

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: P775716

Luminaire Tested: HCDJBL510CSD-HCD61TRC-1000lm-3000K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P775716  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B035-HCD61TRC)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBL510CSD-HCD61TRC-1000lm-3000K  
Description: 6 INCH ROUND SHALLOW-WIDE SPECULAR CLEAR TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

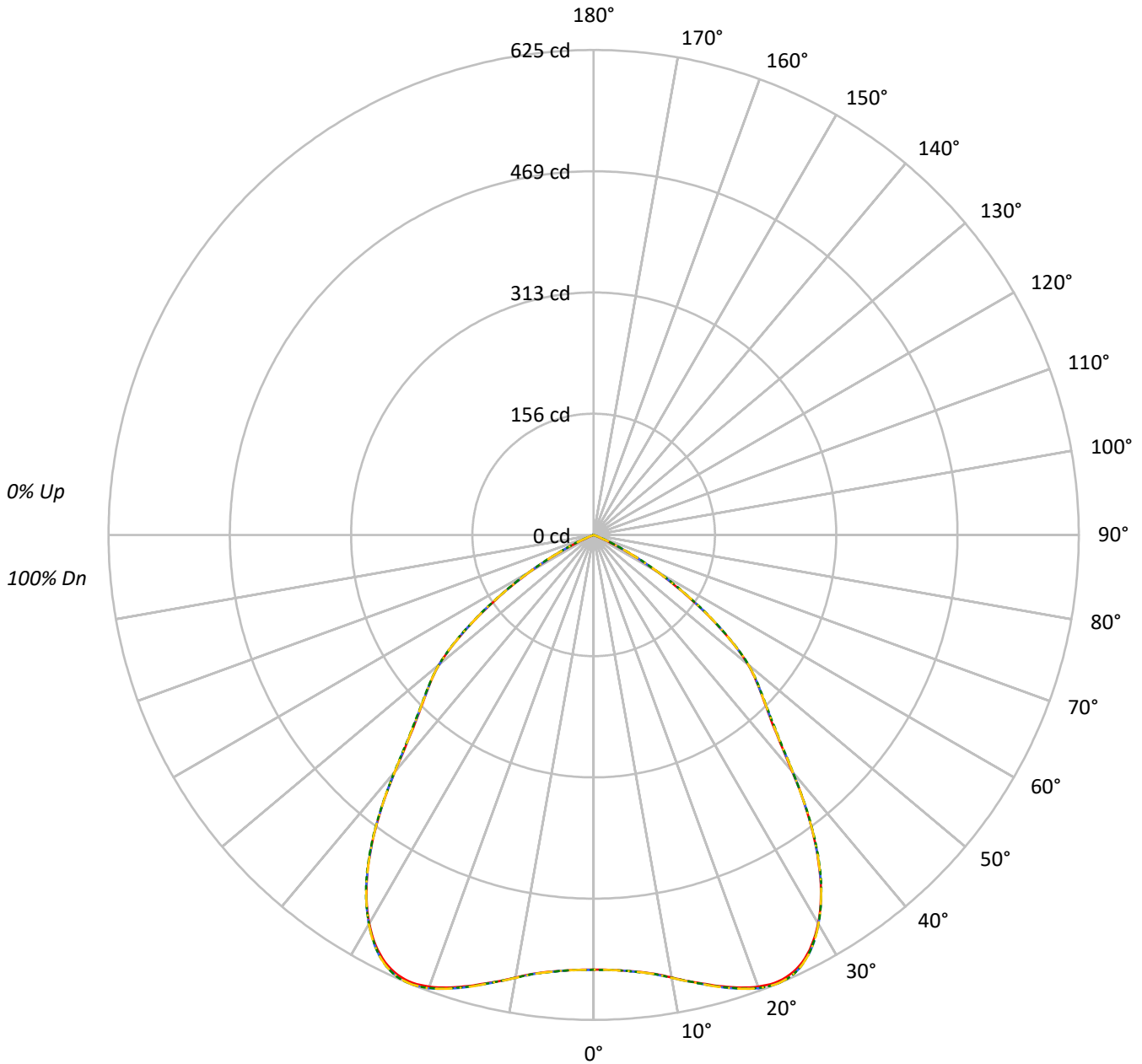
Lumens per Lamp: N/A  
Luminaire Lumens: 1259.3 lumens  
Efficiency: N/A  
Efficacy: 125.9 lumens/watt  
Spacing Criteria (0/90/45): 1.39 / 1.39 / 1.3  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

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								
1	112	108	105	103	109	106	103	101	102	100	98	98	97	95	95	93	92	90								
2	104	98	93	88	102	96	91	87	93	89	85	90	86	84	87	84	82	80								
3	97	88	82	77	95	87	81	76	84	79	75	82	77	74	79	76	73	71								
4	90	80	73	67	88	79	72	67	76	71	66	74	69	65	72	68	64	63								
5	83	73	65	60	82	72	65	59	70	63	59	68	62	58	66	61	58	56								
6	78	66	59	53	76	65	58	53	64	57	52	62	56	52	61	56	52	50								
7	72	61	53	48	71	60	53	47	58	52	47	57	51	47	56	51	47	45								
8	68	56	48	43	66	55	48	43	54	47	43	53	47	42	52	46	42	40								
9	63	51	44	39	62	51	44	39	50	43	39	49	43	39	48	42	38	37								
10	60	48	40	36	58	47	40	36	46	40	35	45	39	35	44	39	35	34								

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

	0°	90°	180°	270°
0°	30721	30721	30721	30721
5°	31059	31081	31059	31081
10°	32247	32258	32247	32258
15°	34115	34149	34115	34149
20°	36141	36240	36141	36240
25°	37345	37496	37345	37496
30°	36613	36658	36613	36658
35°	33615	33723	33615	33723
40°	28496	28611	28496	28611
45°	24406	24530	24406	24530
50°	22140	22191	22140	22191
55°	17051	17223	17051	17223
60°	10273	10591	10273	10591
65°	3217	4099	3217	4099
70°	16	160	16	160
75°	0	21	0	21
80°	0	0	0	0
85°	0	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 45°  
 Luminance: 24530 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	54.4	4.3
10°-20°	171.1	13.6
20°-30°	282.9	22.5
30°-40°	310.6	24.7
40°-50°	246.6	19.6
50°-60°	158.8	12.6
60°-70°	34.8	2.8
70°-80°	0.1	0.0
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°	508.4	40.4
0°-40°	819.0	65.0
0°-60°	1224.4	97.2
0°-90°	1259.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1259.3	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	560	560	560	560	560	
5°	564	565	564	565	564	54
15°	601	602	601	602	601	171
25°	617	620	617	620	617	282
35°	502	504	502	504	502	310
45°	315	316	315	316	315	246
55°	178	180	178	180	178	158
65°	25	32	25	32	25	32
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°	560.4	560.4	560.4	560.4	560.4	560.4	560.4	560.4	560.4	560.4	560.4
0.5°	560.2	560.4	560.5	560.6	560.5	560.6	560.5	560.4	560.2	560.4	560.5
1°	560.4	560.5	560.6	560.7	560.6	560.7	560.6	560.5	560.4	560.5	560.6
1.5°	560.6	560.7	560.8	560.9	560.8	560.9	560.8	560.7	560.6	560.7	560.8
2°	560.9	561.0	561.1	561.1	561.0	561.1	561.1	561.0	560.9	561.0	561.1
2.5°	561.2	561.3	561.5	561.5	561.4	561.5	561.5	561.3	561.2	561.3	561.5
3°	561.7	561.8	561.9	561.9	561.8	561.9	561.9	561.8	561.7	561.8	561.9
3.5°	562.3	562.4	562.6	562.6	562.5	562.6	562.6	562.4	562.3	562.4	562.6
4°	562.9	563.0	563.2	563.3	563.2	563.3	563.2	563.0	562.9	563.0	563.2
4.5°	563.6	563.7	563.9	564.0	563.9	564.0	563.9	563.7	563.6	563.7	563.9
5°	564.4	564.5	564.7	564.8	564.8	564.8	564.7	564.5	564.4	564.5	564.7
5.5°	565.2	565.4	565.6	565.8	565.7	565.8	565.6	565.4	565.2	565.4	565.6
6°	566.2	566.3	566.6	566.8	566.7	566.8	566.6	566.3	566.2	566.3	566.6
6.5°	567.4	567.5	567.8	567.9	567.8	567.9	567.8	567.5	567.4	567.5	567.8
7°	568.6	568.7	569.0	569.1	569.0	569.1	569.0	568.7	568.6	568.7	569.0
7.5°	570.0	570.1	570.4	570.4	570.3	570.4	570.4	570.1	570.0	570.1	570.4
8°	571.4	571.6	571.9	572.0	571.9	572.0	571.9	571.6	571.4	571.6	571.9
8.5°	573.2	573.4	573.8	573.8	573.7	573.8	573.8	573.4	573.2	573.4	573.8
9°	575.1	575.3	575.6	575.7	575.5	575.7	575.6	575.3	575.1	575.3	575.6
9.5°	577.2	577.4	577.7	577.8	577.5	577.8	577.7	577.4	577.2	577.4	577.7
10°	579.3	579.5	579.8	579.8	579.5	579.8	579.8	579.5	579.3	579.5	579.8
10.5°	581.4	581.6	581.8	581.8	581.6	581.8	581.8	581.6	581.4	581.6	581.8
11°	583.6	583.9	584.1	584.0	583.8	584.0	584.1	583.9	583.6	583.9	584.1
11.5°	585.8	586.0	586.2	586.1	585.9	586.1	586.2	586.0	585.8	586.0	586.2
12°	588.0	588.2	588.4	588.4	588.2	588.4	588.4	588.2	588.0	588.2	588.4
12.5°	590.1	590.4	590.6	590.6	590.4	590.6	590.6	590.4	590.1	590.4	590.6
13°	592.3	592.7	592.9	592.9	592.7	592.9	592.9	592.7	592.3	592.7	592.9
13.5°	594.5	594.9	595.2	595.1	594.9	595.1	595.2	594.9	594.5	594.9	595.2
14°	596.6	597.2	597.6	597.6	597.2	597.6	597.6	597.2	596.6	597.2	597.6
14.5°	598.9	599.4	599.8	599.9	599.5	599.9	599.8	599.4	598.9	599.4	599.8
15°	601.1	601.6	602.2	602.3	601.7	602.3	602.2	601.6	601.1	601.6	602.2
15.5°	603.3	603.9	604.5	604.5	604.0	604.5	604.5	603.9	603.3	603.9	604.5
16°	605.4	606.1	606.7	606.7	606.2	606.7	606.7	606.1	605.4	606.1	606.7
16.5°	607.5	608.2	608.9	608.9	608.4	608.9	608.9	608.2	607.5	608.2	608.9
17°	609.6	610.3	611.0	611.0	610.4	611.0	611.0	610.3	609.6	610.3	611.0
17.5°	611.5	612.4	613.1	613.1	612.5	613.1	613.1	612.4	611.5	612.4	613.1
18°	613.4	614.3	615.0	615.0	614.5	615.0	615.0	614.3	613.4	614.3	615.0
18.5°	615.1	616.1	616.8	616.8	616.3	616.8	616.8	616.1	615.1	616.1	616.8
19°	616.7	617.8	618.6	618.5	618.1	618.5	618.6	617.8	616.7	617.8	618.6
19.5°	618.2	619.2	620.2	620.0	619.7	620.0	620.2	619.2	618.2	619.2	620.2
20°	619.5	620.5	621.6	621.3	621.2	621.3	621.6	620.5	619.5	620.5	621.6
20.5°	620.6	621.6	622.8	622.5	622.5	622.5	622.8	621.6	620.6	621.6	622.8
21°	621.4	622.5	623.7	623.3	623.5	623.3	623.7	622.5	621.4	622.5	623.7



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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°	622.5	623.4	624.8	624.3	624.9	624.3	624.8	623.4	622.5	623.4	624.8
23°	622.3	623.1	624.6	624.0	624.7	624.0	624.6	623.1	622.3	623.1	624.6
23.5°	621.6	622.5	624.0	623.3	624.2	623.3	624.0	622.5	621.6	622.5	624.0
24°	620.6	621.4	623.0	622.4	623.2	622.4	623.0	621.4	620.6	621.4	623.0
24.5°	619.2	620.0	621.5	621.0	621.7	621.0	621.5	620.0	619.2	620.0	621.5
25°	617.4	618.3	619.7	619.3	619.9	619.3	619.7	618.3	617.4	618.3	619.7
25.5°	615.3	616.1	617.6	617.3	617.6	617.3	617.6	616.1	615.3	616.1	617.6
26°	612.8	613.6	614.9	614.8	614.9	614.8	614.9	613.6	612.8	613.6	614.9
26.5°	609.6	610.5	611.8	611.9	611.7	611.9	611.8	610.5	609.6	610.5	611.8
27°	606.3	607.3	608.4	608.7	608.2	608.7	608.4	607.3	606.3	607.3	608.4
27.5°	602.6	603.5	604.5	605.0	604.2	605.0	604.5	603.5	602.6	603.5	604.5
28°	598.4	599.3	600.1	600.9	599.8	600.9	600.1	599.3	598.4	599.3	600.1
28.5°	594.0	594.7	595.5	596.5	595.1	596.5	595.5	594.7	594.0	594.7	595.5
29°	589.1	589.8	590.4	591.6	590.1	591.6	590.4	589.8	589.1	589.8	590.4
29.5°	583.9	584.5	585.2	586.2	584.8	586.2	585.2	584.5	583.9	584.5	585.2
30°	578.4	578.8	579.3	580.5	579.1	580.5	579.3	578.8	578.4	578.8	579.3
30.5°	572.5	572.7	573.3	574.5	573.1	574.5	573.3	572.7	572.5	572.7	573.3
31°	566.0	566.2	566.8	568.0	566.7	568.0	566.8	566.2	566.0	566.2	566.8
31.5°	559.4	559.4	560.1	561.0	560.1	561.0	560.1	559.4	559.4	559.4	560.1
32°	552.4	552.3	552.9	553.8	553.2	553.8	552.9	552.3	552.4	552.3	552.9
32.5°	544.9	544.7	545.5	546.1	545.9	546.1	545.5	544.7	544.9	544.7	545.5
33°	537.2	536.9	537.7	538.2	538.3	538.2	537.7	536.9	537.2	536.9	537.7
33.5°	529.0	528.6	529.5	529.8	530.1	529.8	529.5	528.6	529.0	528.6	529.5
34°	520.5	520.1	520.9	521.0	521.8	521.0	520.9	520.1	520.5	520.1	520.9
34.5°	511.4	511.4	511.9	512.0	513.0	512.0	511.9	511.4	511.4	511.4	511.9
35°	502.3	502.1	502.7	502.9	503.9	502.9	502.7	502.1	502.3	502.1	502.7
35.5°	492.9	492.9	493.3	493.5	494.5	493.5	493.3	492.9	492.9	492.9	493.3
36°	483.3	483.3	483.6	483.9	484.6	483.9	483.6	483.3	483.3	483.3	483.6
36.5°	473.4	473.5	473.7	473.9	474.7	473.9	473.7	473.5	473.4	473.5	473.7
37°	463.1	463.3	463.4	463.7	464.3	463.7	463.4	463.3	463.1	463.3	463.4
37.5°	452.8	452.9	453.1	453.4	453.7	453.4	453.1	452.9	452.8	452.9	453.1
38°	442.3	442.3	442.6	442.8	443.1	442.8	442.6	442.3	442.3	442.3	442.6
38.5°	431.5	431.5	431.8	432.0	432.3	432.0	431.8	431.5	431.5	431.5	431.8
39°	420.6	420.6	421.0	421.3	421.4	421.3	421.0	420.6	420.6	420.6	421.0
39.5°	409.4	409.5	409.9	410.5	410.6	410.5	409.9	409.5	409.4	409.5	409.9
40°	398.2	398.3	399.0	399.5	399.8	399.5	399.0	398.3	398.2	398.3	399.0
40.5°	387.1	387.4	388.3	389.2	389.4	389.2	388.3	387.4	387.1	387.4	388.3
41°	376.7	377.0	378.0	379.0	379.4	379.0	378.0	377.0	376.7	377.0	378.0
41.5°	366.9	367.4	368.2	369.2	369.5	369.2	368.2	367.4	366.9	367.4	368.2
42°	358.0	358.2	359.0	359.7	360.3	359.7	359.0	358.2	358.0	358.2	359.0
42.5°	349.6	349.7	350.7	351.4	351.8	351.4	350.7	349.7	349.6	349.7	350.7
43°	341.4	341.5	342.7	343.5	344.4	343.5	342.7	341.5	341.4	341.5	342.7
43.5°	333.9	334.2	335.0	335.8	336.5	335.8	335.0	334.2	333.9	334.2	335.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	314.8	314.8	315.5	315.8	316.4	315.8	315.5	314.8	314.8	314.8	315.5
45.5°	309.0	309.0	309.7	310.0	310.3	310.0	309.7	309.0	309.0	309.0	309.7
46°	303.4	303.5	304.0	304.4	304.6	304.4	304.0	303.5	303.4	303.5	304.0
46.5°	298.0	298.0	298.5	298.8	299.2	298.8	298.5	298.0	298.0	298.0	298.5
47°	292.7	292.7	293.1	293.5	293.8	293.5	293.1	292.7	292.7	292.7	293.1
47.5°	287.4	287.4	287.9	288.2	288.3	288.2	287.9	287.4	287.4	287.4	287.9
48°	282.2	282.1	282.7	283.0	283.2	283.0	282.7	282.1	282.2	282.1	282.7
48.5°	276.9	276.9	277.4	277.8	277.9	277.8	277.4	276.9	276.9	276.9	277.4
49°	271.4	271.5	271.9	272.2	272.5	272.2	271.9	271.5	271.4	271.5	271.9
49.5°	265.8	265.7	266.2	266.5	266.6	266.5	266.2	265.7	265.8	265.7	266.2
50°	259.6	259.6	259.9	260.2	260.2	260.2	259.9	259.6	259.6	259.6	259.9
50.5°	252.8	252.8	253.0	253.4	253.4	253.4	253.0	252.8	252.8	252.8	253.0
51°	245.5	245.4	245.7	246.0	246.3	246.0	245.7	245.4	245.5	245.4	245.7
51.5°	237.9	237.8	238.2	238.6	238.7	238.6	238.2	237.8	237.9	237.8	238.2
52°	229.9	230.0	230.3	230.6	230.8	230.6	230.3	230.0	229.9	230.0	230.3
52.5°	221.7	221.6	222.1	222.6	222.7	222.6	222.1	221.6	221.7	221.6	222.1
53°	213.2	213.3	213.8	214.3	214.2	214.3	213.8	213.3	213.2	213.3	213.8
53.5°	204.6	204.7	205.3	205.7	205.9	205.7	205.3	204.7	204.6	204.7	205.3
54°	195.8	196.0	196.6	197.0	197.1	197.0	196.6	196.0	195.8	196.0	196.6
54.5°	187.1	187.1	188.0	188.5	188.7	188.5	188.0	187.1	187.1	187.1	188.0
55°	178.4	178.5	179.4	179.8	180.2	179.8	179.4	178.5	178.4	178.5	179.4
55.5°	169.4	169.6	170.5	171.1	171.5	171.1	170.5	169.6	169.4	169.6	170.5
56°	160.5	160.8	161.8	162.3	162.9	162.3	161.8	160.8	160.5	160.8	161.8
56.5°	151.7	152.0	153.1	153.7	154.2	153.7	153.1	152.0	151.7	152.0	153.1
57°	143.0	143.5	144.4	145.1	145.6	145.1	144.4	143.5	143.0	143.5	144.4
57.5°	134.4	134.9	135.8	136.6	137.1	136.6	135.8	134.9	134.4	134.9	135.8
58°	125.9	126.3	127.3	128.4	128.8	128.4	127.3	126.3	125.9	126.3	127.3
58.5°	117.5	118.1	119.1	120.3	120.6	120.3	119.1	118.1	117.5	118.1	119.1
59°	109.3	110.0	110.8	112.1	112.5	112.1	110.8	110.0	109.3	110.0	110.8
59.5°	101.4	101.9	102.9	104.2	104.5	104.2	102.9	101.9	101.4	101.9	102.9
60°	93.7	94.1	95.0	96.2	96.6	96.2	95.0	94.1	93.7	94.1	95.0
60.5°	85.9	86.3	87.2	88.5	89.1	88.5	87.2	86.3	85.9	86.3	87.2
61°	78.4	78.8	79.9	81.0	81.6	81.0	79.9	78.8	78.4	78.8	79.9
61.5°	70.7	71.5	72.7	73.8	74.7	73.8	72.7	71.5	70.7	71.5	72.7
62°	63.5	64.5	65.6	66.8	67.8	66.8	65.6	64.5	63.5	64.5	65.6
62.5°	56.2	57.6	58.8	60.0	61.0	60.0	58.8	57.6	56.2	57.6	58.8
63°	49.2	51.0	52.1	53.4	54.5	53.4	52.1	51.0	49.2	51.0	52.1
63.5°	42.4	44.8	46.0	47.1	48.4	47.1	46.0	44.8	42.4	44.8	46.0
64°	35.9	39.0	40.4	41.4	42.7	41.4	40.4	39.0	35.9	39.0	40.4
64.5°	30.1	33.7	35.0	35.9	37.1	35.9	35.0	33.7	30.1	33.7	35.0
65°	24.8	28.6	29.9	30.7	31.6	30.7	29.9	28.6	24.8	28.6	29.9
65.5°	19.8	24.1	25.2	25.6	26.4	25.6	25.2	24.1	19.8	24.1	25.2
66°	15.5	20.0	20.8	21.4	21.8	21.4	20.8	20.0	15.5	20.0	20.8





TEST NUMBER: P775716

CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	4.8	9.3	10.0	10.6	11.2	10.6	10.0	9.3	4.8	9.3	10.0
68°	2.9	6.5	7.1	8.0	9.2	8.0	7.1	6.5	2.9	6.5	7.1
68.5°	1.7	4.3	5.1	5.6	7.1	5.6	5.1	4.3	1.7	4.3	5.1
69°	1.0	2.6	3.2	3.6	5.1	3.6	3.2	2.6	1.0	2.6	3.2
69.5°	0.6	1.6	1.8	1.8	3.1	1.8	1.8	1.6	0.6	1.6	1.8
70°	0.1	0.8	1.0	1.0	1.0	1.0	1.0	0.8	0.1	0.8	1.0
70.5°	0.1	0.3	0.6	0.6	0.4	0.6	0.6	0.3	0.1	0.3	0.6
71°	0.1	0.1	0.3	0.3	0.1	0.3	0.3	0.1	0.1	0.1	0.3
71.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
72°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
72.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
73°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
73.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
74°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
74.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
75°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1
75.5°	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
76°	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
76.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	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	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: P775716  
CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-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: P775716

CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	560.4	560.4	560.4	560.4	560.4	560.4
0.5°	560.6	560.5	560.6	560.5	560.4	560.2
1°	560.7	560.6	560.7	560.6	560.5	560.4
1.5°	560.9	560.8	560.9	560.8	560.7	560.6
2°	561.1	561.0	561.1	561.1	561.0	560.9
2.5°	561.5	561.4	561.5	561.5	561.3	561.2
3°	561.9	561.8	561.9	561.9	561.8	561.7
3.5°	562.6	562.5	562.6	562.6	562.4	562.3
4°	563.3	563.2	563.3	563.2	563.0	562.9
4.5°	564.0	563.9	564.0	563.9	563.7	563.6
5°	564.8	564.8	564.8	564.7	564.5	564.4
5.5°	565.8	565.7	565.8	565.6	565.4	565.2
6°	566.8	566.7	566.8	566.6	566.3	566.2
6.5°	567.9	567.8	567.9	567.8	567.5	567.4
7°	569.1	569.0	569.1	569.0	568.7	568.6
7.5°	570.4	570.3	570.4	570.4	570.1	570.0
8°	572.0	571.9	572.0	571.9	571.6	571.4
8.5°	573.8	573.7	573.8	573.8	573.4	573.2
9°	575.7	575.5	575.7	575.6	575.3	575.1
9.5°	577.8	577.5	577.8	577.7	577.4	577.2
10°	579.8	579.5	579.8	579.8	579.5	579.3
10.5°	581.8	581.6	581.8	581.8	581.6	581.4
11°	584.0	583.8	584.0	584.1	583.9	583.6
11.5°	586.1	585.9	586.1	586.2	586.0	585.8
12°	588.4	588.2	588.4	588.4	588.2	588.0
12.5°	590.6	590.4	590.6	590.6	590.4	590.1
13°	592.9	592.7	592.9	592.9	592.7	592.3
13.5°	595.1	594.9	595.1	595.2	594.9	594.5
14°	597.6	597.2	597.6	597.6	597.2	596.6
14.5°	599.9	599.5	599.9	599.8	599.4	598.9
15°	602.3	601.7	602.3	602.2	601.6	601.1
15.5°	604.5	604.0	604.5	604.5	603.9	603.3
16°	606.7	606.2	606.7	606.7	606.1	605.4
16.5°	608.9	608.4	608.9	608.9	608.2	607.5
17°	611.0	610.4	611.0	611.0	610.3	609.6
17.5°	613.1	612.5	613.1	613.1	612.4	611.5
18°	615.0	614.5	615.0	615.0	614.3	613.4
18.5°	616.8	616.3	616.8	616.8	616.1	615.1
19°	618.5	618.1	618.5	618.6	617.8	616.7
19.5°	620.0	619.7	620.0	620.2	619.2	618.2
20°	621.3	621.2	621.3	621.6	620.5	619.5
20.5°	622.5	622.5	622.5	622.8	621.6	620.6
21°	623.3	623.5	623.3	623.7	622.5	621.4



TEST NUMBER: P775716

CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	624.3	624.9	624.3	624.8	623.4	622.5
23°	624.0	624.7	624.0	624.6	623.1	622.3
23.5°	623.3	624.2	623.3	624.0	622.5	621.6
24°	622.4	623.2	622.4	623.0	621.4	620.6
24.5°	621.0	621.7	621.0	621.5	620.0	619.2
25°	619.3	619.9	619.3	619.7	618.3	617.4
25.5°	617.3	617.6	617.3	617.6	616.1	615.3
26°	614.8	614.9	614.8	614.9	613.6	612.8
26.5°	611.9	611.7	611.9	611.8	610.5	609.6
27°	608.7	608.2	608.7	608.4	607.3	606.3
27.5°	605.0	604.2	605.0	604.5	603.5	602.6
28°	600.9	599.8	600.9	600.1	599.3	598.4
28.5°	596.5	595.1	596.5	595.5	594.7	594.0
29°	591.6	590.1	591.6	590.4	589.8	589.1
29.5°	586.2	584.8	586.2	585.2	584.5	583.9
30°	580.5	579.1	580.5	579.3	578.8	578.4
30.5°	574.5	573.1	574.5	573.3	572.7	572.5
31°	568.0	566.7	568.0	566.8	566.2	566.0
31.5°	561.0	560.1	561.0	560.1	559.4	559.4
32°	553.8	553.2	553.8	552.9	552.3	552.4
32.5°	546.1	545.9	546.1	545.5	544.7	544.9
33°	538.2	538.3	538.2	537.7	536.9	537.2
33.5°	529.8	530.1	529.8	529.5	528.6	529.0
34°	521.0	521.8	521.0	520.9	520.1	520.5
34.5°	512.0	513.0	512.0	511.9	511.4	511.4
35°	502.9	503.9	502.9	502.7	502.1	502.3
35.5°	493.5	494.5	493.5	493.3	492.9	492.9
36°	483.9	484.6	483.9	483.6	483.3	483.3
36.5°	473.9	474.7	473.9	473.7	473.5	473.4
37°	463.7	464.3	463.7	463.4	463.3	463.1
37.5°	453.4	453.7	453.4	453.1	452.9	452.8
38°	442.8	443.1	442.8	442.6	442.3	442.3
38.5°	432.0	432.3	432.0	431.8	431.5	431.5
39°	421.3	421.4	421.3	421.0	420.6	420.6
39.5°	410.5	410.6	410.5	409.9	409.5	409.4
40°	399.5	399.8	399.5	399.0	398.3	398.2
40.5°	389.2	389.4	389.2	388.3	387.4	387.1
41°	379.0	379.4	379.0	378.0	377.0	376.7
41.5°	369.2	369.5	369.2	368.2	367.4	366.9
42°	359.7	360.3	359.7	359.0	358.2	358.0
42.5°	351.4	351.8	351.4	350.7	349.7	349.6
43°	343.5	344.4	343.5	342.7	341.5	341.4
43.5°	335.8	336.5	335.8	335.0	334.2	333.9



TEST NUMBER: P775716

CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	315.8	316.4	315.8	315.5	314.8	314.8
45.5°	310.0	310.3	310.0	309.7	309.0	309.0
46°	304.4	304.6	304.4	304.0	303.5	303.4
46.5°	298.8	299.2	298.8	298.5	298.0	298.0
47°	293.5	293.8	293.5	293.1	292.7	292.7
47.5°	288.2	288.3	288.2	287.9	287.4	287.4
48°	283.0	283.2	283.0	282.7	282.1	282.2
48.5°	277.8	277.9	277.8	277.4	276.9	276.9
49°	272.2	272.5	272.2	271.9	271.5	271.4
49.5°	266.5	266.6	266.5	266.2	265.7	265.8
50°	260.2	260.2	260.2	259.9	259.6	259.6
50.5°	253.4	253.4	253.4	253.0	252.8	252.8
51°	246.0	246.3	246.0	245.7	245.4	245.5
51.5°	238.6	238.7	238.6	238.2	237.8	237.9
52°	230.6	230.8	230.6	230.3	230.0	229.9
52.5°	222.6	222.7	222.6	222.1	221.6	221.7
53°	214.3	214.2	214.3	213.8	213.3	213.2
53.5°	205.7	205.9	205.7	205.3	204.7	204.6
54°	197.0	197.1	197.0	196.6	196.0	195.8
54.5°	188.5	188.7	188.5	188.0	187.1	187.1
55°	179.8	180.2	179.8	179.4	178.5	178.4
55.5°	171.1	171.5	171.1	170.5	169.6	169.4
56°	162.3	162.9	162.3	161.8	160.8	160.5
56.5°	153.7	154.2	153.7	153.1	152.0	151.7
57°	145.1	145.6	145.1	144.4	143.5	143.0
57.5°	136.6	137.1	136.6	135.8	134.9	134.4
58°	128.4	128.8	128.4	127.3	126.3	125.9
58.5°	120.3	120.6	120.3	119.1	118.1	117.5
59°	112.1	112.5	112.1	110.8	110.0	109.3
59.5°	104.2	104.5	104.2	102.9	101.9	101.4
60°	96.2	96.6	96.2	95.0	94.1	93.7
60.5°	88.5	89.1	88.5	87.2	86.3	85.9
61°	81.0	81.6	81.0	79.9	78.8	78.4
61.5°	73.8	74.7	73.8	72.7	71.5	70.7
62°	66.8	67.8	66.8	65.6	64.5	63.5
62.5°	60.0	61.0	60.0	58.8	57.6	56.2
63°	53.4	54.5	53.4	52.1	51.0	49.2
63.5°	47.1	48.4	47.1	46.0	44.8	42.4
64°	41.4	42.7	41.4	40.4	39.0	35.9
64.5°	35.9	37.1	35.9	35.0	33.7	30.1
65°	30.7	31.6	30.7	29.9	28.6	24.8
65.5°	25.6	26.4	25.6	25.2	24.1	19.8
66°	21.4	21.8	21.4	20.8	20.0	15.5



TEST NUMBER: P775716

CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	10.6	11.2	10.6	10.0	9.3	4.8
68°	8.0	9.2	8.0	7.1	6.5	2.9
68.5°	5.6	7.1	5.6	5.1	4.3	1.7
69°	3.6	5.1	3.6	3.2	2.6	1.0
69.5°	1.8	3.1	1.8	1.8	1.6	0.6
70°	1.0	1.0	1.0	1.0	0.8	0.1
70.5°	0.6	0.4	0.6	0.6	0.3	0.1
71°	0.3	0.1	0.3	0.3	0.1	0.1
71.5°	0.1	0.1	0.1	0.1	0.1	0.1
72°	0.1	0.1	0.1	0.1	0.1	0.1
72.5°	0.1	0.1	0.1	0.1	0.1	0.1
73°	0.1	0.1	0.1	0.1	0.1	0.1
73.5°	0.1	0.1	0.1	0.1	0.1	0.1
74°	0.1	0.1	0.1	0.1	0.1	0.1
74.5°	0.1	0.1	0.1	0.1	0.1	0.1
75°	0.1	0.1	0.1	0.1	0.0	0.0
75.5°	0.1	0.1	0.1	0.0	0.0	0.0
76°	0.0	0.1	0.0	0.0	0.0	0.0
76.5°	0.0	0.0	0.0	0.0	0.0	0.0
77°	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0
78°	0.0	0.0	0.0	0.0	0.0	0.0
78.5°	0.0	0.0	0.0	0.0	0.0	0.0
79°	0.0	0.0	0.0	0.0	0.0	0.0
79.5°	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0
80.5°	0.0	0.0	0.0	0.0	0.0	0.0
81°	0.0	0.0	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	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: P775716

CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-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°	622.2	623.1	624.4	623.9	624.3	623.9	624.4	623.1	622.2	623.1	624.4
22°	622.5	623.4	624.8	624.2	624.7	624.2	624.8	623.4	622.5	623.4	624.8



44°	327.0	327.2	328.1	328.6	329.4	328.6	328.1	327.2	327.0	327.2	328.1
44.5°	320.8	320.9	321.6	322.0	322.6	322.0	321.6	320.9	320.8	320.9	321.6



66.5°	11.3	15.9	16.9	17.6	17.7	17.6	16.9	15.9	11.3	15.9	16.9
67°	7.9	12.6	13.2	13.8	13.9	13.8	13.2	12.6	7.9	12.6	13.2



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°	623.9	624.3	623.9	624.4	623.1	622.2
22°	624.2	624.7	624.2	624.8	623.4	622.5



44°	328.6	329.4	328.6	328.1	327.2	327.0
44.5°	322.0	322.6	322.0	321.6	320.9	320.8

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66.5°	17.6	17.7	17.6	16.9	15.9	11.3
67°	13.8	13.9	13.8	13.2	12.6	7.9

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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)