

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO COMMERCIAL

Report Number: P775649

Luminaire Tested: HCDJBL510CSD-HCD42TRH-1000lm-5000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775649
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B050)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD42TRH-1000lm-5000K
Description: 4 INCH ROUND NARROW HAZE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT
Ballast/Driver: -

Summary

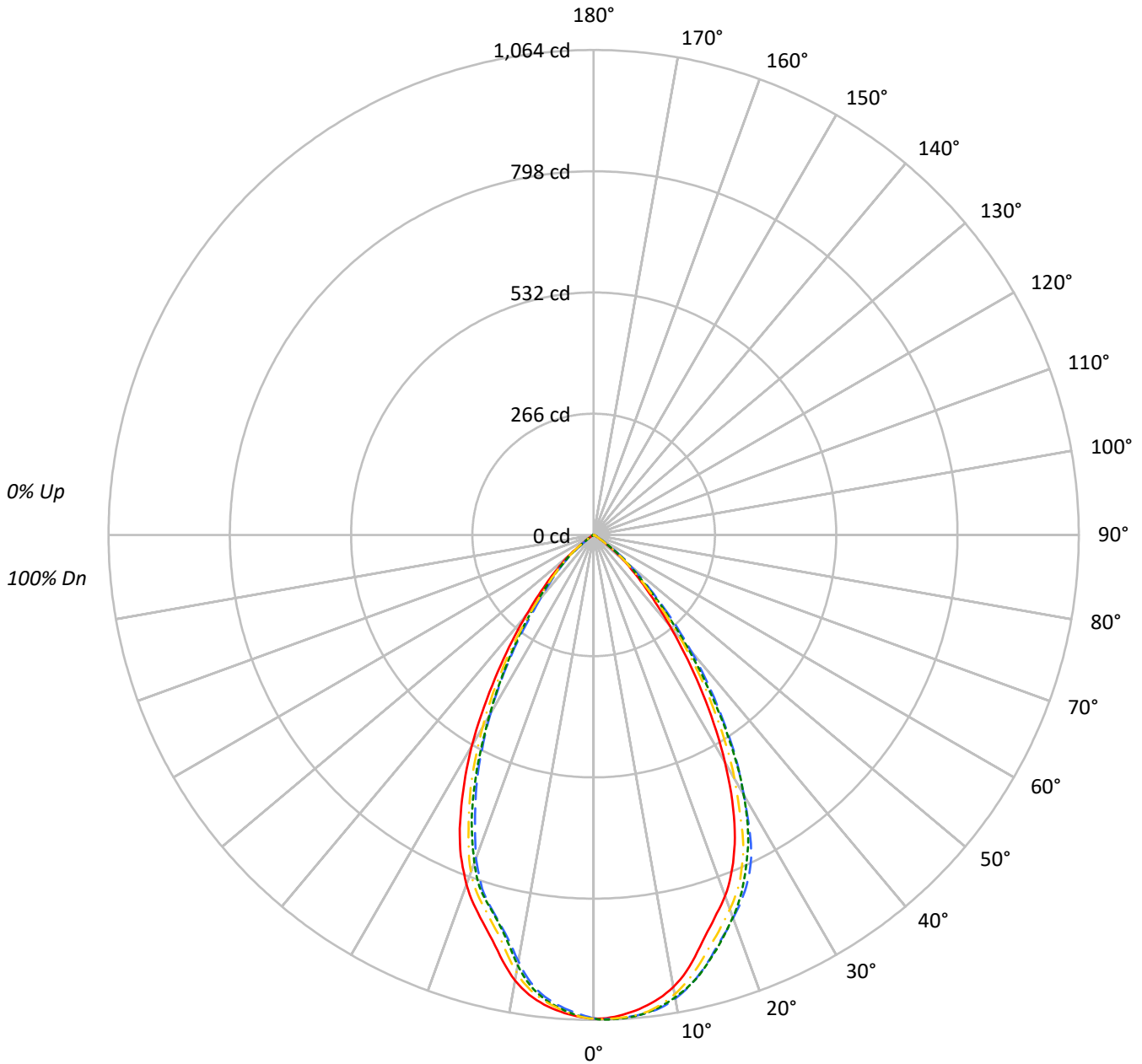
Lumens per Lamp: N/A
Luminaire Lumens: 1070.6 lumens
Efficiency: N/A
Efficacy: 107.1 lumens/watt
Spacing Criteria (0/90/45): 0.93 / 0.93 / 0.92
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 10
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					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	50	30	10	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	113	110	108	105	111	108	106	104	104	102	100	100	99	97	97	96	95	93					93			
2	107	102	98	94	105	100	96	93	97	94	91	94	91	89	91	89	87	86					86			
3	101	95	89	85	99	93	88	84	90	86	83	88	85	82	86	83	80	79					79			
4	96	88	82	77	94	87	81	77	84	80	76	82	78	75	80	77	74	73					73			
5	90	82	75	71	89	81	75	70	79	74	70	77	73	69	76	72	69	67					67			
6	86	76	70	65	84	75	69	65	74	68	64	72	68	64	71	67	64	62					62			
7	81	71	65	60	80	70	64	60	69	64	60	68	63	59	67	62	59	58					58			
8	77	67	60	56	75	66	60	56	65	59	56	64	59	55	63	58	55	54					54			
9	73	63	56	52	72	62	56	52	61	56	52	60	55	52	59	55	51	50					50			
10	69	59	53	49	68	58	53	49	58	52	48	57	52	48	56	51	48	47					47			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	133527	133527	133527	133527
5°	132369	133835	131737	130600
10°	128673	131638	126846	122526
15°	120296	126524	117234	111619
20°	112873	119583	109271	102454
25°	101743	110171	96216	86343
30°	83718	95678	77600	66440
35°	62253	74267	56353	47903
40°	42533	51783	37999	32578
45°	27320	32356	24223	20734
50°	16446	18737	14097	11414
55°	6275	7416	4432	3467
60°	2114	2492	1762	1410
65°	1012	1072	834	655
70°	478	552	405	368
75°	243	292	194	194
80°	145	145	72	72
85°	0	144	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 36005 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	98.3	9.2
10°-20°	256.2	23.9
20°-30°	321.5	30.0
30°-40°	245.5	22.9
40°-50°	117.0	10.9
50°-60°	28.0	2.6
60°-70°	3.5	0.3
70°-80°	0.6	0.1
80°-90°	0.1	0.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	676.0	63.1
0°-40°	921.5	86.1
0°-60°	1066.5	99.6
0°-90°	1070.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1070.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1061	1061	1061	1061	1061	
5°	1048	1059	1043	1034	1048	99
15°	923	971	900	857	923	260
25°	733	793	693	622	733	331
35°	405	483	367	312	405	253
45°	154	182	136	116	154	121
55°	29	34	20	16	29	31
65°	3	4	3	2	3	4
75°	0	1	0	0	0	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1061.0	1061.0	1061.0	1061.0	1061.0	1061.0	1061.0	1061.0	1061.0	1061.0	1061.0
0.5°	1061.3	1061.1	1061.0	1060.8	1063.0	1062.8	1062.4	1061.6	1060.5	1058.7	1057.8
1°	1061.2	1061.8	1062.1	1061.9	1063.6	1063.5	1062.6	1061.4	1059.5	1057.0	1055.9
1.5°	1060.6	1061.8	1062.4	1062.6	1063.8	1063.6	1062.5	1061.0	1058.6	1054.7	1053.1
2°	1059.5	1061.6	1062.6	1063.0	1063.7	1063.6	1062.3	1060.4	1056.9	1052.4	1050.2
2.5°	1058.2	1061.0	1062.4	1063.0	1063.4	1063.2	1061.9	1059.5	1055.1	1049.7	1047.4
3°	1056.5	1060.1	1061.9	1062.9	1063.0	1062.9	1061.2	1058.5	1053.1	1046.9	1044.2
3.5°	1054.6	1059.3	1061.2	1062.5	1062.4	1062.4	1060.6	1057.3	1051.0	1043.9	1040.8
4°	1052.5	1058.0	1060.4	1062.1	1061.6	1061.9	1059.9	1055.9	1048.4	1040.8	1037.1
4.5°	1050.1	1056.5	1059.6	1061.2	1060.8	1061.0	1059.0	1054.3	1045.9	1037.2	1033.4
5°	1047.8	1054.9	1058.8	1060.5	1059.4	1059.9	1057.8	1052.3	1042.8	1033.5	1029.0
5.5°	1045.0	1053.3	1057.6	1059.6	1058.1	1058.7	1056.3	1049.9	1039.7	1029.6	1024.4
6°	1041.9	1051.4	1056.4	1058.6	1056.1	1057.0	1054.4	1047.5	1036.2	1025.2	1019.3
6.5°	1038.6	1049.3	1054.9	1057.0	1054.1	1054.7	1052.1	1044.5	1032.3	1020.3	1013.4
7°	1035.2	1046.9	1053.1	1055.3	1051.6	1052.3	1049.4	1041.2	1028.1	1014.9	1006.9
7.5°	1031.6	1044.1	1051.0	1053.2	1048.6	1049.2	1045.9	1037.2	1023.5	1008.6	999.6
8°	1027.3	1040.8	1048.3	1050.8	1045.5	1045.8	1042.3	1033.1	1018.5	1001.9	991.2
8.5°	1022.9	1037.0	1045.0	1047.8	1041.8	1042.0	1038.0	1028.6	1012.7	994.3	982.4
9°	1017.8	1033.0	1041.4	1044.4	1038.3	1037.7	1033.5	1023.7	1006.7	986.0	972.2
9.5°	1012.6	1028.6	1037.4	1040.8	1034.2	1033.5	1028.5	1018.5	999.8	976.7	961.7
10°	1006.9	1023.7	1032.9	1036.7	1030.1	1028.6	1023.3	1012.5	992.6	966.7	949.9
10.5°	1000.5	1018.4	1028.1	1032.6	1025.6	1023.7	1017.6	1006.2	984.6	955.9	938.7
11°	993.8	1012.9	1022.8	1028.0	1020.9	1018.4	1011.6	999.2	975.5	945.2	927.1
11.5°	986.4	1007.0	1017.5	1023.2	1016.1	1012.7	1004.8	992.0	966.2	934.2	915.5
12°	978.5	1000.6	1011.7	1018.4	1010.7	1006.9	998.0	984.3	956.4	923.2	905.2
12.5°	970.1	993.6	1005.4	1012.8	1005.1	1000.3	990.9	976.0	946.4	913.3	895.6
13°	960.9	986.2	998.8	1007.3	999.3	993.8	983.1	967.2	936.3	903.8	886.7
13.5°	951.5	978.4	991.7	1001.2	993.0	986.5	975.2	958.4	926.6	894.5	878.5
14°	942.2	970.5	984.6	995.0	986.3	979.2	967.1	949.2	917.0	885.8	870.3
14.5°	932.9	962.2	977.2	988.5	978.7	971.4	958.8	939.9	908.3	877.7	862.2
15°	923.3	953.4	969.7	981.3	971.1	963.6	950.4	931.2	899.8	869.4	854.2
15.5°	914.4	945.0	961.9	974.4	963.7	955.7	942.1	922.7	891.6	861.6	846.7
16°	905.6	936.4	953.4	966.6	955.9	948.0	934.5	914.4	883.3	853.7	839.0
16.5°	897.7	928.1	945.5	959.1	948.6	940.2	926.9	906.3	875.4	846.1	831.1
17°	889.5	919.8	938.1	951.5	940.7	932.7	919.5	898.1	867.5	838.3	822.8
17.5°	881.5	912.1	930.8	944.0	932.8	925.0	911.7	890.2	859.7	829.9	814.0
18°	873.7	904.6	923.4	936.5	924.9	917.1	903.9	882.5	852.0	820.9	802.3
18.5°	866.1	896.9	916.4	929.0	916.6	909.6	896.4	874.8	843.7	809.6	790.5
19°	858.6	889.6	909.4	921.5	908.7	901.8	888.9	867.4	834.9	798.4	778.8
19.5°	850.9	882.1	901.9	913.6	900.6	894.4	881.4	859.7	825.5	787.1	767.1
20°	842.8	874.8	894.7	906.1	892.9	886.7	873.9	851.7	815.9	775.8	754.5
20.5°	834.1	867.6	887.5	898.6	884.9	878.7	866.0	843.3	805.0	764.5	740.1
21°	824.6	860.2	880.3	890.8	875.9	870.7	858.1	834.2	794.2	750.5	724.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	793.3	835.3	857.1	866.6	848.0	843.1	831.7	803.8	761.5	706.3	680.2
23°	782.0	826.2	848.7	857.4	837.6	833.7	822.4	792.5	749.1	692.7	665.3
23.5°	770.1	816.6	840.3	848.2	826.8	822.8	810.6	781.2	735.8	679.3	651.2
24°	757.9	806.1	831.1	838.5	816.0	811.3	798.6	769.9	722.0	665.5	637.2
24.5°	745.7	795.0	821.4	827.7	804.7	799.7	786.8	759.2	707.9	652.4	623.0
25°	732.7	783.3	811.1	817.2	793.4	788.2	775.0	746.1	692.9	638.8	608.4
25.5°	718.9	771.0	799.5	805.5	782.0	776.6	763.0	732.7	677.5	624.3	593.4
26°	704.4	758.1	787.6	793.5	770.7	765.1	747.4	718.5	661.7	609.4	578.0
26.5°	689.3	744.5	773.8	781.5	759.3	751.4	731.3	703.3	646.1	593.7	562.5
27°	673.9	730.4	759.5	769.2	746.6	737.4	714.0	686.9	630.9	577.1	546.3
27.5°	658.3	715.5	743.6	757.0	733.2	723.0	697.3	670.9	614.8	560.6	530.5
28°	642.0	699.8	726.6	743.1	719.2	708.1	680.7	653.8	599.2	543.9	514.7
28.5°	625.7	682.9	709.6	729.3	704.0	692.4	664.7	635.9	583.4	527.5	499.4
29°	608.8	665.4	692.1	714.9	689.7	675.7	649.0	618.3	567.5	511.0	483.6
29.5°	592.8	647.6	675.0	699.8	673.7	659.2	633.5	601.3	551.0	495.3	468.3
30°	576.1	629.9	658.5	683.9	658.4	641.9	617.8	583.6	534.0	480.0	453.3
30.5°	559.0	612.2	642.7	667.2	642.4	624.3	602.1	566.4	517.3	464.4	438.3
31°	542.0	595.2	627.3	650.6	626.8	607.7	586.1	548.9	500.3	449.3	422.9
31.5°	524.8	578.0	611.7	632.6	609.8	590.7	569.4	532.1	483.1	433.7	407.4
32°	507.5	561.3	595.9	615.5	593.2	574.6	552.6	515.1	465.5	417.8	391.9
32.5°	490.3	544.4	579.6	598.0	574.9	558.0	535.4	498.2	447.8	401.7	376.5
33°	473.1	527.6	563.2	580.8	557.0	541.4	517.9	481.6	431.1	385.6	361.2
33.5°	456.3	510.6	545.6	563.9	538.4	525.1	500.7	465.1	414.0	369.4	345.7
34°	438.9	493.4	528.4	547.0	520.3	508.4	483.7	448.6	397.7	353.0	330.9
34.5°	422.0	476.0	510.9	530.1	501.8	491.4	467.0	432.2	381.9	337.6	316.4
35°	405.2	459.1	493.2	513.2	483.4	474.2	450.8	416.7	366.8	322.3	302.4
35.5°	388.6	442.4	476.3	496.3	465.5	457.0	434.9	401.1	351.3	307.7	288.3
36°	373.4	426.1	460.1	479.2	447.8	440.0	419.0	385.7	336.5	293.1	274.4
36.5°	358.2	410.3	444.2	461.7	429.5	423.0	402.8	370.8	321.8	279.3	261.1
37°	342.9	394.6	427.9	445.4	412.1	405.9	386.8	355.8	307.8	266.1	247.7
37.5°	327.8	377.5	412.2	427.9	395.1	389.5	370.2	341.5	293.8	253.1	235.2
38°	312.6	363.4	396.2	411.1	379.0	373.5	354.1	326.5	280.9	240.4	222.7
38.5°	298.2	349.2	379.6	393.8	361.7	357.3	338.5	311.9	267.3	228.0	211.0
39°	284.6	335.2	363.9	378.2	346.2	341.5	323.1	297.5	254.9	216.2	200.1
39.5°	271.5	321.1	348.3	362.0	330.8	325.3	308.2	283.8	242.8	205.1	190.3
40°	258.9	306.6	332.5	345.9	315.2	309.4	293.4	269.7	231.3	194.8	180.8
40.5°	246.1	292.6	316.8	329.8	299.7	293.9	279.4	256.2	219.5	185.0	171.8
41°	234.0	278.3	301.6	313.7	285.3	278.9	266.1	243.4	208.7	176.1	163.7
41.5°	222.5	264.7	287.5	298.6	270.6	263.9	252.8	231.3	198.3	167.3	156.3
42°	211.3	251.1	273.6	283.7	257.2	249.3	239.4	219.1	188.4	159.6	148.9
42.5°	200.7	238.2	259.9	269.2	243.4	235.5	226.5	207.8	178.6	151.8	141.7
43°	190.7	225.9	246.8	254.7	230.3	222.2	213.8	196.7	169.3	144.4	134.9
43.5°	180.5	214.0	233.6	240.8	217.5	209.7	201.4	186.2	160.6	137.3	128.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	153.5	180.8	195.7	202.3	181.8	175.2	167.2	157.0	136.1	117.2	109.2
45.5°	145.1	170.7	183.8	190.8	170.9	165.0	157.4	148.0	128.6	110.9	103.3
46°	136.9	160.9	172.5	179.5	160.2	155.3	147.9	139.6	121.4	104.8	97.9
46.5°	129.3	152.1	162.7	169.1	150.4	146.0	139.2	131.5	114.5	98.9	92.6
47°	121.9	143.3	153.2	159.0	140.8	137.0	130.9	123.6	107.5	93.4	87.2
47.5°	114.9	135.0	144.1	149.5	132.1	128.7	123.2	116.2	101.3	87.9	81.8
48°	108.1	127.0	135.6	140.6	123.8	120.9	115.7	109.1	95.5	82.4	76.5
48.5°	101.3	119.5	127.7	131.8	115.8	113.3	108.7	102.4	89.7	76.9	70.5
49°	95.2	112.1	120.0	124.0	108.6	106.1	102.0	96.4	83.9	70.7	63.9
49.5°	89.7	105.2	112.8	116.1	101.6	100.2	96.1	90.5	78.0	63.8	57.2
50°	84.0	98.7	105.7	109.0	95.7	94.2	90.3	84.6	72.0	57.1	50.5
50.5°	78.5	92.6	99.1	101.7	89.8	88.1	84.3	78.6	65.0	50.4	44.5
51°	72.8	86.6	92.9	95.4	83.9	82.2	78.4	72.7	58.0	44.1	38.8
51.5°	66.4	81.0	87.1	89.3	78.0	76.2	72.5	65.9	51.2	38.5	33.7
52°	59.6	75.1	81.1	83.4	72.0	70.1	65.5	58.8	44.8	33.7	29.5
52.5°	53.0	68.7	75.1	77.9	65.5	63.4	58.4	51.8	39.0	29.4	25.9
53°	46.4	61.7	68.6	71.7	58.5	56.3	51.4	45.3	34.0	25.9	22.8
53.5°	40.4	54.8	61.5	65.2	51.8	49.3	45.0	39.3	29.7	22.8	20.1
54°	36.4	48.0	54.1	58.0	45.1	43.1	38.9	34.3	26.1	20.2	17.9
54.5°	32.5	41.9	47.3	51.2	39.0	37.3	33.7	29.9	23.0	17.9	16.0
55°	28.6	36.2	41.2	44.2	33.8	32.3	29.3	26.2	20.2	16.0	14.3
55.5°	24.6	32.6	36.1	38.6	29.2	28.0	25.7	22.9	18.0	14.3	12.8
56°	20.8	28.9	32.3	34.7	25.4	24.3	22.5	20.2	16.0	12.8	11.5
56.5°	18.3	25.2	28.6	30.9	22.2	21.4	19.8	17.9	14.3	11.5	10.3
57°	16.2	21.5	24.8	27.1	19.5	18.9	17.5	15.9	12.8	10.4	9.5
57.5°	14.5	19.1	21.1	23.3	17.2	16.6	15.6	14.2	11.5	9.6	8.7
58°	12.9	16.9	18.6	19.5	15.2	14.8	13.9	12.7	10.3	8.7	7.9
58.5°	11.6	15.0	16.5	17.2	13.5	13.2	12.4	11.3	9.5	7.9	7.1
59°	10.4	13.4	14.7	15.2	12.0	11.7	11.1	10.2	8.7	7.1	6.3
59.5°	9.4	12.0	13.1	13.5	10.8	10.6	10.2	9.4	7.9	6.3	5.8
60°	8.4	10.8	11.7	12.0	9.9	9.7	9.4	8.6	7.0	5.8	5.2
60.5°	7.7	9.7	10.6	10.8	9.1	8.8	8.5	7.8	6.3	5.2	4.7
61°	6.9	8.7	9.5	9.7	8.2	8.0	7.7	6.9	5.6	4.7	4.4
61.5°	6.3	7.9	8.5	8.7	7.4	7.1	6.8	6.2	5.1	4.4	3.9
62°	5.6	7.1	7.7	7.9	6.4	6.3	6.0	5.5	4.7	3.9	3.6
62.5°	5.2	6.5	7.0	7.1	5.9	5.8	5.4	5.1	4.3	3.6	3.3
63°	4.7	5.9	6.4	6.5	5.3	5.2	4.9	4.6	3.9	3.3	3.0
63.5°	4.3	5.3	5.8	5.9	4.8	4.7	4.5	4.2	3.5	3.0	2.8
64°	3.9	4.9	5.2	5.3	4.4	4.3	4.0	3.8	3.3	2.8	2.6
64.5°	3.6	4.5	4.8	4.8	3.9	3.9	3.7	3.5	3.0	2.6	2.3
65°	3.4	4.0	4.4	4.4	3.6	3.6	3.4	3.2	2.8	2.3	2.1
65.5°	3.1	3.7	3.9	4.0	3.3	3.3	3.1	2.9	2.6	2.1	1.9
66°	2.8	3.4	3.6	3.7	3.1	3.0	2.9	2.7	2.2	1.9	1.8



TEST NUMBER: P775649

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	2.1	2.6	2.8	2.8	2.3	2.3	2.1	2.0	1.7	1.5	1.4
68°	1.9	2.3	2.6	2.6	2.1	2.1	2.0	1.9	1.6	1.4	1.3
68.5°	1.7	2.1	2.3	2.3	1.9	1.9	1.8	1.7	1.5	1.3	1.2
69°	1.6	2.0	2.1	2.1	1.8	1.8	1.7	1.6	1.4	1.2	1.1
69.5°	1.5	1.8	1.9	2.0	1.7	1.6	1.5	1.5	1.2	1.1	1.0
70°	1.3	1.7	1.8	1.8	1.5	1.5	1.4	1.3	1.1	1.0	0.9
70.5°	1.2	1.5	1.6	1.7	1.4	1.4	1.3	1.2	1.1	0.9	0.9
71°	1.1	1.4	1.5	1.5	1.3	1.3	1.2	1.1	1.0	0.9	0.7
71.5°	1.0	1.3	1.4	1.4	1.2	1.2	1.1	1.1	0.9	0.7	0.7
72°	1.0	1.2	1.3	1.3	1.1	1.1	1.0	1.0	0.7	0.6	0.6
72.5°	0.9	1.1	1.2	1.2	1.0	1.0	1.0	0.9	0.7	0.6	0.5
73°	0.7	1.0	1.1	1.1	1.0	0.9	0.9	0.7	0.6	0.5	0.5
73.5°	0.7	0.9	1.0	1.0	0.9	0.9	0.7	0.7	0.5	0.5	0.5
74°	0.6	0.9	0.9	1.0	0.7	0.7	0.7	0.6	0.5	0.4	0.4
74.5°	0.5	0.7	0.9	0.9	0.7	0.6	0.6	0.6	0.5	0.4	0.4
75°	0.5	0.6	0.7	0.7	0.6	0.6	0.6	0.5	0.4	0.3	0.3
75.5°	0.4	0.6	0.6	0.7	0.6	0.5	0.5	0.5	0.4	0.3	0.3
76°	0.4	0.5	0.6	0.6	0.5	0.5	0.5	0.4	0.3	0.3	0.3
76.5°	0.4	0.5	0.5	0.6	0.5	0.5	0.4	0.4	0.3	0.2	0.2
77°	0.3	0.4	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.2
77.5°	0.3	0.4	0.4	0.5	0.4	0.4	0.3	0.3	0.2	0.2	0.2
78°	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2
78.5°	0.2	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2
79°	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1
79.5°	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1
80°	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1
80.5°	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1
81°	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
81.5°	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
82°	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.1
82.5°	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0
83°	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0
83.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
84°	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
84.5°	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P775649
CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P775649

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1061.0	1061.0	1061.0	1061.0	1061.0	1061.0
0.5°	1057.2	1060.9	1061.0	1060.9	1060.8	1061.3
1°	1054.7	1059.3	1059.5	1059.6	1059.7	1061.2
1.5°	1052.0	1057.3	1057.4	1057.8	1058.5	1060.6
2°	1049.0	1054.7	1055.1	1055.6	1056.5	1059.5
2.5°	1045.7	1052.0	1052.3	1053.0	1054.2	1058.2
3°	1042.0	1048.8	1049.3	1050.1	1051.7	1056.5
3.5°	1038.4	1045.5	1046.0	1047.0	1049.1	1054.6
4°	1034.4	1041.8	1042.4	1043.7	1046.1	1052.5
4.5°	1030.3	1038.0	1038.4	1040.1	1042.9	1050.1
5°	1025.4	1033.8	1034.6	1036.4	1039.7	1047.8
5.5°	1020.2	1029.4	1030.2	1032.4	1036.2	1045.0
6°	1014.5	1024.6	1025.6	1028.2	1032.3	1041.9
6.5°	1007.5	1019.1	1020.2	1023.5	1028.2	1038.6
7°	1000.4	1012.9	1014.5	1018.5	1023.8	1035.2
7.5°	991.5	1006.3	1008.0	1013.1	1019.2	1031.6
8°	982.8	998.3	1001.1	1006.9	1013.9	1027.3
8.5°	972.3	989.8	993.1	999.9	1008.0	1022.9
9°	961.6	980.3	984.3	992.4	1001.9	1017.8
9.5°	949.8	970.0	974.4	984.0	995.0	1012.6
10°	937.9	958.8	963.9	974.6	987.6	1006.9
10.5°	926.1	946.9	952.7	964.5	979.0	1000.5
11°	914.6	934.8	941.2	953.8	969.9	993.8
11.5°	903.1	922.7	928.9	942.5	960.3	986.4
12°	893.9	911.2	917.7	931.1	949.9	978.5
12.5°	884.9	900.5	906.4	919.7	939.0	970.1
13°	876.3	890.6	896.7	909.6	928.7	960.9
13.5°	868.2	881.4	887.6	899.6	918.5	951.5
14°	859.9	872.8	879.0	890.7	908.7	942.2
14.5°	852.9	864.9	871.1	882.4	899.6	932.9
15°	844.9	856.7	863.1	874.1	890.8	923.3
15.5°	837.9	849.1	855.4	866.0	882.5	914.4
16°	830.7	842.0	847.7	858.0	874.1	905.6
16.5°	822.6	834.7	840.4	850.4	865.9	897.7
17°	814.0	827.7	833.0	842.6	858.5	889.5
17.5°	802.7	819.9	825.5	835.0	850.6	881.5
18°	791.5	810.9	816.8	827.3	843.0	873.7
18.5°	780.3	800.8	807.3	818.5	834.9	866.1
19°	769.1	789.8	797.4	809.3	826.4	858.6
19.5°	757.8	777.7	786.2	798.5	817.2	850.9
20°	744.2	765.0	774.0	787.3	807.4	842.8
20.5°	729.5	751.7	761.5	775.1	796.6	834.1
21°	715.0	738.6	747.9	761.8	785.0	824.6



TEST NUMBER: P775649

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	670.3	699.0	704.4	717.7	745.5	793.3
23°	654.7	684.9	689.0	702.5	731.5	782.0
23.5°	640.2	670.3	673.6	687.9	717.0	770.1
24°	623.8	654.6	658.6	673.1	702.8	757.9
24.5°	608.8	639.0	642.7	658.2	688.2	745.7
25°	593.1	621.8	627.4	643.9	674.5	732.7
25.5°	577.6	605.7	612.0	629.0	660.3	718.9
26°	561.9	589.4	596.3	614.3	646.3	704.4
26.5°	546.7	573.1	581.1	598.8	632.0	689.3
27°	530.8	555.9	564.9	583.3	616.8	673.9
27.5°	515.5	539.4	549.0	567.5	601.6	658.3
28°	499.6	522.6	533.1	550.3	585.8	642.0
28.5°	483.8	505.7	517.4	535.0	569.6	625.7
29°	467.2	489.4	501.2	518.7	553.3	608.8
29.5°	450.7	473.0	485.5	502.9	536.0	592.8
30°	434.9	457.2	469.7	487.6	519.6	576.1
30.5°	418.5	441.6	453.2	471.8	502.6	559.0
31°	403.3	426.6	437.1	456.3	485.7	542.0
31.5°	388.0	411.6	421.0	440.9	469.0	524.8
32°	373.3	397.0	405.4	425.4	452.9	507.5
32.5°	359.0	381.7	389.9	410.0	437.0	490.3
33°	344.4	367.7	375.6	394.1	421.0	473.1
33.5°	330.7	353.6	361.1	377.2	405.0	456.3
34°	316.6	339.5	346.6	362.6	389.0	438.9
34.5°	303.3	325.5	332.1	348.0	373.2	422.0
35°	290.2	311.8	317.7	333.4	357.4	405.2
35.5°	277.2	299.2	303.9	318.8	341.7	388.6
36°	264.7	286.7	290.7	304.4	325.9	373.4
36.5°	252.9	275.1	277.6	290.2	310.2	358.2
37°	241.3	262.8	265.1	276.0	295.3	342.9
37.5°	230.3	251.2	252.8	262.1	281.1	327.8
38°	219.4	239.8	241.1	248.5	267.3	312.6
38.5°	208.9	228.7	229.7	235.3	254.5	298.2
39°	199.1	218.6	218.6	222.3	242.0	284.6
39.5°	188.9	207.9	208.2	210.4	229.8	271.5
40°	179.8	198.3	197.8	198.9	217.8	258.9
40.5°	170.6	188.5	188.0	188.4	206.3	246.1
41°	162.0	179.5	178.4	178.5	195.7	234.0
41.5°	154.0	170.3	169.2	169.7	185.4	222.5
42°	146.1	161.9	160.7	161.2	176.1	211.3
42.5°	138.8	153.6	152.5	153.5	166.8	200.7
43°	131.2	145.6	144.6	146.0	158.3	190.7
43.5°	124.4	137.9	137.2	139.1	150.2	180.5



TEST NUMBER: P775649

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	104.9	116.5	116.4	119.1	128.4	153.5
45.5°	99.1	109.8	109.9	113.1	121.7	145.1
46°	93.8	103.4	103.7	106.9	115.2	136.9
46.5°	88.5	97.4	97.8	101.0	108.9	129.3
47°	83.1	91.9	92.4	95.5	102.8	121.9
47.5°	77.7	86.6	87.1	90.2	96.9	114.9
48°	72.6	81.3	82.0	85.0	91.3	108.1
48.5°	66.3	76.3	77.1	80.0	86.1	101.3
49°	59.7	70.8	71.7	75.0	80.9	95.2
49.5°	53.0	64.8	66.0	69.7	75.7	89.7
50°	46.6	58.3	59.7	63.7	70.2	84.0
50.5°	40.7	51.6	53.3	57.3	63.9	78.5
51°	35.2	45.1	46.8	51.0	57.4	72.8
51.5°	30.7	39.3	40.8	44.8	51.0	66.4
52°	26.7	35.4	36.9	39.0	44.7	59.6
52.5°	23.6	31.5	32.8	35.2	38.9	53.0
53°	20.7	27.8	28.8	31.3	35.2	46.4
53.5°	18.3	24.0	24.8	27.6	31.3	40.4
54°	16.3	20.1	20.8	23.8	27.5	36.4
54.5°	14.6	17.7	18.3	19.9	23.7	32.5
55°	13.0	15.8	16.3	17.7	19.9	28.6
55.5°	11.7	14.1	14.5	15.7	17.6	24.6
56°	10.6	12.6	13.0	14.0	15.7	20.8
56.5°	9.7	11.3	11.6	12.5	14.0	18.3
57°	8.8	10.2	10.4	11.2	12.5	16.2
57.5°	8.0	9.2	9.4	10.0	11.2	14.5
58°	7.1	8.3	8.5	9.1	10.0	12.9
58.5°	6.4	7.5	7.7	8.2	9.1	11.6
59°	5.8	6.8	6.9	7.5	8.2	10.4
59.5°	5.2	6.2	6.3	6.7	7.4	9.4
60°	4.8	5.6	5.8	6.1	6.7	8.4
60.5°	4.4	5.1	5.2	5.5	6.1	7.7
61°	3.9	4.6	4.7	5.0	5.5	6.9
61.5°	3.6	4.3	4.4	4.6	5.0	6.3
62°	3.3	3.9	4.0	4.2	4.6	5.6
62.5°	3.0	3.6	3.7	3.8	4.2	5.2
63°	2.8	3.3	3.4	3.5	3.8	4.7
63.5°	2.6	3.0	3.1	3.2	3.5	4.3
64°	2.3	2.7	2.8	2.9	3.2	3.9
64.5°	2.1	2.5	2.6	2.7	2.9	3.6
65°	1.9	2.2	2.3	2.5	2.7	3.4
65.5°	1.8	2.1	2.1	2.2	2.5	3.1
66°	1.6	1.9	1.9	2.0	2.2	2.8



TEST NUMBER: P775649

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	1.3	1.5	1.5	1.6	1.7	2.1
68°	1.2	1.4	1.4	1.5	1.6	1.9
68.5°	1.1	1.3	1.3	1.4	1.5	1.7
69°	1.0	1.2	1.2	1.2	1.3	1.6
69.5°	0.9	1.1	1.1	1.2	1.2	1.5
70°	0.9	1.0	1.0	1.1	1.1	1.3
70.5°	0.7	0.9	0.9	1.0	1.0	1.2
71°	0.7	0.9	0.9	0.9	1.0	1.1
71.5°	0.6	0.7	0.7	0.7	0.9	1.0
72°	0.5	0.6	0.6	0.7	0.7	1.0
72.5°	0.5	0.6	0.6	0.6	0.7	0.9
73°	0.5	0.5	0.5	0.6	0.6	0.7
73.5°	0.4	0.5	0.5	0.5	0.5	0.7
74°	0.4	0.4	0.4	0.5	0.5	0.6
74.5°	0.3	0.4	0.4	0.4	0.4	0.5
75°	0.3	0.4	0.4	0.4	0.4	0.5
75.5°	0.3	0.3	0.3	0.4	0.4	0.4
76°	0.3	0.3	0.3	0.3	0.3	0.4
76.5°	0.2	0.3	0.3	0.3	0.3	0.4
77°	0.2	0.2	0.3	0.3	0.3	0.3
77.5°	0.2	0.2	0.2	0.2	0.2	0.3
78°	0.2	0.2	0.2	0.2	0.2	0.3
78.5°	0.2	0.2	0.2	0.2	0.2	0.2
79°	0.1	0.2	0.2	0.2	0.2	0.2
79.5°	0.1	0.1	0.1	0.1	0.1	0.2
80°	0.1	0.1	0.1	0.1	0.1	0.2
80.5°	0.1	0.1	0.1	0.1	0.1	0.1
81°	0.1	0.1	0.1	0.1	0.1	0.1
81.5°	0.1	0.1	0.1	0.1	0.1	0.1
82°	0.1	0.1	0.1	0.1	0.1	0.1
82.5°	0.0	0.1	0.1	0.1	0.1	0.1
83°	0.0	0.1	0.1	0.1	0.0	0.1
83.5°	0.0	0.0	0.0	0.0	0.0	0.1
84°	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P775649
CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - - 90°-270° - · - 135°-315°

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21.5°	814.6	852.3	872.9	883.0	867.2	861.7	849.7	824.5	783.3	735.7	709.2
22°	804.3	844.0	865.0	875.0	857.6	852.9	840.9	815.0	772.4	720.6	694.7



44°	171.0	202.3	220.4	227.6	205.5	197.7	189.3	175.8	152.2	130.5	121.7
44.5°	162.1	191.3	207.9	214.7	193.5	186.1	178.1	166.4	144.0	123.7	115.4



66.5°	2.5	3.1	3.4	3.4	2.8	2.8	2.6	2.5	2.1	1.8	1.6
67°	2.2	2.8	3.1	3.1	2.6	2.5	2.3	2.2	1.9	1.6	1.5



89°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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21.5°	700.3	725.5	733.8	747.4	772.5	814.6
22°	685.8	712.2	719.2	732.3	759.2	804.3



44°	117.8	130.4	129.9	132.0	142.5	171.0
44.5°	111.3	123.3	123.0	125.6	135.5	162.1



66.5°	1.5	1.7	1.8	1.9	2.0	2.5
67°	1.4	1.6	1.6	1.7	1.9	2.2

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89°	0.0	0.0	0.0	0.0	0.0	0.0
89.5°	0.0	0.0	0.0	0.0	0.0	0.0

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(END OF REPORT)