

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: P775647

Luminaire Tested: HCDJBL510CSD-HCD42TRH-1000lm-3500K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P775647  
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-3500K  
Description: 4 INCH ROUND NARROW HAZE TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT  
Ballast/Driver: -

**Summary**

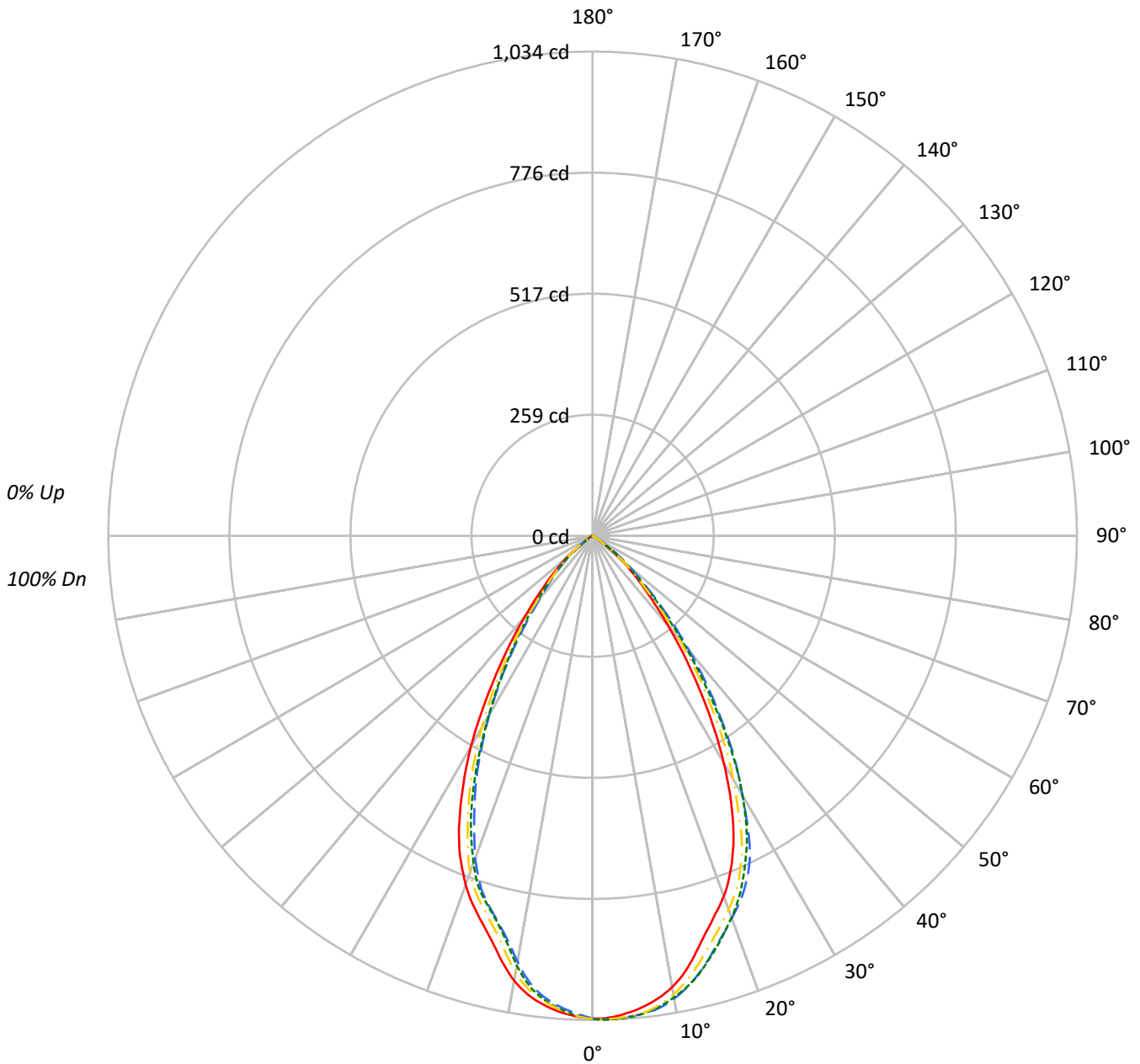
Lumens per Lamp: N/A  
Luminaire Lumens: 1040.4 lumens  
Efficiency: N/A  
Efficacy: 104.0 lumens/watt  
Spacing Criteria (0/90/45): 0.93 / 0.93 / 0.92  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

Input Watts (W): 10  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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



TEST NUMBER: P775647  
CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3500K

### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				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	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°	129764	129764	129764	129764
5°	128630	130057	128023	126924
10°	125044	127919	123267	119076
15°	116909	122954	113925	108466
20°	109686	116221	106190	99561
25°	98868	107061	93508	83913
30°	81364	92975	75420	64565
35°	60486	72177	54771	46551
40°	41334	50321	36915	31658
45°	26537	31449	23547	20147
50°	15976	18208	13705	11082
55°	6100	7197	4322	3357
60°	2064	2416	1712	1384
65°	983	1042	804	655
70°	442	515	368	331
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: 34991 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	95.5	9.2
10°-20°	249.0	23.9
20°-30°	312.4	30.0
30°-40°	238.6	22.9
40°-50°	113.7	10.9
50°-60°	27.2	2.6
60°-70°	3.4	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°	656.9	63.1
0°-40°	895.5	86.1
0°-60°	1036.4	99.6
0°-90°	1040.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1040.4	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1031	1031	1031	1031	1031	
5°	1018	1030	1013	1005	1018	96
15°	897	944	874	832	897	252
25°	712	771	673	604	712	322
35°	394	470	356	303	394	246
45°	149	177	132	113	149	118
55°	28	33	20	15	28	30
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	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1031.1	1031.1	1031.1	1031.1	1031.1	1031.1	1031.1	1031.1	1031.1	1031.1	1031.1
0.5°	1031.4	1031.2	1031.1	1030.9	1033.0	1032.8	1032.4	1031.7	1030.6	1028.8	1028.0
1°	1031.3	1031.8	1032.1	1031.9	1033.6	1033.5	1032.6	1031.5	1029.6	1027.1	1026.1
1.5°	1030.7	1031.8	1032.4	1032.6	1033.8	1033.6	1032.5	1031.1	1028.7	1025.0	1023.4
2°	1029.6	1031.7	1032.6	1033.0	1033.7	1033.6	1032.3	1030.5	1027.0	1022.7	1020.6
2.5°	1028.4	1031.1	1032.4	1033.0	1033.4	1033.3	1031.9	1029.6	1025.4	1020.1	1017.8
3°	1026.7	1030.1	1031.9	1032.9	1033.0	1032.9	1031.3	1028.6	1023.4	1017.4	1014.7
3.5°	1024.9	1029.4	1031.3	1032.5	1032.4	1032.4	1030.7	1027.5	1021.3	1014.4	1011.4
4°	1022.8	1028.2	1030.5	1032.1	1031.7	1031.9	1030.0	1026.1	1018.9	1011.4	1007.9
4.5°	1020.5	1026.7	1029.7	1031.3	1030.9	1031.1	1029.1	1024.6	1016.4	1008.0	1004.3
5°	1018.2	1025.2	1028.9	1030.6	1029.5	1030.0	1028.0	1022.6	1013.4	1004.4	1000.0
5.5°	1015.5	1023.6	1027.8	1029.7	1028.3	1028.8	1026.5	1020.3	1010.4	1000.5	995.5
6°	1012.5	1021.8	1026.6	1028.7	1026.3	1027.1	1024.7	1017.9	1006.9	996.3	990.6
6.5°	1009.3	1019.7	1025.2	1027.1	1024.3	1025.0	1022.4	1015.0	1003.2	991.5	984.8
7°	1006.0	1017.4	1023.4	1025.5	1022.0	1022.6	1019.8	1011.8	999.1	986.2	978.5
7.5°	1002.5	1014.6	1021.3	1023.5	1019.1	1019.6	1016.4	1008.0	994.6	980.1	971.4
8°	998.4	1011.4	1018.8	1021.1	1016.0	1016.3	1012.9	1003.9	989.8	973.6	963.2
8.5°	994.0	1007.8	1015.5	1018.2	1012.4	1012.6	1008.7	999.6	984.2	966.2	954.6
9°	989.1	1003.8	1012.0	1014.9	1009.0	1008.4	1004.4	994.8	978.3	958.2	944.8
9.5°	984.1	999.6	1008.1	1011.4	1005.0	1004.4	999.5	989.8	971.6	949.2	934.6
10°	978.5	994.8	1003.7	1007.5	1001.0	999.6	994.4	984.0	964.6	939.4	923.1
10.5°	972.3	989.7	999.1	1003.4	996.7	994.8	988.9	977.8	956.8	929.0	912.2
11°	965.7	984.4	993.9	999.0	992.1	989.7	983.0	971.0	948.0	918.5	900.9
11.5°	958.6	978.6	988.8	994.3	987.5	984.2	976.5	964.0	938.9	907.8	889.7
12°	950.9	972.4	983.1	989.7	982.2	978.5	969.9	956.5	929.4	897.2	879.7
12.5°	942.7	965.5	977.0	984.3	976.7	972.0	962.9	948.4	919.7	887.5	870.3
13°	933.8	958.4	970.6	978.9	971.1	965.7	955.4	939.9	909.9	878.3	861.6
13.5°	924.6	950.8	963.8	973.0	965.0	958.7	947.7	931.3	900.5	869.3	853.7
14°	915.6	943.2	956.8	967.0	958.5	951.5	939.8	922.4	891.2	860.8	845.7
14.5°	906.6	935.1	949.7	960.7	951.1	944.0	931.8	913.4	882.7	852.9	837.8
15°	897.3	926.5	942.3	953.6	943.7	936.4	923.6	904.9	874.4	844.9	830.1
15.5°	888.6	918.3	934.8	946.9	936.5	928.8	915.5	896.7	866.4	837.3	822.8
16°	880.1	910.0	926.5	939.3	929.0	921.3	908.1	888.6	858.3	829.6	815.4
16.5°	872.4	901.9	918.8	932.1	921.8	913.6	900.8	880.7	850.7	822.2	807.7
17°	864.4	893.9	911.7	924.6	914.2	906.4	893.5	872.7	843.0	814.6	799.6
17.5°	856.7	886.4	904.5	917.4	906.5	898.9	886.0	865.1	835.4	806.4	791.0
18°	849.0	879.0	897.4	910.1	898.8	891.3	878.4	857.6	828.0	797.8	779.6
18.5°	841.7	871.6	890.5	902.8	890.8	883.9	871.1	850.2	819.9	786.8	768.2
19°	834.4	864.5	883.7	895.5	883.1	876.4	863.8	842.9	811.3	775.9	756.8
19.5°	826.9	857.2	876.5	887.9	875.2	869.2	856.6	835.4	802.2	764.9	745.5
20°	819.0	850.2	869.4	880.5	867.8	861.6	849.2	827.7	792.9	753.9	733.2
20.5°	810.6	843.1	862.5	873.2	859.9	853.9	841.6	819.5	782.3	743.0	719.2
21°	801.4	836.0	855.4	865.7	851.2	846.1	833.9	810.7	771.8	729.3	703.8



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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°	770.9	811.7	833.0	842.2	824.1	819.3	808.2	781.1	740.1	686.4	661.0
23°	759.9	802.9	824.8	833.2	814.0	810.2	799.2	770.1	727.9	673.2	646.5
23.5°	748.4	793.6	816.6	824.3	803.4	799.6	787.7	759.1	715.0	660.1	632.9
24°	736.5	783.4	807.7	814.8	793.0	788.4	776.1	748.1	701.6	646.8	619.2
24.5°	724.6	772.6	798.3	804.4	782.0	777.1	764.6	737.8	688.0	634.0	605.4
25°	712.0	761.2	788.2	794.1	771.0	766.0	753.1	725.0	673.4	620.8	591.2
25.5°	698.6	749.3	776.9	782.7	759.9	754.7	741.5	712.0	658.4	606.7	576.6
26°	684.6	736.8	765.3	771.1	749.0	743.5	726.3	698.2	643.0	592.2	561.7
26.5°	669.8	723.5	752.0	759.4	737.9	730.2	710.7	683.4	627.9	577.0	546.6
27°	654.9	709.8	738.1	747.5	725.6	716.6	693.9	667.6	613.1	560.8	530.9
27.5°	639.7	695.3	722.7	735.6	712.5	702.6	677.6	651.9	597.5	544.7	515.5
28°	623.9	680.1	706.1	722.1	699.0	688.1	661.5	635.4	582.3	528.6	500.2
28.5°	608.0	663.6	689.6	708.7	684.1	672.9	645.9	618.0	566.9	512.6	485.3
29°	591.7	646.7	672.5	694.7	670.3	656.6	630.7	600.9	551.5	496.6	470.0
29.5°	576.1	629.4	656.0	680.1	654.7	640.6	615.6	584.3	535.4	481.4	455.1
30°	559.9	612.2	639.9	664.6	639.8	623.8	600.4	567.1	519.0	466.5	440.6
30.5°	543.2	595.0	624.6	648.4	624.3	606.7	585.1	550.4	502.7	451.3	426.0
31°	526.7	578.4	609.6	632.3	609.2	590.5	569.6	533.5	486.2	436.6	410.9
31.5°	509.9	561.7	594.5	614.8	592.6	574.1	553.3	517.1	469.5	421.5	395.9
32°	493.2	545.5	579.1	598.2	576.4	558.4	537.0	500.5	452.4	406.0	380.8
32.5°	476.5	529.0	563.3	581.1	558.7	542.3	520.3	484.2	435.2	390.3	365.9
33°	459.7	512.7	547.3	564.4	541.3	526.1	503.3	468.0	418.9	374.7	351.0
33.5°	443.5	496.2	530.2	548.0	523.2	510.3	486.5	452.0	402.3	359.0	336.0
34°	426.5	479.5	513.5	531.6	505.6	494.1	470.1	435.9	386.5	343.0	321.6
34.5°	410.1	462.6	496.5	515.1	487.7	477.5	453.8	420.1	371.2	328.1	307.5
35°	393.7	446.2	479.3	498.8	469.8	460.9	438.1	404.9	356.5	313.2	293.9
35.5°	377.6	429.9	462.8	482.3	452.4	444.1	422.6	389.8	341.3	299.0	280.1
36°	362.9	414.0	447.1	465.7	435.2	427.6	407.2	374.8	327.1	284.8	266.7
36.5°	348.1	398.7	431.7	448.6	417.4	411.0	391.5	360.3	312.8	271.4	253.7
37°	333.3	383.5	415.8	432.8	400.5	394.5	375.9	345.8	299.1	258.6	240.7
37.5°	318.6	366.8	400.6	415.8	383.9	378.5	359.8	331.8	285.5	246.0	228.6
38°	303.8	353.2	385.0	399.5	368.3	363.0	344.1	317.3	273.0	233.6	216.4
38.5°	289.8	339.4	368.9	382.7	351.5	347.2	328.9	303.1	259.7	221.5	205.1
39°	276.6	325.7	353.7	367.5	336.5	331.8	314.0	289.1	247.7	210.1	194.5
39.5°	263.9	312.0	338.4	351.8	321.5	316.1	299.5	275.8	235.9	199.4	185.0
40°	251.6	298.0	323.1	336.2	306.3	300.6	285.1	262.1	224.7	189.3	175.7
40.5°	239.1	284.4	307.9	320.5	291.2	285.6	271.5	249.0	213.3	179.8	166.9
41°	227.4	270.4	293.1	304.9	277.2	271.0	258.6	236.5	202.8	171.1	159.1
41.5°	216.2	257.3	279.4	290.2	262.9	256.4	245.7	224.7	192.7	162.6	151.9
42°	205.4	244.0	265.8	275.7	249.9	242.2	232.6	212.9	183.1	155.1	144.7
42.5°	195.0	231.5	252.6	261.6	236.5	228.9	220.1	201.9	173.6	147.5	137.7
43°	185.3	219.6	239.9	247.5	223.8	215.9	207.7	191.2	164.6	140.3	131.1
43.5°	175.4	208.0	227.0	234.1	211.4	203.8	195.7	180.9	156.1	133.4	124.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	149.1	175.7	190.1	196.6	176.7	170.3	162.5	152.5	132.3	113.9	106.2
45.5°	141.1	165.9	178.6	185.4	166.1	160.3	153.0	143.8	125.0	107.8	100.4
46°	133.1	156.4	167.7	174.4	155.7	150.9	143.7	135.7	118.0	101.8	95.2
46.5°	125.6	147.8	158.1	164.4	146.1	141.9	135.3	127.8	111.2	96.1	90.0
47°	118.5	139.3	148.9	154.5	136.8	133.2	127.2	120.1	104.5	90.7	84.7
47.5°	111.6	131.2	140.0	145.3	128.4	125.1	119.7	112.9	98.5	85.4	79.5
48°	105.0	123.4	131.7	136.6	120.3	117.4	112.5	106.0	92.8	80.1	74.4
48.5°	98.5	116.1	124.1	128.1	112.6	110.1	105.6	99.5	87.2	74.8	68.6
49°	92.5	108.9	116.6	120.5	105.5	103.1	99.1	93.7	81.5	68.7	62.1
49.5°	87.2	102.2	109.6	112.8	98.7	97.3	93.4	87.9	75.8	62.0	55.6
50°	81.6	95.9	102.7	105.9	93.0	91.6	87.7	82.2	70.0	55.5	49.1
50.5°	76.3	90.0	96.3	98.8	87.3	85.6	81.9	76.4	63.2	49.0	43.3
51°	70.7	84.2	90.3	92.7	81.5	79.8	76.2	70.6	56.3	42.9	37.7
51.5°	64.5	78.7	84.6	86.8	75.8	74.0	70.4	64.0	49.7	37.4	32.7
52°	57.9	73.0	78.8	81.1	70.0	68.1	63.7	57.2	43.5	32.7	28.7
52.5°	51.5	66.8	73.0	75.7	63.7	61.6	56.8	50.3	37.9	28.6	25.2
53°	45.1	60.0	66.7	69.7	56.9	54.7	49.9	44.0	33.0	25.2	22.2
53.5°	39.3	53.2	59.8	63.4	50.3	47.9	43.7	38.2	28.9	22.2	19.6
54°	35.4	46.6	52.6	56.3	43.8	41.8	37.8	33.3	25.4	19.7	17.4
54.5°	31.6	40.7	46.0	49.7	37.9	36.2	32.7	29.1	22.4	17.4	15.5
55°	27.8	35.2	40.1	43.0	32.8	31.4	28.5	25.5	19.7	15.5	13.9
55.5°	23.9	31.7	35.1	37.5	28.4	27.2	25.0	22.3	17.5	13.9	12.4
56°	20.2	28.1	31.4	33.8	24.6	23.6	21.9	19.7	15.5	12.4	11.2
56.5°	17.8	24.4	27.8	30.0	21.5	20.8	19.3	17.4	13.9	11.2	10.0
57°	15.7	20.9	24.1	26.3	19.0	18.3	17.0	15.4	12.4	10.1	9.2
57.5°	14.1	18.5	20.5	22.7	16.7	16.2	15.1	13.8	11.2	9.3	8.5
58°	12.5	16.5	18.1	19.0	14.8	14.4	13.5	12.3	10.0	8.5	7.7
58.5°	11.3	14.6	16.1	16.7	13.2	12.8	12.0	11.0	9.2	7.7	6.9
59°	10.1	13.0	14.3	14.8	11.7	11.4	10.8	9.9	8.5	6.9	6.1
59.5°	9.1	11.7	12.7	13.2	10.5	10.3	9.9	9.1	7.7	6.1	5.6
60°	8.2	10.5	11.4	11.7	9.6	9.4	9.1	8.4	6.8	5.6	5.1
60.5°	7.5	9.4	10.3	10.5	8.8	8.6	8.3	7.6	6.1	5.1	4.6
61°	6.7	8.5	9.2	9.4	8.0	7.8	7.5	6.7	5.5	4.6	4.2
61.5°	6.1	7.7	8.3	8.5	7.1	6.9	6.6	6.0	5.0	4.2	3.8
62°	5.5	6.9	7.5	7.7	6.2	6.1	5.8	5.4	4.6	3.8	3.5
62.5°	5.1	6.3	6.8	6.9	5.7	5.6	5.3	5.0	4.1	3.5	3.2
63°	4.6	5.7	6.2	6.3	5.2	5.1	4.8	4.5	3.8	3.2	2.9
63.5°	4.1	5.2	5.6	5.7	4.7	4.6	4.3	4.0	3.4	2.9	2.7
64°	3.8	4.8	5.1	5.2	4.2	4.1	3.9	3.7	3.2	2.7	2.5
64.5°	3.5	4.3	4.7	4.7	3.8	3.8	3.6	3.4	2.9	2.5	2.3
65°	3.3	3.9	4.2	4.2	3.5	3.5	3.3	3.1	2.7	2.3	2.1
65.5°	3.0	3.6	3.8	3.9	3.2	3.2	3.0	2.8	2.5	2.1	1.9
66°	2.7	3.3	3.5	3.6	3.0	2.9	2.8	2.6	2.2	1.9	1.8





TEST NUMBER: P775647

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	2.1	2.5	2.7	2.7	2.3	2.3	2.1	2.0	1.7	1.4	1.3
68°	1.9	2.3	2.5	2.5	2.1	2.1	2.0	1.9	1.6	1.3	1.2
68.5°	1.7	2.1	2.3	2.3	1.9	1.9	1.8	1.7	1.4	1.2	1.1
69°	1.6	2.0	2.1	2.1	1.8	1.8	1.7	1.6	1.3	1.1	1.0
69.5°	1.4	1.8	1.9	2.0	1.7	1.6	1.4	1.4	1.1	1.0	0.9
70°	1.2	1.7	1.8	1.8	1.4	1.4	1.3	1.2	1.0	0.9	0.8
70.5°	1.1	1.4	1.6	1.7	1.3	1.3	1.2	1.1	1.0	0.8	0.8
71°	1.0	1.3	1.4	1.4	1.2	1.2	1.1	1.0	0.9	0.8	0.7
71.5°	0.9	1.2	1.3	1.3	1.1	1.1	1.0	1.0	0.8	0.7	0.7
72°	0.9	1.1	1.2	1.2	1.0	1.0	0.9	0.9	0.7	0.6	0.6
72.5°	0.8	1.0	1.1	1.1	0.9	0.9	0.9	0.8	0.7	0.6	0.5
73°	0.7	0.9	1.0	1.0	0.9	0.8	0.8	0.7	0.6	0.5	0.5
73.5°	0.7	0.8	0.9	0.9	0.8	0.8	0.7	0.7	0.5	0.5	0.5
74°	0.6	0.8	0.8	0.9	0.7	0.7	0.7	0.6	0.5	0.4	0.4
74.5°	0.5	0.7	0.8	0.8	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: P775647  
CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3500K

**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: P775647

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1031.1	1031.1	1031.1	1031.1	1031.1	1031.1
0.5°	1027.4	1031.0	1031.1	1031.0	1030.9	1031.4
1°	1025.0	1029.4	1029.6	1029.7	1029.8	1031.3
1.5°	1022.3	1027.5	1027.6	1028.0	1028.6	1030.7
2°	1019.4	1025.0	1025.4	1025.8	1026.7	1029.6
2.5°	1016.2	1022.3	1022.6	1023.3	1024.5	1028.4
3°	1012.6	1019.2	1019.7	1020.5	1022.1	1026.7
3.5°	1009.1	1016.0	1016.5	1017.5	1019.5	1024.9
4°	1005.2	1012.4	1013.0	1014.3	1016.6	1022.8
4.5°	1001.3	1008.7	1009.1	1010.8	1013.5	1020.5
5°	996.5	1004.7	1005.4	1007.2	1010.4	1018.2
5.5°	991.4	1000.3	1001.1	1003.3	1006.9	1015.5
6°	985.9	995.7	996.7	999.2	1003.2	1012.5
6.5°	979.1	990.4	991.4	994.6	999.2	1009.3
7°	972.2	984.4	985.9	989.8	994.9	1006.0
7.5°	963.6	978.0	979.6	984.5	990.5	1002.5
8°	955.1	970.2	972.9	978.5	985.3	998.4
8.5°	944.9	961.9	965.1	971.7	979.6	994.0
9°	934.5	952.7	956.5	964.4	973.6	989.1
9.5°	923.0	942.6	946.9	956.2	967.0	984.1
10°	911.5	931.8	936.7	947.1	959.7	978.5
10.5°	900.0	920.2	925.9	937.3	951.3	972.3
11°	888.8	908.5	914.7	926.9	942.5	965.7
11.5°	877.6	896.7	902.7	915.9	933.2	958.6
12°	868.7	885.5	891.8	904.8	923.1	950.9
12.5°	859.9	875.1	880.8	893.8	912.5	942.7
13°	851.6	865.5	871.4	883.9	902.5	933.8
13.5°	843.7	856.6	862.6	874.2	892.6	924.6
14°	835.7	848.2	854.2	865.6	883.1	915.6
14.5°	828.8	840.5	846.5	857.5	874.2	906.6
15°	821.1	832.5	838.8	849.4	865.7	897.3
15.5°	814.2	825.2	831.3	841.6	857.6	888.6
16°	807.3	818.3	823.7	833.8	849.4	880.1
16.5°	799.4	811.1	816.7	826.4	841.5	872.4
17°	791.0	804.4	809.5	818.9	834.3	864.4
17.5°	780.0	796.8	802.2	811.4	826.6	856.7
18°	769.2	788.0	793.7	804.0	819.2	849.0
18.5°	758.3	778.2	784.5	795.4	811.3	841.7
19°	747.4	767.5	774.9	786.5	803.1	834.4
19.5°	736.4	755.8	764.0	776.0	794.1	826.9
20°	723.2	743.4	752.2	765.1	784.6	819.0
20.5°	708.9	730.5	740.1	753.2	774.1	810.6
21°	694.8	717.8	726.8	740.3	762.8	801.4

TEST NUMBER: P775647

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	651.4	679.3	684.6	697.5	724.4	770.9
23°	636.2	665.6	669.5	682.7	710.9	759.9
23.5°	622.1	651.4	654.6	668.5	696.8	748.4
24°	606.2	636.1	640.0	654.1	683.0	736.5
24.5°	591.7	621.0	624.6	639.6	668.8	724.6
25°	576.3	604.3	609.7	625.7	655.5	712.0
25.5°	561.3	588.7	594.8	611.2	641.7	698.6
26°	546.1	572.8	579.4	596.9	628.1	684.6
26.5°	531.3	557.0	564.7	581.9	614.1	669.8
27°	515.9	540.2	549.0	566.8	599.4	654.9
27.5°	500.9	524.1	533.6	551.5	584.6	639.7
28°	485.5	507.9	518.0	534.8	569.3	623.9
28.5°	470.2	491.4	502.8	519.9	553.5	608.0
29°	454.0	475.6	487.1	504.0	537.7	591.7
29.5°	438.0	459.6	471.8	488.7	520.9	576.1
30°	422.6	444.3	456.4	473.8	505.0	559.9
30.5°	406.7	429.2	440.5	458.5	488.4	543.2
31°	391.9	414.6	424.8	443.5	472.0	526.7
31.5°	377.1	400.0	409.1	428.4	455.8	509.9
32°	362.8	385.8	394.0	413.4	440.1	493.2
32.5°	348.9	371.0	378.9	398.4	424.7	476.5
33°	334.7	357.3	365.0	383.0	409.1	459.7
33.5°	321.4	343.6	350.9	366.5	393.5	443.5
34°	307.7	330.0	336.8	352.3	378.0	426.5
34.5°	294.7	316.3	322.7	338.1	362.7	410.1
35°	282.0	303.0	308.7	323.9	347.4	393.7
35.5°	269.4	290.8	295.4	309.8	332.0	377.6
36°	257.3	278.6	282.5	295.8	316.7	362.9
36.5°	245.8	267.3	269.8	282.0	301.5	348.1
37°	234.5	255.4	257.7	268.2	287.0	333.3
37.5°	223.8	244.1	245.7	254.7	273.2	318.6
38°	213.2	233.0	234.3	241.5	259.7	303.8
38.5°	203.0	222.2	223.2	228.7	247.3	289.8
39°	193.5	212.4	212.4	216.0	235.2	276.6
39.5°	183.6	202.1	202.4	204.4	223.3	263.9
40°	174.7	192.7	192.2	193.2	211.7	251.6
40.5°	165.8	183.2	182.7	183.1	200.5	239.1
41°	157.4	174.4	173.4	173.5	190.1	227.4
41.5°	149.6	165.5	164.5	164.9	180.2	216.2
42°	142.0	157.3	156.2	156.7	171.1	205.4
42.5°	134.8	149.2	148.2	149.1	162.1	195.0
43°	127.5	141.5	140.5	141.9	153.8	185.3
43.5°	120.9	134.0	133.3	135.2	145.9	175.4



TEST NUMBER: P775647

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	101.9	113.2	113.1	115.8	124.8	149.1
45.5°	96.3	106.7	106.8	109.9	118.3	141.1
46°	91.1	100.5	100.8	103.9	112.0	133.1
46.5°	86.0	94.7	95.1	98.2	105.8	125.6
47°	80.8	89.3	89.8	92.8	99.9	118.5
47.5°	75.5	84.2	84.6	87.6	94.1	111.6
48°	70.5	79.0	79.6	82.6	88.8	105.0
48.5°	64.4	74.2	74.9	77.8	83.7	98.5
49°	58.0	68.8	69.7	72.9	78.6	92.5
49.5°	51.5	63.0	64.1	67.7	73.5	87.2
50°	45.3	56.6	58.0	61.9	68.2	81.6
50.5°	39.6	50.1	51.8	55.7	62.1	76.3
51°	34.2	43.8	45.5	49.6	55.8	70.7
51.5°	29.8	38.2	39.7	43.5	49.6	64.5
52°	26.0	34.4	35.8	37.9	43.4	57.9
52.5°	22.9	30.7	31.9	34.2	37.8	51.5
53°	20.1	27.0	28.0	30.4	34.2	45.1
53.5°	17.8	23.3	24.1	26.8	30.4	39.3
54°	15.8	19.6	20.2	23.1	26.7	35.4
54.5°	14.2	17.2	17.8	19.4	23.0	31.6
55°	12.6	15.3	15.8	17.2	19.4	27.8
55.5°	11.4	13.7	14.1	15.2	17.1	23.9
56°	10.3	12.2	12.6	13.6	15.2	20.2
56.5°	9.4	11.0	11.3	12.1	13.6	17.8
57°	8.6	9.9	10.1	10.9	12.1	15.7
57.5°	7.8	8.9	9.1	9.7	10.9	14.1
58°	6.9	8.1	8.3	8.8	9.7	12.5
58.5°	6.2	7.2	7.5	8.0	8.8	11.3
59°	5.6	6.6	6.7	7.2	8.0	10.1
59.5°	5.1	6.0	6.1	6.5	7.1	9.1
60°	4.7	5.5	5.6	5.9	6.5	8.2
60.5°	4.2	5.0	5.1	5.4	5.9	7.5
61°	3.8	4.5	4.6	4.9	5.4	6.7
61.5°	3.5	4.1	4.2	4.5	4.9	6.1
62°	3.2	3.8	3.9	4.0	4.5	5.5
62.5°	2.9	3.5	3.6	3.7	4.0	5.1
63°	2.7	3.2	3.3	3.4	3.7	4.6
63.5°	2.5	2.9	3.0	3.1	3.4	4.1
64°	2.3	2.6	2.7	2.8	3.1	3.8
64.5°	2.1	2.4	2.5	2.6	2.8	3.5
65°	1.9	2.2	2.3	2.4	2.6	3.3
65.5°	1.8	2.1	2.1	2.2	2.4	3.0
66°	1.6	1.9	1.9	2.0	2.2	2.7



TEST NUMBER: P775647

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3500K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	1.2	1.4	1.4	1.6	1.7	2.1
68°	1.1	1.3	1.3	1.4	1.6	1.9
68.5°	1.0	1.2	1.2	1.3	1.4	1.7
69°	0.9	1.1	1.1	1.1	1.2	1.6
69.5°	0.8	1.0	1.0	1.1	1.1	1.4
70°	0.8	0.9	0.9	1.0	1.0	1.2
70.5°	0.7	0.8	0.8	0.9	0.9	1.1
71°	0.7	0.8	0.8	0.8	0.9	1.0
71.5°	0.6	0.7	0.7	0.7	0.8	0.9
72°	0.5	0.6	0.6	0.7	0.7	0.9
72.5°	0.5	0.6	0.6	0.6	0.7	0.8
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: P775647  
CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3500K

**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°	791.6	828.3	848.3	858.1	842.7	837.4	825.7	801.3	761.2	714.9	689.2
22°	781.6	820.2	840.6	850.4	833.4	828.8	817.2	792.1	750.6	700.3	675.1



44°	166.2	196.6	214.2	221.2	199.7	192.1	183.9	170.9	147.9	126.9	118.3
44.5°	157.5	185.9	202.1	208.7	188.1	180.8	173.1	161.7	139.9	120.2	112.2



66.5°	2.4	3.0	3.3	3.3	2.7	2.7	2.5	2.4	2.1	1.8	1.6
67°	2.2	2.7	3.0	3.0	2.5	2.4	2.3	2.2	1.9	1.6	1.4



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°	680.5	705.1	713.1	726.3	750.7	791.6
22°	666.4	692.1	699.0	711.7	737.8	781.6



44°	114.4	126.8	126.2	128.3	138.5	166.2
44.5°	108.1	119.8	119.5	122.1	131.6	157.5



66.5°	1.4	1.7	1.8	1.9	2.0	2.4
67°	1.3	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)