

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: P775717

Luminaire Tested: HCDJBL510CSD-HCD61TRC-1000lm-3500K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775717
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-3500K
Description: 6 INCH ROUND SHALLOW-WIDE SPECULAR CLEAR TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

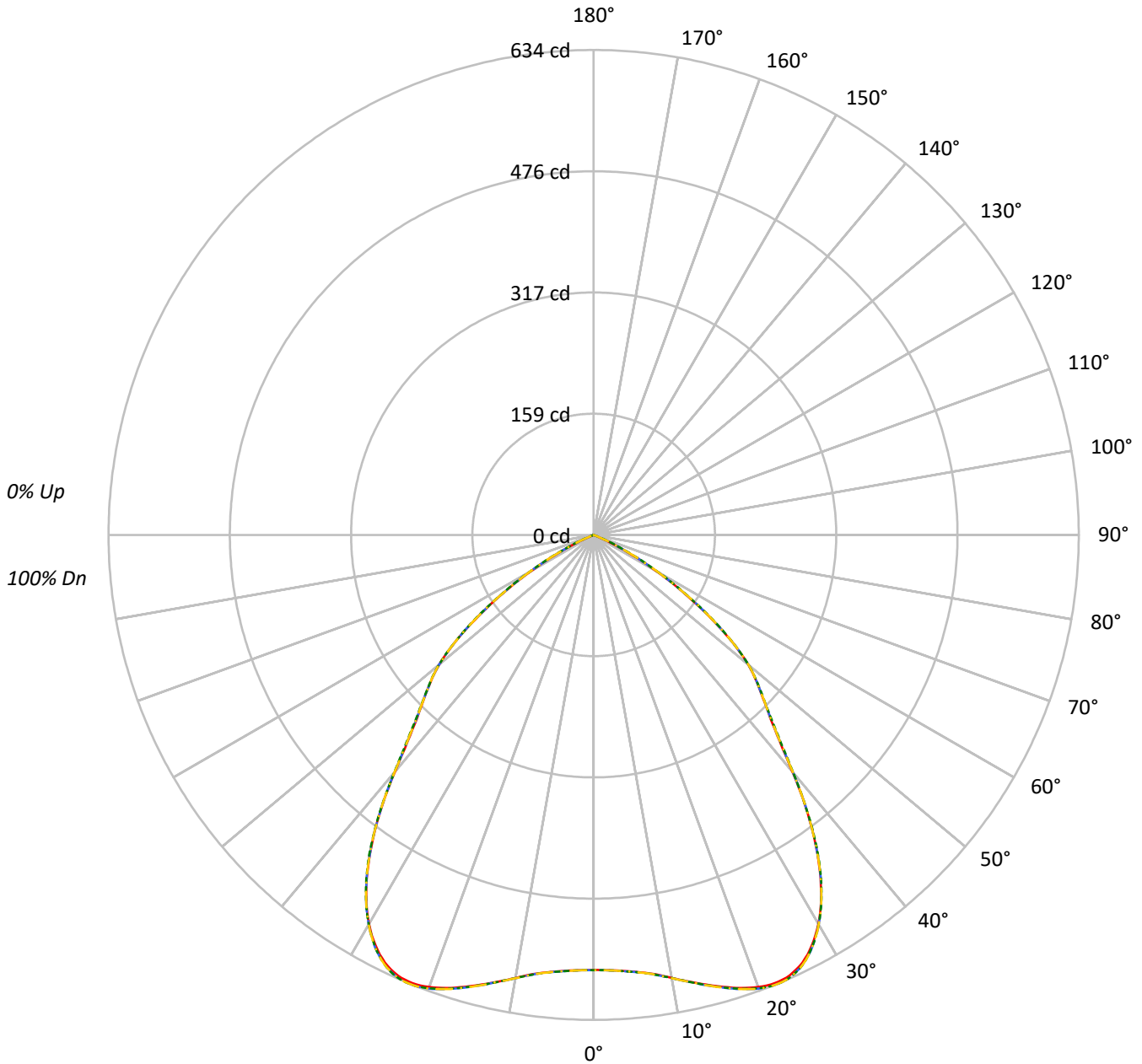
Lumens per Lamp: N/A
Luminaire Lumens: 1278.5 lumens
Efficiency: N/A
Efficacy: 127.9 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.39 / 1.3
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

Input Watts (W): 10
Input Voltage (V): NR
Input Current (A_{in}): 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	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°	31193	31193	31193	31193
5°	31532	31554	31532	31554
10°	32737	32748	32737	32748
15°	34637	34671	34637	34671
20°	36689	36794	36689	36794
25°	37913	38071	37913	38071
30°	37170	37215	37170	37215
35°	34124	34238	34124	34238
40°	28926	29047	28926	29047
45°	24778	24910	24778	24910
50°	22481	22532	22481	22532
55°	17309	17490	17309	17490
60°	10427	10756	10427	10756
65°	3269	4164	3269	4164
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: 24910 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	55.2	4.3
10°-20°	173.7	13.6
20°-30°	287.2	22.5
30°-40°	315.3	24.7
40°-50°	250.4	19.6
50°-60°	161.3	12.6
60°-70°	35.3	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°	516.2	40.4
0°-40°	831.5	65.0
0°-60°	1243.1	97.2
0°-90°	1278.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1278.5	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	569	569	569	569	569	
5°	573	573	573	573	573	55
15°	610	611	610	611	610	173
25°	627	629	627	629	627	287
35°	510	512	510	512	510	315
45°	320	321	320	321	320	250
55°	181	183	181	183	181	160
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°	569.0	569.0	569.0	569.0	569.0	569.0	569.0	569.0	569.0	569.0	569.0
0.5°	568.8	569.0	569.1	569.2	569.1	569.2	569.1	569.0	568.8	569.0	569.1
1°	569.0	569.1	569.2	569.3	569.2	569.3	569.2	569.1	569.0	569.1	569.2
1.5°	569.2	569.3	569.4	569.5	569.4	569.5	569.4	569.3	569.2	569.3	569.4
2°	569.5	569.6	569.7	569.7	569.6	569.7	569.7	569.6	569.5	569.6	569.7
2.5°	569.8	569.9	570.1	570.1	570.0	570.1	570.1	569.9	569.8	569.9	570.1
3°	570.3	570.4	570.5	570.5	570.4	570.5	570.5	570.4	570.3	570.4	570.5
3.5°	570.8	570.9	571.1	571.1	571.0	571.1	571.1	570.9	570.8	570.9	571.1
4°	571.4	571.5	571.8	571.9	571.8	571.9	571.8	571.5	571.4	571.5	571.8
4.5°	572.2	572.3	572.5	572.6	572.5	572.6	572.5	572.3	572.2	572.3	572.5
5°	573.0	573.1	573.3	573.4	573.4	573.4	573.3	573.1	573.0	573.1	573.3
5.5°	573.8	574.0	574.2	574.4	574.3	574.4	574.2	574.0	573.8	574.0	574.2
6°	574.9	575.0	575.3	575.5	575.4	575.5	575.3	575.0	574.9	575.0	575.3
6.5°	576.0	576.1	576.4	576.5	576.4	576.5	576.4	576.1	576.0	576.1	576.4
7°	577.2	577.4	577.7	577.8	577.7	577.8	577.7	577.4	577.2	577.4	577.7
7.5°	578.7	578.8	579.1	579.1	579.0	579.1	579.1	578.8	578.7	578.8	579.1
8°	580.1	580.4	580.7	580.8	580.7	580.8	580.7	580.4	580.1	580.4	580.7
8.5°	581.9	582.1	582.5	582.5	582.4	582.5	582.5	582.1	581.9	582.1	582.5
9°	583.9	584.1	584.4	584.5	584.3	584.5	584.4	584.1	583.9	584.1	584.4
9.5°	585.9	586.2	586.5	586.6	586.3	586.6	586.5	586.2	585.9	586.2	586.5
10°	588.1	588.3	588.6	588.6	588.3	588.6	588.6	588.3	588.1	588.3	588.6
10.5°	590.3	590.5	590.7	590.7	590.5	590.7	590.7	590.5	590.3	590.5	590.7
11°	592.5	592.8	593.0	592.9	592.7	592.9	593.0	592.8	592.5	592.8	593.0
11.5°	594.8	595.0	595.2	595.1	594.9	595.1	595.2	595.0	594.8	595.0	595.2
12°	596.9	597.1	597.3	597.3	597.1	597.3	597.3	597.1	596.9	597.1	597.3
12.5°	599.1	599.4	599.6	599.6	599.4	599.6	599.6	599.4	599.1	599.4	599.6
13°	601.3	601.7	601.9	601.9	601.7	601.9	601.9	601.7	601.3	601.7	601.9
13.5°	603.6	604.0	604.3	604.2	604.0	604.2	604.3	604.0	603.6	604.0	604.3
14°	605.7	606.3	606.7	606.7	606.3	606.7	606.7	606.3	605.7	606.3	606.7
14.5°	608.0	608.5	608.9	609.1	608.6	609.1	608.9	608.5	608.0	608.5	608.9
15°	610.3	610.8	611.3	611.4	610.9	611.4	611.3	610.8	610.3	610.8	611.3
15.5°	612.5	613.1	613.7	613.7	613.2	613.7	613.7	613.1	612.5	613.1	613.7
16°	614.6	615.4	616.0	616.0	615.5	616.0	616.0	615.4	614.6	615.4	616.0
16.5°	616.7	617.4	618.2	618.2	617.6	618.2	618.2	617.4	616.7	617.4	618.2
17°	618.9	619.6	620.3	620.3	619.7	620.3	620.3	619.6	618.9	619.6	620.3
17.5°	620.9	621.7	622.4	622.4	621.8	622.4	622.4	621.7	620.9	621.7	622.4
18°	622.7	623.7	624.4	624.4	623.9	624.4	624.4	623.7	622.7	623.7	624.4
18.5°	624.5	625.5	626.2	626.2	625.7	626.2	626.2	625.5	624.5	625.5	626.2
19°	626.1	627.2	628.0	627.9	627.5	627.9	628.0	627.2	626.1	627.2	628.0
19.5°	627.6	628.6	629.7	629.5	629.1	629.5	629.7	628.6	627.6	628.6	629.7
20°	628.9	630.0	631.1	630.8	630.7	630.8	631.1	630.0	628.9	630.0	631.1
20.5°	630.1	631.1	632.3	631.9	631.9	631.9	632.3	631.1	630.1	631.1	632.3
21°	630.9	631.9	633.2	632.8	633.0	632.8	633.2	631.9	630.9	631.9	633.2



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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°	631.9	632.9	634.3	633.8	634.4	633.8	634.3	632.9	631.9	632.9	634.3
23°	631.7	632.6	634.1	633.5	634.2	633.5	634.1	632.6	631.7	632.6	634.1
23.5°	631.1	631.9	633.5	632.8	633.7	632.8	633.5	631.9	631.1	631.9	633.5
24°	630.1	630.9	632.5	631.8	632.7	631.8	632.5	630.9	630.1	630.9	632.5
24.5°	628.6	629.5	631.0	630.5	631.2	630.5	631.0	629.5	628.6	629.5	631.0
25°	626.8	627.7	629.1	628.7	629.4	628.7	629.1	627.7	626.8	627.7	629.1
25.5°	624.7	625.5	627.0	626.7	627.0	626.7	627.0	625.5	624.7	625.5	627.0
26°	622.1	622.9	624.3	624.2	624.3	624.2	624.3	622.9	622.1	622.9	624.3
26.5°	618.9	619.8	621.2	621.3	621.1	621.3	621.2	619.8	618.9	619.8	621.2
27°	615.6	616.5	617.6	618.0	617.4	618.0	617.6	616.5	615.6	616.5	617.6
27.5°	611.7	612.7	613.7	614.2	613.4	614.2	613.7	612.7	611.7	612.7	613.7
28°	607.5	608.4	609.3	610.1	608.9	610.1	609.3	608.4	607.5	608.4	609.3
28.5°	603.0	603.8	604.6	605.6	604.2	605.6	604.6	603.8	603.0	603.8	604.6
29°	598.1	598.8	599.4	600.7	599.1	600.7	599.4	598.8	598.1	598.8	599.4
29.5°	592.8	593.4	594.1	595.2	593.7	595.2	594.1	593.4	592.8	593.4	594.1
30°	587.2	587.6	588.1	589.4	587.9	589.4	588.1	587.6	587.2	587.6	588.1
30.5°	581.2	581.4	582.0	583.3	581.8	583.3	582.0	581.4	581.2	581.4	582.0
31°	574.7	574.9	575.5	576.6	575.4	576.6	575.5	574.9	574.7	574.9	575.5
31.5°	567.9	567.9	568.6	569.6	568.6	569.6	568.6	567.9	567.9	567.9	568.6
32°	560.8	560.7	561.3	562.2	561.6	562.2	561.3	560.7	560.8	560.7	561.3
32.5°	553.2	553.0	553.8	554.5	554.2	554.5	553.8	553.0	553.2	553.0	553.8
33°	545.3	545.1	545.9	546.4	546.5	546.4	545.9	545.1	545.3	545.1	545.9
33.5°	537.1	536.6	537.6	537.9	538.2	537.9	537.6	536.6	537.1	536.6	537.6
34°	528.5	528.0	528.9	529.0	529.8	529.0	528.9	528.0	528.5	528.0	528.9
34.5°	519.2	519.2	519.7	519.9	520.8	519.9	519.7	519.2	519.2	519.2	519.7
35°	509.9	509.8	510.3	510.5	511.6	510.5	510.3	509.8	509.9	509.8	510.3
35.5°	500.4	500.4	500.8	501.0	502.0	501.0	500.8	500.4	500.4	500.4	500.8
36°	490.6	490.6	490.9	491.3	492.0	491.3	490.9	490.6	490.6	490.6	490.9
36.5°	480.6	480.7	480.9	481.1	481.9	481.1	480.9	480.7	480.6	480.7	480.9
37°	470.1	470.3	470.4	470.7	471.4	470.7	470.4	470.3	470.1	470.3	470.4
37.5°	459.7	459.8	460.0	460.3	460.6	460.3	460.0	459.8	459.7	459.8	460.0
38°	449.0	449.0	449.3	449.5	449.8	449.5	449.3	449.0	449.0	449.0	449.3
38.5°	438.1	438.1	438.4	438.6	438.8	438.6	438.4	438.1	438.1	438.1	438.4
39°	427.0	427.0	427.4	427.8	427.9	427.8	427.4	427.0	427.0	427.0	427.4
39.5°	415.6	415.7	416.2	416.8	416.9	416.8	416.2	415.7	415.6	415.7	416.2
40°	404.2	404.3	405.1	405.6	405.9	405.6	405.1	404.3	404.2	404.3	405.1
40.5°	393.0	393.3	394.2	395.1	395.3	395.1	394.2	393.3	393.0	393.3	394.2
41°	382.5	382.8	383.7	384.8	385.2	384.8	383.7	382.8	382.5	382.8	383.7
41.5°	372.5	373.0	373.8	374.8	375.1	374.8	373.8	373.0	372.5	373.0	373.8
42°	363.4	363.6	364.5	365.2	365.8	365.2	364.5	363.6	363.4	363.6	364.5
42.5°	354.9	355.0	356.1	356.8	357.2	356.8	356.1	355.0	354.9	355.0	356.1
43°	346.6	346.7	347.9	348.7	349.6	348.7	347.9	346.7	346.6	346.7	347.9
43.5°	339.0	339.3	340.1	340.9	341.7	340.9	340.1	339.3	339.0	339.3	340.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	319.6	319.6	320.3	320.6	321.3	320.6	320.3	319.6	319.6	319.6	320.3
45.5°	313.7	313.7	314.4	314.7	315.0	314.7	314.4	313.7	313.7	313.7	314.4
46°	308.0	308.1	308.6	309.0	309.2	309.0	308.6	308.1	308.0	308.1	308.6
46.5°	302.5	302.5	303.0	303.3	303.7	303.3	303.0	302.5	302.5	302.5	303.0
47°	297.1	297.1	297.5	297.9	298.3	297.9	297.5	297.1	297.1	297.1	297.5
47.5°	291.7	291.7	292.2	292.6	292.7	292.6	292.2	291.7	291.7	291.7	292.2
48°	286.6	286.4	287.0	287.3	287.5	287.3	287.0	286.4	286.6	286.4	287.0
48.5°	281.2	281.2	281.6	282.0	282.1	282.0	281.6	281.2	281.2	281.2	281.6
49°	275.6	275.7	276.1	276.4	276.6	276.4	276.1	275.7	275.6	275.7	276.1
49.5°	269.9	269.8	270.3	270.6	270.7	270.6	270.3	269.8	269.9	269.8	270.3
50°	263.6	263.6	263.9	264.2	264.2	264.2	263.9	263.6	263.6	263.6	263.9
50.5°	256.6	256.6	256.8	257.2	257.2	257.2	256.8	256.6	256.6	256.6	256.8
51°	249.3	249.2	249.5	249.8	250.1	249.8	249.5	249.2	249.3	249.2	249.5
51.5°	241.5	241.4	241.8	242.2	242.3	242.2	241.8	241.4	241.5	241.4	241.8
52°	233.4	233.5	233.8	234.1	234.3	234.1	233.8	233.5	233.4	233.5	233.8
52.5°	225.1	225.0	225.5	225.9	226.1	225.9	225.5	225.0	225.1	225.0	225.5
53°	216.4	216.5	217.0	217.6	217.5	217.6	217.0	216.5	216.4	216.5	217.0
53.5°	207.7	207.8	208.4	208.9	209.1	208.9	208.4	207.8	207.7	207.8	208.4
54°	198.8	199.0	199.6	200.0	200.2	200.0	199.6	199.0	198.8	199.0	199.6
54.5°	190.0	190.0	190.8	191.3	191.6	191.3	190.8	190.0	190.0	190.0	190.8
55°	181.1	181.2	182.1	182.5	183.0	182.5	182.1	181.2	181.1	181.2	182.1
55.5°	172.0	172.2	173.1	173.7	174.1	173.7	173.1	172.2	172.0	172.2	173.1
56°	163.0	163.3	164.3	164.8	165.3	164.8	164.3	163.3	163.0	163.3	164.3
56.5°	154.0	154.4	155.4	156.0	156.5	156.0	155.4	154.4	154.0	154.4	155.4
57°	145.1	145.7	146.6	147.3	147.8	147.3	146.6	145.7	145.1	145.7	146.6
57.5°	136.4	137.0	137.9	138.7	139.2	138.7	137.9	137.0	136.4	137.0	137.9
58°	127.8	128.3	129.3	130.3	130.7	130.3	129.3	128.3	127.8	128.3	129.3
58.5°	119.2	119.9	120.9	122.1	122.5	122.1	120.9	119.9	119.2	119.9	120.9
59°	111.0	111.7	112.5	113.9	114.2	113.9	112.5	111.7	111.0	111.7	112.5
59.5°	103.0	103.5	104.4	105.8	106.1	105.8	104.4	103.5	103.0	103.5	104.4
60°	95.1	95.5	96.4	97.7	98.1	97.7	96.4	95.5	95.1	95.5	96.4
60.5°	87.2	87.6	88.6	89.8	90.4	89.8	88.6	87.6	87.2	87.6	88.6
61°	79.6	80.0	81.1	82.3	82.9	82.3	81.1	80.0	79.6	80.0	81.1
61.5°	71.8	72.6	73.8	74.9	75.8	74.9	73.8	72.6	71.8	72.6	73.8
62°	64.4	65.5	66.6	67.9	68.8	67.9	66.6	65.5	64.4	65.5	66.6
62.5°	57.1	58.4	59.7	60.9	62.0	60.9	59.7	58.4	57.1	58.4	59.7
63°	49.9	51.8	52.9	54.2	55.3	54.2	52.9	51.8	49.9	51.8	52.9
63.5°	43.1	45.5	46.7	47.9	49.1	47.9	46.7	45.5	43.1	45.5	46.7
64°	36.5	39.6	41.0	42.1	43.3	42.1	41.0	39.6	36.5	39.6	41.0
64.5°	30.6	34.2	35.5	36.5	37.7	36.5	35.5	34.2	30.6	34.2	35.5
65°	25.2	29.0	30.4	31.2	32.1	31.2	30.4	29.0	25.2	29.0	30.4
65.5°	20.1	24.4	25.6	26.0	26.8	26.0	25.6	24.4	20.1	24.4	25.6
66°	15.7	20.3	21.1	21.8	22.2	21.8	21.1	20.3	15.7	20.3	21.1



TEST NUMBER: P775717

CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	4.9	9.4	10.2	10.8	11.4	10.8	10.2	9.4	4.9	9.4	10.2
68°	2.9	6.6	7.3	8.1	9.3	8.1	7.3	6.6	2.9	6.6	7.3
68.5°	1.8	4.4	5.2	5.7	7.3	5.7	5.2	4.4	1.8	4.4	5.2
69°	1.0	2.6	3.2	3.6	5.2	3.6	3.2	2.6	1.0	2.6	3.2
69.5°	0.6	1.7	1.9	1.9	3.1	1.9	1.9	1.7	0.6	1.7	1.9
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: P775717

CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-1000lm-3500K

CANDELA DISTRIBUTION (continued):

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



TEST NUMBER: P775717

CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	569.0	569.0	569.0	569.0	569.0	569.0
0.5°	569.2	569.1	569.2	569.1	569.0	568.8
1°	569.3	569.2	569.3	569.2	569.1	569.0
1.5°	569.5	569.4	569.5	569.4	569.3	569.2
2°	569.7	569.6	569.7	569.7	569.6	569.5
2.5°	570.1	570.0	570.1	570.1	569.9	569.8
3°	570.5	570.4	570.5	570.5	570.4	570.3
3.5°	571.1	571.0	571.1	571.1	570.9	570.8
4°	571.9	571.8	571.9	571.8	571.5	571.4
4.5°	572.6	572.5	572.6	572.5	572.3	572.2
5°	573.4	573.4	573.4	573.3	573.1	573.0
5.5°	574.4	574.3	574.4	574.2	574.0	573.8
6°	575.5	575.4	575.5	575.3	575.0	574.9
6.5°	576.5	576.4	576.5	576.4	576.1	576.0
7°	577.8	577.7	577.8	577.7	577.4	577.2
7.5°	579.1	579.0	579.1	579.1	578.8	578.7
8°	580.8	580.7	580.8	580.7	580.4	580.1
8.5°	582.5	582.4	582.5	582.5	582.1	581.9
9°	584.5	584.3	584.5	584.4	584.1	583.9
9.5°	586.6	586.3	586.6	586.5	586.2	585.9
10°	588.6	588.3	588.6	588.6	588.3	588.1
10.5°	590.7	590.5	590.7	590.7	590.5	590.3
11°	592.9	592.7	592.9	593.0	592.8	592.5
11.5°	595.1	594.9	595.1	595.2	595.0	594.8
12°	597.3	597.1	597.3	597.3	597.1	596.9
12.5°	599.6	599.4	599.6	599.6	599.4	599.1
13°	601.9	601.7	601.9	601.9	601.7	601.3
13.5°	604.2	604.0	604.2	604.3	604.0	603.6
14°	606.7	606.3	606.7	606.7	606.3	605.7
14.5°	609.1	608.6	609.1	608.9	608.5	608.0
15°	611.4	610.9	611.4	611.3	610.8	610.3
15.5°	613.7	613.2	613.7	613.7	613.1	612.5
16°	616.0	615.5	616.0	616.0	615.4	614.6
16.5°	618.2	617.6	618.2	618.2	617.4	616.7
17°	620.3	619.7	620.3	620.3	619.6	618.9
17.5°	622.4	621.8	622.4	622.4	621.7	620.9
18°	624.4	623.9	624.4	624.4	623.7	622.7
18.5°	626.2	625.7	626.2	626.2	625.5	624.5
19°	627.9	627.5	627.9	628.0	627.2	626.1
19.5°	629.5	629.1	629.5	629.7	628.6	627.6
20°	630.8	630.7	630.8	631.1	630.0	628.9
20.5°	631.9	631.9	631.9	632.3	631.1	630.1
21°	632.8	633.0	632.8	633.2	631.9	630.9



TEST NUMBER: P775717

CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	633.8	634.4	633.8	634.3	632.9	631.9
23°	633.5	634.2	633.5	634.1	632.6	631.7
23.5°	632.8	633.7	632.8	633.5	631.9	631.1
24°	631.8	632.7	631.8	632.5	630.9	630.1
24.5°	630.5	631.2	630.5	631.0	629.5	628.6
25°	628.7	629.4	628.7	629.1	627.7	626.8
25.5°	626.7	627.0	626.7	627.0	625.5	624.7
26°	624.2	624.3	624.2	624.3	622.9	622.1
26.5°	621.3	621.1	621.3	621.2	619.8	618.9
27°	618.0	617.4	618.0	617.6	616.5	615.6
27.5°	614.2	613.4	614.2	613.7	612.7	611.7
28°	610.1	608.9	610.1	609.3	608.4	607.5
28.5°	605.6	604.2	605.6	604.6	603.8	603.0
29°	600.7	599.1	600.7	599.4	598.8	598.1
29.5°	595.2	593.7	595.2	594.1	593.4	592.8
30°	589.4	587.9	589.4	588.1	587.6	587.2
30.5°	583.3	581.8	583.3	582.0	581.4	581.2
31°	576.6	575.4	576.6	575.5	574.9	574.7
31.5°	569.6	568.6	569.6	568.6	567.9	567.9
32°	562.2	561.6	562.2	561.3	560.7	560.8
32.5°	554.5	554.2	554.5	553.8	553.0	553.2
33°	546.4	546.5	546.4	545.9	545.1	545.3
33.5°	537.9	538.2	537.9	537.6	536.6	537.1
34°	529.0	529.8	529.0	528.9	528.0	528.5
34.5°	519.9	520.8	519.9	519.7	519.2	519.2
35°	510.5	511.6	510.5	510.3	509.8	509.9
35.5°	501.0	502.0	501.0	500.8	500.4	500.4
36°	491.3	492.0	491.3	490.9	490.6	490.6
36.5°	481.1	481.9	481.1	480.9	480.7	480.6
37°	470.7	471.4	470.7	470.4	470.3	470.1
37.5°	460.3	460.6	460.3	460.0	459.8	459.7
38°	449.5	449.8	449.5	449.3	449.0	449.0
38.5°	438.6	438.8	438.6	438.4	438.1	438.1
39°	427.8	427.9	427.8	427.4	427.0	427.0
39.5°	416.8	416.9	416.8	416.2	415.7	415.6
40°	405.6	405.9	405.6	405.1	404.3	404.2
40.5°	395.1	395.3	395.1	394.2	393.3	393.0
41°	384.8	385.2	384.8	383.7	382.8	382.5
41.5°	374.8	375.1	374.8	373.8	373.0	372.5
42°	365.2	365.8	365.2	364.5	363.6	363.4
42.5°	356.8	357.2	356.8	356.1	355.0	354.9
43°	348.7	349.6	348.7	347.9	346.7	346.6
43.5°	340.9	341.7	340.9	340.1	339.3	339.0



TEST NUMBER: P775717

CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	320.6	321.3	320.6	320.3	319.6	319.6
45.5°	314.7	315.0	314.7	314.4	313.7	313.7
46°	309.0	309.2	309.0	308.6	308.1	308.0
46.5°	303.3	303.7	303.3	303.0	302.5	302.5
47°	297.9	298.3	297.9	297.5	297.1	297.1
47.5°	292.6	292.7	292.6	292.2	291.7	291.7
48°	287.3	287.5	287.3	287.0	286.4	286.6
48.5°	282.0	282.1	282.0	281.6	281.2	281.2
49°	276.4	276.6	276.4	276.1	275.7	275.6
49.5°	270.6	270.7	270.6	270.3	269.8	269.9
50°	264.2	264.2	264.2	263.9	263.6	263.6
50.5°	257.2	257.2	257.2	256.8	256.6	256.6
51°	249.8	250.1	249.8	249.5	249.2	249.3
51.5°	242.2	242.3	242.2	241.8	241.4	241.5
52°	234.1	234.3	234.1	233.8	233.5	233.4
52.5°	225.9	226.1	225.9	225.5	225.0	225.1
53°	217.6	217.5	217.6	217.0	216.5	216.4
53.5°	208.9	209.1	208.9	208.4	207.8	207.7
54°	200.0	200.2	200.0	199.6	199.0	198.8
54.5°	191.3	191.6	191.3	190.8	190.0	190.0
55°	182.5	183.0	182.5	182.1	181.2	181.1
55.5°	173.7	174.1	173.7	173.1	172.2	172.0
56°	164.8	165.3	164.8	164.3	163.3	163.0
56.5°	156.0	156.5	156.0	155.4	154.4	154.0
57°	147.3	147.8	147.3	146.6	145.7	145.1
57.5°	138.7	139.2	138.7	137.9	137.0	136.4
58°	130.3	130.7	130.3	129.3	128.3	127.8
58.5°	122.1	122.5	122.1	120.9	119.9	119.2
59°	113.9	114.2	113.9	112.5	111.7	111.0
59.5°	105.8	106.1	105.8	104.4	103.5	103.0
60°	97.7	98.1	97.7	96.4	95.5	95.1
60.5°	89.8	90.4	89.8	88.6	87.6	87.2
61°	82.3	82.9	82.3	81.1	80.0	79.6
61.5°	74.9	75.8	74.9	73.8	72.6	71.8
62°	67.9	68.8	67.9	66.6	65.5	64.4
62.5°	60.9	62.0	60.9	59.7	58.4	57.1
63°	54.2	55.3	54.2	52.9	51.8	49.9
63.5°	47.9	49.1	47.9	46.7	45.5	43.1
64°	42.1	43.3	42.1	41.0	39.6	36.5
64.5°	36.5	37.7	36.5	35.5	34.2	30.6
65°	31.2	32.1	31.2	30.4	29.0	25.2
65.5°	26.0	26.8	26.0	25.6	24.4	20.1
66°	21.8	22.2	21.8	21.1	20.3	15.7



TEST NUMBER: P775717

CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	10.8	11.4	10.8	10.2	9.4	4.9
68°	8.1	9.3	8.1	7.3	6.6	2.9
68.5°	5.7	7.3	5.7	5.2	4.4	1.8
69°	3.6	5.2	3.6	3.2	2.6	1.0
69.5°	1.9	3.1	1.9	1.9	1.7	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: P775717
CATALOG NUMBER: HCDJBL510CSD-HCD61TRC-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - - 90°-270° - · - 135°-315°

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21.5°	631.6	632.6	633.9	633.4	633.8	633.4	633.9	632.6	631.6	632.6	633.9
22°	631.9	632.9	634.3	633.7	634.2	633.7	634.3	632.9	631.9	632.9	634.3



44°	332.0	332.2	333.1	333.6	334.4	333.6	333.1	332.2	332.0	332.2	333.1
44.5°	325.7	325.8	326.5	327.0	327.5	327.0	326.5	325.8	325.7	325.8	326.5



66.5°	11.5	16.2	17.2	17.8	17.9	17.8	17.2	16.2	11.5	16.2	17.2
67°	8.0	12.7	13.4	14.0	14.1	14.0	13.4	12.7	8.0	12.7	13.4



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°	633.4	633.8	633.4	633.9	632.6	631.6
22°	633.7	634.2	633.7	634.3	632.9	631.9



44°	333.6	334.4	333.6	333.1	332.2	332.0
44.5°	327.0	327.5	327.0	326.5	325.8	325.7

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66.5°	17.8	17.9	17.8	17.2	16.2	11.5
67°	14.0	14.1	14.0	13.4	12.7	8.0

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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)