

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: P775659

Luminaire Tested: HCDJBL510CSD-HCD42TRMB-1000lm-5000K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P775659  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B051)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBL510CSD-HCD42TRMB-1000lm-5000K  
Description: 4 INCH ROUND NARROW MATTE BLACK TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 502.8 lumens  
Efficiency: N/A  
Efficacy: 50.3 lumens/watt  
Spacing Criteria (0/90/45): 0.95 / 0.94 / 0.88  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

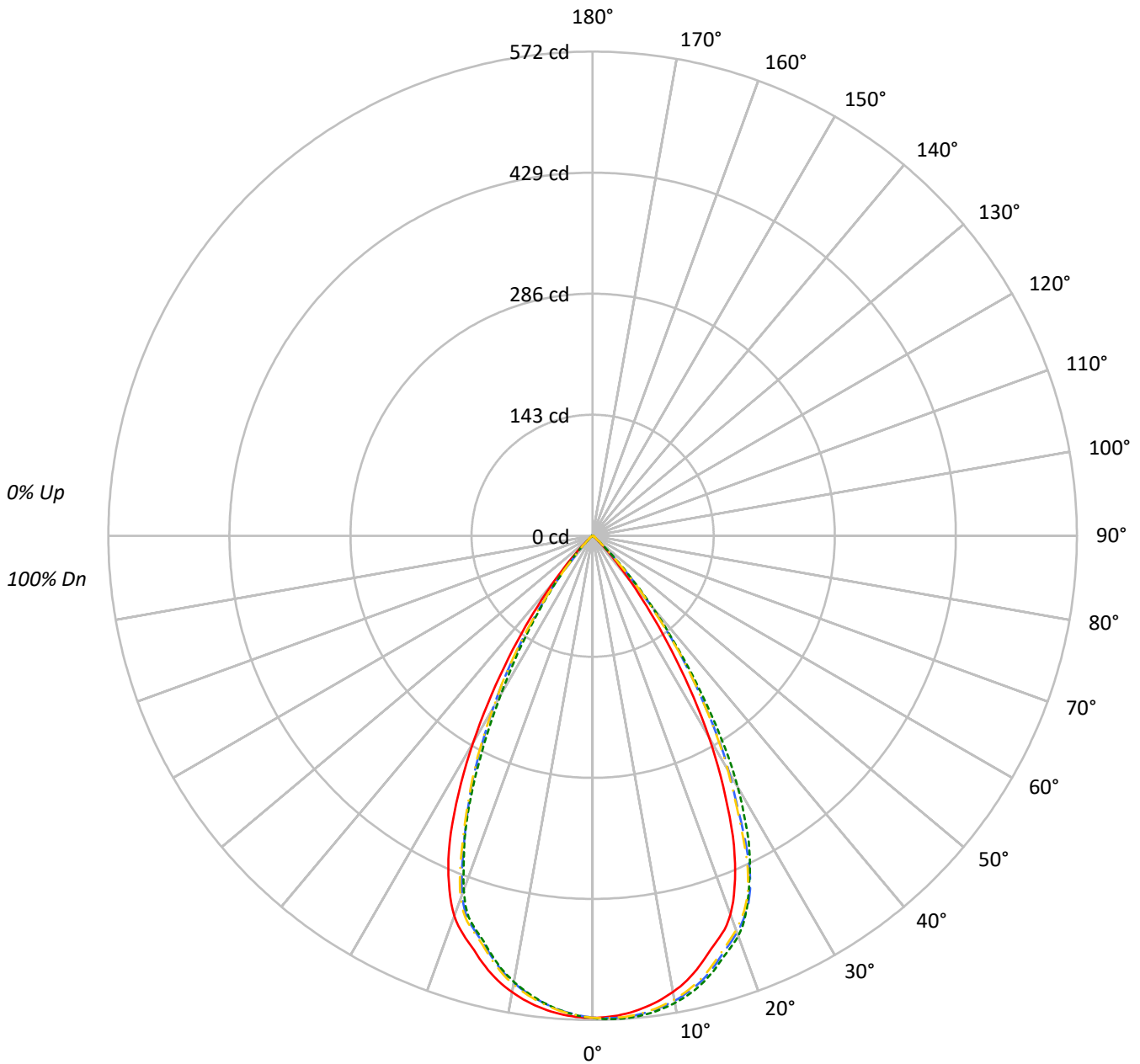
Input Watts (W): 10  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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CATALOG NUMBER: HCDJBL510CSD-HCD42TRMB-1000lm-5000K

### 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	114	111	109	106	111	109	107	105	105	103	101	101	100	98	98	97	96	94				94				
2	108	103	100	96	106	102	98	95	99	96	93	96	93	91	93	91	89	88				88				
3	103	97	92	88	101	95	91	87	93	89	86	90	87	85	88	85	83	82				82				
4	98	91	85	81	96	89	84	81	87	83	80	85	82	79	83	80	78	76				76				
5	93	85	79	75	91	84	79	75	82	78	74	81	77	73	79	76	73	71				71				
6	89	80	74	70	87	79	74	70	78	73	69	76	72	69	75	71	68	67				67				
7	84	75	69	65	83	74	69	65	73	68	65	72	68	64	71	67	64	63				63				
8	80	71	65	61	79	70	65	61	69	64	61	68	64	60	67	63	60	59				59				
9	76	67	61	57	75	67	61	57	66	61	57	65	60	57	64	60	57	55				55				
10	73	63	58	54	72	63	58	54	62	57	54	61	57	54	61	56	53	52				52				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	71659	71659	71659	71659
5°	71250	72084	71276	70530
10°	69915	71601	69953	68381
15°	67164	69952	67347	64702
20°	63749	67365	63990	59557
25°	54391	60973	55475	47198
30°	39890	49859	40965	31563
35°	23567	33339	25227	17991
40°	10810	17776	12059	8165
45°	3328	6051	3809	2385
50°	1057	1214	1077	920
55°	658	746	658	570
60°	403	453	428	378
65°	298	298	298	268
70°	184	184	184	147
75°	97	146	97	97
80°	72	72	72	72
85°	0	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 6318 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	53.3	10.6
10°-20°	145.0	28.8
20°-30°	175.9	35.0
30°-40°	103.7	20.6
40°-50°	20.9	4.1
50°-60°	2.8	0.6
60°-70°	1.0	0.2
70°-80°	0.3	0.1
80°-90°	0.0	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°	374.2	74.4
0°-40°	477.8	95.0
0°-60°	501.5	99.8
0°-90°	502.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	502.8	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	569	569	569	569	569	
5°	564	571	564	558	564	53
15°	516	537	517	497	516	145
25°	392	439	400	340	392	176
35°	153	217	164	117	153	97
45°	19	34	21	13	19	18
55°	3	3	3	3	3	3
65°	1	1	1	1	1	1
75°	0	0	0	0	0	0
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°	569.4	569.4	569.4	569.4	569.4	569.4	569.4	569.4	569.4	569.4	569.4
0.5°	569.5	569.8	569.5	569.3	570.5	570.0	569.7	569.6	569.5	569.4	568.5
1°	569.3	569.8	569.8	569.7	570.9	570.5	570.0	569.7	569.4	569.0	567.8
1.5°	569.1	569.8	570.1	570.1	571.2	570.8	570.1	569.6	569.1	568.4	567.0
2°	568.6	569.6	570.2	570.3	571.4	571.0	570.2	569.5	568.7	567.9	566.1
2.5°	568.1	569.4	570.2	570.5	571.6	571.1	570.1	569.3	568.2	567.2	565.0
3°	567.5	569.0	570.1	570.6	571.6	571.1	570.0	568.9	567.7	566.3	564.0
3.5°	566.8	568.5	570.0	570.5	571.5	570.9	569.7	568.4	566.9	565.3	562.8
4°	566.0	567.9	569.7	570.2	571.3	570.7	569.4	567.8	566.1	564.3	561.4
4.5°	565.0	567.3	569.4	570.0	571.0	570.3	568.9	567.2	565.2	563.2	559.9
5°	564.0	566.4	568.9	569.6	570.6	569.8	568.3	566.4	564.2	561.9	558.3
5.5°	562.8	565.6	568.2	569.2	570.0	569.3	567.6	565.6	563.0	560.5	556.7
6°	561.5	564.5	567.5	568.5	569.4	568.5	566.7	564.5	561.7	559.1	554.9
6.5°	560.1	563.4	566.6	567.8	568.7	567.8	565.8	563.3	560.3	557.4	553.0
7°	558.7	562.1	565.7	566.9	567.8	566.8	564.8	562.0	559.0	555.6	550.9
7.5°	557.0	560.8	564.6	566.1	566.8	565.8	563.7	560.8	557.4	553.7	548.7
8°	555.3	559.3	563.5	565.0	565.8	564.7	562.4	559.3	555.5	551.8	546.5
8.5°	553.4	557.7	562.1	563.8	564.6	563.4	561.0	557.7	553.7	549.8	544.0
9°	551.5	556.0	560.8	562.6	563.3	562.1	559.5	556.0	551.8	547.6	541.6
9.5°	549.4	554.1	559.3	561.2	561.9	560.7	557.9	554.2	549.7	545.3	538.8
10°	547.1	552.1	557.7	559.7	560.3	559.2	556.2	552.2	547.4	542.8	536.1
10.5°	544.7	550.0	556.0	558.1	558.7	557.4	554.4	550.1	545.1	540.2	533.2
11°	542.3	547.9	554.1	556.3	556.9	555.5	552.3	547.9	542.8	537.4	530.1
11.5°	539.7	545.5	552.0	554.5	555.0	553.5	550.2	545.5	540.1	534.6	526.7
12°	536.8	543.0	549.9	552.6	553.0	551.5	548.0	543.1	537.3	531.5	523.2
12.5°	533.7	540.2	547.7	550.3	550.9	549.2	545.5	540.4	534.3	528.2	519.4
13°	530.4	537.4	545.1	548.1	548.4	546.8	543.0	537.6	531.3	524.8	515.5
13.5°	526.9	534.2	542.7	545.6	545.8	544.1	540.2	534.6	527.9	521.1	511.4
14°	523.3	531.0	539.9	543.0	543.2	541.4	537.2	531.4	524.3	517.2	507.1
14.5°	519.4	527.5	536.9	540.1	540.1	538.2	534.1	528.0	520.7	513.2	502.9
15°	515.5	523.8	533.7	537.0	536.9	535.1	530.7	524.4	516.9	509.1	498.8
15.5°	511.6	520.0	530.3	533.7	533.7	531.7	527.2	520.7	512.9	505.1	495.0
16°	507.8	516.2	526.7	530.3	530.2	528.2	523.6	516.9	509.0	501.1	491.4
16.5°	504.4	512.5	523.0	526.7	526.5	524.5	519.9	513.2	505.4	497.5	487.8
17°	500.9	509.1	519.2	523.2	523.0	520.9	516.1	509.5	501.9	494.1	484.2
17.5°	497.6	505.7	515.7	519.5	519.5	517.5	512.6	506.1	498.5	490.6	480.6
18°	494.2	502.4	512.2	516.2	516.5	514.2	509.4	502.7	494.9	487.0	476.3
18.5°	490.6	498.9	508.9	513.0	513.2	511.0	505.9	499.1	491.3	483.1	471.4
19°	486.3	495.5	505.5	509.7	510.0	507.7	502.5	495.8	487.4	478.6	465.4
19.5°	481.4	491.6	502.2	506.3	506.8	504.4	499.1	492.0	482.9	473.3	458.6
20°	476.0	487.3	498.7	503.1	503.0	500.8	495.5	487.9	477.8	467.2	450.6
20.5°	469.7	482.4	495.0	499.4	498.8	496.7	491.5	483.4	471.9	460.5	441.7
21°	462.9	477.2	491.0	495.3	493.9	492.1	487.3	478.4	465.8	453.0	431.4



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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°	439.3	457.4	476.7	479.7	476.1	475.3	472.0	460.4	443.5	425.8	398.0
23°	430.8	449.7	470.9	473.5	469.1	468.5	466.1	453.3	435.7	415.6	387.0
23.5°	422.1	441.5	464.4	466.6	461.5	461.2	459.0	445.3	427.3	404.9	376.2
24°	412.4	432.7	457.1	458.9	454.0	453.7	451.4	436.9	418.6	394.2	366.0
24.5°	402.3	423.5	448.9	451.1	446.7	445.5	442.5	428.2	409.3	383.4	355.6
25°	391.7	413.9	439.2	442.5	439.1	437.4	433.2	418.8	399.5	373.2	345.3
25.5°	380.6	403.7	428.9	434.2	431.6	429.3	422.4	408.8	388.9	363.1	334.9
26°	369.2	392.6	417.1	425.3	423.6	421.0	410.7	398.1	377.9	353.2	324.2
26.5°	357.3	380.7	404.5	416.1	415.1	411.8	398.2	386.8	366.4	343.0	313.2
27°	345.5	368.3	391.4	406.2	406.0	402.2	386.2	374.9	355.0	332.6	301.9
27.5°	333.8	355.3	378.5	396.2	395.9	392.1	373.9	362.4	343.0	322.2	290.1
28°	322.2	342.0	366.0	385.0	385.6	381.6	362.2	349.1	330.8	311.4	278.5
28.5°	310.5	328.8	354.2	373.6	374.8	370.1	350.7	336.4	319.2	300.4	267.1
29°	298.4	315.8	343.1	361.5	364.5	358.3	340.4	323.8	306.6	288.7	256.3
29.5°	286.5	302.6	332.5	349.1	353.8	346.0	329.6	311.5	294.2	276.4	245.5
30°	274.5	290.3	321.9	336.5	343.1	333.9	319.1	299.7	281.9	264.4	234.8
30.5°	262.4	277.7	311.2	324.4	331.6	321.7	308.4	287.8	270.0	252.1	224.5
31°	249.9	265.5	299.8	312.5	319.9	309.9	297.5	276.1	257.6	240.2	214.1
31.5°	237.5	253.2	288.2	300.7	307.3	298.2	285.7	264.4	245.5	228.4	203.6
32°	225.0	241.2	276.1	289.3	294.5	286.8	273.7	252.5	233.5	217.1	193.1
32.5°	212.6	229.6	263.7	278.3	281.4	275.1	261.7	240.5	221.9	206.0	181.9
33°	200.1	218.1	251.1	267.0	268.3	263.8	249.7	228.1	209.8	195.1	170.9
33.5°	187.8	206.6	239.0	255.6	255.4	252.0	237.7	216.3	198.1	184.2	160.2
34°	175.7	195.8	227.5	244.0	242.5	240.5	226.4	204.9	186.6	173.0	149.7
34.5°	164.2	184.8	216.5	232.4	229.7	228.5	215.9	193.7	175.4	161.8	139.3
35°	153.4	174.0	205.5	220.4	217.0	216.7	204.9	183.0	164.2	150.6	129.4
35.5°	142.9	163.8	195.0	208.4	204.6	205.3	194.5	172.5	153.6	139.7	119.8
36°	132.8	154.2	184.6	196.6	192.6	193.8	183.7	162.7	143.3	129.0	110.6
36.5°	122.9	144.6	174.1	185.4	180.6	182.2	172.9	153.1	133.3	118.8	101.4
37°	113.5	134.9	163.4	174.4	169.2	170.8	161.8	143.6	123.2	108.9	92.2
37.5°	104.7	125.7	152.8	163.7	158.4	159.7	150.8	134.1	114.2	100.2	83.1
38°	96.1	116.3	142.1	153.2	147.8	148.8	140.1	124.9	105.3	91.7	74.0
38.5°	87.8	107.1	131.7	142.4	137.6	137.9	129.6	115.8	97.3	83.1	65.6
39°	80.1	98.2	122.1	132.3	127.6	127.6	119.4	106.7	89.4	74.6	57.8
39.5°	72.7	89.6	112.7	122.2	117.8	117.4	109.9	98.2	81.4	67.5	50.7
40°	65.8	81.4	104.1	112.2	108.2	107.7	101.5	89.8	73.4	60.3	44.4
40.5°	59.3	73.5	95.4	102.4	99.6	98.5	93.1	81.4	66.2	53.7	38.9
41°	53.1	66.0	87.3	92.7	91.0	89.5	84.7	73.0	59.8	47.5	34.1
41.5°	47.6	59.2	79.3	83.6	82.3	80.4	76.3	65.5	53.5	41.8	29.9
42°	42.4	52.8	71.5	75.0	73.7	71.3	67.8	58.6	47.7	36.5	26.5
42.5°	37.6	46.9	63.8	67.0	66.4	63.4	60.2	51.9	42.4	32.1	23.5
43°	33.8	41.2	56.1	59.4	59.0	55.9	52.7	45.7	37.5	28.0	20.7
43.5°	30.0	36.5	49.0	52.4	52.4	49.1	45.8	40.2	32.9	24.5	18.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	18.7	24.1	31.8	35.5	34.0	32.0	28.9	25.8	21.4	16.2	12.1
45.5°	16.1	20.0	27.5	31.1	28.8	27.4	24.4	22.0	18.3	14.0	10.9
46°	13.6	16.9	23.2	26.7	24.3	23.2	20.7	18.5	15.4	11.9	9.7
46.5°	11.4	14.2	18.9	22.4	20.2	19.6	17.4	15.7	13.0	10.8	8.4
47°	9.6	11.7	15.9	18.1	16.7	16.3	14.5	13.0	11.6	9.5	7.2
47.5°	8.0	9.7	13.1	15.0	13.7	13.5	13.1	11.6	10.2	8.3	6.0
48°	6.9	8.0	10.9	12.4	12.2	12.0	11.7	10.2	8.8	7.1	5.5
48.5°	6.3	6.9	8.9	10.0	10.7	10.7	10.3	8.9	7.5	6.0	5.3
49°	6.0	6.3	7.6	8.2	9.2	9.2	8.9	7.6	6.1	5.6	5.1
49.5°	5.6	6.0	6.7	7.0	7.7	7.7	7.5	6.3	5.8	5.3	4.9
50°	5.4	5.6	6.2	6.4	6.2	6.3	6.1	5.9	5.5	5.1	4.6
50.5°	5.1	5.4	5.9	6.0	5.9	6.0	5.9	5.6	5.2	4.9	4.4
51°	4.9	5.1	5.6	5.8	5.6	5.6	5.5	5.3	5.0	4.6	4.0
51.5°	4.6	4.9	5.3	5.4	5.3	5.3	5.2	5.0	4.7	4.4	3.8
52°	4.4	4.6	5.1	5.2	5.1	5.1	5.0	4.7	4.4	4.0	3.6
52.5°	4.0	4.3	4.8	4.9	4.8	4.8	4.7	4.5	4.2	3.8	3.4
53°	3.8	4.0	4.5	4.6	4.5	4.5	4.4	4.2	3.8	3.6	3.2
53.5°	3.6	3.7	4.2	4.3	4.2	4.2	4.0	3.9	3.6	3.4	3.0
54°	3.4	3.5	3.9	4.0	3.9	3.9	3.8	3.6	3.4	3.2	2.9
54.5°	3.2	3.3	3.7	3.8	3.6	3.6	3.6	3.4	3.2	3.0	2.7
55°	3.0	3.2	3.4	3.5	3.4	3.4	3.4	3.2	3.0	2.9	2.6
55.5°	2.8	3.0	3.2	3.3	3.2	3.2	3.2	3.0	2.9	2.7	2.3
56°	2.7	2.8	3.0	3.1	3.0	3.0	3.0	2.9	2.7	2.6	2.2
56.5°	2.4	2.6	2.9	2.9	2.9	2.9	2.8	2.7	2.6	2.3	2.1
57°	2.3	2.4	2.7	2.8	2.7	2.7	2.7	2.6	2.3	2.2	2.0
57.5°	2.1	2.2	2.4	2.6	2.4	2.4	2.4	2.3	2.2	2.1	1.9
58°	2.0	2.1	2.3	2.4	2.3	2.3	2.3	2.2	2.1	2.0	1.8
58.5°	1.9	2.0	2.2	2.2	2.2	2.2	2.1	2.1	2.0	1.9	1.7
59°	1.8	1.9	2.0	2.1	2.0	2.0	2.0	2.0	1.9	1.8	1.6
59.5°	1.7	1.8	1.9	2.0	1.9	1.9	1.9	1.8	1.8	1.7	1.5
60°	1.6	1.7	1.8	1.9	1.8	1.8	1.8	1.7	1.7	1.6	1.4
60.5°	1.5	1.6	1.7	1.8	1.7	1.7	1.7	1.6	1.6	1.5	1.4
61°	1.5	1.5	1.6	1.7	1.6	1.6	1.6	1.6	1.5	1.4	1.3
61.5°	1.4	1.4	1.5	1.6	1.5	1.5	1.5	1.5	1.4	1.3	1.2
62°	1.3	1.3	1.5	1.5	1.5	1.5	1.4	1.4	1.3	1.3	1.2
62.5°	1.2	1.3	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.2	1.1
63°	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.1
63.5°	1.1	1.1	1.2	1.3	1.2	1.2	1.2	1.2	1.1	1.1	1.0
64°	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.0	1.0
64.5°	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	0.9
65°	1.0	1.0	1.1	1.1	1.0	1.0	1.0	1.0	1.0	0.9	0.9
65.5°	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.7
66°	0.9	0.9	0.9	1.0	0.9	0.9	0.9	0.9	0.9	0.7	0.7





TEST NUMBER: P775659

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMB-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6
68°	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.5
68.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5
69°	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5
69.5°	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5
70°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4
70.5°	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4
71°	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4
71.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
72°	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3
72.5°	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3
73°	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
73.5°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
74°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
74.5°	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
75°	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
75.5°	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2
76°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76.5°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
77°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
77.5°	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1
78°	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1
78.5°	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
79°	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
79.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
80°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
80.5°	0.1	0.1	0.1	0.1	0.1	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	0.1	0.1	0.1	0.1	0.1
81.5°	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
82°	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
82.5°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
83°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	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	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: P775659

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMB-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: P775659

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMB-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	569.4	569.4	569.4	569.4	569.4	569.4
0.5°	568.0	569.2	568.9	568.9	569.1	569.5
1°	567.2	568.4	568.2	568.2	568.7	569.3
1.5°	566.3	567.6	567.4	567.6	568.2	569.1
2°	565.2	566.5	566.4	566.7	567.6	568.6
2.5°	564.1	565.4	565.3	565.8	566.8	568.1
3°	562.9	564.3	564.2	564.8	566.0	567.5
3.5°	561.5	562.9	562.9	563.6	565.1	566.8
4°	560.0	561.5	561.5	562.4	564.0	566.0
4.5°	558.5	559.9	560.0	561.0	562.8	565.0
5°	556.7	558.3	558.4	559.6	561.5	564.0
5.5°	555.0	556.5	556.6	558.0	560.2	562.8
6°	553.0	554.6	554.8	556.3	558.6	561.5
6.5°	551.1	552.6	552.9	554.4	557.0	560.1
7°	548.8	550.4	550.7	552.6	555.3	558.7
7.5°	546.5	548.2	548.6	550.4	553.4	557.0
8°	544.1	545.7	546.3	548.2	551.5	555.3
8.5°	541.6	543.3	543.8	545.8	549.4	553.4
9°	538.9	540.6	541.3	543.5	547.1	551.5
9.5°	536.3	538.0	538.6	540.8	544.8	549.4
10°	533.3	535.1	535.7	538.3	542.3	547.1
10.5°	530.3	532.0	532.7	535.4	539.7	544.7
11°	526.9	528.8	529.7	532.3	536.8	542.3
11.5°	523.5	525.3	526.1	529.0	533.8	539.7
12°	519.9	521.8	522.5	525.6	530.6	536.8
12.5°	515.9	517.8	518.6	521.7	527.1	533.7
13°	511.9	513.7	514.4	517.8	523.6	530.4
13.5°	507.6	509.5	510.4	513.8	519.6	526.9
14°	503.1	505.2	506.0	509.5	515.7	523.3
14.5°	498.9	500.8	501.6	505.4	511.6	519.4
15°	494.9	496.6	497.5	501.0	507.5	515.5
15.5°	491.2	492.8	493.8	497.2	503.5	511.6
16°	487.5	489.2	490.1	493.6	499.8	507.8
16.5°	483.8	485.6	486.4	490.0	496.4	504.4
17°	480.1	481.9	482.8	486.5	493.0	500.9
17.5°	476.2	478.1	479.1	483.0	489.5	497.6
18°	471.1	473.7	474.8	479.2	486.0	494.2
18.5°	465.3	467.9	469.3	474.7	481.9	490.6
19°	458.7	461.4	463.3	469.3	477.2	486.3
19.5°	451.2	453.6	456.1	463.0	471.6	481.4
20°	442.6	444.7	448.0	455.4	465.2	476.0
20.5°	433.4	435.2	438.9	447.1	457.8	469.7
21°	423.6	425.3	429.2	437.6	449.5	462.9



TEST NUMBER: P775659

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMB-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	390.3	395.8	397.1	404.6	419.7	439.3
23°	378.7	386.0	386.0	393.0	408.6	430.8
23.5°	367.0	375.3	374.7	381.5	397.9	422.1
24°	355.8	364.1	362.9	370.1	387.3	412.4
24.5°	344.2	352.3	351.0	359.5	377.0	402.3
25°	332.9	339.9	339.4	348.4	367.1	391.7
25.5°	322.0	327.7	327.7	337.7	357.2	380.6
26°	311.1	315.0	315.7	327.0	347.1	369.2
26.5°	299.8	302.9	303.9	316.4	336.8	357.3
27°	288.6	290.1	292.4	305.1	325.9	345.5
27.5°	277.2	277.7	280.9	293.7	314.6	333.8
28°	266.2	265.4	269.3	281.9	302.5	322.2
28.5°	254.9	253.0	258.3	270.1	290.3	310.5
29°	243.6	240.4	246.8	258.4	277.5	298.4
29.5°	232.3	228.7	235.6	247.3	265.6	286.5
30°	221.1	217.2	224.1	236.0	253.3	274.5
30.5°	209.7	205.8	212.7	225.0	241.8	262.4
31°	198.6	194.9	200.7	214.2	230.3	249.9
31.5°	187.5	184.7	189.2	204.0	219.1	237.5
32°	176.7	174.5	178.2	193.6	208.0	225.0
32.5°	165.9	164.6	167.6	183.3	197.5	212.6
33°	155.8	154.5	157.5	172.5	186.5	200.1
33.5°	145.7	144.4	147.8	162.0	175.3	187.8
34°	136.0	134.9	138.2	151.6	163.9	175.7
34.5°	126.7	125.8	129.1	141.0	152.9	164.2
35°	117.6	117.1	119.9	130.9	141.8	153.4
35.5°	108.6	108.7	111.5	121.1	130.9	142.9
36°	100.9	101.2	103.0	111.6	120.5	132.8
36.5°	93.2	93.6	94.8	102.5	110.6	122.9
37°	85.4	86.6	87.0	93.5	101.2	113.5
37.5°	77.8	79.7	79.7	84.8	92.2	104.7
38°	70.0	72.9	72.9	76.3	83.7	96.1
38.5°	63.7	66.6	66.2	68.2	75.5	87.8
39°	57.4	60.6	60.2	60.6	67.8	80.1
39.5°	51.5	55.0	54.4	53.5	60.6	72.7
40°	45.9	49.7	49.0	46.8	53.5	65.8
40.5°	41.0	44.6	43.8	41.0	47.2	59.3
41°	36.1	40.0	38.9	36.3	41.3	53.1
41.5°	31.8	36.2	35.1	32.7	36.2	47.6
42°	27.9	32.5	31.4	29.1	32.6	42.4
42.5°	24.5	28.8	27.8	25.6	29.0	37.6
43°	21.4	25.0	24.1	21.9	25.3	33.8
43.5°	18.6	21.3	20.3	19.4	21.7	30.0



TEST NUMBER: P775659

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMB-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	12.4	13.4	13.0	13.0	14.5	18.7
45.5°	10.9	11.3	11.0	11.3	12.7	16.1
46°	9.3	9.4	9.4	9.7	10.9	13.6
46.5°	7.8	7.8	7.9	8.3	9.3	11.4
47°	6.3	6.7	6.7	7.1	7.9	9.6
47.5°	5.8	6.1	6.1	6.4	6.9	8.0
48°	5.4	5.6	5.8	6.0	6.3	6.9
48.5°	5.2	5.4	5.4	5.6	5.9	6.3
49°	5.0	5.2	5.2	5.4	5.6	6.0
49.5°	4.7	4.9	5.0	5.1	5.4	5.6
50°	4.5	4.7	4.7	4.9	5.1	5.4
50.5°	4.2	4.4	4.5	4.6	4.9	5.1
51°	3.9	4.2	4.2	4.4	4.6	4.9
51.5°	3.7	3.9	3.9	4.0	4.4	4.6
52°	3.5	3.6	3.7	3.8	4.0	4.4
52.5°	3.3	3.4	3.5	3.6	3.8	4.0
53°	3.1	3.2	3.3	3.4	3.6	3.8
53.5°	3.0	3.1	3.1	3.2	3.4	3.6
54°	2.8	2.9	2.9	3.1	3.2	3.4
54.5°	2.7	2.7	2.8	2.9	3.0	3.2
55°	2.4	2.6	2.6	2.7	2.9	3.0
55.5°	2.3	2.4	2.4	2.6	2.7	2.8
56°	2.2	2.2	2.3	2.4	2.6	2.7
56.5°	2.0	2.1	2.1	2.2	2.3	2.4
57°	1.9	2.0	2.0	2.1	2.2	2.3
57.5°	1.8	1.9	1.9	2.0	2.1	2.1
58°	1.7	1.8	1.8	1.9	2.0	2.0
58.5°	1.7	1.7	1.7	1.8	1.9	1.9
59°	1.6	1.6	1.6	1.7	1.8	1.8
59.5°	1.5	1.5	1.6	1.6	1.7	1.7
60°	1.4	1.5	1.5	1.5	1.6	1.6
60.5°	1.3	1.4	1.4	1.4	1.5	1.5
61°	1.3	1.3	1.3	1.4	1.4	1.5
61.5°	1.2	1.2	1.3	1.3	1.3	1.4
62°	1.2	1.2	1.2	1.2	1.3	1.3
62.5°	1.1	1.1	1.1	1.2	1.2	1.2
63°	1.0	1.1	1.1	1.1	1.1	1.2
63.5°	1.0	1.0	1.0	1.1	1.1	1.1
64°	0.9	1.0	1.0	1.0	1.0	1.1
64.5°	0.9	0.9	0.9	0.9	1.0	1.0
65°	0.9	0.9	0.9	0.9	0.9	1.0
65.5°	0.7	0.7	0.7	0.9	0.9	0.9
66°	0.7	0.7	0.7	0.7	0.7	0.9



TEST NUMBER: P775659

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMB-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	0.6	0.6	0.6	0.6	0.6	0.6
68°	0.5	0.6	0.6	0.6	0.6	0.6
68.5°	0.5	0.5	0.5	0.5	0.5	0.6
69°	0.5	0.5	0.5	0.5	0.5	0.5
69.5°	0.4	0.5	0.5	0.5	0.5	0.5
70°	0.4	0.4	0.4	0.4	0.5	0.5
70.5°	0.4	0.4	0.4	0.4	0.4	0.4
71°	0.4	0.4	0.4	0.4	0.4	0.4
71.5°	0.4	0.4	0.4	0.4	0.4	0.4
72°	0.3	0.3	0.3	0.3	0.3	0.3
72.5°	0.3	0.3	0.3	0.3	0.3	0.3
73°	0.3	0.3	0.3	0.3	0.3	0.3
73.5°	0.3	0.3	0.3	0.3	0.3	0.3
74°	0.3	0.3	0.3	0.3	0.3	0.3
74.5°	0.2	0.2	0.2	0.2	0.2	0.2
75°	0.2	0.2	0.2	0.2	0.2	0.2
75.5°	0.2	0.2	0.2	0.2	0.2	0.2
76°	0.2	0.2	0.2	0.2	0.2	0.2
76.5°	0.2	0.2	0.2	0.2	0.2	0.2
77°	0.2	0.2	0.2	0.2	0.2	0.2
77.5°	0.1	0.2	0.2	0.2	0.1	0.1
78°	0.1	0.1	0.1	0.1	0.1	0.1
78.5°	0.1	0.1	0.1	0.1	0.1	0.1
79°	0.1	0.1	0.1	0.1	0.1	0.1
79.5°	0.1	0.1	0.1	0.1	0.1	0.1
80°	0.1	0.1	0.1	0.1	0.1	0.1
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	0.0	0.0
82°	0.1	0.1	0.1	0.1	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0
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: P775659

CATALOG NUMBER: HCDJBL510CSD-HCD42TRMB-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°	455.4	471.2	486.6	490.5	488.5	487.1	482.6	473.0	458.7	444.6	420.6
22°	447.4	464.6	481.7	485.5	482.6	481.4	477.7	467.1	451.3	435.5	409.3



44°	26.3	32.4	42.3	45.9	45.7	42.7	39.5	34.8	28.7	21.4	16.1
44.5°	22.5	28.2	36.2	39.8	39.6	37.1	33.9	30.0	24.8	18.6	14.1



66.5°	0.7	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.7	0.6
67°	0.7	0.7	0.9	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.6



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°	413.1	415.4	419.0	427.2	440.3	455.4
22°	402.2	405.4	408.2	416.2	430.2	447.4



44°	16.2	18.4	17.6	17.0	19.1	26.3
44.5°	13.8	15.9	15.2	15.0	16.7	22.5



66.5°	0.6	0.7	0.7	0.7	0.7	0.7
67°	0.6	0.6	0.6	0.6	0.7	0.7

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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)