

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: P775646

Luminaire Tested: HCDJBL510CSD-HCD42TRH-1000lm-3000K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P775646  
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-3000K  
Description: 4 INCH ROUND NARROW HAZE TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

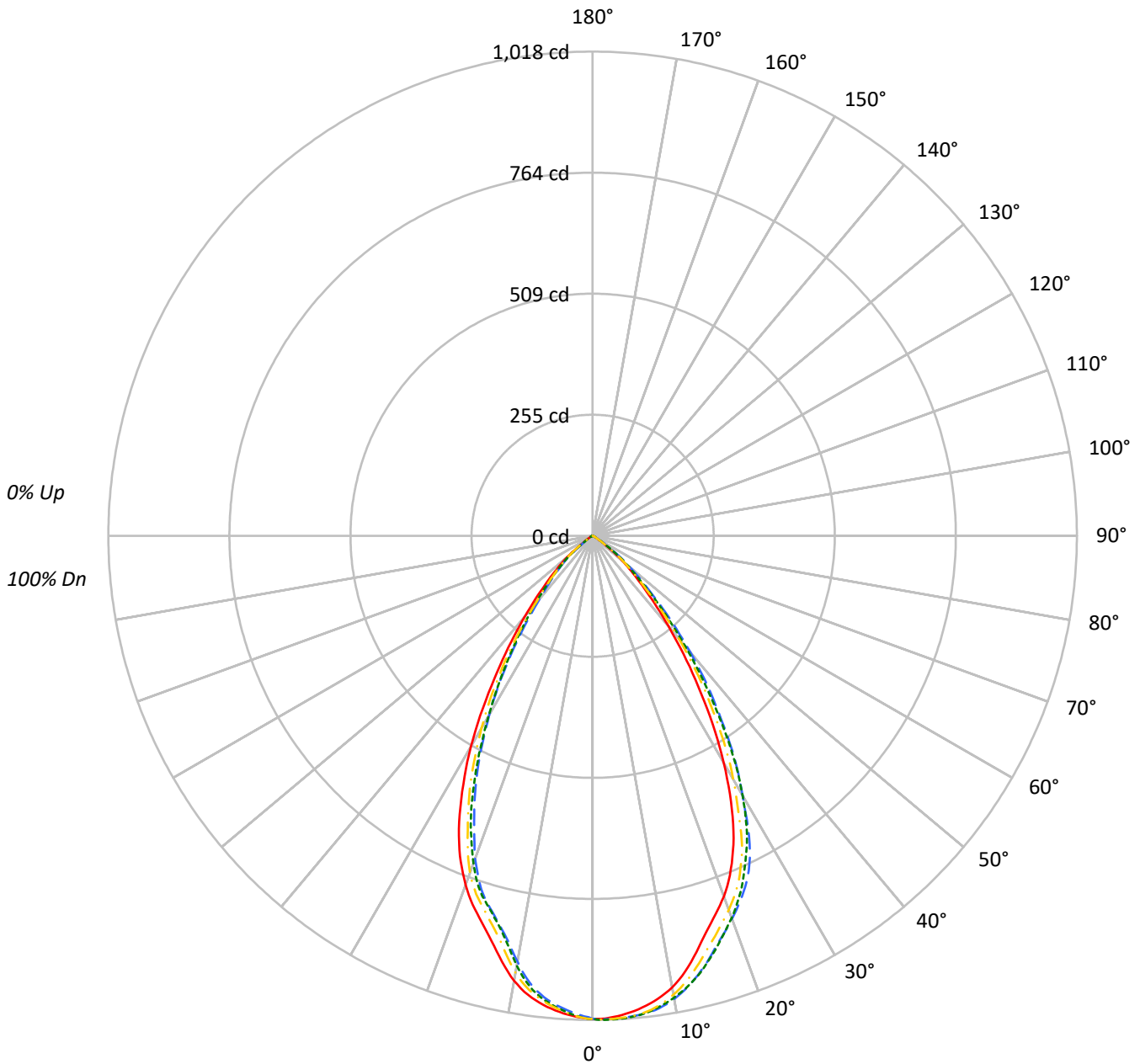
Lumens per Lamp: N/A  
Luminaire Lumens: 1024.8 lumens  
Efficiency: N/A  
Efficacy: 102.5 lumens/watt  
Spacing Criteria (0/90/45): 0.93 / 0.93 / 0.92  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

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



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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°	127813	127813	127813	127813
5°	126697	128112	126103	125017
10°	123165	126002	121414	117287
15°	115150	121104	112218	106837
20°	108039	114467	104597	98061
25°	97382	105464	92106	82649
30°	80143	91580	74287	63592
35°	59579	71087	53941	45860
40°	40710	49565	36373	31181
45°	26145	30968	23191	19845
50°	15741	17934	13509	10925
55°	5990	7087	4257	3313
60°	2039	2391	1686	1359
65°	983	1042	804	625
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: 34457 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	94.1	9.2
10°-20°	245.3	23.9
20°-30°	307.7	30.0
30°-40°	235.0	22.9
40°-50°	112.0	10.9
50°-60°	26.8	2.6
60°-70°	3.3	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°	647.1	63.1
0°-40°	882.0	86.1
0°-60°	1020.8	99.6
0°-90°	1024.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1024.8	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1016	1016	1016	1016	1016	
5°	1003	1014	998	990	1003	95
15°	884	930	861	820	884	249
25°	701	760	663	595	701	317
35°	388	463	351	298	388	242
45°	147	174	130	112	147	116
55°	27	32	19	15	27	29
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°	1015.6	1015.6	1015.6	1015.6	1015.6	1015.6	1015.6	1015.6	1015.6	1015.6	1015.6
0.5°	1015.9	1015.7	1015.6	1015.4	1017.5	1017.3	1016.9	1016.2	1015.1	1013.4	1012.5
1°	1015.8	1016.3	1016.6	1016.4	1018.0	1017.9	1017.1	1016.0	1014.2	1011.7	1010.7
1.5°	1015.2	1016.3	1016.9	1017.1	1018.2	1018.0	1017.0	1015.6	1013.3	1009.6	1008.0
2°	1014.2	1016.2	1017.1	1017.5	1018.1	1018.0	1016.8	1015.0	1011.6	1007.3	1005.3
2.5°	1012.9	1015.6	1016.9	1017.5	1017.8	1017.7	1016.4	1014.2	1010.0	1004.8	1002.5
3°	1011.3	1014.7	1016.4	1017.4	1017.5	1017.4	1015.8	1013.1	1008.0	1002.1	999.5
3.5°	1009.5	1014.0	1015.8	1017.0	1016.9	1016.9	1015.2	1012.0	1006.0	999.2	996.2
4°	1007.4	1012.7	1015.0	1016.6	1016.2	1016.4	1014.6	1010.7	1003.6	996.2	992.7
4.5°	1005.2	1011.3	1014.3	1015.8	1015.4	1015.6	1013.7	1009.2	1001.1	992.8	989.2
5°	1002.9	1009.8	1013.5	1015.1	1014.1	1014.6	1012.5	1007.2	998.2	989.3	985.0
5.5°	1000.3	1008.3	1012.3	1014.3	1012.8	1013.4	1011.1	1005.0	995.2	985.5	980.5
6°	997.3	1006.4	1011.2	1013.3	1010.9	1011.7	1009.3	1002.6	991.8	981.3	975.7
6.5°	994.2	1004.4	1009.8	1011.7	1009.0	1009.6	1007.0	999.8	988.2	976.6	970.0
7°	990.9	1002.1	1008.0	1010.1	1006.6	1007.2	1004.5	996.6	984.1	971.4	963.8
7.5°	987.4	999.4	1006.0	1008.2	1003.8	1004.3	1001.1	992.8	979.7	965.4	956.8
8°	983.4	996.2	1003.5	1005.8	1000.7	1001.0	997.6	988.9	974.9	959.0	948.8
8.5°	979.1	992.6	1000.3	1002.9	997.2	997.4	993.6	984.6	969.4	951.7	940.3
9°	974.3	988.8	996.8	999.7	993.9	993.3	989.3	979.9	963.6	943.8	930.6
9.5°	969.3	984.6	993.0	996.2	989.9	989.3	984.5	974.9	957.0	934.9	920.5
10°	963.8	979.9	988.7	992.3	986.0	984.6	979.5	969.2	950.1	925.3	909.2
10.5°	957.7	974.8	984.1	988.4	981.7	979.9	974.1	963.2	942.5	915.0	898.5
11°	951.2	969.6	979.0	984.0	977.2	974.8	968.3	956.4	933.8	904.7	887.4
11.5°	944.2	963.9	974.0	979.4	972.7	969.4	961.8	949.5	924.8	894.2	876.4
12°	936.6	957.8	968.4	974.8	967.4	963.8	955.3	942.2	915.4	883.7	866.5
12.5°	928.6	951.0	962.3	969.5	962.0	957.5	948.5	934.2	905.9	874.2	857.3
13°	919.8	944.0	956.0	964.2	956.5	951.2	941.0	925.8	896.2	865.1	848.7
13.5°	910.7	936.5	949.3	958.4	950.5	944.3	933.5	917.4	887.0	856.3	840.9
14°	901.9	929.0	942.5	952.5	944.1	937.3	925.7	908.6	877.8	847.9	833.0
14.5°	893.0	921.0	935.4	946.2	936.8	929.8	917.8	899.7	869.4	840.1	825.2
15°	883.8	912.6	928.2	939.3	929.5	922.4	909.7	891.4	861.3	832.2	817.6
15.5°	875.2	904.5	920.7	932.7	922.5	914.8	901.8	883.2	853.4	824.7	810.5
16°	866.9	896.3	912.6	925.2	915.0	907.5	894.5	875.2	845.4	817.2	803.1
16.5°	859.3	888.4	905.0	918.1	908.0	899.9	887.3	867.5	837.9	809.8	795.6
17°	851.5	880.4	898.0	910.7	900.4	892.8	880.1	859.6	830.3	802.4	787.6
17.5°	843.8	873.1	890.9	903.6	892.9	885.4	872.7	852.1	822.9	794.3	779.1
18°	836.3	865.8	883.9	896.5	885.3	877.9	865.2	844.7	815.6	785.8	767.9
18.5°	829.0	858.5	877.2	889.2	877.4	870.6	858.0	837.4	807.6	775.0	756.7
19°	821.9	851.6	870.4	882.1	869.8	863.2	850.9	830.2	799.1	764.2	745.5
19.5°	814.4	844.3	863.3	874.5	862.1	856.2	843.7	822.9	790.2	753.4	734.3
20°	806.7	837.4	856.4	867.3	854.7	848.7	836.5	815.3	781.0	742.6	722.2
20.5°	798.4	830.5	849.5	860.1	847.0	841.1	828.9	807.2	770.6	731.8	708.4
21°	789.3	823.4	842.6	852.7	838.4	833.4	821.4	798.5	760.2	718.3	693.3



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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°	759.4	799.5	820.5	829.5	811.7	807.0	796.1	769.3	729.0	676.1	651.1
23°	748.5	790.9	812.4	820.7	801.8	798.0	787.2	758.5	717.0	663.1	636.8
23.5°	737.1	781.7	804.3	811.9	791.4	787.6	775.9	747.7	704.3	650.2	623.4
24°	725.5	771.6	795.6	802.6	781.1	776.6	764.5	736.9	691.1	637.0	609.9
24.5°	713.8	761.0	786.3	792.3	770.3	765.5	753.1	726.7	677.6	624.5	596.3
25°	701.3	749.8	776.4	782.2	759.5	754.5	741.8	714.2	663.3	611.4	582.4
25.5°	688.1	738.0	765.3	771.0	748.5	743.3	730.4	701.3	648.5	597.6	568.0
26°	674.3	725.7	753.8	759.6	737.7	732.3	715.4	687.7	633.4	583.3	553.3
26.5°	659.8	712.6	740.7	748.0	726.8	719.3	700.0	673.2	618.5	568.3	538.4
27°	645.1	699.2	727.0	736.3	714.7	705.8	683.5	657.5	603.9	552.4	522.9
27.5°	630.1	684.9	711.8	724.6	701.8	692.0	667.4	642.1	588.5	536.6	507.8
28°	614.5	669.9	695.5	711.3	688.5	677.7	651.5	625.8	573.6	520.7	492.7
28.5°	598.9	653.7	679.3	698.0	673.9	662.7	636.2	608.7	558.4	504.9	478.0
29°	582.8	636.9	662.4	684.3	660.2	646.7	621.2	591.9	543.2	489.1	462.9
29.5°	567.5	619.9	646.1	669.9	644.9	631.0	606.3	575.5	527.4	474.1	448.2
30°	551.5	603.0	630.3	654.6	630.2	614.4	591.3	558.6	511.2	459.4	433.9
30.5°	535.0	586.0	615.2	638.7	614.9	597.6	576.3	542.2	495.1	444.6	419.6
31°	518.8	569.7	600.4	622.8	600.0	581.7	561.0	525.4	478.9	430.1	404.8
31.5°	502.3	553.3	585.5	605.5	583.7	565.4	545.0	509.3	462.4	415.2	390.0
32°	485.8	537.3	570.4	589.2	567.8	550.0	528.9	493.0	445.6	399.9	375.1
32.5°	469.3	521.1	554.8	572.4	550.3	534.1	512.5	476.9	428.6	384.5	360.4
33°	452.8	505.0	539.1	555.9	533.2	518.2	495.8	461.0	412.6	369.1	345.7
33.5°	436.8	488.7	522.3	539.7	515.3	502.6	479.2	445.2	396.3	353.6	330.9
34°	420.1	472.3	505.8	523.6	498.0	486.7	463.0	429.4	380.7	337.9	316.7
34.5°	404.0	455.7	489.0	507.4	480.4	470.4	447.0	413.7	365.6	323.2	302.9
35°	387.8	439.5	472.1	491.3	462.7	453.9	431.5	398.9	351.1	308.5	289.5
35.5°	371.9	423.4	455.9	475.1	445.6	437.4	416.3	384.0	336.2	294.5	275.9
36°	357.4	407.8	440.4	458.7	428.6	421.2	401.1	369.2	322.1	280.5	262.7
36.5°	342.9	392.7	425.2	441.9	411.1	404.9	385.6	354.9	308.1	267.4	249.9
37°	328.3	377.7	409.6	426.3	394.5	388.6	370.3	340.6	294.6	254.7	237.1
37.5°	313.8	361.3	394.6	409.6	378.1	372.8	354.4	326.8	281.2	242.3	225.1
38°	299.2	347.8	379.3	393.5	362.7	357.5	339.0	312.6	268.9	230.1	213.2
38.5°	285.4	334.3	363.4	376.9	346.2	342.0	324.0	298.6	255.8	218.2	202.0
39°	272.5	320.8	348.4	362.0	331.4	326.8	309.3	284.8	244.0	207.0	191.6
39.5°	259.9	307.4	333.4	346.5	316.6	311.3	295.0	271.6	232.4	196.4	182.2
40°	247.8	293.5	318.3	331.1	301.7	296.1	280.8	258.2	221.4	186.5	173.1
40.5°	235.5	280.1	303.3	315.7	286.8	281.3	267.5	245.2	210.1	177.1	164.4
41°	224.0	266.3	288.7	300.3	273.1	267.0	254.7	233.0	199.7	168.5	156.7
41.5°	213.0	253.4	275.2	285.8	259.0	252.6	242.0	221.4	189.8	160.2	149.6
42°	202.3	240.3	261.9	271.5	246.1	238.6	229.1	209.7	180.4	152.8	142.5
42.5°	192.1	228.0	248.8	257.7	233.0	225.4	216.8	198.9	171.0	145.3	135.7
43°	182.5	216.3	236.3	243.8	220.4	212.7	204.6	188.3	162.1	138.2	129.1
43.5°	172.8	204.8	223.6	230.5	208.2	200.8	192.8	178.2	153.7	131.4	122.6



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	146.9	173.1	187.3	193.6	174.0	167.7	160.1	150.3	130.3	112.2	104.6
45.5°	138.9	163.4	176.0	182.6	163.6	157.9	150.7	141.7	123.1	106.2	98.8
46°	131.1	154.0	165.2	171.8	153.3	148.6	141.6	133.6	116.2	100.3	93.7
46.5°	123.7	145.6	155.8	161.9	143.9	139.8	133.2	125.9	109.6	94.7	88.6
47°	116.7	137.2	146.7	152.2	134.8	131.2	125.3	118.3	102.9	89.4	83.4
47.5°	110.0	129.2	137.9	143.1	126.5	123.2	117.9	111.2	97.0	84.2	78.3
48°	103.4	121.6	129.8	134.5	118.5	115.7	110.8	104.5	91.4	78.9	73.2
48.5°	97.0	114.4	122.2	126.2	110.9	108.4	104.0	98.0	85.9	73.7	67.5
49°	91.1	107.3	114.9	118.7	103.9	101.6	97.6	92.3	80.3	67.6	61.2
49.5°	85.9	100.7	107.9	111.1	97.2	95.9	92.0	86.6	74.7	61.1	54.8
50°	80.4	94.5	101.2	104.4	91.6	90.2	86.4	81.0	69.0	54.7	48.4
50.5°	75.2	88.6	94.9	97.3	86.0	84.4	80.7	75.3	62.2	48.3	42.6
51°	69.7	82.9	89.0	91.3	80.3	78.6	75.1	69.6	55.5	42.2	37.1
51.5°	63.6	77.5	83.3	85.5	74.7	72.9	69.4	63.0	49.0	36.8	32.2
52°	57.0	71.9	77.6	79.9	69.0	67.1	62.7	56.3	42.8	32.2	28.3
52.5°	50.7	65.8	71.9	74.6	62.7	60.7	55.9	49.6	37.3	28.2	24.8
53°	44.4	59.1	65.7	68.7	56.0	53.9	49.2	43.4	32.5	24.8	21.8
53.5°	38.7	52.4	58.9	62.4	49.6	47.2	43.0	37.6	28.5	21.8	19.3
54°	34.9	45.9	51.8	55.5	43.1	41.2	37.2	32.8	25.0	19.4	17.1
54.5°	31.1	40.1	45.3	49.0	37.3	35.7	32.2	28.7	22.0	17.1	15.3
55°	27.3	34.7	39.5	42.3	32.3	30.9	28.1	25.1	19.4	15.3	13.7
55.5°	23.6	31.2	34.6	36.9	28.0	26.8	24.6	21.9	17.2	13.7	12.2
56°	19.9	27.6	30.9	33.3	24.3	23.3	21.5	19.4	15.3	12.2	11.0
56.5°	17.5	24.1	27.3	29.6	21.2	20.5	19.0	17.1	13.7	11.0	9.9
57°	15.5	20.6	23.8	25.9	18.7	18.1	16.7	15.2	12.2	10.0	9.1
57.5°	13.9	18.3	20.2	22.3	16.4	15.9	14.9	13.6	11.0	9.2	8.4
58°	12.3	16.2	17.9	18.7	14.6	14.2	13.3	12.1	9.9	8.4	7.5
58.5°	11.1	14.4	15.8	16.4	13.0	12.6	11.8	10.8	9.1	7.5	6.8
59°	10.0	12.9	14.1	14.6	11.5	11.2	10.6	9.8	8.4	6.8	6.0
59.5°	9.0	11.5	12.5	13.0	10.3	10.1	9.8	9.0	7.5	6.0	5.5
60°	8.1	10.3	11.2	11.5	9.5	9.3	9.0	8.3	6.7	5.5	5.0
60.5°	7.3	9.3	10.1	10.3	8.7	8.5	8.2	7.4	6.0	5.0	4.5
61°	6.6	8.4	9.1	9.3	7.9	7.7	7.3	6.6	5.4	4.5	4.2
61.5°	6.0	7.5	8.2	8.4	7.0	6.8	6.5	5.9	4.9	4.2	3.8
62°	5.4	6.8	7.3	7.5	6.1	6.0	5.7	5.3	4.5	3.8	3.5
62.5°	5.0	6.2	6.7	6.8	5.6	5.5	5.2	4.9	4.1	3.5	3.2
63°	4.5	5.6	6.1	6.2	5.1	5.0	4.7	4.4	3.8	3.2	2.9
63.5°	4.1	5.1	5.5	5.6	4.6	4.5	4.3	4.0	3.4	2.9	2.7
64°	3.8	4.7	5.0	5.1	4.2	4.1	3.9	3.7	3.2	2.7	2.4
64.5°	3.5	4.3	4.6	4.6	3.8	3.8	3.6	3.4	2.9	2.4	2.2
65°	3.3	3.9	4.2	4.2	3.5	3.5	3.3	3.1	2.7	2.2	2.0
65.5°	3.0	3.6	3.8	3.9	3.2	3.2	3.0	2.8	2.4	2.0	1.8
66°	2.7	3.3	3.5	3.6	3.0	2.9	2.8	2.6	2.1	1.8	1.7





TEST NUMBER: P775646

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	2.0	2.4	2.7	2.7	2.2	2.2	2.0	1.9	1.6	1.4	1.3
68°	1.8	2.2	2.4	2.4	2.0	2.0	1.9	1.8	1.5	1.3	1.2
68.5°	1.6	2.0	2.2	2.2	1.8	1.8	1.7	1.6	1.4	1.2	1.1
69°	1.5	1.9	2.0	2.0	1.7	1.7	1.6	1.5	1.3	1.1	1.0
69.5°	1.4	1.7	1.8	1.9	1.6	1.5	1.4	1.4	1.1	1.0	0.9
70°	1.2	1.6	1.7	1.7	1.4	1.4	1.3	1.2	1.0	0.9	0.8
70.5°	1.1	1.4	1.5	1.6	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: P775646  
CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3000K

**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: P775646

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1015.6	1015.6	1015.6	1015.6	1015.6	1015.6
0.5°	1011.9	1015.5	1015.6	1015.5	1015.4	1015.9
1°	1009.6	1014.0	1014.2	1014.3	1014.4	1015.8
1.5°	1006.9	1012.0	1012.1	1012.5	1013.1	1015.2
2°	1004.1	1009.6	1010.0	1010.4	1011.3	1014.2
2.5°	1000.9	1006.9	1007.2	1007.9	1009.1	1012.9
3°	997.4	1003.9	1004.4	1005.2	1006.7	1011.3
3.5°	994.0	1000.7	1001.2	1002.2	1004.2	1009.5
4°	990.1	997.2	997.7	999.1	1001.3	1007.4
4.5°	986.2	993.6	994.0	995.6	998.3	1005.2
5°	981.5	989.6	990.3	992.0	995.2	1002.9
5.5°	976.5	985.3	986.1	988.3	991.8	1000.3
6°	971.1	980.7	981.7	984.2	988.2	997.3
6.5°	964.4	975.5	976.5	979.7	984.2	994.2
7°	957.6	969.6	971.1	974.9	980.0	990.9
7.5°	949.1	963.3	964.9	969.7	975.6	987.4
8°	940.7	955.6	958.3	963.8	970.5	983.4
8.5°	930.7	947.5	950.6	957.1	964.9	979.1
9°	920.4	938.4	942.2	949.9	959.0	974.3
9.5°	909.1	928.5	932.7	941.8	952.5	969.3
10°	897.8	917.8	922.7	932.9	945.3	963.8
10.5°	886.5	906.3	912.0	923.2	937.1	957.7
11°	875.4	894.8	900.9	913.0	928.4	951.2
11.5°	864.4	883.2	889.1	902.2	919.2	944.2
12°	855.6	872.2	878.4	891.2	909.2	936.6
12.5°	847.0	862.0	867.6	880.3	898.8	928.6
13°	838.8	852.5	858.3	870.6	888.9	919.8
13.5°	831.1	843.7	849.6	861.1	879.2	910.7
14°	823.1	835.5	841.4	852.6	869.8	901.9
14.5°	816.4	827.9	833.8	844.6	861.1	893.0
15°	808.7	820.0	826.2	836.7	852.7	883.8
15.5°	802.0	812.8	818.8	828.9	844.7	875.2
16°	795.2	806.0	811.4	821.3	836.7	866.9
16.5°	787.4	798.9	804.4	814.0	828.8	859.3
17°	779.1	792.3	797.3	806.6	821.8	851.5
17.5°	768.3	784.9	790.2	799.2	814.2	843.8
18°	757.6	776.2	781.8	791.9	806.9	836.3
18.5°	746.9	766.5	772.7	783.4	799.1	829.0
19°	736.2	756.0	763.2	774.7	791.1	821.9
19.5°	725.4	744.5	752.5	764.4	782.2	814.4
20°	712.3	732.2	740.9	753.6	772.8	806.7
20.5°	698.2	719.6	729.0	741.9	762.5	798.4
21°	684.4	707.0	715.9	729.2	751.4	789.3



TEST NUMBER: P775646

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	641.6	669.1	674.3	687.0	713.6	759.4
23°	626.6	655.6	659.5	672.4	700.2	748.5
23.5°	612.8	641.6	644.8	658.5	686.3	737.1
24°	597.1	626.5	630.4	644.3	672.7	725.5
24.5°	582.8	611.6	615.2	630.0	658.8	713.8
25°	567.7	595.2	600.5	616.3	645.6	701.3
25.5°	552.9	579.8	585.8	602.1	632.0	688.1
26°	537.9	564.2	570.7	588.0	618.7	674.3
26.5°	523.3	548.6	556.3	573.2	604.9	659.8
27°	508.1	532.1	540.7	558.3	590.4	645.1
27.5°	493.4	516.3	525.5	543.2	575.8	630.1
28°	478.2	500.3	510.2	526.8	560.7	614.5
28.5°	463.1	484.0	495.3	512.1	545.2	598.9
29°	447.2	468.4	479.7	496.5	529.6	582.8
29.5°	431.4	452.7	464.8	481.4	513.1	567.5
30°	416.3	437.6	449.6	466.7	497.4	551.5
30.5°	400.6	422.7	433.8	451.6	481.1	535.0
31°	386.0	408.3	418.4	436.8	465.0	518.8
31.5°	371.4	394.0	402.9	422.0	448.9	502.3
32°	357.3	380.0	388.0	407.2	433.5	485.8
32.5°	343.7	365.4	373.2	392.4	418.3	469.3
33°	329.7	351.9	359.5	377.2	402.9	452.8
33.5°	316.5	338.5	345.6	361.0	387.6	436.8
34°	303.1	325.0	331.7	347.0	372.3	420.1
34.5°	290.3	311.5	317.9	333.1	357.2	404.0
35°	277.8	298.5	304.1	319.1	342.1	387.8
35.5°	265.3	286.4	290.9	305.1	327.0	371.9
36°	253.4	274.4	278.3	291.3	311.9	357.4
36.5°	242.1	263.3	265.7	277.8	296.9	342.9
37°	230.9	251.6	253.8	264.2	282.7	328.3
37.5°	220.4	240.4	242.0	250.8	269.1	313.8
38°	210.0	229.5	230.7	237.9	255.8	299.2
38.5°	199.9	218.9	219.8	225.2	243.6	285.4
39°	190.6	209.2	209.2	212.8	231.7	272.5
39.5°	180.9	199.0	199.3	201.4	219.9	259.9
40°	172.1	189.8	189.3	190.3	208.5	247.8
40.5°	163.3	180.5	179.9	180.4	197.5	235.5
41°	155.1	171.8	170.8	170.9	187.3	224.0
41.5°	147.4	163.0	162.0	162.4	177.5	213.0
42°	139.9	155.0	153.8	154.3	168.5	202.3
42.5°	132.8	147.0	146.0	146.9	159.6	192.1
43°	125.6	139.3	138.4	139.8	151.5	182.5
43.5°	119.0	132.0	131.3	133.1	143.7	172.8



TEST NUMBER: P775646

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	100.4	111.5	111.4	114.0	122.9	146.9
45.5°	94.9	105.1	105.2	108.2	116.5	138.9
46°	89.8	98.9	99.3	102.3	110.3	131.1
46.5°	84.7	93.2	93.6	96.7	104.3	123.7
47°	79.6	87.9	88.4	91.4	98.4	116.7
47.5°	74.4	82.9	83.3	86.3	92.7	110.0
48°	69.5	77.8	78.4	81.4	87.4	103.4
48.5°	63.4	73.0	73.8	76.6	82.4	97.0
49°	57.1	67.7	68.7	71.8	77.4	91.1
49.5°	50.7	62.0	63.1	66.7	72.4	85.9
50°	44.6	55.8	57.1	61.0	67.2	80.4
50.5°	39.0	49.4	51.0	54.9	61.2	75.2
51°	33.7	43.1	44.8	48.9	55.0	69.7
51.5°	29.4	37.6	39.1	42.8	48.9	63.6
52°	25.6	33.9	35.3	37.3	42.7	57.0
52.5°	22.5	30.2	31.4	33.7	37.2	50.7
53°	19.8	26.6	27.5	30.0	33.7	44.4
53.5°	17.5	23.0	23.8	26.4	30.0	38.7
54°	15.6	19.3	19.9	22.7	26.3	34.9
54.5°	14.0	16.9	17.5	19.1	22.6	31.1
55°	12.4	15.1	15.6	16.9	19.1	27.3
55.5°	11.2	13.5	13.9	15.0	16.8	23.6
56°	10.1	12.0	12.4	13.4	15.0	19.9
56.5°	9.3	10.8	11.1	11.9	13.4	17.5
57°	8.5	9.8	10.0	10.7	11.9	15.5
57.5°	7.7	8.8	9.0	9.6	10.7	13.9
58°	6.8	8.0	8.2	8.7	9.6	12.3
58.5°	6.1	7.1	7.3	7.9	8.7	11.1
59°	5.5	6.5	6.6	7.1	7.9	10.0
59.5°	5.0	5.9	6.0	6.4	7.0	9.0
60°	4.6	5.4	5.5	5.8	6.4	8.1
60.5°	4.2	4.9	5.0	5.3	5.8	7.3
61°	3.8	4.4	4.5	4.8	5.3	6.6
61.5°	3.5	4.1	4.2	4.4	4.8	6.0
62°	3.2	3.8	3.9	4.0	4.4	5.4
62.5°	2.9	3.5	3.6	3.7	4.0	5.0
63°	2.7	3.2	3.3	3.4	3.7	4.5
63.5°	2.4	2.9	3.0	3.1	3.4	4.1
64°	2.2	2.6	2.7	2.8	3.1	3.8
64.5°	2.0	2.3	2.4	2.6	2.8	3.5
65°	1.8	2.1	2.2	2.3	2.6	3.3
65.5°	1.7	2.0	2.0	2.1	2.3	3.0
66°	1.5	1.8	1.8	1.9	2.1	2.7



TEST NUMBER: P775646

CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	1.2	1.4	1.4	1.5	1.6	2.0
68°	1.1	1.3	1.3	1.4	1.5	1.8
68.5°	1.0	1.2	1.2	1.3	1.4	1.6
69°	0.9	1.1	1.1	1.1	1.2	1.5
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: P775646  
CATALOG NUMBER: HCDJBL510CSD-HCD42TRH-1000lm-3000K

**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°	779.8	815.9	835.6	845.2	830.0	824.8	813.3	789.2	749.8	704.2	678.9
22°	769.9	807.9	828.0	837.6	820.9	816.4	804.9	780.2	739.4	689.8	665.0



44°	163.7	193.6	211.0	217.9	196.7	189.2	181.2	168.3	145.7	125.0	116.5
44.5°	155.2	183.1	199.0	205.5	185.2	178.1	170.5	159.2	137.8	118.4	110.5



66.5°	2.3	3.0	3.3	3.3	2.7	2.7	2.4	2.3	2.0	1.7	1.5
67°	2.1	2.7	3.0	3.0	2.4	2.3	2.2	2.1	1.8	1.5	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°	670.3	694.5	702.4	715.4	739.5	779.8
22°	656.4	681.7	688.5	701.0	726.7	769.9



44°	112.7	124.9	124.3	126.4	136.4	163.7
44.5°	106.5	118.0	117.7	120.3	129.7	155.2



66.5°	1.4	1.6	1.7	1.8	1.9	2.3
67°	1.3	1.5	1.5	1.6	1.8	2.1

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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)