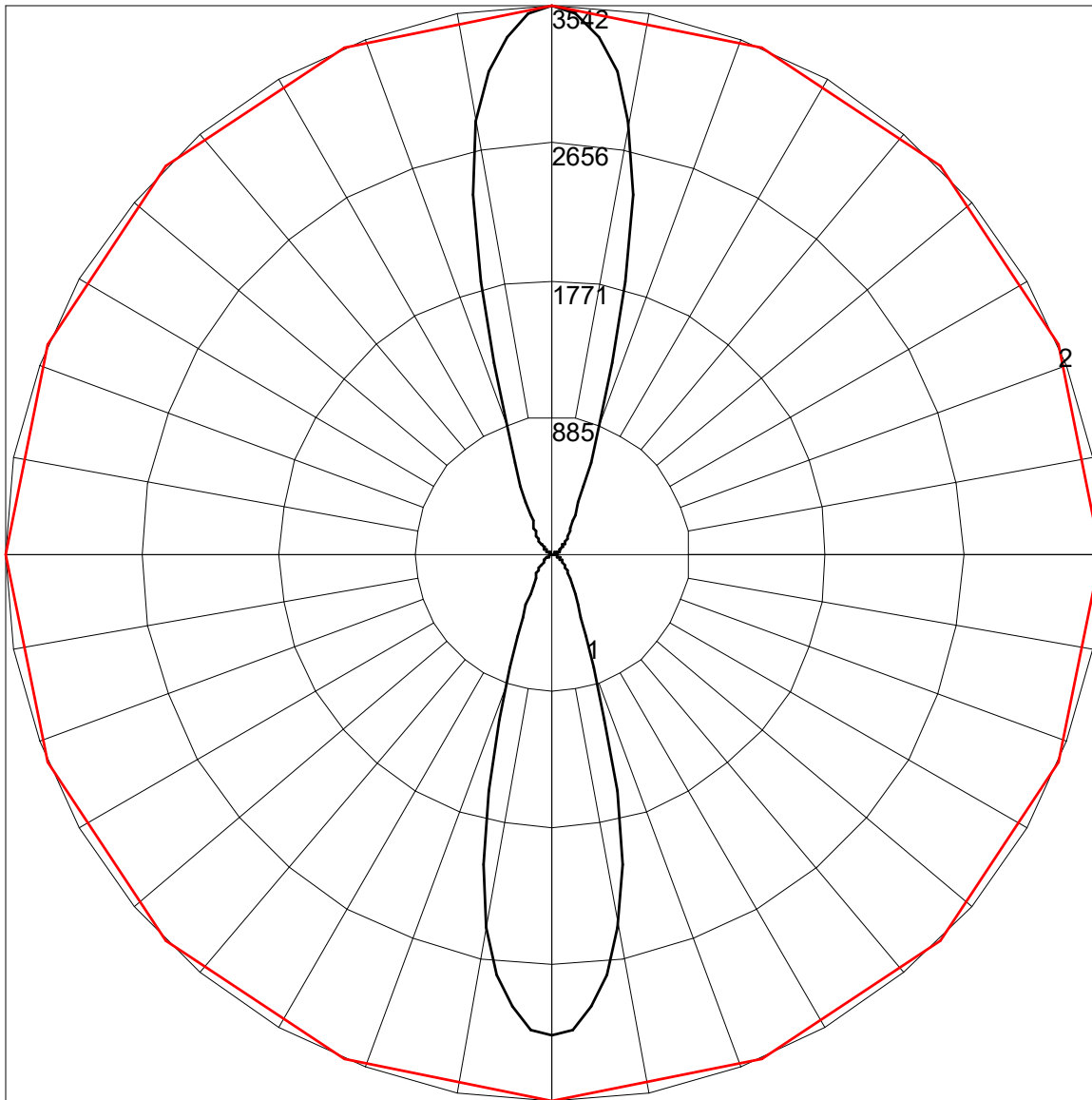
4H	2H	14.0	14.5	15.0	15.5	16.9	14.0	14.6	15.1	15.6	17.0
	3H	15.2	15.6	16.2	16.7	18.1	15.2	15.7	16.2	16.7	18.1
	4H	15.5	15.9	16.5	16.9	18.3	15.5	15.9	16.5	16.9	18.3
	6H	15.5	15.9	16.6	16.9	18.3	15.5	15.9	16.6	16.9	18.3
	8H	15.5	15.8	16.5	16.9	18.3	15.5	15.8	16.6	16.9	18.3
	12H	15.4	15.8	16.5	16.8	18.2	15.5	15.8	16.5	16.8	18.2
8H	4H	15.5	15.8	16.5	16.9	18.3	15.5	15.8	16.5	16.9	18.3
	6H	15.5	15.8	16.6	16.9	18.3	15.5	15.8	16.6	16.9	18.3
	8H	15.5	15.8	16.6	16.9	18.3	15.6	15.8	16.6	16.9	18.3
	12H	15.5	15.7	16.6	16.8	18.3	15.5	15.8	16.6	16.8	18.3
12H	4H	15.4	15.7	16.5	16.8	18.2	15.4	15.7	16.5	16.8	18.2
	6H	15.5	15.7	16.6	16.8	18.2	15.5	15.7	16.6	16.8	18.3
	8H	15.5	15.7	16.6	16.8	18.3	15.5	15.7	16.6	16.8	18.3

Maximum UGR = 18.3

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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.)