

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: P775729

Luminaire Tested: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-5000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775729
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: HCDJBS510CSD-HCD61TRH-HCD61TRLWW-1000lm-5000K
Description: 6 INCH ROUND SHALLOW-WIDE LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT
Ballast/Driver: -

Summary

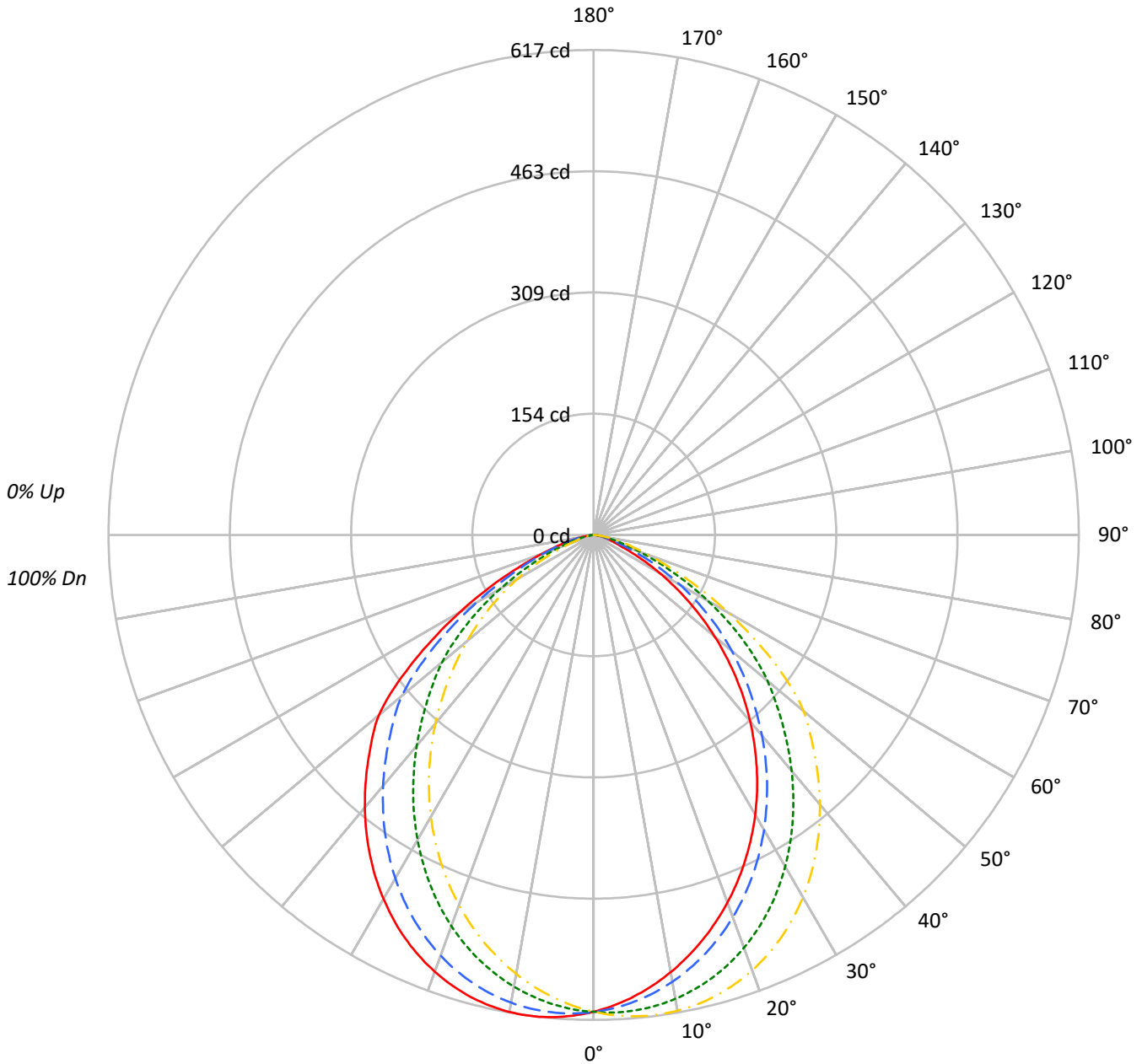
Lumens per Lamp: N/A
Luminaire Lumens: 1291.1 lumens
Efficiency: N/A
Efficacy: 129.1 lumens/watt
Spacing Criteria (0/90/45): 1.17 / 1.16 / 1.25
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

Input Watts (W): 10
Input Voltage (V): NR
Input Current (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	111	107	103	100	108	105	101	99	100	98	95	97	94	93	93	91	90	88																			
2	102	95	89	84	100	93	88	83	90	85	82	87	83	80	84	81	78	76																			
3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66																			
4	87	76	68	62	85	75	68	62	72	66	61	70	65	60	68	63	60	58																			
5	80	69	61	55	78	68	60	54	66	59	54	64	58	53	62	57	53	51																			
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45																			
7	69	57	49	43	68	56	48	43	55	48	43	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	44	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°	33265	33265	33265	33265
5°	32429	33408	33893	32979
10°	31435	33355	34307	32487
15°	30301	33099	34506	31788
20°	29035	32605	34490	30879
25°	27606	31859	34272	29730
30°	26010	30834	33847	28365
35°	24199	29547	33214	26789
40°	22141	28024	32404	25047
45°	19808	26313	31430	23219
50°	17125	24579	30387	21432
55°	14069	22002	26599	18695
60°	10635	18387	21522	14999
65°	6979	14100	16111	11065
70°	4632	9873	11124	7453
75°	3707	6375	7731	4723
80°	2715	3915	4641	2778
85°	1447	2264	1006	1635

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 157.5°

Vertical Angle: 45°

Luminance: 31639 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	57.2	4.4
10°-20°	160.9	12.5
20°-30°	234.7	18.2
30°-40°	265.7	20.6
40°-50°	251.4	19.5
50°-60°	190.8	14.8
60°-70°	95.6	7.4
70°-80°	30.3	2.3
80°-90°	4.6	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°	452.8	35.1
0°-40°	718.4	55.6
0°-60°	1160.6	89.9
0°-90°	1291.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1291.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	607	607	607	607	607	
5°	589	607	616	599	589	55
15°	534	583	608	560	534	150
25°	456	527	567	492	456	210
35°	362	442	496	400	362	226
45°	256	339	405	300	256	197
55°	147	230	278	196	147	132
65°	54	109	124	85	54	56
75°	18	30	36	22	18	19
85°	2	4	2	3	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°	606.8	606.8	606.8	606.8	606.8	606.8	606.8	606.8	606.8	606.8	606.8
0.5°	605.3	605.8	606.2	606.5	607.5	607.6	607.8	607.9	608.0	608.0	607.6
1°	603.8	604.6	605.3	606.3	607.8	608.3	608.9	609.2	609.2	609.0	608.1
1.5°	602.3	603.3	604.5	605.9	608.0	609.1	609.9	610.3	610.3	609.8	608.6
2°	600.8	601.9	603.5	605.4	608.1	609.6	610.8	611.4	611.3	610.7	609.0
2.5°	598.9	600.4	602.5	604.9	608.1	610.1	611.6	612.4	612.4	611.4	609.4
3°	597.2	598.9	601.3	604.3	608.1	610.6	612.5	613.3	613.1	611.9	609.6
3.5°	595.4	597.3	600.1	603.5	608.0	611.0	613.1	614.2	614.0	612.5	609.7
4°	593.4	595.6	598.8	602.8	607.8	611.2	613.8	614.9	614.7	613.0	609.8
4.5°	591.5	593.8	597.4	601.9	607.6	611.4	614.3	615.7	615.4	613.3	609.8
5°	589.3	592.0	596.0	601.0	607.1	611.5	614.7	616.2	615.9	613.6	609.7
5.5°	587.2	590.0	594.5	599.9	606.7	611.6	615.0	616.7	616.3	613.9	609.6
6°	585.0	588.0	592.8	598.8	606.2	611.5	615.4	617.2	616.6	614.0	609.3
6.5°	582.7	585.9	591.2	597.7	605.7	611.4	615.6	617.5	617.0	614.0	609.0
7°	580.4	583.8	589.3	596.4	604.9	611.2	615.7	617.7	617.1	614.0	608.5
7.5°	577.9	581.6	587.5	595.0	604.2	610.9	615.7	617.8	617.2	613.8	608.0
8°	575.4	579.2	585.6	593.5	603.3	610.6	615.7	617.9	617.2	613.5	607.5
8.5°	572.8	576.9	583.6	592.0	602.5	610.1	615.6	617.9	617.1	613.2	606.7
9°	570.3	574.5	581.5	590.4	601.4	609.7	615.2	617.8	617.0	612.9	606.0
9.5°	567.5	572.0	579.3	588.8	600.3	609.1	615.0	617.6	616.6	612.4	605.2
10°	564.7	569.4	577.2	587.0	599.2	608.4	614.6	617.3	616.3	611.8	604.3
10.5°	562.0	566.7	574.8	585.2	598.0	607.6	614.2	617.0	615.9	611.1	603.3
11°	559.1	564.1	572.4	583.3	596.6	606.7	613.6	616.5	615.2	610.5	602.2
11.5°	556.1	561.3	569.9	581.2	595.2	605.9	613.0	615.9	614.7	609.6	601.1
12°	553.1	558.4	567.5	579.1	593.7	604.8	612.3	615.4	614.0	608.7	599.9
12.5°	550.0	555.6	564.8	577.1	592.2	603.7	611.4	614.6	613.2	607.8	598.5
13°	546.9	552.6	562.2	574.7	590.5	602.6	610.6	613.8	612.4	606.7	597.1
13.5°	543.7	549.6	559.4	572.5	588.8	601.4	609.6	612.9	611.3	605.5	595.7
14°	540.5	546.5	556.6	570.2	587.0	600.0	608.5	611.9	610.3	604.3	594.1
14.5°	537.2	543.4	553.7	567.7	585.1	598.6	607.4	610.9	609.2	603.0	592.5
15°	533.9	540.1	550.8	565.0	583.2	597.0	606.2	609.7	608.0	601.6	590.8
15.5°	530.5	536.8	547.7	562.5	581.0	595.5	604.9	608.5	606.7	600.1	589.0
16°	527.1	533.5	544.7	559.7	578.9	593.8	603.5	607.1	605.2	598.5	587.1
16.5°	523.6	530.1	541.5	557.0	576.8	592.1	602.0	605.8	603.8	596.9	585.2
17°	520.0	526.7	538.2	554.1	574.5	590.3	600.5	604.4	602.2	595.2	583.2
17.5°	516.4	523.2	534.9	551.2	572.1	588.4	598.8	602.8	600.6	593.4	581.1
18°	512.7	519.5	531.6	548.2	569.5	586.5	597.1	601.1	598.8	591.5	578.9
18.5°	509.1	516.0	528.1	545.1	567.1	584.3	595.3	599.4	597.1	589.5	576.7
19°	505.2	512.3	524.6	541.9	564.4	582.2	593.4	597.6	595.2	587.4	574.3
19.5°	501.4	508.7	521.0	538.6	561.7	580.0	591.5	595.6	593.2	585.4	571.9
20°	497.7	504.8	517.5	535.4	558.9	577.6	589.6	593.6	591.2	583.2	569.4
20.5°	493.6	501.0	513.8	532.0	556.0	575.2	587.4	591.6	589.0	580.8	566.7
21°	489.7	497.0	510.0	528.6	553.1	572.8	585.2	589.5	586.9	578.5	564.2



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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°	477.6	485.1	498.4	517.7	543.8	564.8	578.0	582.6	579.9	571.0	555.9
23°	473.5	480.9	494.5	514.0	540.5	562.1	575.6	580.2	577.3	568.3	552.9
23.5°	469.3	476.9	490.5	510.1	537.2	559.2	573.0	577.6	574.7	565.6	549.9
24°	465.1	472.7	486.4	506.3	533.8	556.2	570.3	575.1	572.2	562.7	546.8
24.5°	460.7	468.5	482.1	502.3	530.3	553.1	567.5	572.4	569.3	559.8	543.6
25°	456.4	464.1	478.0	498.3	526.7	550.1	564.7	569.6	566.6	556.9	540.4
25.5°	452.1	459.8	473.8	494.3	523.0	546.8	561.8	566.9	563.7	554.0	537.1
26°	447.7	455.5	469.5	490.1	519.4	543.5	558.9	564.0	560.8	550.8	533.8
26.5°	443.2	451.1	465.0	485.8	515.6	540.2	555.8	560.9	557.7	547.7	530.4
27°	438.7	446.6	460.7	481.7	511.6	536.8	552.6	557.9	554.7	544.4	526.9
27.5°	434.1	442.0	456.2	477.3	507.8	533.3	549.5	554.8	551.5	541.2	523.4
28°	429.6	437.5	451.7	472.9	503.8	529.7	546.2	551.6	548.2	537.9	519.6
28.5°	425.0	432.9	447.0	468.5	499.7	526.0	542.8	548.3	544.9	534.3	516.0
29°	420.4	428.4	442.5	464.1	495.7	522.4	539.4	545.1	541.5	530.8	512.3
29.5°	415.7	423.7	437.9	459.6	491.4	518.5	535.9	541.6	538.1	527.3	508.4
30°	410.9	418.9	433.3	455.0	487.1	514.7	532.3	538.2	534.7	523.7	504.5
30.5°	406.1	414.2	428.4	450.3	482.9	510.7	528.6	534.7	531.1	520.0	500.6
31°	401.3	409.4	423.7	445.8	478.5	506.6	524.9	531.1	527.5	516.2	496.6
31.5°	396.5	404.6	418.8	441.0	474.0	502.5	521.1	527.4	523.7	512.4	492.5
32°	391.6	399.8	414.0	436.2	469.4	498.5	517.3	523.7	520.1	508.5	488.4
32.5°	386.7	394.9	409.1	431.5	465.0	494.3	513.5	519.8	516.3	504.6	484.2
33°	381.7	389.9	404.3	426.7	460.5	489.9	509.4	516.0	512.4	500.7	480.1
33.5°	376.8	385.0	399.3	421.7	455.8	485.6	505.4	512.2	508.4	496.6	475.9
34°	371.8	380.1	394.4	416.9	451.1	481.3	501.2	508.2	504.4	492.5	471.5
34.5°	366.7	375.1	389.3	411.9	446.2	476.7	497.0	504.1	500.3	488.3	467.1
35°	361.6	370.0	384.4	406.9	441.5	472.2	492.9	500.0	496.3	484.1	462.7
35.5°	356.5	365.0	379.1	402.0	436.7	467.7	488.5	495.9	492.2	480.0	458.3
36°	351.4	359.9	374.2	396.9	431.8	463.0	484.2	491.7	488.1	475.6	453.8
36.5°	346.3	354.7	369.1	391.8	426.9	458.3	479.9	487.4	483.7	471.5	449.3
37°	341.1	349.5	363.8	386.7	421.9	453.7	475.4	483.1	479.4	467.0	444.7
37.5°	335.9	344.4	358.8	381.6	416.9	448.9	470.8	478.7	475.1	462.6	440.0
38°	330.5	339.2	353.7	376.5	412.0	444.1	466.3	474.3	470.7	458.0	435.3
38.5°	325.4	334.1	348.4	371.4	406.9	439.2	461.6	469.9	466.3	453.7	430.8
39°	320.3	328.7	343.3	366.1	401.9	434.3	457.1	465.4	461.8	449.1	426.0
39.5°	314.9	323.6	338.1	361.0	396.8	429.4	452.4	460.8	457.4	444.5	421.4
40°	309.4	318.3	333.0	355.8	391.6	424.3	447.6	456.2	452.8	439.9	416.5
40.5°	304.2	313.0	327.6	350.6	386.3	419.4	442.8	451.5	448.1	435.3	411.8
41°	298.9	307.6	322.4	345.4	381.2	414.2	437.9	446.8	443.5	430.5	406.9
41.5°	293.4	302.4	317.1	340.0	376.2	409.2	433.1	442.1	438.9	425.9	402.1
42°	288.0	297.0	311.9	334.9	370.7	404.1	428.2	437.3	434.1	421.1	397.2
42.5°	282.7	291.7	306.8	329.7	365.7	399.1	423.3	432.5	429.5	416.5	392.3
43°	277.4	286.4	301.4	324.5	360.4	394.0	418.3	427.8	424.7	411.6	387.4
43.5°	271.9	281.1	296.2	319.2	355.3	388.8	413.4	423.0	420.0	406.8	382.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	255.5	265.0	280.4	303.6	339.4	373.3	398.1	408.1	405.4	392.3	367.6
45.5°	250.1	259.8	275.4	298.5	334.5	368.1	393.1	403.2	400.6	387.4	362.7
46°	244.6	254.3	270.1	293.2	329.0	362.7	388.0	398.3	395.7	382.7	357.9
46.5°	239.0	249.1	265.0	288.1	323.8	357.7	383.1	393.5	391.1	378.0	353.2
47°	233.4	243.7	259.8	283.0	318.6	352.6	378.2	388.7	386.5	373.4	348.6
47.5°	228.1	238.3	254.6	277.9	313.7	347.6	373.4	384.2	381.8	368.7	343.8
48°	222.7	233.1	249.4	272.8	308.5	342.7	368.5	379.5	377.2	364.1	339.2
48.5°	217.2	227.8	244.3	267.9	303.6	337.8	363.8	374.8	372.5	359.3	334.3
49°	211.7	222.6	239.2	262.9	298.5	332.7	358.8	369.9	367.6	354.2	329.3
49.5°	206.4	217.3	234.2	257.8	293.3	327.7	353.8	365.0	362.4	348.8	323.7
50°	200.8	212.0	229.2	252.6	288.2	322.4	348.3	359.2	356.3	342.8	318.2
50.5°	195.4	206.8	223.9	247.7	283.1	316.8	342.4	353.0	349.9	336.1	311.9
51°	189.7	201.7	218.9	242.5	277.7	310.8	336.2	346.2	342.4	329.0	305.6
51.5°	184.5	196.4	213.9	237.3	272.0	305.0	329.7	339.1	335.1	321.8	298.7
52°	179.1	191.2	208.8	232.1	266.5	298.6	322.7	331.4	327.6	314.2	291.5
52.5°	173.7	186.1	203.8	226.6	260.5	292.1	315.4	323.5	319.5	306.3	284.2
53°	168.4	181.0	198.7	221.3	254.4	285.5	307.8	315.5	311.7	298.5	276.9
53.5°	163.1	175.9	193.5	215.8	248.6	278.6	300.2	307.5	303.3	290.4	269.4
54°	157.6	170.8	188.3	210.2	242.4	271.6	292.6	299.5	294.8	282.3	261.9
54.5°	152.4	165.6	183.2	204.9	236.5	264.8	284.7	291.2	286.5	274.2	254.3
55°	147.2	160.6	178.1	199.5	230.2	257.7	276.9	283.1	278.3	266.1	246.9
55.5°	141.9	155.6	172.8	194.0	224.2	250.7	268.8	274.9	269.8	257.7	239.1
56°	136.9	150.5	167.7	188.5	217.9	243.3	260.9	266.6	261.3	249.3	231.5
56.5°	131.6	145.4	162.6	182.9	211.7	236.1	252.8	258.3	253.0	241.2	223.8
57°	126.5	140.4	157.3	177.4	205.3	228.9	245.1	249.9	244.6	233.2	216.4
57.5°	121.4	135.4	152.1	171.8	199.2	221.7	237.0	241.6	236.4	224.9	208.7
58°	116.5	130.5	147.1	166.3	192.8	214.4	229.4	233.4	228.4	216.8	201.2
58.5°	111.6	125.5	141.9	160.8	186.5	207.2	221.4	225.3	220.2	208.9	193.9
59°	106.6	120.7	136.9	155.2	180.1	200.0	213.5	217.2	212.1	201.2	186.4
59.5°	101.8	115.8	131.7	149.8	174.1	192.8	205.8	209.1	204.1	193.4	179.1
60°	97.0	111.0	126.8	144.4	167.7	185.8	198.2	201.2	196.3	185.8	172.1
60.5°	92.2	106.1	121.8	139.0	161.5	178.6	190.4	193.5	188.7	178.3	165.0
61°	87.5	101.5	116.8	133.6	155.2	171.8	182.9	185.8	181.0	171.2	158.2
61.5°	83.0	96.8	112.0	128.2	149.2	165.1	175.6	178.1	173.5	164.0	151.6
62°	78.5	92.2	107.3	123.0	143.0	158.5	168.5	170.8	166.2	157.1	145.1
62.5°	74.0	87.6	102.4	117.8	137.2	151.8	161.0	163.3	158.9	150.3	138.6
63°	69.7	83.2	97.7	112.6	131.2	145.1	153.9	156.1	152.0	143.5	132.3
63.5°	65.6	78.8	93.1	107.4	125.5	138.9	147.0	149.0	144.8	137.1	126.3
64°	61.4	74.5	88.4	102.3	119.7	132.4	140.5	142.2	137.6	131.1	120.6
64.5°	57.6	70.4	83.8	97.3	114.2	126.2	133.8	135.4	130.8	124.9	114.9
65°	53.8	66.3	79.3	92.4	108.7	120.2	127.3	129.0	124.2	119.1	109.4
65.5°	50.1	62.1	74.8	87.7	103.5	114.4	121.1	122.6	117.4	113.2	104.1
66°	46.7	58.3	70.4	82.8	98.3	108.5	115.1	116.3	111.0	107.7	99.0



TEST NUMBER: P775729

CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	37.7	47.0	57.8	69.3	83.6	92.8	98.2	99.0	93.8	92.4	85.3
68°	35.8	43.5	53.8	65.1	78.7	87.9	93.3	93.9	88.7	87.5	80.7
68.5°	33.8	40.2	50.0	60.9	74.3	83.0	88.4	88.9	83.5	82.6	76.1
69°	31.9	37.5	46.4	56.9	69.9	78.1	83.5	83.9	78.2	77.8	72.1
69.5°	29.8	35.0	42.8	52.9	65.7	73.4	78.5	78.9	73.7	73.4	68.0
70°	28.9	32.4	39.7	49.4	61.6	69.2	74.1	74.6	69.4	69.3	64.2
70.5°	27.8	29.7	37.1	45.8	57.8	65.1	70.0	70.5	65.3	65.4	60.7
71°	26.6	27.2	34.5	42.4	54.1	61.2	66.0	66.4	61.5	61.6	57.1
71.5°	25.5	26.0	31.9	39.3	50.5	57.3	62.0	62.5	57.8	58.0	53.7
72°	24.2	24.9	29.3	36.8	47.1	53.9	58.4	58.9	54.3	54.5	50.5
72.5°	23.0	23.9	26.8	34.2	43.8	50.4	55.0	55.4	51.0	51.3	47.4
73°	21.9	22.7	24.7	31.7	40.8	47.2	51.7	52.2	47.8	48.0	44.4
73.5°	20.7	21.6	22.9	29.0	37.9	44.1	48.4	49.0	44.9	45.1	41.7
74°	19.6	20.6	21.3	26.4	35.2	41.3	45.5	46.0	41.9	42.2	39.0
74.5°	18.4	19.5	19.9	24.4	32.5	38.4	42.6	43.2	39.1	39.4	36.5
75°	17.5	18.4	18.7	22.5	30.1	35.7	40.0	40.4	36.5	36.9	33.9
75.5°	16.4	17.5	17.6	20.7	27.8	33.3	37.3	37.8	33.9	34.3	31.6
76°	15.5	16.4	16.5	19.1	25.6	30.8	34.7	35.3	31.3	31.9	29.3
76.5°	14.5	15.5	15.7	17.5	23.6	28.6	32.4	32.8	29.0	29.6	27.2
77°	13.5	14.5	14.7	16.1	21.6	26.4	30.1	30.6	26.6	27.4	25.2
77.5°	12.7	13.6	13.9	14.8	19.8	24.4	27.9	28.4	24.5	25.3	23.2
78°	11.7	12.7	13.0	13.6	18.1	22.5	25.8	26.2	22.4	23.2	21.3
78.5°	11.0	11.8	12.2	12.5	16.5	20.6	23.8	24.2	20.3	21.4	19.5
79°	10.1	11.0	11.4	11.4	15.0	18.9	21.9	22.2	18.3	19.5	17.8
79.5°	9.4	10.1	10.7	10.4	13.6	17.2	20.0	20.4	16.5	17.8	16.2
80°	8.6	9.4	9.9	9.6	12.4	15.6	18.2	18.5	14.7	16.1	14.6
80.5°	7.9	8.6	9.2	8.7	11.2	14.1	16.5	16.8	12.9	14.5	13.1
81°	7.1	7.9	8.4	8.0	10.1	12.7	14.9	15.2	11.4	13.0	11.7
81.5°	6.5	7.2	7.8	7.4	9.2	11.4	13.3	13.6	10.0	11.6	10.6
82°	5.9	6.5	7.1	6.7	8.2	10.2	11.8	12.3	8.5	10.4	9.4
82.5°	5.2	5.9	6.5	6.1	7.2	9.2	10.7	11.0	7.0	9.3	8.2
83°	4.6	5.2	5.9	5.5	6.3	8.1	9.5	9.8	5.6	8.1	7.0
83.5°	3.9	4.6	5.2	5.0	5.5	7.0	8.3	8.6	4.5	6.8	5.9
84°	3.4	3.9	4.7	4.5	4.8	6.0	7.0	7.4	3.3	5.6	5.0
84.5°	2.9	3.4	4.2	3.9	4.2	5.1	5.9	6.2	2.3	4.7	4.2
85°	2.3	2.9	3.6	3.5	3.6	4.3	4.9	5.0	1.6	3.8	3.4
85.5°	1.8	2.3	3.2	3.1	3.1	3.6	4.1	4.1	1.1	3.0	2.7
86°	1.4	1.9	2.7	2.7	2.6	2.9	3.3	3.1	0.7	2.2	2.0
86.5°	1.2	1.5	2.1	2.1	2.1	2.3	2.6	2.3	0.6	1.6	1.5
87°	0.9	1.2	1.7	1.7	1.7	1.8	1.9	1.7	0.4	1.1	1.1
87.5°	0.6	0.9	1.3	1.3	1.4	1.4	1.4	1.2	0.3	0.6	0.6
88°	0.4	0.6	0.9	1.0	1.1	1.0	0.9	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: P775729

CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-5000K

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: P775729

CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	606.8	606.8	606.8	606.8	606.8	606.8
0.5°	606.9	606.7	605.9	605.3	605.1	605.3
1°	607.0	606.2	604.8	604.1	603.6	603.8
1.5°	606.9	605.5	603.8	602.6	602.0	602.3
2°	606.9	604.9	602.7	601.1	600.3	600.8
2.5°	606.7	604.2	601.4	599.6	598.6	598.9
3°	606.5	603.3	600.1	597.9	596.8	597.2
3.5°	606.2	602.3	598.7	596.2	595.0	595.4
4°	605.8	601.4	597.3	594.4	593.1	593.4
4.5°	605.2	600.3	595.8	592.4	590.9	591.5
5°	604.7	599.3	594.2	590.5	588.8	589.3
5.5°	604.1	598.0	592.5	588.5	586.7	587.2
6°	603.3	596.7	590.7	586.4	584.4	585.0
6.5°	602.5	595.3	588.9	584.2	582.1	582.7
7°	601.6	593.9	587.1	582.0	579.6	580.4
7.5°	600.5	592.3	585.1	579.6	577.2	577.9
8°	599.6	590.7	583.1	577.3	574.7	575.4
8.5°	598.4	589.1	580.8	574.8	572.1	572.8
9°	597.2	587.3	578.7	572.4	569.4	570.3
9.5°	596.0	585.4	576.3	569.7	566.6	567.5
10°	594.6	583.6	574.0	567.1	563.9	564.7
10.5°	593.1	581.6	571.5	564.4	561.1	562.0
11°	591.6	579.5	569.1	561.6	558.2	559.1
11.5°	590.0	577.3	566.5	558.8	555.2	556.1
12°	588.4	575.1	563.9	555.9	552.1	553.1
12.5°	586.6	572.8	561.1	552.8	549.1	550.0
13°	584.8	570.5	558.3	549.8	546.0	546.9
13.5°	582.8	567.9	555.6	546.7	542.7	543.7
14°	580.8	565.5	552.6	543.6	539.5	540.5
14.5°	578.8	562.8	549.6	540.4	536.2	537.2
15°	576.6	560.1	546.6	537.1	532.7	533.9
15.5°	574.3	557.5	543.4	533.7	529.3	530.5
16°	572.1	554.6	540.2	530.3	525.9	527.1
16.5°	569.7	551.7	536.9	526.9	522.3	523.6
17°	567.3	548.7	533.6	523.4	518.8	520.0
17.5°	564.7	545.7	530.2	519.7	515.1	516.4
18°	562.1	542.6	526.8	516.1	511.4	512.7
18.5°	559.4	539.4	523.2	512.4	507.7	509.1
19°	556.6	536.0	519.6	508.7	503.9	505.2
19.5°	553.7	532.7	516.0	504.8	500.0	501.4
20°	550.9	529.3	512.3	501.1	496.2	497.7
20.5°	547.9	525.9	508.4	497.1	492.2	493.6
21°	544.8	522.3	504.6	493.1	488.2	489.7

TEST NUMBER: P775729

CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	535.2	511.3	492.7	480.9	476.0	477.6
23°	531.8	507.4	488.6	476.8	471.9	473.5
23.5°	528.5	503.6	484.6	472.6	467.7	469.3
24°	525.0	499.6	480.3	468.4	463.4	465.1
24.5°	521.3	495.7	476.1	464.1	459.0	460.7
25°	517.7	491.5	471.8	459.7	454.7	456.4
25.5°	514.0	487.4	467.5	455.3	450.3	452.1
26°	510.3	483.4	463.0	450.8	445.9	447.7
26.5°	506.3	479.0	458.8	446.4	441.4	443.2
27°	502.5	474.7	454.2	441.9	436.9	438.7
27.5°	498.6	470.4	449.7	437.3	432.3	434.1
28°	494.6	466.0	445.0	432.7	427.6	429.6
28.5°	490.6	461.6	440.5	428.1	423.2	425.0
29°	486.4	457.1	435.9	423.4	418.4	420.4
29.5°	482.2	452.6	431.2	418.7	413.7	415.7
30°	478.0	448.1	426.5	413.9	408.9	410.9
30.5°	473.8	443.4	421.7	409.1	404.2	406.1
31°	469.4	438.7	416.8	404.3	399.3	401.3
31.5°	465.0	434.0	412.1	399.4	394.5	396.5
32°	460.5	429.2	407.2	394.5	389.5	391.6
32.5°	456.1	424.6	402.3	389.6	384.7	386.7
33°	451.5	419.9	397.4	384.7	379.7	381.7
33.5°	446.9	415.0	392.5	379.7	374.8	376.8
34°	442.4	410.1	387.5	374.7	369.8	371.8
34.5°	437.7	405.2	382.3	369.7	364.8	366.7
35°	433.0	400.3	377.3	364.5	359.5	361.6
35.5°	428.3	395.2	372.4	359.4	354.6	356.5
36°	423.6	390.4	367.3	354.4	349.5	351.4
36.5°	418.8	385.3	362.3	349.3	344.3	346.3
37°	413.9	380.3	357.1	344.1	339.2	341.1
37.5°	409.1	375.4	352.1	339.0	334.1	335.9
38°	404.2	370.3	346.8	333.7	328.8	330.5
38.5°	399.3	365.2	341.8	328.6	323.6	325.4
39°	394.4	360.3	336.7	323.5	318.4	320.3
39.5°	389.5	355.2	331.6	318.3	313.2	314.9
40°	384.5	350.0	326.4	313.0	307.8	309.4
40.5°	379.6	345.0	321.3	307.8	302.6	304.2
41°	374.6	339.8	316.2	302.6	297.2	298.9
41.5°	369.6	334.8	310.9	297.4	291.8	293.4
42°	364.5	329.8	305.8	292.2	286.6	288.0
42.5°	359.5	324.8	300.8	286.9	281.3	282.7
43°	354.6	319.8	295.7	281.7	276.0	277.4
43.5°	349.5	314.6	290.7	276.5	270.6	271.9

TEST NUMBER: P775729

CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	334.6	299.5	275.3	260.9	254.6	255.5
45.5°	329.6	294.5	270.3	255.7	249.2	250.1
46°	324.7	289.7	265.4	250.7	243.9	244.6
46.5°	319.9	284.9	260.5	245.5	238.6	239.0
47°	315.1	280.1	255.5	240.4	233.2	233.4
47.5°	310.3	275.2	250.6	235.2	228.0	228.1
48°	305.7	270.7	245.8	230.1	222.7	222.7
48.5°	301.0	265.9	240.9	225.1	217.2	217.2
49°	296.1	261.1	236.2	220.2	212.0	211.7
49.5°	290.9	256.4	231.5	215.2	206.8	206.4
50°	285.6	251.3	226.7	210.2	201.5	200.8
50.5°	279.9	246.1	221.7	205.3	196.3	195.4
51°	274.2	240.9	216.9	200.4	191.0	189.7
51.5°	268.2	235.5	212.0	195.5	185.9	184.5
52°	262.1	230.0	207.0	190.7	180.8	179.1
52.5°	255.7	224.4	201.9	185.7	175.6	173.7
53°	249.4	218.7	196.8	180.8	170.5	168.4
53.5°	242.7	213.0	191.7	175.8	165.4	163.1
54°	236.0	207.2	186.4	171.0	160.4	157.6
54.5°	229.3	201.5	181.2	166.0	155.4	152.4
55°	222.7	195.6	175.9	161.0	150.5	147.2
55.5°	215.7	189.5	170.7	155.9	145.4	141.9
56°	208.9	183.7	165.3	151.0	140.5	136.9
56.5°	202.2	177.8	160.1	146.0	135.6	131.6
57°	195.5	171.8	154.7	141.1	130.7	126.5
57.5°	188.7	165.9	149.3	136.0	125.8	121.4
58°	182.1	160.0	144.1	131.2	121.1	116.5
58.5°	175.6	154.1	138.9	126.2	116.2	111.6
59°	168.8	148.3	133.7	121.3	111.4	106.6
59.5°	162.4	142.4	128.4	116.5	106.7	101.8
60°	156.1	136.8	123.3	111.7	102.0	97.0
60.5°	149.8	131.1	118.2	106.9	97.3	92.2
61°	143.5	125.6	113.2	102.2	92.7	87.5
61.5°	137.4	120.2	108.2	97.6	88.3	83.0
62°	131.6	114.9	103.3	93.1	83.9	78.5
62.5°	125.7	109.7	98.5	88.5	79.5	74.0
63°	119.9	104.5	93.8	84.0	75.3	69.7
63.5°	114.3	99.6	89.1	79.6	71.0	65.6
64°	108.8	94.7	84.5	75.3	66.9	61.4
64.5°	103.6	90.0	80.1	71.0	62.9	57.6
65°	98.5	85.3	75.7	66.8	59.2	53.8
65.5°	93.7	80.8	71.4	62.7	55.3	50.1
66°	89.0	76.3	67.2	58.7	51.7	46.7



TEST NUMBER: P775729

CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	75.4	64.1	55.4	47.4	41.5	37.7
68°	71.2	60.2	51.7	44.1	38.5	35.8
68.5°	67.3	56.6	48.3	40.8	36.1	33.8
69°	63.4	53.1	44.8	37.6	33.9	31.9
69.5°	59.8	49.8	41.6	35.2	31.7	29.8
70°	56.3	46.5	38.7	32.7	29.3	28.9
70.5°	53.0	43.4	36.2	30.3	27.1	27.8
71°	49.7	40.5	33.8	27.8	26.0	26.6
71.5°	46.7	37.6	31.3	25.9	25.0	25.5
72°	43.7	35.3	28.9	24.2	24.0	24.2
72.5°	40.9	32.9	26.4	22.6	22.8	23.0
73°	38.2	30.6	24.4	21.1	21.6	21.9
73.5°	35.6	28.1	22.6	19.8	20.6	20.7
74°	33.2	26.1	20.9	18.8	19.5	19.6
74.5°	30.9	24.1	19.3	17.8	18.4	18.4
75°	28.7	22.3	17.9	16.9	17.5	17.5
75.5°	26.5	20.5	16.5	16.0	16.4	16.4
76°	24.5	18.9	15.3	15.1	15.5	15.5
76.5°	22.7	17.3	14.2	14.3	14.5	14.5
77°	20.9	15.8	13.1	13.4	13.6	13.5
77.5°	19.2	14.5	12.2	12.6	12.8	12.7
78°	17.5	13.1	11.2	11.8	11.9	11.7
78.5°	16.0	11.9	10.3	11.1	11.1	11.0
79°	14.5	10.9	9.6	10.3	10.2	10.1
79.5°	13.2	9.8	8.8	9.6	9.5	9.4
80°	11.9	8.8	8.2	8.8	8.7	8.6
80.5°	10.7	8.0	7.7	8.2	8.0	7.9
81°	9.7	7.1	7.0	7.6	7.2	7.1
81.5°	8.7	6.4	6.5	6.9	6.6	6.5
82°	7.7	5.8	5.9	6.3	5.9	5.9
82.5°	6.7	5.1	5.3	5.6	5.2	5.2
83°	5.6	4.5	4.8	5.1	4.6	4.6
83.5°	4.9	3.9	4.3	4.6	3.9	3.9
84°	4.2	3.4	3.8	4.1	3.5	3.4
84.5°	3.5	3.0	3.3	3.5	3.0	2.9
85°	2.9	2.6	2.9	3.0	2.5	2.3
85.5°	2.3	2.0	2.3	2.6	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°	1.0	1.0	1.1	1.2	1.0	0.9
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: P775729
CATALOG NUMBER: HCDJBL510CSD-HCD61TRH-HCD61TRLWW-1000lm-5000K

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°	485.7	493.1	506.2	525.0	550.0	570.2	582.8	587.3	584.7	576.1	561.4
22°	481.7	489.1	502.4	521.3	547.0	567.5	580.6	585.0	582.2	573.5	558.6



44°	266.3	275.6	291.0	314.0	349.9	383.5	408.2	417.9	415.1	402.0	377.5
44.5°	260.9	270.3	285.8	308.9	344.7	378.4	403.2	413.0	410.3	397.2	372.6



66.5°	43.4	54.5	66.1	78.2	93.4	103.0	109.3	110.3	104.8	102.1	94.4
67°	40.3	50.7	61.9	73.7	88.5	97.7	103.7	104.6	99.0	97.2	89.9



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°	541.7	518.7	500.8	489.0	484.1	485.7
22°	538.4	515.1	496.7	485.1	480.1	481.7



44°	344.5	309.5	285.5	271.3	265.2	266.3
44.5°	339.4	304.5	280.4	266.1	260.0	260.9



66.5°	84.2	72.2	63.1	54.7	48.2	43.4
67°	79.5	67.9	59.2	51.2	44.8	40.3

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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)