

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: P775739

Luminaire Tested: HCDJBL510CSD-HCD61TRMW-1000lm-5000K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P775739  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B037)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBL510CSD-HCD61TRMW-1000lm-5000K  
Description: 6 INCH ROUND SHALLOW-WIDE MATTE WHITE TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

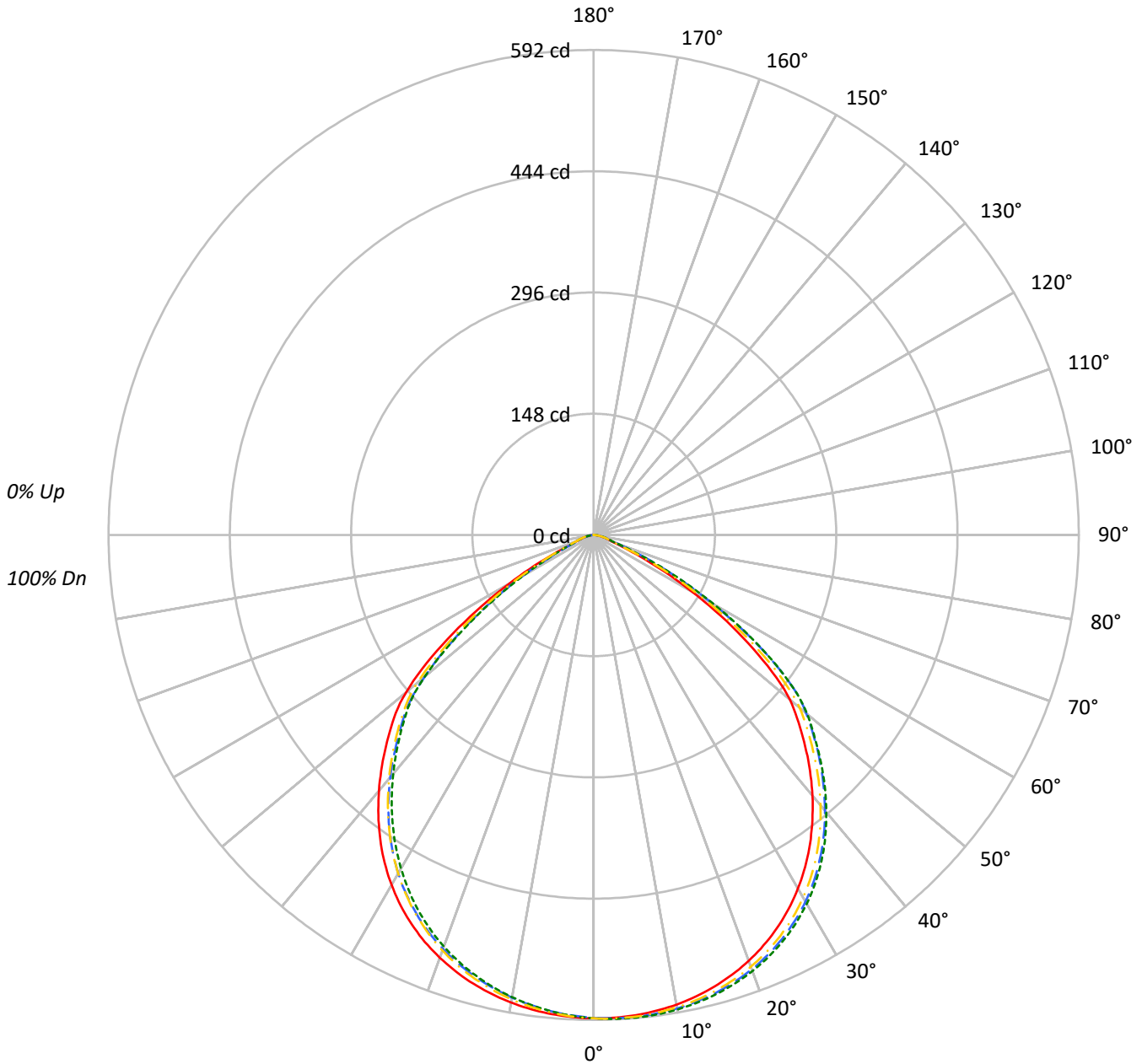
Lumens per Lamp: N/A  
Luminaire Lumens: 1301.8 lumens  
Efficiency: N/A  
Efficacy: 130.2 lumens/watt  
Spacing Criteria (0/90/45): 1.24 / 1.24 / 1.32  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

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



TEST NUMBER: P775739  
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### 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	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	111	107	104	101	109	105	102	99	101	99	96	97	95	93	94	92	91	89					89			
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77					77			
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67					67			
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59					59			
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52					52			
6	75	63	55	49	74	62	55	49	61	54	49	59	53	48	58	52	48	46					46			
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41					41			
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37					37			
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	34					34			
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	30					30			

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

	0°	90°	180°	270°
0°	32338	32338	32338	32338
5°	32385	32550	32313	32132
10°	32409	32748	32269	31891
15°	32384	32923	32191	31595
20°	32273	33049	32039	31188
25°	32022	33074	31750	30601
30°	31555	32910	31226	29770
35°	30805	32451	30390	28643
40°	29720	31609	29169	27230
45°	28313	30391	27623	25584
50°	26635	29014	25475	22925
55°	21963	25280	20004	17127
60°	15240	18595	13069	10789
65°	8250	10974	6239	5513
70°	3927	4664	3430	3414
75°	3156	3558	2626	2754
80°	2399	2936	1768	2084
85°	1447	2327	755	1195

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 31244 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	55.9	4.3
10°-20°	160.4	12.3
20°-30°	242.4	18.6
30°-40°	285.1	21.9
40°-50°	277.6	21.3
50°-60°	195.8	15.0
60°-70°	65.6	5.0
70°-80°	15.8	1.2
80°-90°	3.1	0.2
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°	458.7	35.2
0°-40°	743.7	57.1
0°-60°	1217.2	93.5
0°-90°	1301.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1301.8	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	590	590	590	590	590	
5°	588	592	587	584	588	56
15°	571	580	567	557	571	161
25°	529	547	525	506	529	244
35°	460	485	454	428	460	287
45°	365	392	356	330	365	281
55°	230	264	209	179	230	204
65°	64	85	48	42	64	68
75°	15	17	12	13	15	16
85°	2	4	1	2	2	3
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°	589.9	589.9	589.9	589.9	589.9	589.9	589.9	589.9	589.9	589.9	589.9
0.5°	590.2	590.1	589.8	589.2	590.4	590.5	590.4	590.4	590.1	589.7	589.1
1°	590.2	590.2	590.1	589.7	590.7	590.7	590.6	590.4	590.0	589.5	588.7
1.5°	590.2	590.3	590.2	590.0	591.0	591.0	590.7	590.3	589.7	589.0	588.3
2°	590.1	590.3	590.4	590.3	591.2	591.1	590.7	590.2	589.5	588.7	587.8
2.5°	589.9	590.3	590.5	590.5	591.4	591.1	590.7	590.1	589.2	588.3	587.3
3°	589.8	590.3	590.6	590.7	591.4	591.2	590.7	589.9	588.8	587.9	586.7
3.5°	589.5	590.3	590.7	591.0	591.5	591.2	590.6	589.7	588.5	587.3	586.0
4°	589.2	590.1	590.6	591.1	591.5	591.2	590.5	589.5	588.2	586.8	585.4
4.5°	588.8	589.9	590.6	591.2	591.6	591.1	590.4	589.0	587.6	586.2	584.6
5°	588.5	589.7	590.5	591.2	591.5	591.0	590.1	588.7	587.2	585.5	583.9
5.5°	588.1	589.5	590.3	591.1	591.4	590.7	589.9	588.3	586.7	584.9	583.1
6°	587.6	589.0	590.2	591.1	591.2	590.5	589.7	587.9	586.0	584.1	582.2
6.5°	587.1	588.7	589.9	591.0	591.0	590.3	589.2	587.3	585.4	583.3	581.3
7°	586.6	588.3	589.6	590.7	590.7	589.9	588.9	586.8	584.8	582.5	580.3
7.5°	585.9	587.9	589.2	590.5	590.4	589.6	588.5	586.2	584.0	581.7	579.2
8°	585.3	587.3	588.8	590.3	590.1	589.1	588.0	585.5	583.3	580.7	578.3
8.5°	584.6	586.8	588.5	590.1	589.7	588.7	587.3	584.9	582.4	579.8	577.1
9°	583.8	586.2	588.0	589.7	589.2	588.2	586.8	584.1	581.6	578.7	576.0
9.5°	583.0	585.5	587.4	589.2	588.8	587.6	586.3	583.4	580.6	577.6	574.8
10°	582.2	584.8	586.9	588.8	588.3	587.0	585.5	582.4	579.7	576.6	573.6
10.5°	581.3	584.0	586.3	588.4	587.6	586.3	584.8	581.6	578.6	575.4	572.2
11°	580.3	583.2	585.5	587.8	587.0	585.6	584.0	580.6	577.5	574.2	570.9
11.5°	579.2	582.3	584.9	587.2	586.3	584.8	583.2	579.7	576.5	572.9	569.5
12°	578.2	581.4	584.0	586.6	585.5	584.0	582.3	578.6	575.3	571.7	568.1
12.5°	577.0	580.4	583.2	585.8	584.8	583.2	581.4	577.5	574.0	570.3	566.6
13°	575.8	579.3	582.3	585.1	583.9	582.3	580.4	576.3	572.7	568.9	565.1
13.5°	574.5	578.4	581.4	584.3	583.1	581.3	579.3	575.2	571.4	567.4	563.5
14°	573.3	577.2	580.4	583.5	582.1	580.3	578.3	573.9	570.1	565.9	561.9
14.5°	572.0	576.0	579.3	582.6	581.0	579.2	577.1	572.6	568.6	564.3	560.0
15°	570.6	574.8	578.3	581.6	580.1	578.2	575.9	571.2	567.2	562.8	558.3
15.5°	569.1	573.5	577.1	580.6	579.0	576.9	574.6	569.8	565.6	561.1	556.5
16°	567.6	572.1	575.9	579.5	577.8	575.7	573.3	568.4	564.1	559.4	554.7
16.5°	566.0	570.7	574.5	578.6	576.6	574.4	572.0	566.9	562.4	557.6	552.8
17°	564.3	569.2	573.4	577.3	575.4	573.0	570.6	565.3	560.7	555.8	550.8
17.5°	562.6	567.7	572.0	576.1	574.0	571.7	569.1	563.6	558.9	553.9	548.7
18°	560.9	566.1	570.6	574.9	572.6	570.3	567.5	561.9	557.1	551.9	546.7
18.5°	559.1	564.5	569.1	573.5	571.1	568.7	565.9	560.1	555.2	549.9	544.5
19°	557.2	562.8	567.5	572.1	569.7	567.2	564.3	558.3	553.2	547.9	542.3
19.5°	555.2	561.0	565.9	570.7	568.1	565.5	562.6	556.4	551.2	545.8	540.1
20°	553.2	559.2	564.2	569.2	566.5	563.8	560.9	554.5	549.2	543.5	537.8
20.5°	551.2	557.4	562.6	567.6	564.8	562.0	559.0	552.5	547.0	541.3	535.3
21°	549.1	555.4	560.8	566.0	563.1	560.1	557.1	550.3	544.9	539.0	533.0

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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°	542.1	549.2	555.0	560.9	557.5	554.3	551.0	543.8	537.9	531.7	525.3
23°	539.8	547.0	553.0	559.0	555.5	552.3	548.8	541.5	535.3	529.1	522.4
23.5°	537.3	544.7	550.9	557.1	553.4	550.1	546.6	539.0	532.9	526.5	519.7
24°	534.8	542.3	548.6	555.1	551.3	547.9	544.3	536.6	530.2	523.8	516.9
24.5°	532.2	539.9	546.4	553.0	549.1	545.5	541.9	534.0	527.5	520.9	514.0
25°	529.4	537.3	544.1	550.9	546.8	543.2	539.6	531.5	524.9	518.1	511.0
25.5°	526.7	534.8	541.7	548.6	544.5	540.7	537.0	528.7	522.0	515.3	507.8
26°	523.8	532.1	539.1	546.4	542.0	538.3	534.5	525.9	519.1	512.3	504.7
26.5°	521.0	529.4	536.7	544.1	539.6	535.6	531.9	523.2	516.1	509.1	501.5
27°	517.9	526.6	534.0	541.6	537.0	533.1	529.1	520.2	513.1	506.1	498.2
27.5°	515.0	523.8	531.4	539.1	534.4	530.3	526.3	517.2	510.0	502.9	494.9
28°	511.8	520.9	528.7	536.6	531.6	527.4	523.5	514.2	506.9	499.5	491.4
28.5°	508.7	517.8	525.8	534.0	528.8	524.5	520.5	511.1	503.5	496.2	488.0
29°	505.4	514.7	522.9	531.3	525.9	521.6	517.4	507.9	500.2	492.7	484.4
29.5°	501.9	511.6	519.9	528.5	522.9	518.5	514.3	504.6	496.7	489.2	480.7
30°	498.5	508.3	516.9	525.6	519.9	515.5	511.2	501.2	493.3	485.5	476.9
30.5°	495.1	505.0	513.8	522.6	516.8	512.2	507.8	497.8	489.7	481.8	473.1
31°	491.5	501.7	510.5	519.7	513.6	508.9	504.5	494.3	486.1	478.1	469.2
31.5°	487.9	498.2	507.2	516.6	510.3	505.5	501.2	490.6	482.3	474.2	465.2
32°	484.1	494.6	503.8	513.4	507.0	502.1	497.6	486.9	478.5	470.3	461.1
32.5°	480.3	491.1	500.3	510.0	503.4	498.5	494.0	483.2	474.7	466.2	456.9
33°	476.5	487.3	496.7	506.7	499.9	494.8	490.3	479.5	470.7	462.2	452.7
33.5°	472.5	483.5	493.1	503.2	496.3	491.1	486.6	475.5	466.6	457.9	448.5
34°	468.5	479.8	489.5	499.8	492.7	487.3	482.8	471.5	462.4	453.7	444.1
34.5°	464.5	475.8	485.6	496.2	488.8	483.5	478.8	467.4	458.2	449.4	439.7
35°	460.3	471.9	481.8	492.5	484.9	479.6	474.9	463.4	454.1	445.0	435.1
35.5°	456.1	467.7	477.9	488.7	480.9	475.6	470.7	459.1	449.7	440.4	430.5
36°	451.6	463.6	473.8	484.9	477.0	471.4	466.7	454.8	445.2	436.0	425.7
36.5°	447.4	459.4	469.8	480.9	472.8	467.1	462.4	450.5	440.7	431.3	421.0
37°	443.1	455.2	465.5	477.0	468.6	462.8	458.0	446.1	436.2	426.6	416.2
37.5°	438.5	450.9	461.4	472.8	464.2	458.5	453.7	441.5	431.6	421.9	411.4
38°	433.9	446.4	457.1	468.7	459.9	454.1	449.3	436.9	427.0	417.1	406.4
38.5°	429.4	441.9	452.7	464.4	455.4	449.6	444.7	432.3	422.1	412.2	401.3
39°	424.7	437.4	448.2	460.2	451.0	444.9	440.1	427.5	417.3	407.2	396.3
39.5°	420.1	432.8	443.7	455.7	446.3	440.3	435.4	422.7	412.5	402.1	391.2
40°	415.3	428.2	439.2	451.2	441.7	435.6	430.7	418.1	407.6	397.1	386.0
40.5°	410.4	423.4	434.6	446.6	436.9	430.8	425.9	413.2	402.7	391.9	381.0
41°	405.6	418.6	429.8	442.0	432.2	425.9	421.1	408.3	397.6	386.7	375.5
41.5°	400.7	413.8	425.0	437.2	427.4	421.1	416.1	403.1	392.6	381.6	370.3
42°	395.7	409.0	420.2	432.6	422.5	416.2	411.2	398.1	387.5	376.4	365.0
42.5°	390.7	404.1	415.4	427.8	417.5	411.2	406.4	393.1	382.3	371.2	359.6
43°	385.7	399.1	410.4	423.0	412.5	406.2	401.3	388.0	377.2	365.7	354.1
43.5°	380.6	394.1	405.5	418.0	407.5	401.2	396.1	382.9	372.0	360.4	348.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	365.2	378.8	390.3	403.0	392.0	385.7	380.6	367.1	356.3	344.5	333.0
45.5°	360.0	373.6	385.3	397.9	386.8	380.4	375.4	361.9	351.1	339.4	327.9
46°	354.7	368.4	380.1	392.8	381.7	375.1	370.1	356.7	345.8	334.2	322.9
46.5°	349.4	363.2	374.9	387.6	376.4	369.9	364.8	351.3	340.6	328.9	317.8
47°	344.3	358.0	369.7	382.3	371.1	364.8	359.6	346.2	335.6	323.9	312.3
47.5°	339.2	352.8	364.5	377.1	365.9	359.6	354.5	341.1	330.4	318.5	306.6
48°	334.1	347.6	359.2	371.8	360.9	354.4	349.4	336.0	324.9	312.6	300.3
48.5°	328.7	342.5	354.1	366.7	355.7	349.5	344.2	330.5	319.0	306.2	293.1
49°	323.7	337.4	348.9	361.5	350.6	344.2	339.1	324.5	312.9	299.2	285.6
49.5°	318.1	332.0	343.9	356.1	345.5	339.1	333.6	318.3	306.0	291.6	277.4
50°	312.3	326.7	338.6	351.0	340.2	333.3	327.7	311.7	298.7	283.6	269.1
50.5°	306.0	320.8	333.2	345.9	334.5	327.3	321.5	304.6	291.0	275.8	260.9
51°	298.9	314.6	327.3	340.7	328.4	320.7	314.8	297.1	283.1	267.3	252.3
51.5°	290.9	307.5	321.1	335.1	322.0	313.2	307.3	288.9	274.5	258.8	243.7
52°	282.8	300.1	314.4	329.2	314.8	305.5	299.3	280.1	265.6	250.1	234.8
52.5°	274.4	292.1	307.1	322.9	306.9	297.7	291.4	271.2	256.7	241.2	226.1
53°	265.7	283.6	299.4	316.2	299.0	289.4	282.8	262.0	247.5	231.9	217.2
53.5°	256.8	274.9	291.1	308.9	290.6	281.0	274.2	252.5	238.2	222.8	208.4
54°	247.9	266.3	282.4	301.0	282.0	272.5	265.2	243.1	228.6	213.7	199.6
54.5°	238.9	257.2	273.1	292.6	273.2	263.9	256.1	233.9	219.2	204.6	190.7
55°	229.8	248.0	263.8	283.6	264.5	255.1	246.8	224.1	209.3	195.1	181.6
55.5°	220.6	238.4	254.3	274.5	255.4	246.0	237.5	214.7	199.8	185.9	172.9
56°	211.7	229.0	244.6	265.0	246.2	236.7	228.1	205.1	190.1	176.7	164.0
56.5°	202.3	219.4	234.7	255.4	236.8	227.4	218.6	195.9	180.6	167.6	155.3
57°	193.3	209.6	224.7	245.7	227.4	218.0	209.0	186.6	171.3	158.6	146.8
57.5°	184.1	200.0	215.0	235.9	217.7	208.6	199.6	177.6	162.1	149.7	138.5
58°	174.8	190.2	205.3	226.3	208.2	199.0	190.3	168.4	153.1	140.8	130.2
58.5°	165.8	180.4	195.4	216.6	198.5	189.2	181.0	159.4	144.1	132.3	121.9
59°	156.8	171.0	185.7	207.0	188.8	179.5	171.6	150.3	135.6	123.6	114.1
59.5°	148.0	161.6	176.3	197.6	179.2	169.8	162.4	141.8	127.3	115.4	106.5
60°	139.0	152.3	167.1	188.1	169.6	160.3	153.4	133.0	119.2	107.3	99.2
60.5°	130.3	143.4	158.0	178.9	160.2	150.8	144.4	124.7	111.3	100.2	92.0
61°	122.0	134.5	148.6	169.5	151.0	141.6	135.7	116.3	103.5	93.1	84.7
61.5°	113.6	125.9	139.9	160.7	142.1	132.5	127.1	108.4	96.3	86.0	77.5
62°	105.7	117.5	131.3	151.5	133.1	123.5	118.4	101.1	89.0	78.9	70.2
62.5°	98.1	109.4	123.0	142.7	124.3	114.7	110.0	93.6	81.7	71.7	64.1
63°	90.7	101.6	114.8	134.1	115.8	106.4	102.4	86.2	74.4	65.7	58.2
63.5°	83.5	93.9	106.7	125.6	107.4	98.6	94.8	78.9	67.0	60.0	52.8
64°	76.6	86.7	99.0	117.1	99.8	90.9	87.1	71.5	60.3	54.6	47.8
64.5°	70.0	79.6	91.6	108.8	92.2	83.1	79.5	64.9	53.9	49.5	43.2
65°	63.6	73.0	84.4	100.9	84.6	75.5	71.8	58.7	48.1	44.8	39.1
65.5°	57.6	66.6	77.6	93.3	77.0	68.6	64.9	52.9	42.5	40.4	35.5
66°	51.8	60.9	71.0	85.7	69.4	62.0	58.5	47.4	37.8	36.7	32.5





TEST NUMBER: P775739

CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	37.4	45.2	52.9	64.7	50.8	45.1	42.0	34.0	27.5	27.7	25.9
68°	34.5	40.7	47.5	58.5	45.3	40.3	37.6	30.7	25.6	25.7	24.4
68.5°	31.8	37.1	42.6	52.6	40.6	35.9	33.8	27.9	24.4	24.0	23.3
69°	28.9	34.2	38.4	47.1	36.1	32.2	30.6	25.7	23.5	22.8	22.4
69.5°	26.0	31.4	35.5	42.0	32.4	29.0	27.8	24.1	22.5	21.9	21.5
70°	24.5	28.6	32.6	37.3	29.1	26.5	25.7	22.9	21.4	20.9	20.6
70.5°	23.5	25.8	29.8	34.3	26.6	24.5	24.1	22.0	20.5	19.9	19.7
71°	22.5	24.0	27.1	31.2	24.6	23.3	23.0	21.0	19.4	19.1	18.9
71.5°	21.5	22.7	24.2	28.2	23.2	22.4	22.1	20.0	18.4	18.1	17.9
72°	20.6	21.7	23.0	25.3	22.3	21.4	21.2	19.1	17.5	17.2	17.1
72.5°	19.5	20.8	22.2	23.7	21.3	20.5	20.3	18.1	16.5	16.3	16.2
73°	18.5	19.8	21.2	22.7	20.5	19.6	19.3	17.2	15.7	15.5	15.3
73.5°	17.6	18.9	20.3	21.7	19.5	18.7	18.4	16.3	14.8	14.6	14.6
74°	16.7	17.9	19.3	20.9	18.5	17.8	17.5	15.3	14.0	13.8	13.8
74.5°	15.8	17.1	18.4	19.9	17.7	16.8	16.6	14.5	13.1	12.9	13.0
75°	14.9	16.1	17.5	19.0	16.8	16.0	15.8	13.6	12.4	12.2	12.3
75.5°	14.1	15.2	16.6	18.1	16.0	15.1	14.9	12.9	11.6	11.4	11.5
76°	13.2	14.4	15.7	17.2	15.1	14.4	14.1	12.0	10.9	10.7	10.9
76.5°	12.5	13.5	14.9	16.3	14.3	13.5	13.3	11.3	10.1	9.9	10.1
77°	11.6	12.8	14.1	15.5	13.5	12.8	12.6	10.6	9.4	9.3	9.5
77.5°	10.9	11.9	13.2	14.6	12.8	12.0	11.8	9.8	8.7	8.6	8.8
78°	10.2	11.2	12.5	13.9	12.0	11.3	11.1	9.2	8.1	8.0	8.2
78.5°	9.5	10.4	11.7	13.0	11.3	10.7	10.3	8.5	7.5	7.2	7.6
79°	8.8	9.8	11.0	12.3	10.6	9.9	9.7	7.9	6.8	6.6	7.0
79.5°	8.2	9.1	10.2	11.6	9.9	9.4	9.1	7.2	6.2	6.1	6.4
80°	7.6	8.4	9.6	10.9	9.3	8.7	8.4	6.6	5.6	5.4	5.8
80.5°	6.9	7.8	9.0	10.1	8.6	8.1	7.8	6.0	5.1	4.9	5.2
81°	6.4	7.1	8.3	9.5	8.0	7.5	7.1	5.4	4.6	4.4	4.8
81.5°	5.9	6.6	7.7	8.8	7.4	6.9	6.5	4.8	4.1	3.8	4.3
82°	5.2	6.0	7.0	8.2	6.7	6.3	6.0	4.4	3.6	3.3	3.7
82.5°	4.7	5.4	6.5	7.7	6.2	5.8	5.4	3.8	3.1	2.9	3.3
83°	4.3	4.9	6.0	7.0	5.6	5.2	4.9	3.3	2.7	2.5	2.9
83.5°	3.7	4.5	5.4	6.5	5.2	4.7	4.4	2.9	2.2	2.0	2.5
84°	3.3	3.9	4.9	6.0	4.7	4.3	3.9	2.5	1.8	1.6	2.0
84.5°	2.9	3.5	4.4	5.4	4.2	3.7	3.4	2.0	1.5	1.3	1.7
85°	2.3	3.0	3.9	4.9	3.7	3.3	3.0	1.7	1.2	1.1	1.4
85.5°	1.9	2.6	3.4	4.4	3.3	2.9	2.6	1.4	0.9	0.9	1.1
86°	1.6	2.1	3.0	3.9	2.9	2.5	2.2	1.2	0.7	0.6	0.7
86.5°	1.2	1.7	2.7	3.5	2.5	2.0	1.8	0.9	0.5	0.4	0.4
87°	1.0	1.4	2.2	3.1	2.0	1.7	1.5	0.6	0.3	0.2	0.2
87.5°	0.7	1.2	1.9	2.7	1.6	1.3	1.2	0.4	0.2	0.1	0.0
88°	0.5	1.0	1.5	2.2	1.3	1.0	0.9	0.2	0.1	0.0	0.0
88.5°	0.3	0.6	1.2	1.8	1.0	0.6	0.5	0.1	0.0	0.0	0.0



TEST NUMBER: P775739  
CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.1	0.3	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P775739

CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	589.9	589.9	589.9	589.9	589.9	589.9
0.5°	588.4	589.7	589.9	589.9	590.2	590.2
1°	587.9	589.2	589.5	589.6	590.1	590.2
1.5°	587.2	588.7	589.0	589.2	589.9	590.2
2°	586.6	588.2	588.6	588.8	589.7	590.1
2.5°	585.9	587.5	588.1	588.4	589.4	589.9
3°	585.2	586.9	587.5	588.0	589.0	589.8
3.5°	584.4	586.3	586.9	587.3	588.7	589.5
4°	583.7	585.5	586.3	586.8	588.2	589.2
4.5°	582.9	584.8	585.5	586.2	587.8	588.8
5°	581.9	583.9	584.7	585.4	587.2	588.5
5.5°	580.9	583.1	583.9	584.7	586.7	588.1
6°	579.9	582.1	583.1	583.9	586.0	587.6
6.5°	578.8	581.1	582.2	583.1	585.4	587.1
7°	577.7	580.1	581.3	582.2	584.7	586.6
7.5°	576.6	579.0	580.2	581.3	583.9	585.9
8°	575.4	577.9	579.1	580.3	583.2	585.3
8.5°	574.1	576.8	578.1	579.2	582.3	584.6
9°	572.8	575.6	576.9	578.2	581.4	583.8
9.5°	571.6	574.3	575.7	577.0	580.4	583.0
10°	570.1	572.9	574.4	575.8	579.3	582.2
10.5°	568.7	571.7	573.2	574.5	578.3	581.3
11°	567.1	570.2	571.8	573.3	577.1	580.3
11.5°	565.6	568.7	570.3	571.9	576.0	579.2
12°	564.0	567.2	568.8	570.5	574.9	578.2
12.5°	562.3	565.6	567.3	569.0	573.5	577.0
13°	560.5	563.9	565.7	567.5	572.2	575.8
13.5°	558.8	562.2	564.0	565.9	570.7	574.5
14°	556.9	560.5	562.3	564.3	569.2	573.3
14.5°	555.0	558.7	560.5	562.5	567.7	572.0
15°	553.1	556.7	558.8	560.9	566.2	570.6
15.5°	551.1	554.8	556.8	559.0	564.5	569.1
16°	549.1	552.8	554.9	557.1	562.8	567.6
16.5°	546.9	550.8	552.8	555.1	561.0	566.0
17°	544.7	548.6	550.8	553.1	559.2	564.3
17.5°	542.6	546.4	548.6	551.1	557.4	562.6
18°	540.2	544.3	546.4	549.0	555.5	560.9
18.5°	537.9	541.8	544.2	546.7	553.4	559.1
19°	535.4	539.6	541.8	544.5	551.3	557.2
19.5°	532.9	537.1	539.5	542.1	549.2	555.2
20°	530.3	534.6	537.0	539.8	547.0	553.2
20.5°	527.7	532.1	534.4	537.3	544.8	551.2
21°	525.1	529.3	531.8	534.8	542.5	549.1



TEST NUMBER: P775739

CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	516.6	521.0	523.7	526.8	535.1	542.1
23°	513.7	518.3	520.7	523.9	532.5	539.8
23.5°	510.6	515.3	517.8	521.0	529.9	537.3
24°	507.5	512.2	514.8	518.0	527.2	534.8
24.5°	504.4	509.1	511.8	515.1	524.4	532.2
25°	501.1	505.9	508.6	512.1	521.5	529.4
25.5°	497.8	502.7	505.3	508.9	518.5	526.7
26°	494.5	499.3	502.1	505.7	515.5	523.8
26.5°	491.0	496.0	498.6	502.3	512.4	521.0
27°	487.5	492.5	495.2	498.9	509.2	517.9
27.5°	483.9	488.9	491.6	495.6	506.0	515.0
28°	480.3	485.3	488.1	492.0	502.7	511.8
28.5°	476.5	481.6	484.5	488.4	499.3	508.7
29°	472.6	477.9	480.6	484.7	495.9	505.4
29.5°	468.8	474.0	476.9	481.1	492.2	501.9
30°	464.7	470.3	473.0	477.1	488.6	498.5
30.5°	460.8	466.2	469.0	473.4	485.0	495.1
31°	456.6	462.2	465.1	469.3	481.3	491.5
31.5°	452.4	458.2	461.1	465.4	477.4	487.9
32°	448.1	454.1	457.0	461.2	473.5	484.1
32.5°	443.9	449.8	452.7	457.2	469.5	480.3
33°	439.4	445.7	448.7	453.0	465.5	476.5
33.5°	434.9	441.4	444.4	448.8	461.3	472.5
34°	430.4	436.9	440.0	444.4	457.2	468.5
34.5°	425.7	432.4	435.5	440.1	452.9	464.5
35°	421.1	428.0	431.2	435.5	448.7	460.3
35.5°	416.4	423.4	426.7	431.1	444.3	456.1
36°	411.7	418.8	422.1	426.5	439.8	451.6
36.5°	406.8	414.2	417.6	421.9	435.3	447.4
37°	402.0	409.5	412.9	417.3	430.6	443.1
37.5°	397.0	404.7	408.3	412.6	426.2	438.5
38°	392.0	399.9	403.6	407.8	421.5	433.9
38.5°	386.8	395.2	398.8	402.9	416.8	429.4
39°	381.9	390.2	394.1	398.2	411.9	424.7
39.5°	376.7	385.3	389.3	393.4	407.1	420.1
40°	371.6	380.5	384.4	388.5	402.3	415.3
40.5°	366.5	375.6	379.5	383.5	397.4	410.4
41°	361.2	370.5	374.5	378.6	392.5	405.6
41.5°	355.9	365.5	369.6	373.6	387.4	400.7
42°	350.7	360.5	364.5	368.6	382.5	395.7
42.5°	345.4	355.5	359.5	363.6	377.3	390.7
43°	340.2	350.5	354.5	358.6	372.3	385.7
43.5°	334.9	345.3	349.5	353.4	367.2	380.6



TEST NUMBER: P775739

CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	319.9	330.0	334.3	338.0	351.8	365.2
45.5°	314.9	325.0	329.2	332.9	346.4	360.0
46°	309.5	319.9	324.1	327.9	341.3	354.7
46.5°	304.0	314.9	319.0	322.7	336.1	349.4
47°	298.0	309.8	314.1	317.6	331.1	344.3
47.5°	291.2	304.1	308.9	312.5	326.0	339.2
48°	283.8	298.5	303.3	307.0	320.8	334.1
48.5°	275.6	292.1	297.4	301.2	315.6	328.7
49°	267.3	284.9	291.4	295.4	310.1	323.7
49.5°	258.9	277.1	284.1	288.5	304.4	318.1
50°	250.5	268.8	276.4	281.0	298.2	312.3
50.5°	241.6	260.2	267.8	272.7	291.2	306.0
51°	232.8	251.6	259.2	264.1	283.3	298.9
51.5°	224.0	242.6	250.2	255.4	274.9	290.9
52°	215.0	233.8	241.4	246.4	266.4	282.8
52.5°	206.3	224.6	232.5	237.4	257.7	274.4
53°	197.3	215.2	223.2	228.3	249.1	265.7
53.5°	188.7	206.2	213.6	218.9	240.2	256.8
54°	179.9	197.0	204.6	209.8	231.2	247.9
54.5°	171.2	188.2	195.3	200.6	222.1	238.9
55°	162.7	179.2	185.9	191.9	213.0	229.8
55.5°	154.1	170.3	176.9	182.8	203.9	220.6
56°	145.9	161.7	168.0	174.0	194.9	211.7
56.5°	138.0	153.1	159.1	165.3	185.9	202.3
57°	129.8	144.6	150.5	156.9	176.9	193.3
57.5°	121.9	136.4	142.0	148.2	168.2	184.1
58°	114.1	128.2	133.7	139.9	159.5	174.8
58.5°	106.8	120.5	125.9	132.0	150.8	165.8
59°	99.7	112.9	118.2	124.0	142.6	156.8
59.5°	92.6	105.4	110.9	116.3	134.4	148.0
60°	85.5	98.4	103.6	108.8	126.4	139.0
60.5°	78.5	91.2	96.7	101.5	118.6	130.3
61°	71.3	84.5	90.0	94.4	110.8	122.0
61.5°	65.1	78.2	83.7	87.5	103.2	113.6
62°	59.2	72.3	77.5	81.1	95.8	105.7
62.5°	53.7	66.4	71.6	74.8	88.7	98.1
63°	48.6	61.0	66.1	68.8	81.8	90.7
63.5°	44.1	55.9	60.9	63.2	75.3	83.5
64°	39.9	51.1	56.0	57.9	68.9	76.6
64.5°	36.2	46.6	51.2	53.0	62.7	70.0
65°	33.3	42.5	46.9	48.3	56.9	63.6
65.5°	30.6	38.7	42.9	44.0	51.6	57.6
66°	28.4	36.0	39.1	40.1	46.8	51.8



TEST NUMBER: P775739

CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	23.6	28.1	31.0	31.0	35.8	37.4
68°	22.7	25.5	28.4	29.2	33.4	34.5
68.5°	21.7	24.0	25.7	27.3	30.8	31.8
69°	20.9	23.0	24.1	25.4	28.4	28.9
69.5°	20.0	22.2	23.0	23.5	25.8	26.0
70°	19.2	21.3	22.2	22.6	24.2	24.5
70.5°	18.3	20.4	21.3	21.6	23.0	23.5
71°	17.5	19.5	20.5	20.8	22.1	22.5
71.5°	16.6	18.7	19.6	19.9	21.1	21.5
72°	15.8	17.8	18.7	19.1	20.1	20.6
72.5°	15.0	16.9	17.8	18.2	19.3	19.5
73°	14.3	16.1	16.9	17.4	18.3	18.5
73.5°	13.4	15.3	16.2	16.5	17.5	17.6
74°	12.7	14.5	15.3	15.7	16.5	16.7
74.5°	12.0	13.8	14.6	14.8	15.7	15.8
75°	11.3	13.0	13.9	14.1	14.8	14.9
75.5°	10.7	12.3	13.1	13.3	14.0	14.1
76°	9.9	11.6	12.4	12.6	13.2	13.2
76.5°	9.3	10.9	11.6	11.8	12.4	12.5
77°	8.7	10.2	11.0	11.1	11.6	11.6
77.5°	8.1	9.6	10.2	10.3	10.9	10.9
78°	7.6	9.0	9.6	9.7	10.1	10.2
78.5°	6.9	8.3	9.0	9.1	9.5	9.5
79°	6.4	7.8	8.3	8.4	8.8	8.8
79.5°	5.9	7.1	7.8	7.8	8.1	8.2
80°	5.3	6.6	7.1	7.2	7.6	7.6
80.5°	4.8	6.1	6.6	6.6	6.9	6.9
81°	4.4	5.5	6.1	6.1	6.3	6.4
81.5°	3.8	5.0	5.5	5.5	5.8	5.9
82°	3.4	4.6	5.0	5.0	5.2	5.2
82.5°	3.0	4.1	4.6	4.6	4.7	4.7
83°	2.6	3.6	4.1	4.1	4.2	4.3
83.5°	2.1	3.2	3.6	3.6	3.6	3.7
84°	1.7	2.8	3.2	3.2	3.2	3.3
84.5°	1.3	2.3	2.8	2.8	2.8	2.9
85°	1.0	1.9	2.3	2.3	2.2	2.3
85.5°	0.6	1.5	1.9	1.9	1.9	1.9
86°	0.3	1.1	1.5	1.6	1.6	1.6
86.5°	0.1	0.7	1.2	1.2	1.3	1.2
87°	0.0	0.4	0.7	0.9	1.0	1.0
87.5°	0.0	0.2	0.4	0.5	0.7	0.7
88°	0.0	0.0	0.2	0.2	0.5	0.5
88.5°	0.0	0.0	0.0	0.1	0.3	0.3



TEST NUMBER: P775739  
CATALOG NUMBER: HCDJBL510CSD-HCD61TRMW-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°	546.8	553.3	558.9	564.4	561.3	558.2	555.1	548.3	542.6	536.6	530.4
22°	544.5	551.3	556.9	562.7	559.5	556.4	553.1	546.1	540.2	534.2	527.8



44°	375.6	389.1	400.6	413.2	402.4	396.0	391.0	377.7	366.8	355.1	343.4
44.5°	370.3	383.8	395.4	408.1	397.2	391.0	385.8	372.4	361.5	349.8	338.2



66.5°	46.6	55.2	64.7	78.7	62.8	56.1	52.4	42.5	33.7	33.3	30.0
67°	41.9	50.0	58.6	71.4	56.5	50.3	47.0	37.9	30.3	30.3	27.7



89°	0.2	0.4	0.9	1.5	0.6	0.3	0.2	0.0	0.0	0.0	0.0
89.5°	0.1	0.2	0.5	1.1	0.3	0.1	0.1	0.0	0.0	0.0	0.0



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21.5°	522.3	526.7	529.1	532.1	540.1	546.8
22°	519.4	524.0	526.5	529.4	537.7	544.5



44°	329.9	340.1	344.4	348.3	362.1	375.6
44.5°	324.9	335.0	339.3	343.1	356.9	370.3



66.5°	26.4	33.4	36.5	36.5	42.3	46.6
67°	24.8	30.7	33.7	33.4	38.4	41.9

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89°	0.0	0.0	0.0	0.0	0.1	0.2
89.5°	0.0	0.0	0.0	0.0	0.0	0.1

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(END OF REPORT)