

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: P775627

Luminaire Tested: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3500K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775627
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B034)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3500K
Description: 4 INCH ROUND SHALLOW-WIDE LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

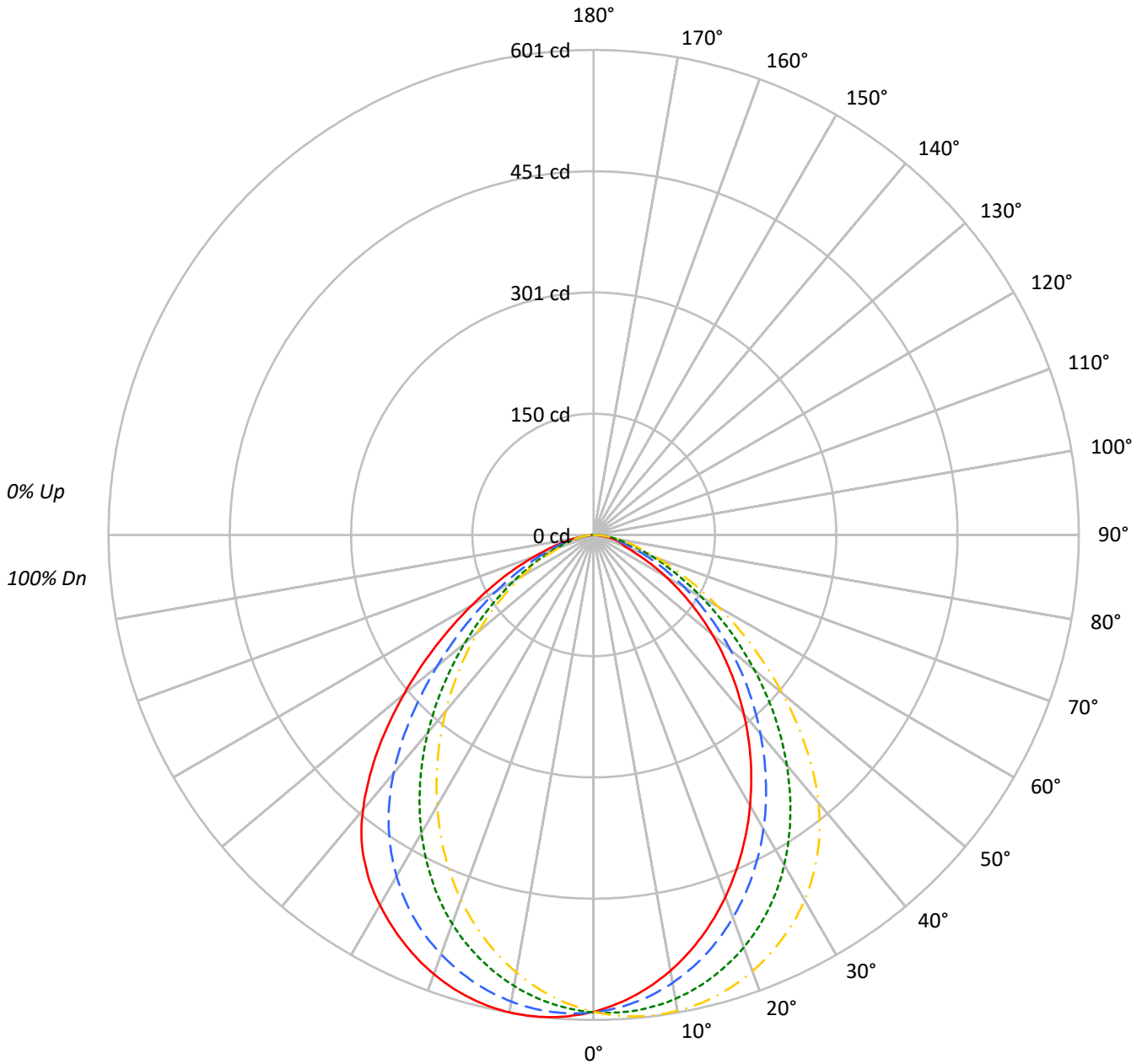
Lumens per Lamp: N/A
Luminaire Lumens: 1240.2 lumens
Efficiency: N/A
Efficacy: 124.0 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.14 / 1.22
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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



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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																			
1	110	106	103	99	108	104	101	98	100	97	95	96	94	92	93	91	89	87																			
2	102	95	89	84	99	93	87	83	89	85	81	86	82	79	83	80	77	75																			
3	94	84	77	71	91	83	76	71	80	74	70	77	72	68	75	71	67	65																			
4	87	76	68	62	84	74	67	61	72	66	61	70	64	60	68	63	59	57																			
5	80	68	60	54	78	67	60	54	65	59	53	63	57	53	62	56	52	50																			
6	74	62	54	48	73	61	53	48	59	53	47	58	52	47	56	51	47	45																			
7	69	57	49	43	68	56	48	43	54	48	42	53	47	42	52	46	42	40																			
8	65	52	44	39	63	51	44	39	50	43	38	49	43	38	48	42	38	36																			
9	61	48	40	35	59	47	40	35	46	40	35	45	39	35	44	39	35	33																			
10	57	45	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	74402	74402	74402	74402
5°	72451	74750	75786	73714
10°	70081	74592	76777	72522
15°	67203	73952	77366	70864
20°	63923	72829	77557	68651
25°	60251	71138	77387	65681
30°	56311	68620	76961	61993
35°	52051	65264	75987	57582
40°	47511	61180	73025	52440
45°	42661	56330	67365	46755
50°	37513	50826	60068	40802
55°	31946	44892	52023	34601
60°	25900	38812	43896	28744
65°	19743	33114	36389	23495
70°	14939	28039	28627	18766
75°	15657	23437	22465	14976
80°	14350	20510	16017	11523
85°	7220	20793	4476	6065

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 89.5°
 Luminance: 76434 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	55.7	4.5
10°-20°	156.3	12.6
20°-30°	227.3	18.3
30°-40°	254.7	20.5
40°-50°	230.4	18.6
50°-60°	167.3	13.5
60°-70°	95.7	7.7
70°-80°	42.5	3.4
80°-90°	10.3	0.8
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°	439.4	35.4
0°-40°	694.0	56.0
0°-60°	1091.7	88.0
0°-90°	1240.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1240.2	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	591	591	591	591	591	
5°	574	592	600	584	574	54
15°	516	568	594	544	516	145
25°	434	512	557	473	434	199
35°	339	425	495	375	339	211
45°	240	316	378	263	240	185
55°	146	205	237	158	146	130
65°	66	111	122	79	66	67
75°	32	48	46	31	32	33
85°	5	14	3	4	5	8
90°	0	3	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°	591.2	591.2	591.2	591.2	591.2	591.2	591.2	591.2	591.2	591.2	591.2
0.5°	589.5	590.9	590.9	590.8	592.0	592.0	592.1	592.1	592.1	592.9	592.1
1°	587.9	589.8	590.2	590.6	592.3	592.7	593.1	593.3	593.2	593.7	592.6
1.5°	586.5	588.7	589.4	590.3	592.4	593.4	594.2	594.5	594.4	594.6	593.0
2°	584.8	587.3	588.6	589.9	592.6	594.0	595.1	595.6	595.4	595.3	593.3
2.5°	583.2	586.0	587.6	589.5	592.6	594.5	595.9	596.5	596.3	595.9	593.5
3°	581.3	584.5	586.6	589.0	592.6	594.9	596.6	597.5	597.3	596.4	593.6
3.5°	579.5	583.0	585.5	588.4	592.5	595.3	597.4	598.3	598.0	597.0	593.7
4°	577.6	581.4	584.3	587.6	592.3	595.6	598.0	599.0	598.7	597.3	593.6
4.5°	575.6	579.8	583.0	586.9	592.0	595.8	598.5	599.8	599.3	597.6	593.5
5°	573.5	577.9	581.6	586.1	591.7	595.9	598.9	600.4	599.9	597.8	593.4
5.5°	571.4	576.1	580.2	585.1	591.3	595.9	599.2	600.8	600.3	598.0	593.1
6°	569.1	574.2	578.6	584.1	590.7	595.8	599.6	601.3	600.7	598.0	592.8
6.5°	566.8	572.2	577.1	583.0	590.1	595.7	599.8	601.6	601.0	598.0	592.4
7°	564.4	570.1	575.4	581.8	589.4	595.5	599.9	601.8	601.2	597.9	591.9
7.5°	561.9	567.9	573.6	580.6	588.7	595.3	599.9	602.0	601.3	597.7	591.4
8°	559.3	565.7	571.8	579.2	587.8	594.9	599.9	602.1	601.4	597.5	590.6
8.5°	556.7	563.3	569.8	577.8	586.9	594.4	599.8	602.1	601.3	597.2	589.9
9°	554.1	560.9	567.8	576.3	586.0	593.8	599.4	602.1	601.2	596.6	589.2
9.5°	551.2	558.4	565.8	574.7	584.8	593.2	599.2	601.9	601.1	596.2	588.3
10°	548.4	555.8	563.6	573.0	583.7	592.6	598.8	601.7	600.8	595.6	587.3
10.5°	545.3	553.1	561.3	571.3	582.3	591.8	598.4	601.4	600.5	595.0	586.3
11°	542.4	550.5	559.0	569.5	581.0	590.9	597.9	601.0	600.0	594.3	585.1
11.5°	539.2	547.6	556.6	567.6	579.7	590.0	597.3	600.6	599.6	593.4	584.0
12°	536.1	544.9	554.2	565.6	578.2	589.0	596.6	600.1	598.9	592.6	582.8
12.5°	532.9	541.9	551.6	563.6	576.6	587.9	595.8	599.4	598.3	591.7	581.4
13°	529.6	538.9	549.0	561.4	575.0	586.8	595.0	598.7	597.6	590.6	580.1
13.5°	526.3	535.8	546.3	559.1	573.3	585.6	594.2	597.9	596.8	589.5	578.5
14°	522.9	532.7	543.5	556.9	571.5	584.2	593.1	597.1	595.8	588.4	577.0
14.5°	519.3	529.5	540.6	554.5	569.6	582.8	592.1	596.1	594.8	587.1	575.3
15°	515.8	526.3	537.8	552.1	567.6	581.3	590.9	595.2	593.8	585.8	573.7
15.5°	512.2	522.8	534.7	549.5	565.6	579.8	589.7	594.1	592.7	584.3	571.9
16°	508.6	519.4	531.7	546.9	563.4	578.1	588.4	592.9	591.5	582.9	570.0
16.5°	504.7	516.0	528.5	544.3	561.3	576.4	587.0	591.7	590.1	581.3	568.1
17°	501.0	512.5	525.3	541.6	559.0	574.7	585.6	590.4	588.9	579.7	566.2
17.5°	497.2	508.9	522.0	538.7	556.6	572.8	584.0	589.0	587.4	577.9	564.1
18°	493.3	505.2	518.7	535.8	554.3	570.8	582.4	587.5	585.9	576.2	562.0
18.5°	489.3	501.5	515.3	532.8	551.8	568.9	580.8	586.0	584.3	574.4	559.8
19°	485.2	497.7	511.9	529.7	549.2	566.8	579.0	584.4	582.7	572.4	557.6
19.5°	481.3	493.8	508.2	526.6	546.6	564.6	577.2	582.7	580.9	570.4	555.3
20°	477.3	490.0	504.7	523.5	543.8	562.4	575.3	580.9	579.1	568.5	552.9
20.5°	473.0	486.1	501.1	520.2	541.0	560.2	573.3	579.1	577.3	566.3	550.4
21°	468.9	482.0	497.4	516.8	538.1	557.8	571.3	577.2	575.3	564.1	547.9



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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°	456.0	469.8	485.9	506.4	529.0	550.2	564.7	571.0	569.1	557.2	540.0
23°	451.8	465.6	481.9	502.9	525.9	547.5	562.4	568.9	566.8	554.8	537.2
23.5°	447.3	461.3	477.9	499.1	522.5	544.7	560.1	566.7	564.6	552.3	534.4
24°	442.8	457.3	473.8	495.3	519.2	542.0	557.6	564.3	562.2	549.7	531.4
24.5°	438.4	452.9	469.7	491.5	515.8	539.0	555.1	561.9	559.9	547.1	528.2
25°	433.9	448.4	465.4	487.6	512.3	536.1	552.5	559.5	557.3	544.5	525.1
25.5°	429.4	444.1	461.2	483.6	508.7	533.0	549.9	557.0	554.8	541.8	521.9
26°	424.9	439.7	456.7	479.5	505.0	529.8	547.2	554.5	552.3	539.0	518.6
26.5°	420.3	435.3	452.5	475.3	501.2	526.6	544.4	551.9	549.6	536.1	515.2
27°	415.7	430.7	448.1	471.2	497.3	523.4	541.6	549.3	546.9	533.2	511.6
27.5°	411.0	426.2	443.7	467.0	493.3	519.9	538.7	546.6	544.2	530.3	507.9
28°	406.4	421.6	439.0	462.5	489.3	516.3	535.7	543.7	541.3	527.3	504.2
28.5°	401.7	417.0	434.7	458.1	485.1	512.7	532.5	541.0	538.5	524.0	500.3
29°	396.9	412.4	430.1	453.5	480.9	509.1	529.4	538.1	535.6	520.8	496.3
29.5°	392.2	407.7	425.5	449.1	476.5	505.1	526.1	535.2	532.7	517.4	492.4
30°	387.5	403.1	420.6	444.5	472.2	501.2	522.8	532.2	529.6	513.9	488.3
30.5°	382.6	398.4	416.0	439.7	467.8	497.1	519.2	529.1	526.6	510.3	484.1
31°	377.8	393.5	411.2	435.1	463.3	492.9	515.6	525.9	523.5	506.6	479.8
31.5°	373.0	388.9	406.5	430.3	458.6	488.7	512.0	522.7	520.4	502.9	475.6
32°	368.2	384.0	401.5	425.4	453.9	484.5	508.1	519.3	517.1	499.0	471.1
32.5°	363.4	379.1	396.7	420.8	449.3	480.1	504.1	515.8	513.8	495.0	466.7
33°	358.5	374.3	391.8	415.7	444.5	475.7	500.1	512.2	510.3	490.8	462.0
33.5°	353.6	369.5	387.0	410.8	439.6	471.1	495.9	508.6	506.5	486.6	457.4
34°	348.7	364.6	381.9	406.0	434.8	466.6	491.8	504.7	502.4	482.5	452.5
34.5°	343.8	359.7	377.0	401.0	429.7	461.9	487.5	500.8	498.5	478.0	447.6
35°	338.8	354.8	372.0	395.9	424.8	457.2	483.2	496.6	494.6	473.5	442.6
35.5°	333.9	349.9	367.0	390.7	419.7	452.4	478.7	492.6	490.6	468.9	437.4
36°	328.9	344.9	361.9	385.6	414.7	447.5	474.1	488.2	486.4	464.1	432.2
36.5°	324.1	340.0	357.0	380.6	409.6	442.4	469.5	484.0	481.9	458.8	426.7
37°	319.0	335.1	352.1	375.5	404.4	437.4	464.7	479.4	477.3	453.6	421.2
37.5°	314.1	330.0	346.8	370.3	399.0	432.3	459.7	474.9	472.5	448.2	415.6
38°	309.1	325.0	341.8	365.0	393.7	427.0	454.7	470.0	467.2	442.6	409.9
38.5°	304.3	320.1	336.6	359.8	388.4	421.6	449.6	464.9	461.9	436.8	404.1
39°	299.3	315.1	331.5	354.4	383.0	416.4	444.3	459.4	456.4	430.9	398.0
39.5°	294.2	310.2	326.5	349.5	377.7	410.9	439.0	453.8	450.4	424.8	392.0
40°	289.2	305.2	321.4	344.2	372.4	405.4	433.3	447.9	444.5	418.6	385.7
40.5°	284.4	300.2	316.3	338.8	366.8	399.7	427.6	442.1	438.4	412.2	379.4
41°	279.2	295.3	311.1	333.5	361.3	394.1	421.6	435.9	432.2	405.6	373.1
41.5°	274.3	290.3	306.1	328.3	355.8	388.4	415.9	429.9	425.7	399.0	366.8
42°	269.4	285.2	301.1	322.9	350.2	382.5	409.7	423.5	419.2	392.3	360.2
42.5°	264.5	280.3	295.9	317.7	344.6	376.7	403.6	417.4	412.7	385.6	353.7
43°	259.5	275.4	290.8	312.5	339.1	370.9	397.2	410.8	406.1	378.5	347.1
43.5°	254.6	270.5	285.7	307.2	333.5	364.9	391.0	404.3	399.2	371.5	340.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	239.7	255.7	270.6	291.3	316.5	346.6	371.6	384.2	378.5	350.4	320.1
45.5°	235.1	250.7	265.5	285.9	310.9	340.5	365.2	377.5	371.4	343.4	313.4
46°	230.1	245.8	260.5	280.7	305.2	334.1	358.5	370.6	364.4	336.3	306.5
46.5°	225.2	241.1	255.6	275.5	299.4	328.0	352.0	363.7	357.1	329.2	299.7
47°	220.3	236.1	250.6	270.2	293.7	321.7	345.3	356.6	350.0	322.0	292.9
47.5°	215.6	231.2	245.6	265.0	288.0	315.5	338.6	349.6	342.7	315.0	286.3
48°	210.7	226.3	240.6	259.7	282.4	309.3	331.9	342.6	335.6	307.9	279.5
48.5°	205.9	221.6	235.7	254.5	276.7	302.9	325.2	335.7	328.4	301.0	272.9
49°	201.2	216.8	230.8	249.4	271.0	296.7	318.5	328.5	321.1	293.8	266.4
49.5°	196.5	211.9	226.0	244.3	265.3	290.5	311.7	321.5	313.9	287.0	259.8
50°	191.6	207.3	221.1	239.2	259.6	284.3	305.0	314.3	306.8	279.9	253.3
50.5°	187.0	202.5	216.2	233.9	254.0	278.1	298.4	307.2	299.5	273.2	246.8
51°	182.3	197.7	211.4	228.7	248.3	271.7	291.6	300.2	292.5	266.4	240.5
51.5°	177.6	193.0	206.7	223.8	242.7	265.7	285.0	293.2	285.2	259.5	234.2
52°	173.1	188.3	202.0	218.8	237.2	259.5	278.5	286.1	278.2	252.9	228.0
52.5°	168.5	183.6	197.2	213.8	231.7	253.4	271.7	279.0	271.1	246.2	221.9
53°	163.9	179.1	192.5	208.6	226.2	247.3	265.1	272.1	264.3	239.7	215.8
53.5°	159.1	174.3	187.8	203.8	220.6	241.4	258.6	265.1	257.3	233.1	209.8
54°	154.6	169.9	183.2	198.8	215.3	235.3	252.0	258.3	250.3	226.8	203.9
54.5°	150.1	165.2	178.6	193.8	210.0	229.5	245.7	251.2	243.7	220.4	198.1
55°	145.6	160.8	174.0	189.0	204.6	223.7	239.4	244.8	237.1	214.2	192.4
55.5°	141.2	156.3	169.4	184.2	199.3	217.8	233.0	237.9	230.3	208.0	186.4
56°	136.7	151.9	165.0	179.3	193.9	211.9	226.6	231.2	223.8	201.8	181.0
56.5°	132.2	147.5	160.5	174.5	188.8	206.2	220.3	224.6	217.2	195.8	175.6
57°	127.9	143.1	156.1	169.9	183.8	200.6	214.2	218.1	210.8	189.9	170.1
57.5°	123.6	138.8	151.6	165.1	178.7	195.2	208.2	211.6	204.5	184.1	164.8
58°	119.3	134.5	147.3	160.4	173.6	189.6	202.1	205.3	198.4	178.4	159.6
58.5°	115.1	130.3	143.0	155.9	168.7	184.2	196.2	199.1	192.1	172.6	154.4
59°	111.0	126.2	138.8	151.4	163.7	178.8	190.3	193.0	186.0	167.1	149.4
59.5°	106.9	122.0	134.3	147.0	159.0	173.5	184.5	187.0	180.1	161.6	144.5
60°	102.9	117.9	130.2	142.6	154.2	168.2	178.8	181.1	174.4	156.3	139.6
60.5°	98.9	113.8	125.9	138.2	149.6	163.1	173.1	175.1	168.5	151.0	134.7
61°	94.9	109.9	121.9	133.9	145.0	158.0	167.6	169.4	163.0	145.8	130.2
61.5°	91.1	105.9	117.7	129.7	140.6	153.1	162.2	163.9	157.4	140.7	125.6
62°	87.4	102.1	113.9	125.6	136.1	148.2	156.8	158.4	152.2	136.0	121.2
62.5°	83.5	98.2	110.0	121.5	131.8	143.3	151.5	152.9	146.9	131.0	116.7
63°	80.0	94.5	106.1	117.5	127.5	138.6	146.3	147.6	141.6	126.2	112.4
63.5°	76.5	90.8	102.3	113.7	123.3	133.9	141.3	142.4	136.6	121.6	108.2
64°	73.1	87.1	98.8	109.9	119.2	129.3	136.3	137.4	131.6	117.3	104.2
64.5°	69.5	83.4	95.0	106.0	115.2	124.9	131.4	132.5	126.8	112.8	100.2
65°	66.3	80.0	91.5	102.4	111.2	120.5	126.8	127.6	122.2	108.5	96.4
65.5°	63.0	76.6	88.0	98.9	107.4	116.2	122.1	122.9	117.4	104.2	92.5
66°	59.8	73.2	84.7	95.3	103.6	111.9	117.5	118.3	112.6	100.1	88.9



TEST NUMBER: P775627

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	51.1	63.4	74.7	85.0	92.9	99.9	104.7	105.1	98.8	88.5	78.2
68°	48.5	60.4	71.7	81.8	89.5	96.0	100.4	100.7	94.4	84.7	75.0
68.5°	46.1	57.4	68.6	78.6	86.2	92.2	96.5	96.6	90.3	80.8	71.8
69°	43.8	54.5	65.6	75.4	82.8	88.7	92.7	92.7	86.1	77.0	68.7
69.5°	41.9	51.7	62.7	72.3	79.5	85.2	89.0	88.8	82.0	73.4	65.7
70°	40.6	49.0	59.8	69.3	76.2	81.8	85.4	85.0	77.8	70.0	62.7
70.5°	39.9	46.4	57.1	66.3	73.0	78.2	81.8	81.3	74.3	66.5	59.9
71°	39.2	44.2	54.4	63.5	70.0	74.9	78.1	77.4	70.8	63.3	57.1
71.5°	38.4	42.0	51.9	60.6	67.0	71.7	74.8	73.8	67.2	60.2	54.4
72°	37.7	40.2	49.4	57.9	64.0	68.7	71.5	70.4	63.8	57.2	51.8
72.5°	36.8	39.0	47.1	55.3	61.3	65.6	68.3	67.1	60.6	54.3	49.2
73°	35.9	38.0	44.9	52.8	58.5	62.7	65.4	63.8	57.5	51.4	46.7
73.5°	35.0	37.2	42.7	50.3	55.8	59.8	62.3	60.7	54.5	48.6	44.4
74°	34.1	36.4	40.7	47.9	53.2	57.2	59.4	57.7	51.7	45.9	42.0
74.5°	33.3	35.7	38.8	45.6	50.7	54.5	56.6	54.8	48.9	43.3	39.7
75°	32.2	34.8	37.0	43.4	48.2	51.9	54.0	52.0	46.2	40.8	37.5
75.5°	31.2	34.0	35.8	41.2	45.8	49.3	51.2	49.3	43.6	38.3	35.3
76°	30.1	33.1	34.5	39.3	43.6	46.9	48.7	46.6	41.0	36.0	33.2
76.5°	28.8	32.0	33.3	37.3	41.4	44.7	46.2	44.0	38.7	33.6	31.1
77°	27.7	31.0	31.9	35.7	39.3	42.4	43.8	41.5	36.2	31.3	29.1
77.5°	26.4	30.0	31.0	34.1	37.3	40.2	41.5	39.1	33.8	29.0	27.2
78°	25.2	28.8	30.2	32.5	35.3	38.0	39.2	36.7	31.4	26.8	25.1
78.5°	23.8	27.8	29.3	31.0	33.5	36.1	37.0	34.4	29.0	24.7	23.2
79°	22.5	26.5	28.4	29.4	31.7	34.1	34.8	32.1	26.6	22.5	21.3
79.5°	21.1	25.4	27.5	28.1	30.0	32.2	32.7	29.8	24.4	20.4	19.5
80°	19.8	24.1	26.4	26.7	28.3	30.4	30.8	27.7	22.1	18.4	17.7
80.5°	18.3	22.9	25.4	25.6	26.7	28.6	28.8	25.7	19.8	16.4	16.1
81°	16.9	21.6	24.4	24.5	25.2	26.8	26.8	23.5	17.5	14.5	14.4
81.5°	15.4	20.3	23.2	23.3	23.7	25.2	25.0	21.6	15.2	12.6	12.7
82°	14.0	18.9	22.1	22.2	22.3	23.5	23.0	19.6	13.0	11.1	11.2
82.5°	12.5	17.5	20.9	21.1	20.9	22.0	21.1	17.7	11.2	9.6	9.8
83°	10.9	16.1	19.8	20.0	19.6	20.3	19.4	15.9	9.3	8.2	8.5
83.5°	9.3	14.6	18.6	19.1	18.2	18.8	17.6	14.2	7.5	6.7	7.2
84°	7.8	13.2	17.4	18.0	16.9	17.2	16.0	12.4	5.7	5.3	5.8
84.5°	6.3	11.7	16.2	17.0	15.6	15.8	14.4	11.0	3.8	4.2	4.6
85°	5.0	10.3	15.0	16.0	14.4	14.3	12.9	9.5	3.1	3.3	3.3
85.5°	4.0	8.9	13.9	14.9	13.3	13.0	11.4	8.2	2.5	2.4	2.4
86°	3.5	7.8	12.7	13.8	12.1	11.6	10.2	6.7	2.1	1.6	1.5
86.5°	2.9	6.8	11.6	12.6	11.0	10.4	8.8	5.3	1.7	0.8	0.8
87°	2.4	6.0	10.5	11.4	9.9	9.1	7.5	4.1	1.2	0.4	0.3
87.5°	1.9	5.2	9.2	10.3	8.8	7.9	6.1	3.0	1.0	0.2	0.0
88°	1.3	4.4	8.1	9.0	7.7	6.6	4.8	2.1	0.6	0.1	0.0
88.5°	0.8	3.5	6.8	7.9	6.6	5.4	3.6	1.2	0.3	0.0	0.0



TEST NUMBER: P775627

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	1.1	3.4	3.9	3.1	2.3	0.8	0.1	0.0	0.0	0.0



TEST NUMBER: P775627

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	591.2	591.2	591.2	591.2	591.2	591.2
0.5°	590.9	591.2	590.2	589.6	589.4	589.5
1°	590.9	590.6	589.3	588.3	587.8	587.9
1.5°	590.8	590.0	588.1	586.8	586.3	586.5
2°	590.6	589.3	587.0	585.4	584.6	584.8
2.5°	590.3	588.6	585.8	583.9	583.0	583.2
3°	590.0	587.7	584.4	582.1	581.2	581.3
3.5°	589.5	586.8	583.1	580.5	579.3	579.5
4°	589.1	585.8	581.6	578.6	577.3	577.6
4.5°	588.5	584.7	580.0	576.7	575.2	575.6
5°	587.7	583.5	578.4	574.8	573.1	573.5
5.5°	587.0	582.2	576.6	572.7	570.9	571.4
6°	586.2	581.0	574.8	570.5	568.7	569.1
6.5°	585.2	579.5	573.0	568.4	566.3	566.8
7°	584.2	578.1	571.0	566.1	563.8	564.4
7.5°	583.2	576.5	569.0	563.7	561.3	561.9
8°	582.0	574.9	566.9	561.2	558.6	559.3
8.5°	580.8	573.2	564.6	558.7	555.9	556.7
9°	579.5	571.4	562.4	556.1	553.2	554.1
9.5°	578.1	569.5	560.0	553.4	550.3	551.2
10°	576.6	567.5	557.6	550.6	547.4	548.4
10.5°	575.2	565.6	555.1	547.8	544.5	545.3
11°	573.5	563.4	552.5	544.9	541.4	542.4
11.5°	571.9	561.3	549.9	542.0	538.3	539.2
12°	570.1	558.9	547.1	538.9	535.1	536.1
12.5°	568.4	556.6	544.3	535.7	531.9	532.9
13°	566.4	554.3	541.4	532.6	528.6	529.6
13.5°	564.4	551.8	538.5	529.3	525.0	526.3
14°	562.3	549.2	535.4	526.0	521.7	522.9
14.5°	560.3	546.6	532.4	522.5	518.2	519.3
15°	558.1	543.9	529.2	519.1	514.6	515.8
15.5°	555.8	541.0	525.9	515.5	510.9	512.2
16°	553.4	538.2	522.5	512.0	507.2	508.6
16.5°	551.0	535.4	519.2	508.3	503.5	504.7
17°	548.6	532.3	515.8	504.6	499.5	501.0
17.5°	546.1	529.2	512.2	500.8	495.6	497.2
18°	543.4	526.1	508.7	496.9	491.8	493.3
18.5°	540.8	522.9	504.9	493.0	487.7	489.3
19°	538.0	519.5	501.2	489.1	483.7	485.2
19.5°	535.2	516.2	497.4	484.9	479.5	481.3
20°	532.3	512.6	493.4	480.9	475.5	477.3
20.5°	529.3	509.1	489.5	476.7	471.3	473.0
21°	526.1	505.3	485.4	472.5	467.1	468.9

TEST NUMBER: P775627

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	516.4	494.0	472.8	459.4	454.0	456.0
23°	512.9	489.9	468.4	455.0	449.7	451.8
23.5°	509.4	486.0	464.0	450.4	445.2	447.3
24°	505.7	481.7	459.5	445.9	440.7	442.8
24.5°	502.0	477.5	455.0	441.2	436.1	438.4
25°	498.1	473.0	450.3	436.5	431.4	433.9
25.5°	494.3	468.8	445.8	431.9	426.9	429.4
26°	490.1	464.4	440.9	427.1	422.2	424.9
26.5°	486.1	459.9	436.3	422.2	417.5	420.3
27°	481.9	455.2	431.3	417.5	412.8	415.7
27.5°	477.7	450.6	426.6	412.6	408.0	411.0
28°	473.3	445.9	421.5	407.6	403.2	406.4
28.5°	469.1	441.2	416.7	402.7	398.3	401.7
29°	464.5	436.4	411.7	397.8	393.5	396.9
29.5°	459.9	431.6	406.8	392.8	388.6	392.2
30°	455.5	426.6	401.6	387.8	383.8	387.5
30.5°	450.9	421.6	396.5	382.7	378.8	382.6
31°	446.2	416.6	391.3	377.7	373.9	377.8
31.5°	441.3	411.5	386.3	372.6	369.0	373.0
32°	436.4	406.4	381.1	367.4	364.0	368.2
32.5°	431.4	401.3	375.8	362.5	358.9	363.4
33°	426.5	396.1	370.6	357.2	354.0	358.5
33.5°	421.3	390.9	365.4	352.2	349.0	353.6
34°	416.1	385.5	360.2	346.9	344.0	348.7
34.5°	410.9	380.1	355.0	341.7	339.0	343.8
35°	405.6	374.8	349.5	336.6	333.9	338.8
35.5°	400.1	369.5	344.2	331.4	328.9	333.9
36°	394.7	364.1	339.0	326.3	323.9	328.9
36.5°	389.2	358.5	333.7	321.2	318.9	324.1
37°	383.5	352.9	328.3	315.9	313.9	319.0
37.5°	377.8	347.4	322.9	310.7	308.8	314.1
38°	371.9	341.8	317.5	305.5	303.8	309.1
38.5°	366.4	336.2	312.3	300.4	298.8	304.3
39°	360.4	330.6	307.0	295.3	293.8	299.3
39.5°	354.3	324.9	301.6	290.3	288.8	294.2
40°	348.4	319.2	296.2	285.0	283.7	289.2
40.5°	342.4	313.5	290.8	279.9	278.8	284.4
41°	336.4	307.9	285.5	274.7	273.8	279.2
41.5°	330.4	302.2	280.1	269.8	268.8	274.3
42°	324.4	296.6	274.8	264.8	263.8	269.4
42.5°	318.4	291.0	269.6	259.6	259.0	264.5
43°	312.1	285.3	264.4	254.6	254.1	259.5
43.5°	305.9	279.6	259.0	249.6	249.0	254.6

TEST NUMBER: P775627

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	287.5	262.7	243.4	234.7	234.4	239.7
45.5°	281.5	257.3	238.4	229.8	229.6	235.1
46°	275.2	251.8	233.3	225.0	224.8	230.1
46.5°	269.1	246.2	228.2	220.1	219.9	225.2
47°	262.9	240.8	223.0	215.4	215.3	220.3
47.5°	256.8	235.3	218.0	210.5	210.5	215.6
48°	250.7	229.9	213.0	205.6	205.7	210.7
48.5°	244.7	224.4	207.9	201.0	201.0	205.9
49°	238.8	219.1	203.1	196.3	196.3	201.2
49.5°	232.8	213.8	198.2	191.4	191.7	196.5
50°	226.7	208.4	193.2	186.8	187.2	191.6
50.5°	220.8	203.1	188.3	182.2	182.4	187.0
51°	215.2	197.8	183.6	177.6	177.8	182.3
51.5°	209.2	192.7	179.0	172.9	173.4	177.6
52°	203.5	187.6	174.2	168.6	168.9	173.1
52.5°	197.8	182.5	169.6	164.1	164.5	168.5
53°	192.4	177.3	165.1	159.6	160.0	163.9
53.5°	186.8	172.5	160.5	155.1	155.6	159.1
54°	181.6	167.4	156.1	150.9	151.2	154.6
54.5°	176.2	162.6	151.7	146.6	147.0	150.1
55°	170.9	157.7	147.4	142.4	142.7	145.6
55.5°	165.6	153.2	143.1	138.3	138.5	141.2
56°	160.6	148.4	138.9	134.2	134.2	136.7
56.5°	155.7	144.1	134.8	130.2	130.1	132.2
57°	150.8	139.4	130.7	126.1	125.9	127.9
57.5°	146.0	135.0	126.6	122.2	121.8	123.6
58°	141.3	130.7	122.7	118.4	117.9	119.3
58.5°	136.6	126.5	118.8	114.5	113.8	115.1
59°	132.0	122.3	115.0	110.9	110.0	111.0
59.5°	127.6	118.4	111.2	107.2	106.0	106.9
60°	123.2	114.2	107.5	103.6	102.3	102.9
60.5°	118.9	110.4	103.8	99.9	98.5	98.9
61°	114.8	106.5	100.2	96.5	94.8	94.9
61.5°	110.7	102.8	96.8	93.1	91.2	91.1
62°	106.7	99.2	93.3	89.8	87.8	87.4
62.5°	102.8	95.6	89.8	86.3	84.3	83.5
63°	99.0	92.0	86.4	83.0	80.9	80.0
63.5°	95.3	88.7	83.1	79.8	77.6	76.5
64°	91.7	85.2	79.9	76.6	74.4	73.1
64.5°	88.3	82.1	76.7	73.5	71.3	69.5
65°	85.0	78.9	73.7	70.4	68.3	66.3
65.5°	81.6	75.8	70.6	67.4	65.3	63.0
66°	78.1	72.7	67.6	64.4	62.4	59.8



TEST NUMBER: P775627

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	68.9	64.0	59.2	56.0	53.8	51.1
68°	65.9	61.3	56.6	53.4	51.0	48.5
68.5°	63.1	58.6	54.0	50.9	48.3	46.1
69°	60.3	56.0	51.5	48.5	45.7	43.8
69.5°	57.6	53.4	49.1	46.1	43.2	41.9
70°	55.0	51.0	46.8	43.9	40.9	40.6
70.5°	52.5	48.6	44.6	42.0	39.0	39.9
71°	50.0	46.3	42.4	40.0	37.4	39.2
71.5°	47.6	44.0	40.4	38.1	36.7	38.4
72°	45.3	41.9	38.4	36.7	35.9	37.7
72.5°	43.1	39.8	37.2	35.2	35.1	36.8
73°	40.8	37.8	35.4	33.8	34.3	35.9
73.5°	38.8	36.1	33.7	32.4	33.5	35.0
74°	36.8	34.3	31.9	31.0	32.4	34.1
74.5°	34.8	32.5	30.2	30.0	31.5	33.3
75°	32.9	30.8	28.7	28.9	30.5	32.2
75.5°	31.1	28.9	27.4	28.0	29.3	31.2
76°	29.2	27.4	26.0	27.0	28.2	30.1
76.5°	27.5	25.8	24.7	26.1	27.0	28.8
77°	25.8	24.3	23.5	25.1	25.8	27.7
77.5°	24.1	22.8	22.3	23.9	24.7	26.4
78°	22.5	21.3	21.1	22.9	23.4	25.2
78.5°	20.8	19.9	19.9	21.8	22.1	23.8
79°	19.3	18.6	18.8	20.6	20.7	22.5
79.5°	17.7	17.1	17.7	19.5	19.4	21.1
80°	16.3	15.9	16.7	18.2	17.9	19.8
80.5°	14.8	14.6	15.6	17.1	16.6	18.3
81°	13.4	13.4	14.6	15.9	15.2	16.9
81.5°	12.0	12.2	13.6	14.6	13.8	15.4
82°	10.8	11.0	12.4	13.5	12.4	14.0
82.5°	9.5	9.8	11.3	12.2	11.1	12.5
83°	8.2	8.8	10.1	11.1	9.7	10.9
83.5°	6.9	7.7	8.9	9.9	8.5	9.3
84°	5.7	6.5	7.7	8.8	7.4	7.8
84.5°	4.5	5.4	6.4	7.7	6.3	6.3
85°	3.3	4.2	5.2	6.4	5.5	5.0
85.5°	2.3	3.2	3.8	5.2	4.7	4.0
86°	1.3	2.2	2.9	3.9	3.8	3.5
86.5°	0.5	1.1	2.0	3.0	3.1	2.9
87°	0.0	0.2	1.0	2.1	2.4	2.4
87.5°	0.0	0.0	0.1	1.0	1.6	1.9
88°	0.0	0.0	0.0	0.1	0.8	1.3
88.5°	0.0	0.0	0.0	0.1	0.2	0.8



TEST NUMBER: P775627

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.1	0.1	0.0



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

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21.5°	464.6	478.0	493.5	513.4	535.2	555.3	569.2	575.2	573.3	561.8	545.3
22°	460.4	473.9	489.8	510.0	532.1	552.8	567.0	573.2	571.3	559.5	542.7



44°	249.6	265.5	280.7	301.8	327.7	358.8	384.6	397.6	392.4	364.5	333.5
44.5°	244.8	260.5	275.6	296.5	322.1	352.7	378.2	390.9	385.5	357.7	326.9



66.5°	56.8	69.7	81.3	91.8	99.9	107.8	113.1	113.8	107.8	96.2	85.4
67°	53.9	66.5	77.9	88.5	96.3	103.8	108.8	109.4	103.3	92.3	81.9



89°	0.3	2.7	5.5	6.5	5.5	4.4	2.5	0.6	0.1	0.0	0.0
89.5°	0.1	2.0	4.2	5.3	4.2	3.2	1.6	0.3	0.0	0.0	0.0

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21.5°	522.9	501.7	481.3	468.2	462.7	464.6
22°	519.7	497.9	476.9	463.9	458.5	460.4



44°	299.7	274.0	253.9	244.7	244.2	249.6
44.5°	293.8	268.4	248.6	239.6	239.3	244.8



66.5°	75.0	69.6	64.8	61.6	59.4	56.8
67°	71.9	66.7	61.9	58.8	56.6	53.9

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89°	0.0	0.0	0.0	0.1	0.1	0.3
89.5°	0.0	0.0	0.0	0.1	0.1	0.1

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(END OF REPORT)