

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: P775728

Luminaire Tested: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-4000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775728
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B041)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-4000K
Description: 6 INCH ROUND SHALLOW-WIDE LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT
Ballast/Driver: -

Summary

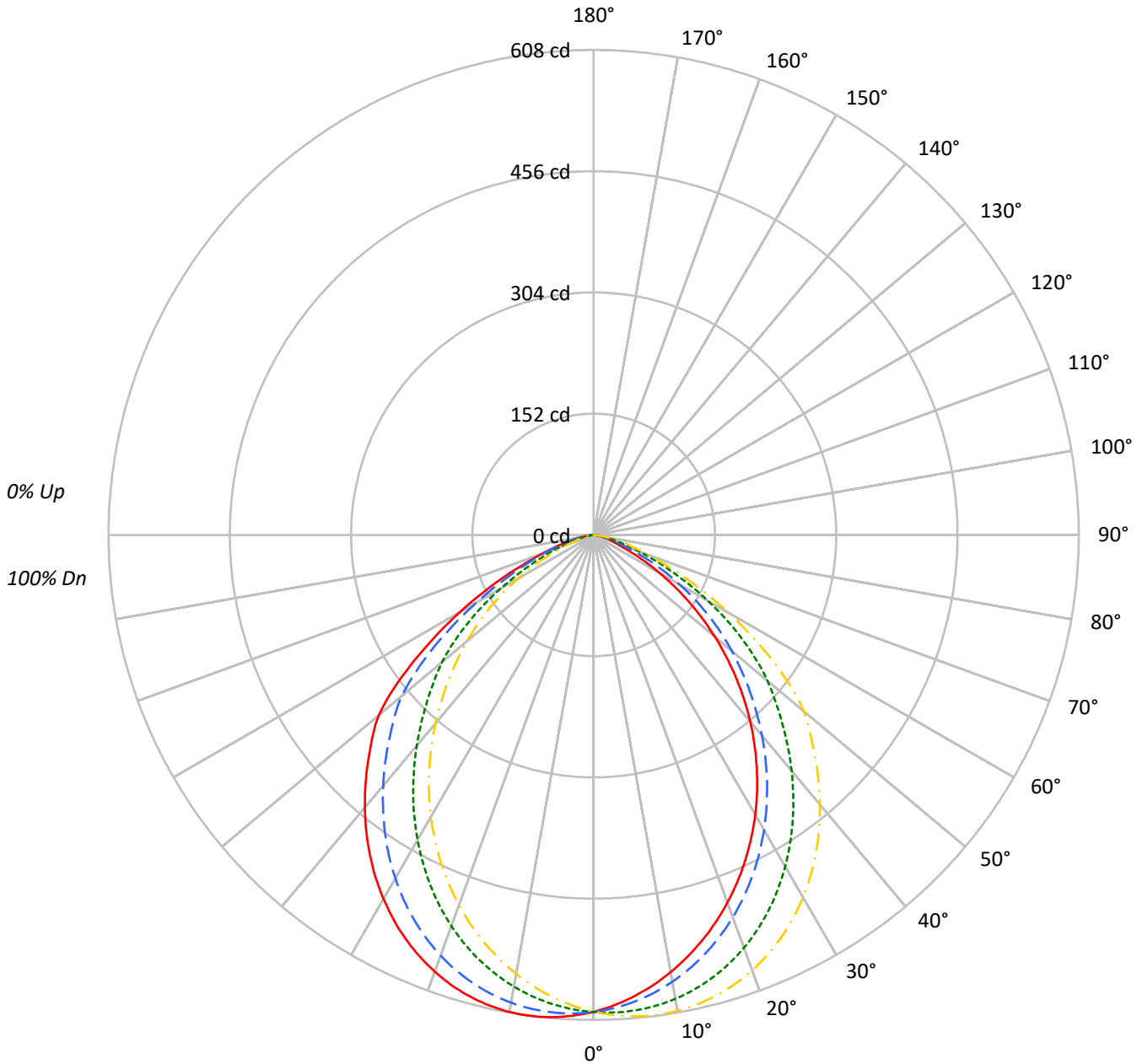
Lumens per Lamp: N/A
Luminaire Lumens: 1272.3 lumens
Efficiency: N/A
Efficacy: 127.2 lumens/watt
Spacing Criteria (0/90/45): 1.17 / 1.16 / 1.25
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

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									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	111	107	103	100	108	105	101	99	100	98	95	97	94	93	93	91	90	88				88															
2	102	95	89	84	100	93	88	83	90	85	82	87	83	80	84	81	78	76				76															
3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66				66															
4	87	76	68	62	85	75	68	62	72	66	61	70	65	60	68	63	60	58				58															
5	80	69	61	55	78	68	60	54	66	59	54	64	58	53	62	57	53	51				51															
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45				45															
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40				40															
8	65	52	44	39	63	51	44	39	50	43	38	49	43	38	48	42	38	36				36															
9	61	48	40	35	59	47	40	35	46	40	35	45	39	35	44	39	35	33				33															
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30				30															

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	32782	32782	32782	32782
5°	31956	32924	33397	32495
10°	30978	32865	33806	32013
15°	29858	32617	34001	31328
20°	28609	32127	33982	30429
25°	27207	31393	33776	29294
30°	25631	30384	33353	27954
35°	23845	29118	32725	26394
40°	21819	27616	31931	24682
45°	19521	25925	30972	22886
50°	16878	24221	29944	21125
55°	13868	21686	26207	18418
60°	10482	18113	21215	14780
65°	6875	13893	15877	10896
70°	4568	9729	10963	7341
75°	3643	6270	7604	4660
80°	2683	3852	4578	2747
85°	1447	2264	1006	1572

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 157.5°
 Vertical Angle: 45°
 Luminance: 31182 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	56.3	4.4
10°-20°	158.5	12.5
20°-30°	231.3	18.2
30°-40°	261.8	20.6
40°-50°	247.7	19.5
50°-60°	188.1	14.8
60°-70°	94.2	7.4
70°-80°	29.8	2.3
80°-90°	4.5	0.4
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°	446.1	35.1
0°-40°	707.9	55.6
0°-60°	1143.7	89.9
0°-90°	1272.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1272.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	598	598	598	598	598	
5°	581	598	607	590	581	55
15°	526	575	599	552	526	148
25°	450	519	558	484	450	207
35°	356	435	489	394	356	222
45°	252	334	400	295	252	194
55°	145	227	274	193	145	130
65°	53	107	122	84	53	55
75°	17	30	36	22	17	19
85°	2	4	2	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°	598.0	598.0	598.0	598.0	598.0	598.0	598.0	598.0	598.0	598.0	598.0
0.5°	596.5	596.9	597.3	597.7	598.6	598.7	598.9	599.0	599.1	599.1	598.7
1°	595.0	595.8	596.5	597.4	598.9	599.4	600.0	600.3	600.3	600.1	599.2
1.5°	593.6	594.5	595.7	597.0	599.1	600.2	601.0	601.4	601.4	600.9	599.8
2°	592.0	593.1	594.7	596.6	599.2	600.7	601.9	602.5	602.4	601.8	600.1
2.5°	590.2	591.7	593.7	596.1	599.2	601.2	602.7	603.4	603.4	602.5	600.5
3°	588.5	590.2	592.5	595.5	599.2	601.6	603.5	604.4	604.2	603.0	600.7
3.5°	586.7	588.6	591.4	594.7	599.1	602.1	604.2	605.2	605.0	603.5	600.8
4°	584.7	586.9	590.1	594.0	598.9	602.3	604.8	606.0	605.7	604.1	600.9
4.5°	582.8	585.2	588.7	593.1	598.7	602.5	605.3	606.7	606.4	604.4	600.9
5°	580.7	583.4	587.3	592.2	598.3	602.6	605.7	607.2	606.9	604.7	600.8
5.5°	578.6	581.4	585.8	591.1	597.9	602.7	606.1	607.7	607.3	604.9	600.7
6°	576.4	579.4	584.1	590.1	597.3	602.6	606.4	608.2	607.6	605.0	600.4
6.5°	574.2	577.4	582.5	588.9	596.8	602.5	606.6	608.5	608.0	605.0	600.1
7°	571.9	575.3	580.7	587.7	596.1	602.3	606.7	608.7	608.1	605.0	599.7
7.5°	569.5	573.1	579.0	586.3	595.3	602.0	606.7	608.8	608.2	604.8	599.1
8°	567.0	570.8	577.1	584.8	594.5	601.6	606.7	608.9	608.2	604.6	598.6
8.5°	564.5	568.5	575.1	583.4	593.7	601.2	606.6	608.9	608.1	604.3	597.9
9°	561.9	566.1	573.0	581.8	592.6	600.8	606.3	608.8	608.0	604.0	597.1
9.5°	559.2	563.6	570.9	580.2	591.6	600.2	606.1	608.6	607.6	603.4	596.4
10°	556.5	561.1	568.8	578.4	590.4	599.5	605.6	608.3	607.3	602.9	595.5
10.5°	553.8	558.5	566.5	576.6	589.3	598.7	605.2	608.0	606.9	602.2	594.5
11°	550.9	555.9	564.0	574.8	587.9	597.9	604.7	607.5	606.3	601.5	593.5
11.5°	548.0	553.1	561.6	572.8	586.5	597.0	604.1	606.9	605.7	600.7	592.3
12°	545.0	550.3	559.2	570.7	585.1	596.0	603.3	606.4	605.0	599.9	591.1
12.5°	542.0	547.4	556.6	568.7	583.6	594.9	602.5	605.6	604.3	598.9	589.8
13°	538.9	544.5	554.0	566.4	581.9	593.8	601.6	604.8	603.4	597.9	588.4
13.5°	535.8	541.6	551.2	564.2	580.2	592.6	600.7	604.0	602.4	596.7	587.0
14°	532.6	538.5	548.5	561.8	578.4	591.2	599.7	603.0	601.4	595.5	585.5
14.5°	529.4	535.5	545.7	559.4	576.5	589.9	598.5	602.0	600.3	594.2	583.9
15°	526.1	532.2	542.7	556.8	574.7	588.3	597.3	600.8	599.1	592.8	582.2
15.5°	522.8	529.0	539.7	554.3	572.6	586.8	596.1	599.7	597.9	591.4	580.4
16°	519.4	525.7	536.7	551.5	570.5	585.2	594.7	598.3	596.4	589.8	578.5
16.5°	515.9	522.3	533.6	548.9	568.4	583.5	593.2	596.9	595.0	588.2	576.6
17°	512.4	519.0	530.3	546.0	566.1	581.7	591.8	595.6	593.5	586.5	574.7
17.5°	508.9	515.5	527.1	543.1	563.7	579.8	590.1	594.0	591.9	584.7	572.7
18°	505.2	511.9	523.8	540.2	561.2	577.9	588.4	592.3	590.1	582.8	570.5
18.5°	501.7	508.5	520.4	537.2	558.8	575.8	586.6	590.6	588.4	580.9	568.2
19°	497.9	504.8	517.0	534.0	556.2	573.7	584.7	588.8	586.5	578.9	565.9
19.5°	494.1	501.2	513.4	530.7	553.5	571.5	582.8	586.9	584.5	576.9	563.5
20°	490.4	497.5	510.0	527.6	550.7	569.2	581.0	584.9	582.5	574.7	561.1
20.5°	486.4	493.7	506.3	524.2	547.9	566.8	578.9	583.0	580.4	572.3	558.5
21°	482.5	489.8	502.6	520.9	545.0	564.5	576.6	580.9	578.3	570.0	556.0



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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°	470.7	478.0	491.2	510.2	535.9	556.6	569.6	574.1	571.4	562.7	547.8
23°	466.6	473.9	487.3	506.5	532.6	553.9	567.2	571.7	568.9	560.1	544.8
23.5°	462.5	469.9	483.4	502.7	529.4	551.0	564.7	569.2	566.4	557.3	541.9
24°	458.3	465.8	479.3	498.9	526.0	548.1	561.9	566.7	563.8	554.5	538.8
24.5°	454.0	461.6	475.1	494.9	522.6	545.0	559.2	564.0	561.0	551.7	535.7
25°	449.8	457.3	471.0	491.0	519.0	542.1	556.5	561.3	558.4	548.8	532.5
25.5°	445.5	453.1	466.9	487.1	515.4	538.8	553.6	558.6	555.4	545.9	529.3
26°	441.2	448.8	462.7	483.0	511.8	535.6	550.7	555.7	552.6	542.7	526.0
26.5°	436.7	444.5	458.2	478.8	508.1	532.3	547.7	552.7	549.6	539.7	522.7
27°	432.3	440.1	454.0	474.7	504.2	529.0	544.5	549.8	546.6	536.4	519.2
27.5°	427.8	435.6	449.6	470.4	500.4	525.5	541.5	546.7	543.5	533.3	515.7
28°	423.3	431.1	445.1	466.0	496.4	521.9	538.2	543.6	540.2	530.0	512.1
28.5°	418.8	426.6	440.5	461.6	492.4	518.4	534.8	540.3	536.9	526.5	508.5
29°	414.3	422.1	436.0	457.3	488.4	514.8	531.5	537.2	533.6	523.1	504.8
29.5°	409.6	417.5	431.5	452.9	484.2	510.9	528.1	533.7	530.2	519.6	501.0
30°	404.9	412.8	427.0	448.4	480.0	507.2	524.6	530.3	526.9	516.0	497.1
30.5°	400.2	408.2	422.1	443.8	475.8	503.2	520.9	526.9	523.4	512.4	493.3
31°	395.5	403.4	417.5	439.3	471.5	499.2	517.2	523.4	519.8	508.7	489.4
31.5°	390.7	398.7	412.7	434.5	467.1	495.1	513.5	519.7	516.0	504.9	485.3
32°	385.9	394.0	408.0	429.8	462.6	491.3	509.7	516.0	512.5	501.1	481.3
32.5°	381.1	389.2	403.1	425.2	458.2	487.1	506.0	512.3	508.8	497.2	477.2
33°	376.1	384.2	398.4	420.5	453.8	482.7	502.0	508.5	504.9	493.4	473.1
33.5°	371.3	379.4	393.5	415.5	449.1	478.5	498.0	504.7	501.0	489.4	469.0
34°	366.4	374.6	388.6	410.8	444.5	474.2	493.9	500.8	497.0	485.3	464.6
34.5°	361.3	369.6	383.6	405.9	439.7	469.7	489.8	496.7	493.0	481.2	460.3
35°	356.3	364.6	378.8	400.9	435.1	465.3	485.7	492.7	489.0	477.1	456.0
35.5°	351.3	359.6	373.6	396.1	430.3	460.9	481.4	488.6	485.1	473.0	451.7
36°	346.3	354.6	368.8	391.2	425.5	456.3	477.2	484.5	481.0	468.7	447.1
36.5°	341.3	349.6	363.7	386.1	420.7	451.7	472.9	480.3	476.7	464.6	442.7
37°	336.1	344.4	358.5	381.1	415.7	447.0	468.5	476.0	472.5	460.2	438.2
37.5°	331.0	339.4	353.6	376.0	410.8	442.3	463.9	471.7	468.1	455.9	433.6
38°	325.7	334.2	348.5	371.0	406.0	437.6	459.5	467.4	463.8	451.3	429.0
38.5°	320.7	329.2	343.4	365.9	400.9	432.7	454.9	463.0	459.5	447.0	424.6
39°	315.6	323.9	338.3	360.8	396.0	427.9	450.4	458.6	455.0	442.5	419.8
39.5°	310.3	318.9	333.2	355.8	391.1	423.1	445.8	454.1	450.7	438.0	415.2
40°	304.9	313.6	328.1	350.6	385.9	418.1	441.0	449.6	446.2	433.5	410.4
40.5°	299.8	308.4	322.8	345.5	380.7	413.3	436.3	444.9	441.6	429.0	405.8
41°	294.5	303.1	317.7	340.3	375.6	408.2	431.5	440.3	437.1	424.2	400.9
41.5°	289.2	298.0	312.5	335.1	370.7	403.2	426.8	435.7	432.5	419.7	396.2
42°	283.8	292.6	307.3	330.0	365.3	398.2	421.9	431.0	427.8	415.0	391.4
42.5°	278.6	287.5	302.3	324.9	360.4	393.3	417.1	426.2	423.2	410.4	386.5
43°	273.3	282.2	297.0	319.7	355.1	388.2	412.2	421.5	418.5	405.5	381.7
43.5°	267.9	277.0	291.9	314.6	350.1	383.2	407.3	416.8	413.8	400.8	376.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	251.8	261.1	276.4	299.1	334.4	367.8	392.3	402.2	399.5	386.5	362.3
45.5°	246.4	256.0	271.4	294.1	329.6	362.7	387.4	397.4	394.7	381.7	357.4
46°	241.1	250.6	266.2	289.0	324.2	357.4	382.3	392.5	389.9	377.1	352.7
46.5°	235.5	245.5	261.1	283.9	319.1	352.5	377.5	387.8	385.4	372.5	348.1
47°	230.0	240.1	256.0	278.9	314.0	347.5	372.7	383.1	380.9	367.9	343.5
47.5°	224.8	234.9	250.9	273.8	309.1	342.5	367.9	378.6	376.2	363.3	338.7
48°	219.4	229.7	245.8	268.8	304.0	337.7	363.1	373.9	371.7	358.8	334.2
48.5°	214.1	224.5	240.7	264.0	299.1	332.9	358.5	369.3	367.1	354.1	329.4
49°	208.6	219.3	235.7	259.0	294.1	327.8	353.6	364.5	362.3	349.0	324.5
49.5°	203.4	214.2	230.8	254.1	289.1	322.9	348.6	359.6	357.1	343.7	319.0
50°	197.9	208.9	225.8	248.9	284.0	317.7	343.3	354.0	351.1	337.8	313.5
50.5°	192.5	203.8	220.7	244.1	279.0	312.2	337.4	347.9	344.8	331.2	307.3
51°	187.0	198.7	215.7	239.0	273.6	306.3	331.3	341.2	337.4	324.2	301.1
51.5°	181.8	193.6	210.8	233.8	268.1	300.5	324.9	334.1	330.2	317.1	294.3
52°	176.5	188.4	205.8	228.7	262.6	294.2	317.9	326.6	322.8	309.6	287.3
52.5°	171.2	183.4	200.8	223.3	256.7	287.8	310.8	318.8	314.8	301.9	280.0
53°	166.0	178.4	195.8	218.1	250.7	281.3	303.3	310.9	307.1	294.1	272.9
53.5°	160.7	173.3	190.6	212.7	244.9	274.6	295.8	303.0	298.8	286.1	265.4
54°	155.3	168.3	185.6	207.1	238.9	267.6	288.3	295.2	290.5	278.1	258.1
54.5°	150.2	163.2	180.6	201.9	233.1	260.9	280.6	287.0	282.3	270.2	250.6
55°	145.1	158.3	175.5	196.6	226.9	254.0	272.9	279.0	274.2	262.2	243.3
55.5°	139.8	153.4	170.3	191.2	220.9	247.0	264.9	270.9	265.8	254.0	235.6
56°	134.9	148.3	165.2	185.7	214.7	239.8	257.1	262.7	257.4	245.7	228.1
56.5°	129.7	143.3	160.2	180.2	208.6	232.7	249.1	254.5	249.4	237.7	220.6
57°	124.7	138.3	155.0	174.8	202.3	225.5	241.5	246.2	241.1	229.8	213.2
57.5°	119.6	133.4	149.9	169.3	196.3	218.5	233.5	238.1	233.0	221.6	205.7
58°	114.8	128.6	145.0	163.9	190.0	211.2	226.0	230.0	225.1	213.6	198.3
58.5°	110.0	123.6	139.8	158.5	183.8	204.2	218.2	222.0	217.0	205.9	191.1
59°	105.0	118.9	134.9	152.9	177.5	197.0	210.4	214.1	209.0	198.3	183.7
59.5°	100.3	114.1	129.8	147.6	171.5	190.0	202.8	206.1	201.1	190.5	176.5
60°	95.6	109.3	125.0	142.3	165.2	183.1	195.3	198.3	193.5	183.1	169.6
60.5°	90.9	104.5	120.1	137.0	159.1	176.0	187.6	190.6	185.9	175.7	162.6
61°	86.2	100.0	115.1	131.6	152.9	169.3	180.2	183.1	178.4	168.7	155.9
61.5°	81.8	95.4	110.4	126.4	147.1	162.7	173.0	175.5	171.0	161.7	149.4
62°	77.3	90.9	105.8	121.2	141.0	156.2	166.1	168.3	163.8	154.8	143.0
62.5°	72.9	86.3	100.9	116.1	135.2	149.6	158.6	160.9	156.6	148.1	136.5
63°	68.7	82.0	96.3	110.9	129.3	143.0	151.7	153.8	149.8	141.4	130.4
63.5°	64.6	77.6	91.7	105.9	123.6	136.9	144.8	146.8	142.6	135.1	124.5
64°	60.5	73.4	87.1	100.8	118.0	130.5	138.4	140.1	135.6	129.2	118.8
64.5°	56.7	69.3	82.6	95.9	112.5	124.4	131.8	133.4	128.9	123.1	113.2
65°	53.0	65.3	78.1	91.1	107.1	118.5	125.4	127.1	122.4	117.3	107.8
65.5°	49.4	61.2	73.7	86.4	102.0	112.7	119.3	120.8	115.6	111.5	102.6
66°	46.0	57.5	69.3	81.6	96.8	106.9	113.4	114.6	109.3	106.1	97.6



TEST NUMBER: P775728

CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	37.2	46.3	56.9	68.3	82.3	91.5	96.7	97.6	92.4	91.1	84.0
68°	35.3	42.9	53.0	64.2	77.5	86.7	91.9	92.5	87.4	86.2	79.5
68.5°	33.3	39.6	49.3	60.0	73.2	81.8	87.1	87.6	82.2	81.4	75.0
69°	31.4	37.0	45.7	56.1	68.9	77.0	82.2	82.7	77.1	76.7	71.0
69.5°	29.4	34.5	42.2	52.1	64.7	72.4	77.3	77.7	72.6	72.4	67.0
70°	28.5	31.9	39.1	48.6	60.7	68.2	73.0	73.5	68.4	68.3	63.2
70.5°	27.4	29.3	36.6	45.2	56.9	64.2	69.0	69.4	64.4	64.5	59.8
71°	26.3	26.8	34.0	41.8	53.4	60.3	65.0	65.4	60.6	60.7	56.3
71.5°	25.1	25.6	31.4	38.8	49.8	56.5	61.1	61.6	56.9	57.1	52.9
72°	23.8	24.6	28.9	36.2	46.4	53.1	57.6	58.1	53.5	53.7	49.8
72.5°	22.7	23.5	26.4	33.7	43.2	49.7	54.2	54.6	50.2	50.5	46.7
73°	21.5	22.4	24.4	31.2	40.2	46.5	50.9	51.5	47.1	47.3	43.8
73.5°	20.4	21.3	22.6	28.6	37.4	43.5	47.7	48.3	44.2	44.4	41.1
74°	19.3	20.3	21.0	26.0	34.7	40.6	44.9	45.4	41.3	41.6	38.4
74.5°	18.2	19.2	19.6	24.1	32.0	37.8	42.0	42.5	38.5	38.9	35.9
75°	17.2	18.2	18.4	22.2	29.6	35.2	39.4	39.8	35.9	36.3	33.4
75.5°	16.2	17.2	17.3	20.4	27.4	32.8	36.8	37.3	33.4	33.8	31.1
76°	15.2	16.2	16.3	18.8	25.2	30.4	34.2	34.8	30.9	31.4	28.9
76.5°	14.3	15.2	15.4	17.2	23.2	28.1	31.9	32.4	28.6	29.2	26.8
77°	13.3	14.3	14.5	15.9	21.3	26.0	29.6	30.1	26.3	27.0	24.8
77.5°	12.5	13.4	13.7	14.6	19.5	24.1	27.5	27.9	24.2	24.9	22.9
78°	11.6	12.5	12.8	13.4	17.9	22.2	25.4	25.8	22.1	22.9	21.0
78.5°	10.8	11.7	12.0	12.3	16.3	20.3	23.4	23.8	20.0	21.1	19.2
79°	10.0	10.8	11.2	11.2	14.8	18.6	21.5	21.8	18.1	19.2	17.5
79.5°	9.2	10.0	10.5	10.3	13.4	16.9	19.7	20.1	16.3	17.5	16.0
80°	8.5	9.2	9.8	9.5	12.2	15.3	18.0	18.3	14.5	15.9	14.4
80.5°	7.8	8.5	9.0	8.6	11.0	13.9	16.3	16.6	12.7	14.3	12.9
81°	7.0	7.8	8.3	7.9	10.0	12.5	14.7	15.0	11.2	12.8	11.6
81.5°	6.4	7.1	7.7	7.2	9.0	11.2	13.1	13.4	9.9	11.4	10.4
82°	5.8	6.4	7.0	6.6	8.1	10.1	11.7	12.1	8.4	10.3	9.2
82.5°	5.1	5.8	6.4	6.0	7.1	9.0	10.5	10.8	6.9	9.1	8.1
83°	4.5	5.1	5.8	5.5	6.2	8.0	9.3	9.7	5.6	8.0	6.9
83.5°	3.9	4.5	5.1	4.9	5.5	6.9	8.2	8.5	4.4	6.7	5.8
84°	3.4	3.9	4.6	4.4	4.7	5.9	6.9	7.2	3.3	5.6	4.9
84.5°	2.8	3.4	4.1	3.9	4.1	5.0	5.8	6.1	2.3	4.6	4.1
85°	2.3	2.8	3.6	3.5	3.6	4.2	4.8	4.9	1.6	3.8	3.4
85.5°	1.8	2.3	3.2	3.0	3.0	3.6	4.0	4.0	1.1	2.9	2.6
86°	1.4	1.9	2.6	2.6	2.5	2.8	3.3	3.0	0.7	2.2	2.0
86.5°	1.2	1.5	2.1	2.1	2.1	2.3	2.5	2.3	0.6	1.6	1.5
87°	0.8	1.2	1.7	1.7	1.7	1.8	1.9	1.7	0.4	1.1	1.1
87.5°	0.6	0.8	1.3	1.3	1.4	1.4	1.4	1.2	0.3	0.6	0.6
88°	0.4	0.6	0.8	0.9	1.1	0.9	0.8	0.6	0.2	0.3	0.3
88.5°	0.2	0.3	0.5	0.5	0.6	0.5	0.4	0.3	0.1	0.1	0.1



TEST NUMBER: P775728

CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-4000K

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: P775728

CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	598.0	598.0	598.0	598.0	598.0	598.0
0.5°	598.1	597.9	597.0	596.5	596.3	596.5
1°	598.2	597.3	596.0	595.2	594.8	595.0
1.5°	598.1	596.7	595.0	593.8	593.2	593.6
2°	598.1	596.1	593.9	592.3	591.6	592.0
2.5°	597.9	595.3	592.6	590.8	589.9	590.2
3°	597.7	594.5	591.4	589.1	588.1	588.5
3.5°	597.3	593.6	590.0	587.5	586.3	586.7
4°	596.9	592.6	588.6	585.7	584.4	584.7
4.5°	596.4	591.6	587.2	583.8	582.3	582.8
5°	595.9	590.5	585.6	581.9	580.2	580.7
5.5°	595.2	589.3	583.9	579.9	578.1	578.6
6°	594.5	588.0	582.1	577.8	575.9	576.4
6.5°	593.7	586.6	580.3	575.7	573.6	574.2
7°	592.8	585.3	578.5	573.5	571.2	571.9
7.5°	591.8	583.7	576.5	571.2	568.8	569.5
8°	590.8	582.1	574.5	568.9	566.4	567.0
8.5°	589.7	580.5	572.3	566.5	563.7	564.5
9°	588.5	578.8	570.2	564.0	561.1	561.9
9.5°	587.3	576.9	567.9	561.4	558.4	559.2
10°	585.9	575.1	565.6	558.8	555.6	556.5
10.5°	584.4	573.1	563.2	556.2	552.9	553.8
11°	583.0	571.1	560.8	553.4	550.1	550.9
11.5°	581.4	568.9	558.3	550.6	547.1	548.0
12°	579.8	566.7	555.6	547.8	544.1	545.0
12.5°	578.0	564.5	552.9	544.7	541.0	542.0
13°	576.2	562.2	550.2	541.8	538.0	538.9
13.5°	574.3	559.6	547.4	538.7	534.7	535.8
14°	572.3	557.2	544.5	535.7	531.6	532.6
14.5°	570.3	554.6	541.6	532.5	528.3	529.4
15°	568.1	552.0	538.6	529.3	525.0	526.1
15.5°	565.9	549.3	535.5	525.9	521.6	522.8
16°	563.7	546.5	532.3	522.6	518.2	519.4
16.5°	561.4	543.7	529.1	519.2	514.7	515.9
17°	559.0	540.7	525.8	515.7	511.2	512.4
17.5°	556.5	537.8	522.5	512.2	507.5	508.9
18°	553.9	534.6	519.1	508.6	504.0	505.2
18.5°	551.2	531.5	515.5	504.9	500.3	501.7
19°	548.5	528.2	512.1	501.2	496.5	497.9
19.5°	545.7	525.0	508.5	497.5	492.7	494.1
20°	542.8	521.6	504.8	493.8	488.9	490.4
20.5°	539.9	518.2	501.0	489.9	485.1	486.4
21°	536.8	514.7	497.2	485.9	481.1	482.5

TEST NUMBER: P775728

CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	527.4	503.9	485.5	473.9	469.1	470.7
23°	524.0	500.0	481.5	469.8	465.0	466.6
23.5°	520.8	496.3	477.5	465.7	460.9	462.5
24°	517.3	492.3	473.3	461.5	456.6	458.3
24.5°	513.7	488.4	469.2	457.3	452.3	454.0
25°	510.2	484.3	464.9	453.0	448.1	449.8
25.5°	506.5	480.3	460.7	448.6	443.8	445.5
26°	502.8	476.3	456.3	444.2	439.4	441.2
26.5°	498.9	472.0	452.1	439.9	435.0	436.7
27°	495.1	467.7	447.6	435.5	430.5	432.3
27.5°	491.4	463.5	443.1	431.0	426.0	427.8
28°	487.4	459.2	438.5	426.3	421.4	423.3
28.5°	483.5	454.9	434.1	421.8	417.0	418.8
29°	479.3	450.4	429.5	417.2	412.3	414.3
29.5°	475.2	446.0	424.9	412.6	407.6	409.6
30°	471.0	441.6	420.3	407.9	402.9	404.9
30.5°	466.9	437.0	415.5	403.1	398.3	400.2
31°	462.6	432.3	410.7	398.4	393.5	395.5
31.5°	458.2	427.7	406.1	393.6	388.7	390.7
32°	453.8	423.0	401.2	388.7	383.8	385.9
32.5°	449.5	418.4	396.4	383.9	379.1	381.1
33°	444.9	413.7	391.6	379.1	374.1	376.1
33.5°	440.4	408.9	386.7	374.1	369.3	371.3
34°	435.9	404.1	381.8	369.2	364.4	366.4
34.5°	431.3	399.2	376.8	364.3	359.4	361.3
35°	426.7	394.4	371.8	359.2	354.3	356.3
35.5°	422.0	389.5	367.0	354.2	349.5	351.3
36°	417.4	384.7	362.0	349.2	344.4	346.3
36.5°	412.7	379.7	357.0	344.2	339.3	341.3
37°	407.9	374.8	351.9	339.1	334.2	336.1
37.5°	403.1	369.9	346.9	334.0	329.2	331.0
38°	398.3	364.9	341.8	328.9	324.0	325.7
38.5°	393.5	359.9	336.9	323.8	318.9	320.7
39°	388.6	355.0	331.8	318.8	313.7	315.6
39.5°	383.8	350.0	326.8	313.6	308.6	310.3
40°	378.9	344.9	321.6	308.4	303.3	304.9
40.5°	374.0	340.0	316.6	303.3	298.2	299.8
41°	369.1	334.9	311.5	298.2	292.8	294.5
41.5°	364.2	329.9	306.4	293.1	287.6	289.2
42°	359.2	325.0	301.3	287.9	282.4	283.8
42.5°	354.3	320.0	296.4	282.8	277.2	278.6
43°	349.5	315.1	291.4	277.6	271.9	273.3
43.5°	344.4	310.0	286.4	272.5	266.7	267.9

TEST NUMBER: P775728

CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	329.7	295.2	271.3	257.1	250.9	251.8
45.5°	324.8	290.2	266.4	252.0	245.6	246.4
46°	319.9	285.5	261.5	247.0	240.3	241.1
46.5°	315.2	280.8	256.7	241.9	235.1	235.5
47°	310.5	276.0	251.8	236.9	229.8	230.0
47.5°	305.8	271.2	246.9	231.8	224.7	224.8
48°	301.2	266.8	242.2	226.8	219.4	219.4
48.5°	296.6	262.1	237.4	221.8	214.1	214.1
49°	291.8	257.3	232.8	217.0	208.9	208.6
49.5°	286.6	252.6	228.1	212.1	203.8	203.4
50°	281.4	247.7	223.4	207.1	198.5	197.9
50.5°	275.8	242.5	218.5	202.3	193.5	192.5
51°	270.2	237.4	213.7	197.5	188.2	187.0
51.5°	264.3	232.0	208.9	192.6	183.2	181.8
52°	258.3	226.7	204.0	187.9	178.1	176.5
52.5°	252.0	221.1	198.9	183.0	173.0	171.2
53°	245.8	215.5	193.9	178.1	168.1	166.0
53.5°	239.2	209.9	188.9	173.2	163.0	160.7
54°	232.6	204.2	183.7	168.5	158.1	155.3
54.5°	225.9	198.5	178.6	163.5	153.1	150.2
55°	219.4	192.7	173.3	158.6	148.3	145.1
55.5°	212.6	186.8	168.2	153.7	143.3	139.8
56°	205.9	181.0	162.9	148.8	138.4	134.9
56.5°	199.3	175.2	157.8	143.9	133.6	129.7
57°	192.6	169.3	152.4	139.1	128.8	124.7
57.5°	185.9	163.4	147.2	134.0	123.9	119.6
58°	179.4	157.7	142.0	129.3	119.3	114.8
58.5°	173.0	151.9	136.9	124.4	114.5	110.0
59°	166.4	146.1	131.7	119.5	109.8	105.0
59.5°	160.1	140.3	126.6	114.8	105.1	100.3
60°	153.8	134.8	121.5	110.1	100.5	95.6
60.5°	147.6	129.2	116.5	105.4	95.9	90.9
61°	141.4	123.7	111.5	100.7	91.4	86.2
61.5°	135.4	118.5	106.6	96.2	87.0	81.8
62°	129.7	113.2	101.8	91.7	82.7	77.3
62.5°	123.8	108.1	97.1	87.2	78.4	72.9
63°	118.2	102.9	92.4	82.8	74.2	68.7
63.5°	112.6	98.1	87.8	78.5	70.0	64.6
64°	107.2	93.3	83.3	74.2	66.0	60.5
64.5°	102.1	88.7	78.9	70.0	62.0	56.7
65°	97.1	84.0	74.6	65.9	58.3	53.0
65.5°	92.3	79.6	70.4	61.8	54.5	49.4
66°	87.7	75.2	66.2	57.9	50.9	46.0



TEST NUMBER: P775728

CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	74.3	63.1	54.6	46.7	40.9	37.2
68°	70.2	59.3	50.9	43.5	37.9	35.3
68.5°	66.3	55.8	47.6	40.2	35.6	33.3
69°	62.5	52.3	44.1	37.1	33.4	31.4
69.5°	58.9	49.1	41.0	34.7	31.2	29.4
70°	55.5	45.8	38.1	32.2	28.9	28.5
70.5°	52.2	42.7	35.7	29.8	26.7	27.4
71°	48.9	39.9	33.3	27.4	25.6	26.3
71.5°	46.0	37.1	30.9	25.5	24.7	25.1
72°	43.1	34.8	28.5	23.8	23.6	23.8
72.5°	40.3	32.5	26.0	22.3	22.5	22.7
73°	37.6	30.1	24.1	20.8	21.3	21.5
73.5°	35.1	27.7	22.3	19.5	20.3	20.4
74°	32.7	25.7	20.6	18.5	19.2	19.3
74.5°	30.5	23.7	19.0	17.5	18.2	18.2
75°	28.3	22.0	17.6	16.7	17.2	17.2
75.5°	26.2	20.2	16.3	15.8	16.2	16.2
76°	24.2	18.6	15.1	14.9	15.2	15.2
76.5°	22.4	17.0	14.0	14.1	14.3	14.3
77°	20.6	15.5	12.9	13.2	13.4	13.3
77.5°	18.9	14.3	12.0	12.4	12.6	12.5
78°	17.2	12.9	11.0	11.7	11.8	11.6
78.5°	15.8	11.8	10.2	10.9	10.9	10.8
79°	14.3	10.7	9.5	10.2	10.1	10.0
79.5°	13.0	9.7	8.7	9.5	9.3	9.2
80°	11.8	8.7	8.1	8.7	8.6	8.5
80.5°	10.5	7.9	7.6	8.1	7.9	7.8
81°	9.6	7.0	6.9	7.5	7.1	7.0
81.5°	8.6	6.3	6.4	6.8	6.5	6.4
82°	7.6	5.7	5.8	6.2	5.8	5.8
82.5°	6.6	5.0	5.3	5.6	5.1	5.1
83°	5.6	4.4	4.7	5.0	4.5	4.5
83.5°	4.8	3.9	4.2	4.5	3.9	3.9
84°	4.1	3.4	3.8	4.0	3.5	3.4
84.5°	3.5	2.9	3.3	3.5	2.9	2.8
85°	2.8	2.5	2.8	2.9	2.4	2.3
85.5°	2.3	2.0	2.3	2.5	1.9	1.8
86°	1.8	1.7	1.9	2.0	1.6	1.4
86.5°	1.4	1.3	1.5	1.6	1.3	1.2
87°	0.9	0.9	1.1	1.2	0.9	0.8
87.5°	0.6	0.5	0.6	0.7	0.6	0.6
88°	0.4	0.2	0.3	0.4	0.4	0.4
88.5°	0.1	0.1	0.1	0.1	0.2	0.2



TEST NUMBER: P775728

CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-4000K

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°	478.7	485.9	498.8	517.3	542.0	561.8	574.3	578.8	576.1	567.7	553.2
22°	474.7	482.0	495.0	513.7	539.0	559.2	572.1	576.4	573.7	565.1	550.5



44°	262.4	271.6	286.7	309.4	344.8	377.9	402.3	411.8	409.0	396.1	372.0
44.5°	257.1	266.4	281.6	304.4	339.7	372.9	397.4	407.0	404.3	391.4	367.2



66.5°	42.7	53.7	65.1	77.1	92.0	101.5	107.7	108.7	103.3	100.6	93.1
67°	39.7	50.0	61.0	72.6	87.2	96.3	102.2	103.0	97.6	95.8	88.5



89°	0.1	0.1	0.2	0.2	0.4	0.3	0.2	0.1	0.0	0.0	0.0
89.5°	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0

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21.5°	533.8	511.1	493.5	481.9	477.1	478.7
22°	530.5	507.5	489.5	478.0	473.1	474.7



44°	339.5	305.0	281.3	267.3	261.3	262.4
44.5°	334.4	300.1	276.4	262.2	256.2	257.1

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66.5°	83.0	71.1	62.2	53.9	47.5	42.7
67°	78.4	66.9	58.3	50.4	44.1	39.7

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

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(END OF REPORT)