

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: P775629

Luminaire Tested: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-5000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775629
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: HCDJBS510CSD-HCD41TRH-HCD41TRLWW-1000lm-5000K
Description: 4 INCH ROUND SHALLOW-WIDE LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT
Ballast/Driver: -

Summary

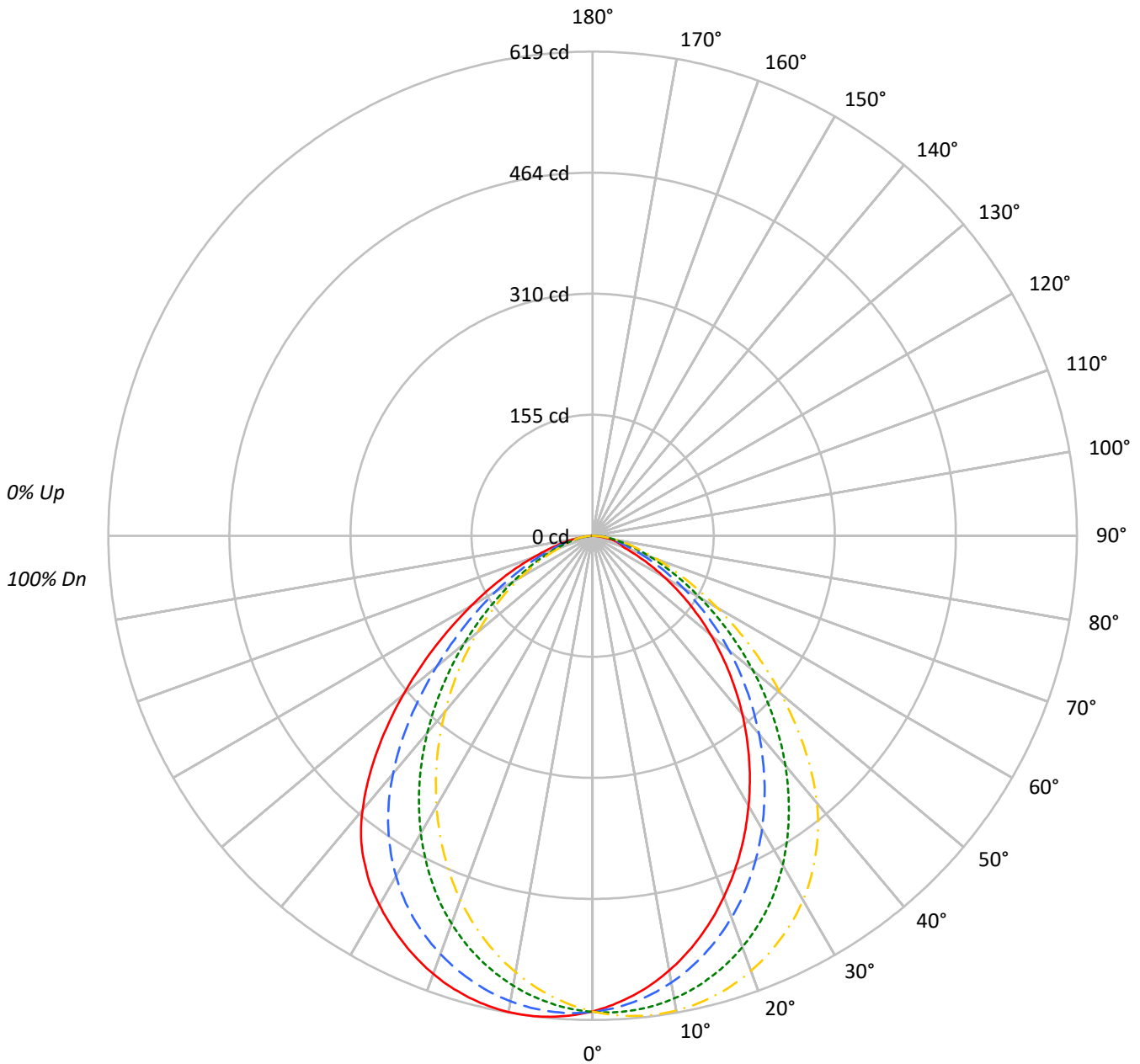
Lumens per Lamp: N/A
Luminaire Lumens: 1276.2 lumens
Efficiency: N/A
Efficacy: 127.6 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.14 / 1.22
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 10
Input Voltage (V): NR
Input Current (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	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°	76554	76554	76554	76554
5°	74560	76910	77984	75849
10°	72113	76751	79001	74630
15°	69158	76102	79620	72923
20°	65771	74945	79807	70646
25°	62001	73207	79622	67583
30°	57953	70610	79199	63795
35°	53557	67154	78184	59241
40°	48875	62954	75144	53968
45°	43907	57968	69323	48125
50°	38609	52314	61810	41996
55°	32868	46186	53537	35611
60°	26655	39945	45180	29575
65°	20339	34067	37432	24180
70°	15381	28848	29474	19318
75°	16143	24118	23145	15414
80°	14785	21090	16452	11813
85°	7364	21371	4621	6353

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 89.5°
 Luminance: 77876 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	57.3	4.5
10°-20°	160.9	12.6
20°-30°	233.9	18.3
30°-40°	262.0	20.5
40°-50°	237.1	18.6
50°-60°	172.2	13.5
60°-70°	98.5	7.7
70°-80°	43.7	3.4
80°-90°	10.6	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°	452.1	35.4
0°-40°	714.2	56.0
0°-60°	1123.4	88.0
0°-90°	1276.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1276.2	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	608	608	608	608	608	
5°	590	609	617	600	590	56
15°	531	584	611	560	531	149
25°	446	527	573	487	446	205
35°	349	437	509	386	349	218
45°	247	326	390	270	247	190
55°	150	210	244	162	150	134
65°	68	114	126	81	68	69
75°	33	50	48	32	33	34
85°	5	15	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°	608.3	608.3	608.3	608.3	608.3	608.3	608.3	608.3	608.3	608.3	608.3
0.5°	606.6	608.1	608.1	608.0	609.2	609.2	609.3	609.3	609.3	610.1	609.3
1°	605.0	606.9	607.4	607.8	609.5	609.9	610.3	610.3	610.4	611.0	609.8
1.5°	603.5	605.8	606.5	607.5	609.6	610.7	611.4	611.4	611.6	611.8	610.2
2°	601.8	604.4	605.6	607.0	609.8	611.2	612.4	612.4	612.7	612.6	610.6
2.5°	600.1	603.0	604.7	606.6	609.8	611.7	613.2	613.2	613.6	613.2	610.8
3°	598.2	601.5	603.6	606.1	609.8	612.2	614.0	614.0	614.6	613.8	610.9
3.5°	596.4	599.9	602.5	605.4	609.7	612.6	614.7	614.7	615.4	614.3	611.0
4°	594.3	598.3	601.3	604.7	609.5	612.9	615.4	615.4	616.1	614.6	610.9
4.5°	592.3	596.6	599.9	603.9	609.2	613.1	615.9	615.9	616.7	614.9	610.8
5°	590.2	594.7	598.5	603.1	608.8	613.2	616.3	616.3	617.3	615.1	610.7
5.5°	587.9	592.9	597.0	602.1	608.4	613.2	616.6	616.6	617.7	615.4	610.3
6°	585.6	590.8	595.4	601.1	607.9	613.1	617.0	617.0	618.1	615.4	610.0
6.5°	583.3	588.8	593.8	599.9	607.2	613.0	617.2	617.2	618.4	615.4	609.6
7°	580.8	586.7	592.1	598.7	606.5	612.8	617.3	617.3	618.7	615.2	609.1
7.5°	578.2	584.4	590.3	597.4	605.8	612.6	617.3	617.3	618.8	615.0	608.5
8°	575.6	582.1	588.4	596.1	604.9	612.2	617.3	617.3	618.9	614.8	607.8
8.5°	572.9	579.6	586.3	594.6	603.9	611.6	617.2	617.2	618.8	614.5	607.0
9°	570.1	577.2	584.3	593.1	603.0	611.1	616.8	616.8	618.7	614.0	606.3
9.5°	567.2	574.6	582.2	591.4	601.8	610.4	616.6	616.6	618.6	613.5	605.3
10°	564.3	571.9	579.9	589.7	600.6	609.8	616.2	616.2	618.2	612.9	604.4
10.5°	561.2	569.2	577.6	587.8	599.3	609.0	615.8	615.8	617.9	612.3	603.3
11°	558.2	566.5	575.3	586.0	597.9	608.1	615.2	615.2	617.4	611.5	602.1
11.5°	554.9	563.5	572.8	584.1	596.5	607.1	614.6	614.6	617.0	610.7	601.0
12°	551.7	560.8	570.2	582.0	595.0	606.1	614.0	614.0	616.3	609.8	599.7
12.5°	548.4	557.7	567.6	579.9	593.4	605.0	613.1	613.1	615.7	608.8	598.3
13°	545.0	554.6	564.9	577.7	591.7	603.8	612.3	612.3	614.9	607.8	596.9
13.5°	541.6	551.4	562.1	575.4	590.0	602.6	611.4	611.4	614.1	606.6	595.3
14°	538.0	548.2	559.3	573.0	588.1	601.2	610.3	610.3	613.1	605.4	593.7
14.5°	534.4	544.9	556.3	570.6	586.1	599.7	609.3	609.3	612.0	604.2	592.0
15°	530.8	541.6	553.4	568.1	584.1	598.2	608.1	608.1	611.1	602.8	590.4
15.5°	527.1	537.9	550.2	565.4	582.0	596.6	606.8	606.8	609.9	601.3	588.5
16°	523.3	534.5	547.1	562.8	579.7	594.9	605.4	605.4	608.6	599.8	586.6
16.5°	519.4	531.0	543.8	560.1	577.6	593.2	604.1	604.1	607.2	598.2	584.6
17°	515.5	527.4	540.6	557.3	575.3	591.4	602.6	602.6	606.0	596.5	582.6
17.5°	511.6	523.6	537.2	554.4	572.8	589.4	601.0	601.0	604.5	594.7	580.5
18°	507.6	519.9	533.8	551.4	570.3	587.4	599.4	599.4	602.9	593.0	578.3
18.5°	503.5	516.1	530.3	548.3	567.8	585.4	597.7	597.7	601.3	591.0	576.0
19°	499.3	512.1	526.7	545.1	565.1	583.3	595.8	595.8	599.6	589.0	573.8
19.5°	495.3	508.2	523.0	541.9	562.5	581.0	593.9	593.9	597.8	587.0	571.4
20°	491.1	504.2	519.4	538.7	559.6	578.8	592.0	592.0	595.9	585.0	569.0
20.5°	486.7	500.2	515.6	535.3	556.7	576.4	590.0	590.0	594.0	582.7	566.4
21°	482.5	496.0	511.8	531.8	553.7	574.0	587.8	587.8	592.0	580.5	563.8



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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°	469.2	483.4	500.0	521.1	544.3	566.2	581.1	587.6	585.6	573.3	555.6
23°	464.9	479.2	495.9	517.5	541.1	563.4	578.8	585.4	583.3	570.9	552.8
23.5°	460.3	474.7	491.8	513.6	537.7	560.5	576.3	583.1	581.0	568.3	549.9
24°	455.7	470.5	487.6	509.7	534.3	557.8	573.8	580.7	578.6	565.7	546.8
24.5°	451.1	466.0	483.3	505.7	530.8	554.7	571.2	578.2	576.1	563.0	543.6
25°	446.5	461.5	479.0	501.8	527.2	551.7	568.5	575.8	573.4	560.3	540.4
25.5°	441.8	457.0	474.6	497.6	523.4	548.5	565.9	573.1	570.9	557.6	537.1
26°	437.3	452.5	470.0	493.5	519.7	545.2	563.1	570.6	568.3	554.7	533.7
26.5°	432.5	447.9	465.6	489.1	515.7	541.9	560.2	567.9	565.6	551.7	530.1
27°	427.8	443.2	461.1	484.9	511.7	538.6	557.3	565.2	562.8	548.7	526.4
27.5°	423.0	438.5	456.6	480.6	507.6	534.9	554.4	562.5	560.0	545.7	522.7
28°	418.2	433.8	451.8	476.0	503.5	531.3	551.3	559.5	557.0	542.6	518.8
28.5°	413.4	429.1	447.3	471.4	499.2	527.6	548.0	556.7	554.1	539.2	514.8
29°	408.5	424.3	442.6	466.7	494.8	523.9	544.8	553.7	551.2	535.9	510.7
29.5°	403.6	419.6	437.9	462.1	490.4	519.8	541.3	550.7	548.2	532.4	506.7
30°	398.8	414.8	432.8	457.4	485.9	515.7	537.9	547.6	545.0	528.9	502.5
30.5°	393.7	410.0	428.1	452.5	481.4	511.5	534.3	544.4	541.9	525.1	498.1
31°	388.7	404.9	423.2	447.7	476.7	507.2	530.6	541.1	538.7	521.3	493.8
31.5°	383.8	400.1	418.3	442.8	471.9	502.8	526.8	537.8	535.5	517.5	489.4
32°	378.9	395.1	413.2	437.8	467.1	498.6	522.9	534.4	532.1	513.5	484.8
32.5°	373.9	390.1	408.2	433.0	462.3	494.0	518.7	530.8	528.8	509.3	480.2
33°	368.9	385.2	403.1	427.8	457.4	489.5	514.6	527.1	525.1	505.1	475.4
33.5°	363.9	380.2	398.2	422.7	452.4	484.8	510.3	523.3	521.2	500.7	470.6
34°	358.9	375.2	393.0	417.7	447.4	480.1	506.0	519.4	517.0	496.5	465.6
34.5°	353.7	370.2	388.0	412.6	442.2	475.3	501.7	515.3	513.0	491.9	460.6
35°	348.6	365.1	382.8	407.4	437.1	470.4	497.2	511.1	508.9	487.3	455.5
35.5°	343.6	360.0	377.6	402.1	431.9	465.5	492.6	506.9	504.9	482.5	450.1
36°	338.5	354.9	372.4	396.8	426.7	460.5	487.9	502.4	500.5	477.6	444.7
36.5°	333.5	349.9	367.4	391.6	421.5	455.3	483.1	498.0	495.9	472.1	439.1
37°	328.3	344.8	362.3	386.4	416.1	450.1	478.2	493.4	491.1	466.8	433.4
37.5°	323.2	339.6	356.8	381.1	410.6	444.8	473.1	488.7	486.2	461.2	427.7
38°	318.0	334.4	351.7	375.6	405.2	439.4	467.9	483.6	480.8	455.5	421.8
38.5°	313.1	329.4	346.4	370.3	399.7	433.8	462.6	478.4	475.3	449.5	415.8
39°	308.0	324.2	341.2	364.7	394.2	428.5	457.2	472.8	469.7	443.4	409.5
39.5°	302.8	319.2	335.9	359.6	388.6	422.9	451.8	467.0	463.5	437.1	403.3
40°	297.5	314.1	330.7	354.2	383.2	417.2	445.9	460.9	457.4	430.7	396.9
40.5°	292.6	309.0	325.5	348.6	377.4	411.3	440.0	455.0	451.1	424.1	390.4
41°	287.3	303.8	320.2	343.2	371.8	405.6	433.8	448.6	444.7	417.4	383.9
41.5°	282.3	298.7	315.0	337.9	366.1	399.7	428.0	442.4	438.1	410.6	377.4
42°	277.2	293.5	309.8	332.3	360.4	393.6	421.6	435.8	431.4	403.7	370.7
42.5°	272.2	288.5	304.5	326.9	354.6	387.7	415.3	429.5	424.7	396.8	364.0
43°	267.0	283.4	299.3	321.5	348.9	381.7	408.8	422.7	417.8	389.5	357.2
43.5°	262.0	278.3	294.0	316.1	343.2	375.5	402.4	416.0	410.8	382.3	350.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	246.7	263.1	278.5	299.8	325.7	356.6	382.4	395.3	389.5	360.6	329.4
45.5°	241.9	258.0	273.2	294.2	319.9	350.3	375.8	388.4	382.2	353.3	322.5
46°	236.8	253.0	268.1	288.8	314.1	343.8	368.9	381.4	375.0	346.1	315.4
46.5°	231.7	248.1	263.0	283.5	308.1	337.5	362.2	374.2	367.5	338.7	308.4
47°	226.7	242.9	257.9	278.0	302.2	331.0	355.3	367.0	360.1	331.4	301.4
47.5°	221.8	237.9	252.8	272.7	296.4	324.6	348.4	359.7	352.7	324.1	294.6
48°	216.8	232.9	247.6	267.3	290.6	318.2	341.5	352.6	345.3	316.8	287.6
48.5°	211.9	228.0	242.5	261.9	284.7	311.7	334.7	345.4	338.0	309.7	280.8
49°	207.0	223.1	237.5	256.6	278.9	305.3	327.7	338.1	330.4	302.3	274.1
49.5°	202.2	218.1	232.6	251.4	273.0	298.9	320.8	330.8	323.0	295.3	267.4
50°	197.2	213.3	227.5	246.1	267.2	292.5	313.9	323.5	315.7	288.1	260.6
50.5°	192.4	208.4	222.5	240.7	261.4	286.1	307.0	316.1	308.2	281.1	253.9
51°	187.6	203.5	217.6	235.4	255.5	279.6	300.1	309.0	301.0	274.1	247.5
51.5°	182.8	198.6	212.7	230.3	249.8	273.4	293.3	301.7	293.5	267.0	241.0
52°	178.1	193.8	207.9	225.1	244.1	267.0	286.6	294.5	286.2	260.2	234.6
52.5°	173.4	189.0	202.9	220.0	238.5	260.8	279.6	287.1	279.0	253.4	228.3
53°	168.6	184.3	198.0	214.7	232.8	254.5	272.8	279.9	272.0	246.7	222.0
53.5°	163.7	179.4	193.2	209.7	227.1	248.4	266.1	272.8	264.8	239.8	215.9
54°	159.1	174.8	188.6	204.5	221.5	242.1	259.4	265.8	257.6	233.3	209.8
54.5°	154.4	170.0	183.8	199.4	216.1	236.1	252.9	258.5	250.7	226.8	203.8
55°	149.8	165.5	179.1	194.5	210.5	230.1	246.4	251.9	244.0	220.4	197.9
55.5°	145.3	160.8	174.4	189.5	205.1	224.2	239.7	244.8	237.0	214.0	191.9
56°	140.7	156.3	169.8	184.5	199.5	218.1	233.1	237.9	230.3	207.6	186.2
56.5°	136.1	151.8	165.2	179.6	194.3	212.2	226.7	231.1	223.5	201.5	180.7
57°	131.6	147.3	160.6	174.8	189.1	206.5	220.4	224.4	216.9	195.4	175.0
57.5°	127.2	142.8	156.0	169.9	183.9	200.8	214.3	217.8	210.4	189.4	169.6
58°	122.8	138.4	151.5	165.1	178.6	195.1	208.0	211.3	204.1	183.5	164.2
58.5°	118.5	134.1	147.2	160.4	173.6	189.5	201.9	204.9	197.7	177.6	158.9
59°	114.2	129.9	142.8	155.8	168.5	184.0	195.8	198.6	191.4	171.9	153.8
59.5°	110.0	125.5	138.2	151.2	163.6	178.5	189.8	192.4	185.4	166.3	148.7
60°	105.9	121.4	133.9	146.7	158.7	173.1	184.0	186.3	179.5	160.8	143.7
60.5°	101.7	117.1	129.6	142.2	153.9	167.9	178.1	180.2	173.4	155.4	138.6
61°	97.7	113.0	125.4	137.8	149.2	162.6	172.4	174.4	167.8	150.1	133.9
61.5°	93.7	109.0	121.2	133.4	144.7	157.5	166.9	168.6	162.0	144.8	129.3
62°	89.9	105.0	117.2	129.3	140.0	152.5	161.4	163.0	156.7	139.9	124.7
62.5°	86.0	101.1	113.2	125.0	135.7	147.5	155.9	157.3	151.1	134.8	120.1
63°	82.3	97.3	109.2	120.9	131.2	142.6	150.6	151.9	145.7	129.9	115.7
63.5°	78.7	93.4	105.3	117.0	126.9	137.8	145.4	146.5	140.6	125.1	111.3
64°	75.2	89.6	101.6	113.0	122.6	133.1	140.2	141.4	135.4	120.7	107.2
64.5°	71.6	85.9	97.8	109.1	118.6	128.5	135.2	136.3	130.4	116.0	103.1
65°	68.3	82.3	94.2	105.4	114.4	124.0	130.4	131.3	125.7	111.7	99.2
65.5°	64.8	78.8	90.5	101.7	110.5	119.6	125.6	126.5	120.8	107.2	95.2
66°	61.5	75.3	87.1	98.1	106.6	115.2	120.9	121.7	115.8	103.0	91.5



TEST NUMBER: P775629
CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	52.6	65.3	76.9	87.5	95.6	102.8	107.7	108.1	101.6	91.1	80.5
68°	49.9	62.2	73.8	84.1	92.1	98.8	103.3	103.7	97.2	87.1	77.2
68.5°	47.5	59.1	70.6	80.8	88.7	94.9	99.3	99.4	92.9	83.2	73.9
69°	45.1	56.1	67.5	77.6	85.2	91.3	95.3	95.3	88.6	79.2	70.7
69.5°	43.1	53.2	64.5	74.4	81.8	87.7	91.6	91.4	84.4	75.5	67.6
70°	41.8	50.4	61.5	71.3	78.4	84.1	87.9	87.5	80.1	72.0	64.5
70.5°	41.1	47.8	58.8	68.3	75.1	80.5	84.1	83.6	76.5	68.5	61.6
71°	40.3	45.4	56.0	65.4	72.0	77.1	80.4	79.7	72.8	65.2	58.8
71.5°	39.6	43.2	53.4	62.4	68.9	73.8	77.0	75.9	69.1	62.0	56.0
72°	38.8	41.4	50.9	59.6	65.9	70.7	73.6	72.4	65.7	58.9	53.3
72.5°	37.9	40.1	48.4	56.9	63.0	67.5	70.3	69.0	62.4	55.9	50.7
73°	36.9	39.1	46.2	54.3	60.1	64.5	67.3	65.7	59.2	52.9	48.1
73.5°	36.0	38.3	43.9	51.7	57.4	61.5	64.1	62.5	56.1	50.0	45.6
74°	35.1	37.4	41.9	49.3	54.7	58.9	61.1	59.4	53.2	47.2	43.2
74.5°	34.2	36.7	39.9	46.9	52.2	56.1	58.2	56.4	50.3	44.6	40.8
75°	33.2	35.8	38.1	44.7	49.6	53.4	55.6	53.5	47.6	42.0	38.6
75.5°	32.1	35.0	36.8	42.4	47.1	50.8	52.7	50.8	44.9	39.5	36.4
76°	30.9	34.0	35.5	40.4	44.9	48.3	50.1	48.0	42.2	37.0	34.1
76.5°	29.6	33.0	34.2	38.4	42.6	46.0	47.6	45.3	39.8	34.6	32.0
77°	28.5	31.9	32.8	36.7	40.4	43.6	45.1	42.7	37.2	32.2	30.0
77.5°	27.2	30.8	31.9	35.1	38.4	41.4	42.7	40.2	34.8	29.9	27.9
78°	25.9	29.6	31.0	33.5	36.4	39.1	40.3	37.8	32.3	27.6	25.8
78.5°	24.5	28.6	30.2	31.9	34.4	37.1	38.1	35.4	29.9	25.4	23.9
79°	23.1	27.3	29.2	30.3	32.6	35.1	35.8	33.1	27.4	23.1	22.0
79.5°	21.8	26.1	28.3	28.9	30.8	33.2	33.7	30.7	25.1	21.0	20.0
80°	20.4	24.8	27.2	27.5	29.1	31.2	31.7	28.5	22.7	19.0	18.2
80.5°	18.9	23.6	26.1	26.3	27.5	29.4	29.6	26.4	20.4	16.9	16.5
81°	17.4	22.2	25.1	25.2	25.9	27.6	27.6	24.2	18.0	14.9	14.8
81.5°	15.9	20.9	23.9	24.0	24.4	25.9	25.7	22.2	15.7	13.0	13.1
82°	14.4	19.4	22.7	22.8	22.9	24.2	23.7	20.2	13.3	11.4	11.5
82.5°	12.9	18.0	21.5	21.8	21.5	22.6	21.8	18.2	11.5	9.9	10.1
83°	11.2	16.5	20.4	20.6	20.2	20.9	19.9	16.3	9.6	8.4	8.7
83.5°	9.6	15.0	19.1	19.6	18.8	19.3	18.1	14.6	7.7	6.9	7.4
84°	8.0	13.5	17.9	18.6	17.4	17.7	16.4	12.8	5.9	5.4	6.0
84.5°	6.5	12.1	16.6	17.5	16.1	16.2	14.8	11.3	3.9	4.4	4.7
85°	5.1	10.6	15.5	16.4	14.8	14.7	13.2	9.8	3.2	3.4	3.4
85.5°	4.2	9.2	14.3	15.4	13.7	13.3	11.7	8.4	2.6	2.5	2.5
86°	3.6	8.0	13.1	14.2	12.5	11.9	10.5	6.9	2.1	1.6	1.5
86.5°	3.0	7.0	11.9	13.0	11.3	10.7	9.1	5.4	1.7	0.9	0.9
87°	2.5	6.2	10.8	11.7	10.2	9.4	7.7	4.3	1.3	0.4	0.3
87.5°	1.9	5.3	9.5	10.6	9.1	8.1	6.3	3.1	1.1	0.2	0.0
88°	1.4	4.5	8.3	9.3	7.9	6.8	4.9	2.1	0.6	0.1	0.0
88.5°	0.9	3.6	7.0	8.1	6.8	5.5	3.7	1.3	0.3	0.0	0.0



TEST NUMBER: P775629
CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	1.2	3.5	4.1	3.2	2.3	0.9	0.1	0.0	0.0	0.0



TEST NUMBER: P775629

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	608.3	608.3	608.3	608.3	608.3	608.3
0.5°	608.1	608.3	607.4	606.7	606.5	606.6
1°	608.1	607.8	606.4	605.3	604.9	605.0
1.5°	608.0	607.1	605.2	603.8	603.3	603.5
2°	607.8	606.4	604.1	602.3	601.6	601.8
2.5°	607.5	605.6	602.8	600.9	599.9	600.1
3°	607.1	604.8	601.4	599.0	598.1	598.2
3.5°	606.6	603.8	600.0	597.3	596.2	596.4
4°	606.2	602.8	598.5	595.4	594.0	594.3
4.5°	605.5	601.7	596.8	593.5	591.9	592.3
5°	604.8	600.4	595.2	591.5	589.8	590.2
5.5°	604.1	599.1	593.4	589.3	587.5	587.9
6°	603.2	597.9	591.5	587.1	585.2	585.6
6.5°	602.2	596.4	589.7	584.9	582.7	583.3
7°	601.2	594.9	587.6	582.5	580.2	580.8
7.5°	600.1	593.3	585.5	580.1	577.6	578.2
8°	598.9	591.6	583.4	577.5	574.8	575.6
8.5°	597.7	589.9	581.0	574.9	572.1	572.9
9°	596.4	587.9	578.8	572.3	569.3	570.1
9.5°	594.9	586.0	576.2	569.5	566.3	567.2
10°	593.4	584.0	573.8	566.6	563.3	564.3
10.5°	591.9	582.0	571.2	563.7	560.3	561.2
11°	590.2	579.7	568.5	560.8	557.1	558.2
11.5°	588.5	577.6	565.9	557.8	553.9	554.9
12°	586.7	575.1	563.0	554.6	550.6	551.7
12.5°	584.9	572.8	560.1	551.3	547.3	548.4
13°	582.8	570.3	557.1	548.1	543.9	545.0
13.5°	580.8	567.8	554.1	544.6	540.3	541.6
14°	578.7	565.1	550.9	541.2	536.9	538.0
14.5°	576.5	562.5	547.8	537.7	533.2	534.4
15°	574.3	559.7	544.5	534.2	529.5	530.8
15.5°	571.9	556.7	541.1	530.5	525.8	527.1
16°	569.5	553.8	537.7	526.8	521.9	523.3
16.5°	567.0	550.9	534.3	523.1	518.1	519.4
17°	564.5	547.7	530.8	519.3	514.0	515.5
17.5°	561.9	544.5	527.1	515.3	510.0	511.6
18°	559.2	541.3	523.4	511.4	506.0	507.6
18.5°	556.5	538.0	519.6	507.3	501.9	503.5
19°	553.6	534.6	515.7	503.3	497.7	499.3
19.5°	550.7	531.2	511.8	499.0	493.5	495.3
20°	547.7	527.5	507.7	494.8	489.3	491.1
20.5°	544.6	523.9	503.7	490.6	485.0	486.7
21°	541.3	520.0	499.5	486.2	480.7	482.5

TEST NUMBER: P775629

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	531.4	508.4	486.5	472.8	467.2	469.2
23°	527.8	504.1	482.0	468.2	462.7	464.9
23.5°	524.2	500.1	477.5	463.5	458.2	460.3
24°	520.3	495.7	472.9	458.8	453.5	455.7
24.5°	516.6	491.3	468.2	454.0	448.8	451.1
25°	512.5	486.7	463.4	449.2	444.0	446.5
25.5°	508.6	482.4	458.7	444.4	439.3	441.8
26°	504.3	477.9	453.7	439.5	434.5	437.3
26.5°	500.2	473.3	449.0	434.5	429.6	432.5
27°	495.9	468.4	443.9	429.6	424.8	427.8
27.5°	491.5	463.7	439.0	424.6	419.9	423.0
28°	487.1	458.8	433.7	419.4	414.9	418.2
28.5°	482.7	454.0	428.8	414.4	409.8	413.4
29°	478.0	449.1	423.6	409.3	404.9	408.5
29.5°	473.3	444.1	418.6	404.2	399.9	403.6
30°	468.7	439.0	413.3	399.1	394.9	398.8
30.5°	464.0	433.8	408.0	393.8	389.8	393.7
31°	459.1	428.7	402.7	388.6	384.8	388.7
31.5°	454.1	423.5	397.5	383.4	379.7	383.8
32°	449.1	418.2	392.1	378.1	374.5	378.9
32.5°	444.0	412.9	386.7	373.1	369.3	373.9
33°	438.9	407.6	381.4	367.6	364.3	368.9
33.5°	433.5	402.3	376.0	362.4	359.1	363.9
34°	428.2	396.7	370.7	356.9	354.0	358.9
34.5°	422.9	391.2	365.3	351.6	348.8	353.7
35°	417.4	385.6	359.6	346.4	343.6	348.6
35.5°	411.8	380.2	354.2	341.1	338.5	343.6
36°	406.1	374.7	348.8	335.7	333.3	338.5
36.5°	400.5	368.9	343.4	330.5	328.2	333.5
37°	394.6	363.1	337.9	325.1	323.0	328.3
37.5°	388.7	357.5	332.3	319.7	317.8	323.2
38°	382.7	351.7	326.8	314.4	312.6	318.0
38.5°	377.0	346.0	321.3	309.2	307.5	313.1
39°	370.8	340.2	315.9	303.8	302.3	308.0
39.5°	364.6	334.3	310.3	298.7	297.2	302.8
40°	358.5	328.5	304.8	293.3	291.9	297.5
40.5°	352.4	322.6	299.3	288.1	286.9	292.6
41°	346.2	316.8	293.8	282.7	281.8	287.3
41.5°	340.0	311.0	288.3	277.6	276.6	282.3
42°	333.8	305.2	282.8	272.5	271.4	277.2
42.5°	327.6	299.5	277.4	267.2	266.5	272.2
43°	321.1	293.6	272.1	262.0	261.5	267.0
43.5°	314.8	287.7	266.5	256.8	256.3	262.0

TEST NUMBER: P775629

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	295.8	270.4	250.5	241.6	241.2	246.7
45.5°	289.7	264.8	245.3	236.4	236.2	241.9
46°	283.1	259.2	240.1	231.5	231.3	236.8
46.5°	277.0	253.4	234.8	226.5	226.3	231.7
47°	270.6	247.7	229.5	221.6	221.5	226.7
47.5°	264.3	242.1	224.3	216.6	216.6	221.8
48°	258.0	236.5	219.2	211.6	211.7	216.8
48.5°	251.8	230.9	213.9	206.8	206.8	211.9
49°	245.7	225.5	209.0	202.0	202.0	207.0
49.5°	239.5	220.0	203.9	197.0	197.3	202.2
50°	233.2	214.5	198.8	192.2	192.6	197.2
50.5°	227.2	209.0	193.8	187.5	187.7	192.4
51°	221.4	203.6	189.0	182.8	183.0	187.6
51.5°	215.3	198.3	184.2	177.9	178.4	182.8
52°	209.5	193.0	179.3	173.5	173.8	178.1
52.5°	203.6	187.8	174.5	168.8	169.2	173.4
53°	197.9	182.5	169.9	164.2	164.7	168.6
53.5°	192.2	177.5	165.2	159.7	160.1	163.7
54°	186.8	172.2	160.6	155.3	155.6	159.1
54.5°	181.3	167.3	156.1	150.9	151.2	154.4
55°	175.9	162.3	151.7	146.5	146.9	149.8
55.5°	170.4	157.6	147.3	142.3	142.5	145.3
56°	165.3	152.7	142.9	138.1	138.1	140.7
56.5°	160.2	148.2	138.7	133.9	133.8	136.1
57°	155.2	143.4	134.5	129.8	129.6	131.6
57.5°	150.3	139.0	130.3	125.7	125.3	127.2
58°	145.4	134.5	126.3	121.8	121.4	122.8
58.5°	140.6	130.2	122.2	117.8	117.1	118.5
59°	135.9	125.8	118.4	114.1	113.2	114.2
59.5°	131.3	121.8	114.4	110.3	109.1	110.0
60°	126.8	117.5	110.6	106.6	105.3	105.9
60.5°	122.3	113.6	106.9	102.8	101.3	101.7
61°	118.2	109.6	103.1	99.3	97.6	97.7
61.5°	113.9	105.8	99.6	95.8	93.8	93.7
62°	109.8	102.1	96.0	92.4	90.3	89.9
62.5°	105.8	98.3	92.4	88.8	86.7	86.0
63°	101.8	94.7	88.9	85.4	83.3	82.3
63.5°	98.1	91.3	85.5	82.1	79.9	78.7
64°	94.4	87.7	82.2	78.8	76.6	75.2
64.5°	90.9	84.5	78.9	75.6	73.4	71.6
65°	87.5	81.2	75.8	72.4	70.3	68.3
65.5°	83.9	78.0	72.6	69.3	67.2	64.8
66°	80.4	74.8	69.5	66.2	64.2	61.5



TEST NUMBER: P775629

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	70.9	65.9	60.9	57.6	55.3	52.6
68°	67.8	63.0	58.2	54.9	52.5	49.9
68.5°	64.9	60.3	55.6	52.4	49.7	47.5
69°	62.1	57.6	53.0	49.9	47.0	45.1
69.5°	59.3	54.9	50.6	47.5	44.5	43.1
70°	56.6	52.5	48.2	45.2	42.1	41.8
70.5°	54.1	50.0	45.9	43.2	40.1	41.1
71°	51.4	47.7	43.6	41.2	38.5	40.3
71.5°	49.0	45.3	41.6	39.2	37.8	39.6
72°	46.6	43.1	39.6	37.8	36.9	38.8
72.5°	44.4	41.0	38.3	36.3	36.2	37.9
73°	42.0	38.9	36.5	34.8	35.3	36.9
73.5°	39.9	37.1	34.7	33.4	34.4	36.0
74°	37.9	35.3	32.8	31.9	33.4	35.1
74.5°	35.8	33.5	31.0	30.8	32.4	34.2
75°	33.8	31.7	29.5	29.8	31.4	33.2
75.5°	32.0	29.8	28.2	28.8	30.2	32.1
76°	30.1	28.2	26.8	27.8	29.0	30.9
76.5°	28.3	26.6	25.4	26.9	27.8	29.6
77°	26.6	25.0	24.2	25.8	26.6	28.5
77.5°	24.8	23.5	22.9	24.6	25.4	27.2
78°	23.1	22.0	21.8	23.6	24.1	25.9
78.5°	21.4	20.5	20.5	22.4	22.7	24.5
79°	19.8	19.1	19.3	21.2	21.3	23.1
79.5°	18.2	17.6	18.2	20.0	19.9	21.8
80°	16.7	16.3	17.2	18.8	18.4	20.4
80.5°	15.3	15.0	16.1	17.6	17.1	18.9
81°	13.8	13.8	15.0	16.3	15.7	17.4
81.5°	12.4	12.6	14.0	15.0	14.2	15.9
82°	11.1	11.3	12.8	13.9	12.8	14.4
82.5°	9.8	10.1	11.6	12.6	11.4	12.9
83°	8.4	9.1	10.3	11.4	10.0	11.2
83.5°	7.1	7.9	9.2	10.2	8.7	9.6
84°	5.9	6.7	7.9	9.1	7.6	8.0
84.5°	4.6	5.5	6.6	7.9	6.5	6.5
85°	3.4	4.4	5.3	6.6	5.7	5.1
85.5°	2.3	3.3	3.9	5.3	4.8	4.2
86°	1.4	2.2	3.0	4.1	3.9	3.6
86.5°	0.5	1.2	2.0	3.1	3.2	3.0
87°	0.0	0.2	1.1	2.1	2.5	2.5
87.5°	0.0	0.0	0.1	1.1	1.6	1.9
88°	0.0	0.0	0.0	0.1	0.9	1.4
88.5°	0.0	0.0	0.0	0.1	0.2	0.9



TEST NUMBER: P775629
CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-5000K

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°	478.1	491.9	507.9	528.3	550.7	571.4	585.7	591.9	590.0	578.1	561.2
22°	473.7	487.7	504.0	524.8	547.5	568.9	583.5	589.9	587.8	575.8	558.4



44°	256.8	273.2	288.8	310.6	337.2	369.2	395.8	409.1	403.8	375.1	343.2
44.5°	251.9	268.1	283.6	305.1	331.5	362.9	389.2	402.3	396.7	368.0	336.4



66.5°	58.4	71.8	83.6	94.5	102.8	110.9	116.4	117.1	110.9	99.0	87.9
67°	55.5	68.5	80.2	91.1	99.1	106.9	112.0	112.6	106.3	95.0	84.3



89°	0.3	2.8	5.7	6.7	5.7	4.5	2.6	0.6	0.1	0.0	0.0
89.5°	0.1	2.0	4.4	5.4	4.4	3.3	1.6	0.3	0.0	0.0	0.0

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21.5°	538.0	516.3	495.3	481.8	476.2	478.1
22°	534.8	512.3	490.8	477.4	471.8	473.7



44°	308.4	282.0	261.3	251.8	251.3	256.8
44.5°	302.3	276.2	255.8	246.6	246.2	251.9



66.5°	77.2	71.7	66.7	63.3	61.1	58.4
67°	74.0	68.7	63.7	60.5	58.2	55.5

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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)