

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: P775626

Luminaire Tested: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775626
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-3000K
Description: 4 INCH ROUND SHALLOW-WIDE LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT
Ballast/Driver: -

Summary

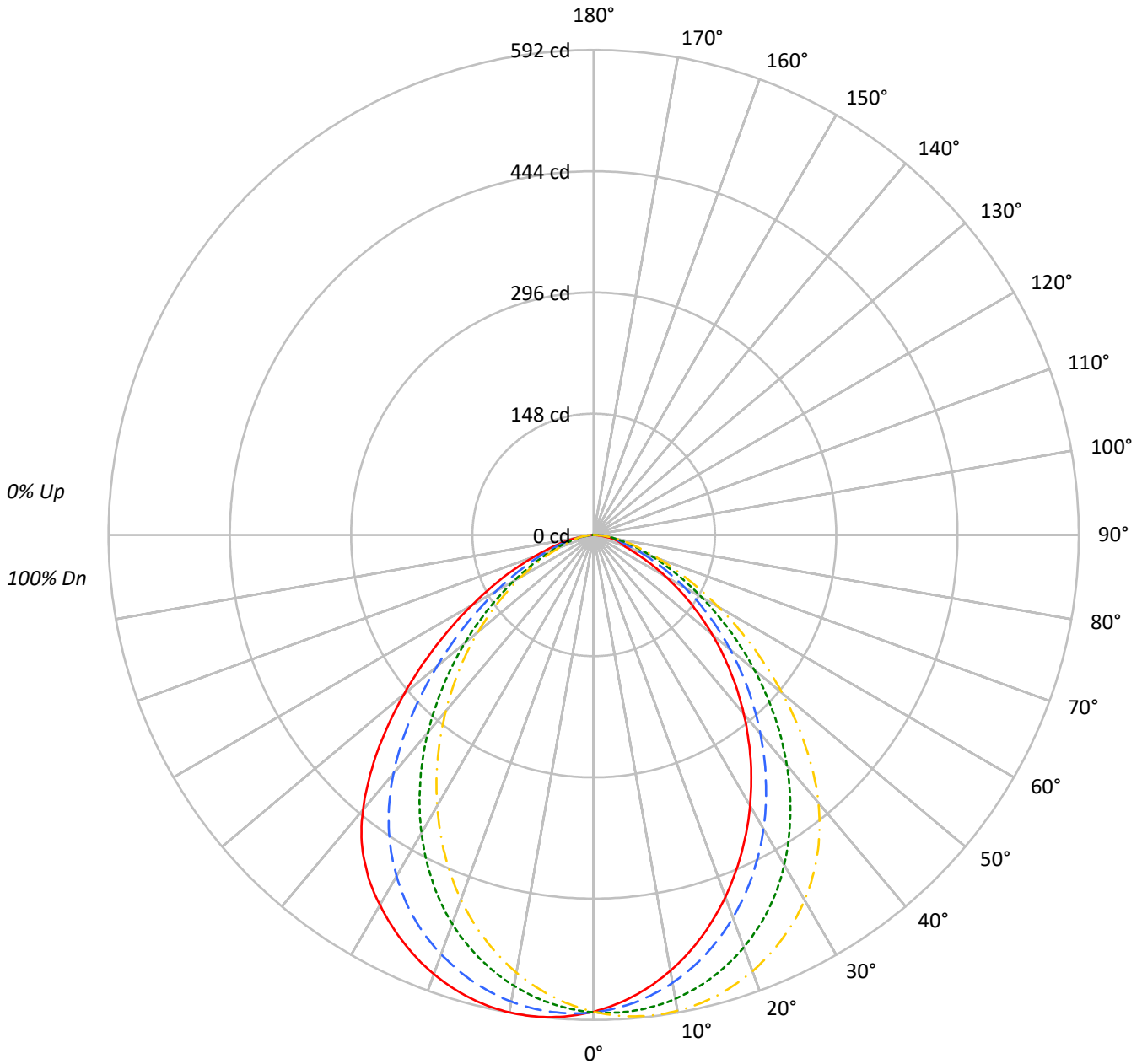
Lumens per Lamp: N/A
Luminaire Lumens: 1221.6 lumens
Efficiency: N/A
Efficacy: 122.2 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.14 / 1.22
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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°	73282	73282	73282	73282
5°	71364	73625	74649	72602
10°	69020	73467	75627	71435
15°	66200	72845	76206	69796
20°	62959	71731	76392	67620
25°	59349	70069	76220	64695
30°	55468	67588	75798	61063
35°	51268	64281	74835	56706
40°	46788	60260	71924	51651
45°	42021	55494	66350	46061
50°	36965	50063	59167	40195
55°	31464	44212	51255	34097
60°	25522	38233	43242	28316
65°	19445	32608	35853	23138
70°	14718	27597	28223	18472
75°	15414	23097	22124	14733
80°	14132	20220	15727	11306
85°	7075	20504	4476	6065

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 89.5°
 Luminance: 74992 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	54.8	4.5
10°-20°	154.0	12.6
20°-30°	223.9	18.3
30°-40°	250.8	20.5
40°-50°	226.9	18.6
50°-60°	164.8	13.5
60°-70°	94.3	7.7
70°-80°	41.8	3.4
80°-90°	10.1	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°	432.8	35.4
0°-40°	683.6	56.0
0°-60°	1075.3	88.0
0°-90°	1221.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1221.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	582	582	582	582	582	
5°	565	583	591	575	565	53
15°	508	559	585	536	508	143
25°	427	505	549	466	427	196
35°	334	418	487	369	334	208
45°	236	312	373	259	236	182
55°	143	202	234	155	143	128
65°	65	110	120	78	65	66
75°	32	48	46	30	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°	582.3	582.3	582.3	582.3	582.3	582.3	582.3	582.3	582.3	582.3	582.3
0.5°	580.6	582.1	582.1	582.0	583.1	583.1	583.2	583.2	583.2	584.0	583.2
1°	579.1	581.0	581.4	581.8	583.4	583.8	584.2	584.2	584.3	584.8	583.7
1.5°	577.7	579.8	580.5	581.5	583.5	584.5	585.2	585.2	585.4	585.6	584.1
2°	576.1	578.5	579.7	581.1	583.7	585.0	586.2	586.2	586.5	586.4	584.4
2.5°	574.4	577.2	578.8	580.6	583.7	585.5	587.0	587.0	587.4	587.0	584.6
3°	572.6	575.7	577.8	580.1	583.7	586.0	587.7	587.7	588.3	587.5	584.7
3.5°	570.8	574.2	576.7	579.5	583.6	586.4	588.4	588.4	589.0	588.0	584.8
4°	568.9	572.7	575.5	578.8	583.4	586.7	589.0	589.0	589.7	588.3	584.7
4.5°	567.0	571.1	574.2	578.1	583.1	586.9	589.5	589.5	590.3	588.6	584.6
5°	564.9	569.2	572.9	577.3	582.8	587.0	589.9	589.9	590.9	588.8	584.5
5.5°	562.8	567.5	571.5	576.4	582.4	587.0	590.2	590.2	591.3	589.0	584.2
6°	560.5	565.5	569.9	575.3	581.9	586.9	590.5	590.5	591.7	589.0	583.9
6.5°	558.3	563.6	568.4	574.2	581.3	586.8	590.8	590.8	592.0	589.0	583.5
7°	555.9	561.6	566.8	573.1	580.5	586.6	590.9	590.9	592.2	588.9	583.0
7.5°	553.5	559.4	565.0	571.9	579.8	586.4	590.9	590.9	592.3	588.7	582.5
8°	550.9	557.2	563.2	570.5	579.0	586.0	590.9	590.9	592.4	588.5	581.8
8.5°	548.4	554.8	561.3	569.1	578.1	585.4	590.8	590.8	592.3	588.2	581.1
9°	545.7	552.5	559.3	567.7	577.2	584.9	590.4	590.4	592.2	587.7	580.3
9.5°	542.9	550.0	557.3	566.0	576.1	584.3	590.2	590.2	592.1	587.3	579.4
10°	540.1	547.5	555.1	564.4	574.9	583.7	589.8	589.8	591.8	586.7	578.5
10.5°	537.2	544.8	552.9	562.7	573.6	582.9	589.4	589.4	591.5	586.1	577.5
11°	534.3	542.3	550.6	560.9	572.3	582.1	588.9	588.9	591.0	585.3	576.4
11.5°	531.1	539.4	548.3	559.1	570.9	581.2	588.3	588.3	590.5	584.5	575.2
12°	528.1	536.8	545.8	557.1	569.5	580.1	587.7	587.7	589.9	583.7	574.0
12.5°	524.9	533.8	543.3	555.1	568.0	579.1	586.9	586.9	589.3	582.8	572.7
13°	521.6	530.8	540.7	553.0	566.4	578.0	586.1	586.1	588.6	581.8	571.4
13.5°	518.4	527.8	538.1	550.7	564.7	576.8	585.2	585.2	587.8	580.6	569.8
14°	515.0	524.7	535.3	548.5	562.9	575.4	584.2	584.2	586.9	579.5	568.3
14.5°	511.5	521.5	532.5	546.1	561.0	574.0	583.2	583.2	585.9	578.3	566.7
15°	508.1	518.4	529.7	543.8	559.1	572.6	582.1	582.1	584.9	577.0	565.1
15.5°	504.5	514.9	526.6	541.2	557.1	571.1	580.9	580.9	583.8	575.5	563.3
16°	500.9	511.6	523.7	538.7	554.9	569.4	579.5	579.5	582.6	574.1	561.5
16.5°	497.1	508.3	520.5	536.1	552.9	567.8	578.2	578.2	581.3	572.6	559.6
17°	493.5	504.8	517.5	533.5	550.6	566.0	576.8	576.8	580.0	570.9	557.7
17.5°	489.7	501.2	514.2	530.6	548.3	564.2	575.2	575.2	578.6	569.2	555.6
18°	485.9	497.7	510.9	527.8	545.9	562.3	573.7	573.7	577.1	567.6	553.6
18.5°	481.9	494.0	507.6	524.8	543.5	560.3	572.1	572.1	575.5	565.7	551.3
19°	478.0	490.2	504.2	521.7	540.9	558.3	570.3	570.3	573.9	563.8	549.2
19.5°	474.1	486.4	500.6	518.7	538.4	556.1	568.5	568.5	572.2	561.9	547.0
20°	470.1	482.6	497.1	515.6	535.6	554.0	566.7	566.7	570.4	559.9	544.6
20.5°	465.9	478.8	493.6	512.4	532.9	551.8	564.7	564.7	568.6	557.8	542.2
21°	461.8	474.8	489.9	509.1	530.0	549.4	562.7	562.7	566.7	555.6	539.7



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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°	449.2	462.7	478.6	498.8	521.0	542.0	556.2	562.5	560.5	548.8	531.9
23°	445.0	458.7	474.7	495.3	518.0	539.3	554.0	560.3	558.3	546.4	529.1
23.5°	440.6	454.4	470.7	491.6	514.7	536.5	551.7	558.2	556.1	544.0	526.3
24°	436.2	450.4	466.7	487.9	511.4	533.9	549.2	555.8	553.8	541.4	523.4
24.5°	431.8	446.1	462.6	484.1	508.1	530.9	546.8	553.5	551.5	538.9	520.3
25°	427.4	441.7	458.5	480.3	504.6	528.1	544.2	551.1	548.9	536.3	517.3
25.5°	422.9	437.4	454.3	476.3	501.0	525.0	541.7	548.6	546.4	533.7	514.1
26°	418.5	433.1	449.9	472.3	497.4	521.8	539.0	546.1	544.0	530.9	510.8
26.5°	413.9	428.7	445.7	468.2	493.7	518.7	536.2	543.6	541.3	528.1	507.5
27°	409.5	424.3	441.4	464.2	489.8	515.5	533.5	541.0	538.7	525.2	503.9
27.5°	404.9	419.8	437.0	460.0	485.9	512.0	530.6	538.4	536.0	522.4	500.3
28°	400.3	415.3	432.4	455.6	481.9	508.6	527.7	535.5	533.2	519.4	496.6
28.5°	395.7	410.8	428.1	451.2	477.8	505.0	524.5	532.9	530.4	516.1	492.8
29°	391.0	406.2	423.6	446.7	473.7	501.4	521.4	530.0	527.6	513.0	488.9
29.5°	386.3	401.6	419.2	442.3	469.4	497.6	518.2	527.2	524.7	509.6	485.0
30°	381.7	397.0	414.3	437.8	465.1	493.7	514.9	524.2	521.6	506.2	481.0
30.5°	376.9	392.4	409.8	433.1	460.8	489.6	511.4	521.1	518.7	502.7	476.8
31°	372.1	387.6	405.1	428.5	456.3	485.5	507.9	518.0	515.6	499.0	472.6
31.5°	367.4	383.0	400.4	423.8	451.7	481.3	504.3	514.8	512.6	495.3	468.5
32°	362.7	378.2	395.5	419.0	447.1	477.2	500.5	511.5	509.3	491.5	464.1
32.5°	357.9	373.4	390.8	414.5	442.5	472.8	496.5	508.1	506.1	487.5	459.7
33°	353.1	368.7	385.9	409.5	437.8	468.6	492.5	504.5	502.7	483.5	455.1
33.5°	348.3	363.9	381.2	404.7	433.0	464.1	488.5	500.9	498.9	479.3	450.5
34°	343.5	359.1	376.2	399.9	428.2	459.6	484.4	497.1	494.9	475.3	445.7
34.5°	338.6	354.3	371.4	395.0	423.2	455.0	480.2	493.3	491.0	470.8	440.9
35°	333.7	349.4	366.4	390.0	418.4	450.3	475.9	489.2	487.1	466.4	436.0
35.5°	328.9	344.6	361.5	384.9	413.4	445.6	471.5	485.2	483.3	461.8	430.8
36°	324.0	339.7	356.5	379.8	408.4	440.8	467.0	480.9	479.1	457.1	425.7
36.5°	319.2	334.9	351.7	374.8	403.4	435.8	462.4	476.7	474.7	451.9	420.3
37°	314.2	330.0	346.8	369.8	398.3	430.8	457.7	472.2	470.1	446.8	414.9
37.5°	309.4	325.0	341.6	364.7	393.0	425.8	452.8	467.7	465.4	441.5	409.4
38°	304.4	320.1	336.7	359.5	387.8	420.6	447.8	462.9	460.2	436.0	403.7
38.5°	299.7	315.3	331.6	354.4	382.6	415.3	442.8	457.9	455.0	430.3	398.0
39°	294.8	310.3	326.6	349.1	377.3	410.2	437.6	452.5	449.6	424.5	392.0
39.5°	289.8	305.5	321.6	344.2	372.0	404.8	432.4	447.0	443.7	418.4	386.1
40°	284.8	300.6	316.6	339.0	366.8	399.3	426.8	441.2	437.8	412.3	380.0
40.5°	280.1	295.7	311.6	333.7	361.3	393.7	421.2	435.5	431.8	406.0	373.7
41°	275.0	290.8	306.5	328.5	355.9	388.2	415.3	429.4	425.7	399.6	367.5
41.5°	270.2	285.9	301.6	323.4	350.4	382.6	409.7	423.4	419.4	393.0	361.3
42°	265.3	280.9	296.5	318.1	344.9	376.8	403.5	417.1	412.9	386.4	354.8
42.5°	260.5	276.1	291.4	312.9	339.4	371.1	397.5	411.1	406.5	379.8	348.4
43°	255.6	271.2	286.4	307.8	334.0	365.4	391.3	404.7	400.0	372.8	341.9
43.5°	250.8	266.4	281.4	302.6	328.5	359.4	385.2	398.2	393.2	366.0	335.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	236.1	251.8	266.5	287.0	311.8	341.4	366.1	378.4	372.8	345.1	315.3
45.5°	231.5	246.9	261.5	281.6	306.2	335.3	359.7	371.8	365.9	338.2	308.7
46°	226.6	242.1	256.6	276.4	300.6	329.1	353.1	365.0	358.9	331.3	301.9
46.5°	221.8	237.4	251.7	271.3	294.9	323.1	346.7	358.2	351.8	324.2	295.2
47°	217.0	232.5	246.8	266.1	289.3	316.9	340.1	351.3	344.7	317.2	288.5
47.5°	212.3	227.7	241.9	261.0	283.7	310.7	333.5	344.3	337.6	310.2	282.0
48°	207.5	222.9	237.0	255.8	278.2	304.6	326.9	337.5	330.5	303.3	275.3
48.5°	202.8	218.3	232.1	250.7	272.6	298.4	320.3	330.6	323.5	296.4	268.8
49°	198.1	213.6	227.3	245.6	266.9	292.3	313.7	323.6	316.3	289.4	262.4
49.5°	193.5	208.8	222.6	240.6	261.3	286.1	307.1	316.7	309.2	282.7	255.9
50°	188.8	204.2	217.7	235.6	255.7	280.0	300.4	309.6	302.2	275.7	249.5
50.5°	184.2	199.5	212.9	230.4	250.2	273.9	293.9	302.6	295.0	269.1	243.1
51°	179.6	194.8	208.2	225.3	244.6	267.7	287.3	295.7	288.1	262.4	236.9
51.5°	175.0	190.1	203.6	220.4	239.1	261.7	280.7	288.8	280.9	255.6	230.7
52°	170.5	185.5	199.0	215.5	233.7	255.6	274.3	281.9	274.0	249.1	224.6
52.5°	166.0	180.9	194.3	210.6	228.3	249.6	267.7	274.8	267.0	242.5	218.6
53°	161.4	176.4	189.6	205.5	222.8	243.6	261.1	268.0	260.3	236.1	212.5
53.5°	156.7	171.7	185.0	200.7	217.3	237.8	254.7	261.1	253.5	229.6	206.6
54°	152.3	167.3	180.5	195.8	212.0	231.7	248.3	254.4	246.5	223.4	200.8
54.5°	147.8	162.7	175.9	190.9	206.8	226.0	242.0	247.4	240.0	217.1	195.1
55°	143.4	158.4	171.4	186.2	201.5	220.3	235.8	241.1	233.6	211.0	189.5
55.5°	139.0	153.9	166.9	181.4	196.3	214.6	229.5	234.3	226.8	204.9	183.6
56°	134.6	149.7	162.5	176.6	191.0	208.8	223.2	227.7	220.4	198.8	178.2
56.5°	130.3	145.3	158.1	171.9	186.0	203.1	217.0	221.2	214.0	192.8	172.9
57°	126.0	141.0	153.7	167.3	181.0	197.6	211.0	214.8	207.6	187.0	167.5
57.5°	121.8	136.7	149.3	162.6	176.0	192.2	205.1	208.5	201.4	181.3	162.3
58°	117.5	132.5	145.1	158.0	171.0	186.7	199.1	202.2	195.4	175.7	157.2
58.5°	113.4	128.3	140.9	153.5	166.2	181.4	193.2	196.1	189.3	170.0	152.1
59°	109.3	124.3	136.7	149.1	161.3	176.1	187.4	190.1	183.2	164.6	147.2
59.5°	105.2	120.2	132.3	144.8	156.6	170.9	181.7	184.2	177.4	159.1	142.3
60°	101.4	116.2	128.2	140.5	151.9	165.7	176.1	178.3	171.8	153.9	137.5
60.5°	97.4	112.1	124.0	136.1	147.3	160.7	170.5	172.5	166.0	148.7	132.7
61°	93.5	108.2	120.0	131.9	142.8	155.7	165.1	166.9	160.6	143.6	128.2
61.5°	89.7	104.3	116.0	127.7	138.5	150.8	159.8	161.4	155.1	138.6	123.7
62°	86.1	100.6	112.2	123.7	134.0	146.0	154.5	156.0	150.0	133.9	119.3
62.5°	82.3	96.8	108.3	119.6	129.8	141.2	149.2	150.6	144.7	129.0	114.9
63°	78.8	93.1	104.5	115.8	125.6	136.5	144.1	145.4	139.4	124.3	110.8
63.5°	75.3	89.4	100.8	112.0	121.5	131.9	139.1	140.3	134.5	119.7	106.6
64°	72.0	85.7	97.3	108.2	117.4	127.4	134.2	135.4	129.6	115.6	102.6
64.5°	68.5	82.2	93.6	104.4	113.5	123.0	129.4	130.5	124.8	111.1	98.7
65°	65.3	78.8	90.1	100.9	109.5	118.7	124.8	125.7	120.4	106.9	94.9
65.5°	62.1	75.4	86.7	97.4	105.8	114.4	120.3	121.1	115.7	102.6	91.2
66°	58.9	72.1	83.4	93.9	102.1	110.2	115.8	116.5	110.9	98.6	87.6



TEST NUMBER: P775626

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	50.3	62.5	73.6	83.7	91.5	98.4	103.1	103.5	97.3	87.2	77.1
68°	47.8	59.5	70.6	80.5	88.2	94.5	98.9	99.2	93.0	83.4	73.9
68.5°	45.4	56.6	67.6	77.4	84.9	90.9	95.0	95.1	88.9	79.6	70.7
69°	43.2	53.7	64.6	74.3	81.6	87.4	91.3	91.3	84.8	75.8	67.7
69.5°	41.2	50.9	61.8	71.3	78.3	83.9	87.7	87.5	80.7	72.3	64.7
70°	40.0	48.3	58.9	68.3	75.0	80.5	84.1	83.7	76.7	68.9	61.8
70.5°	39.3	45.7	56.2	65.3	71.9	77.1	80.5	80.0	73.2	65.5	59.0
71°	38.6	43.5	53.6	62.6	68.9	73.8	77.0	76.3	69.7	62.4	56.2
71.5°	37.9	41.3	51.1	59.7	65.9	70.6	73.7	72.7	66.1	59.3	53.6
72°	37.2	39.6	48.7	57.1	63.1	67.7	70.4	69.3	62.9	56.3	51.0
72.5°	36.2	38.4	46.3	54.5	60.3	64.6	67.3	66.0	59.7	53.5	48.5
73°	35.3	37.5	44.2	52.0	57.6	61.8	64.4	62.9	56.7	50.6	46.0
73.5°	34.5	36.6	42.1	49.5	54.9	58.9	61.4	59.8	53.7	47.9	43.7
74°	33.6	35.8	40.1	47.2	52.4	56.3	58.5	56.9	50.9	45.2	41.3
74.5°	32.8	35.1	38.2	44.9	49.9	53.7	55.7	54.0	48.2	42.7	39.1
75°	31.7	34.3	36.4	42.8	47.5	51.1	53.2	51.2	45.5	40.2	37.0
75.5°	30.7	33.5	35.2	40.6	45.1	48.6	50.4	48.6	43.0	37.8	34.8
76°	29.6	32.6	34.0	38.7	43.0	46.2	48.0	45.9	40.4	35.4	32.7
76.5°	28.4	31.5	32.8	36.7	40.7	44.0	45.5	43.4	38.1	33.1	30.6
77°	27.3	30.5	31.4	35.1	38.7	41.8	43.2	40.8	35.6	30.8	28.7
77.5°	26.0	29.5	30.5	33.6	36.7	39.6	40.8	38.5	33.3	28.6	26.7
78°	24.8	28.4	29.7	32.1	34.8	37.5	38.6	36.1	30.9	26.4	24.7
78.5°	23.5	27.4	28.9	30.5	33.0	35.5	36.4	33.9	28.6	24.3	22.9
79°	22.2	26.1	28.0	29.0	31.2	33.6	34.3	31.6	26.2	22.2	21.0
79.5°	20.8	25.0	27.1	27.7	29.5	31.7	32.3	29.4	24.0	20.1	19.2
80°	19.5	23.8	26.0	26.3	27.9	29.9	30.3	27.3	21.7	18.2	17.5
80.5°	18.1	22.6	25.0	25.2	26.3	28.2	28.4	25.3	19.5	16.1	15.8
81°	16.6	21.2	24.0	24.1	24.8	26.4	26.4	23.2	17.3	14.3	14.2
81.5°	15.2	20.0	22.9	23.0	23.4	24.8	24.6	21.2	15.0	12.5	12.6
82°	13.8	18.6	21.7	21.8	21.9	23.2	22.7	19.3	12.8	10.9	11.0
82.5°	12.4	17.3	20.6	20.8	20.6	21.6	20.8	17.5	11.0	9.5	9.7
83°	10.7	15.8	19.5	19.7	19.3	20.0	19.1	15.6	9.2	8.1	8.4
83.5°	9.2	14.4	18.3	18.8	18.0	18.5	17.4	14.0	7.3	6.6	7.0
84°	7.7	13.0	17.1	17.8	16.6	16.9	15.7	12.2	5.6	5.2	5.7
84.5°	6.2	11.5	15.9	16.7	15.4	15.5	14.2	10.8	3.8	4.2	4.5
85°	4.9	10.1	14.8	15.7	14.2	14.1	12.7	9.4	3.1	3.3	3.3
85.5°	4.0	8.8	13.7	14.7	13.1	12.8	11.2	8.1	2.4	2.3	2.3
86°	3.5	7.7	12.6	13.6	11.9	11.4	10.0	6.6	2.0	1.5	1.4
86.5°	2.9	6.7	11.4	12.5	10.8	10.2	8.7	5.2	1.6	0.8	0.8
87°	2.3	5.9	10.3	11.2	9.8	9.0	7.3	4.1	1.2	0.4	0.3
87.5°	1.8	5.1	9.1	10.1	8.7	7.8	6.0	3.0	1.0	0.2	0.0
88°	1.3	4.3	8.0	8.9	7.6	6.5	4.7	2.0	0.6	0.1	0.0
88.5°	0.8	3.5	6.7	7.8	6.5	5.3	3.6	1.2	0.3	0.0	0.0



TEST NUMBER: P775626

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3000K

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	2.2	0.8	0.1	0.0	0.0	0.0



TEST NUMBER: P775626

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	582.3	582.3	582.3	582.3	582.3	582.3
0.5°	582.1	582.3	581.4	580.7	580.5	580.6
1°	582.1	581.8	580.4	579.4	579.0	579.1
1.5°	582.0	581.2	579.3	578.0	577.5	577.7
2°	581.8	580.4	578.2	576.6	575.8	576.1
2.5°	581.5	579.7	577.0	575.1	574.2	574.4
3°	581.2	578.9	575.6	573.4	572.5	572.6
3.5°	580.6	578.0	574.3	571.8	570.6	570.8
4°	580.2	577.0	572.9	569.9	568.6	568.9
4.5°	579.6	576.0	571.3	568.1	566.6	567.0
5°	578.9	574.7	569.7	566.2	564.5	564.9
5.5°	578.2	573.5	568.0	564.1	562.4	562.8
6°	577.4	572.3	566.2	562.0	560.1	560.5
6.5°	576.5	570.8	564.4	559.8	557.8	558.3
7°	575.4	569.4	562.5	557.6	555.3	555.9
7.5°	574.4	567.9	560.4	555.2	552.9	553.5
8°	573.3	566.3	558.4	552.8	550.2	550.9
8.5°	572.1	564.6	556.1	550.3	547.6	548.4
9°	570.8	562.8	554.0	547.8	544.9	545.7
9.5°	569.4	560.9	551.6	545.1	542.1	542.9
10°	568.0	559.0	549.2	542.4	539.2	540.1
10.5°	566.6	557.1	546.8	539.6	536.3	537.2
11°	564.9	554.9	544.2	536.8	533.3	534.3
11.5°	563.3	552.9	541.7	533.9	530.2	531.1
12°	561.6	550.5	538.9	530.8	527.1	528.1
12.5°	559.8	548.3	536.1	527.7	523.9	524.9
13°	557.9	545.9	533.3	524.6	520.6	521.6
13.5°	555.9	543.5	530.4	521.3	517.2	518.4
14°	553.9	540.9	527.4	518.1	513.9	515.0
14.5°	551.9	538.4	524.4	514.7	510.4	511.5
15°	549.7	535.7	521.2	511.3	506.8	508.1
15.5°	547.5	532.9	518.0	507.8	503.3	504.5
16°	545.1	530.1	514.7	504.3	499.6	500.9
16.5°	542.8	527.4	511.4	500.7	495.9	497.1
17°	540.3	524.3	508.1	497.0	492.0	493.5
17.5°	537.9	521.2	504.5	493.3	488.2	489.7
18°	535.2	518.2	501.0	489.5	484.4	485.9
18.5°	532.7	515.0	497.3	485.6	480.4	481.9
19°	529.9	511.7	493.7	481.7	476.4	478.0
19.5°	527.2	508.5	489.9	477.6	472.3	474.1
20°	524.3	504.9	486.0	473.7	468.4	470.1
20.5°	521.3	501.4	482.1	469.6	464.3	465.9
21°	518.2	497.8	478.2	465.4	460.1	461.8

TEST NUMBER: P775626

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	508.7	486.6	465.7	452.5	447.2	449.2
23°	505.2	482.5	461.4	448.1	442.9	445.0
23.5°	501.7	478.7	457.0	443.7	438.5	440.6
24°	498.1	474.5	452.6	439.2	434.1	436.2
24.5°	494.5	470.3	448.1	434.6	429.6	431.8
25°	490.6	465.9	443.5	430.0	425.0	427.4
25.5°	486.8	461.7	439.1	425.4	420.5	422.9
26°	482.7	457.4	434.3	420.7	415.9	418.5
26.5°	478.8	453.0	429.8	415.9	411.2	413.9
27°	474.7	448.3	424.9	411.2	406.6	409.5
27.5°	470.5	443.9	420.2	406.4	401.9	404.9
28°	466.2	439.2	415.2	401.5	397.1	400.3
28.5°	462.0	434.6	410.5	396.7	392.3	395.7
29°	457.5	429.9	405.5	391.8	387.6	391.0
29.5°	453.0	425.1	400.7	386.9	382.8	386.3
30°	448.7	420.2	395.6	382.0	378.0	381.7
30.5°	444.2	415.3	390.6	377.0	373.1	376.9
31°	439.5	410.4	385.5	372.0	368.3	372.1
31.5°	434.7	405.4	380.5	367.0	363.4	367.4
32°	429.9	400.3	375.4	361.9	358.5	362.7
32.5°	425.0	395.3	370.2	357.1	353.5	357.9
33°	420.1	390.2	365.0	351.9	348.7	353.1
33.5°	415.0	385.1	359.9	346.9	343.7	348.3
34°	409.9	379.7	354.8	341.7	338.8	343.5
34.5°	404.8	374.4	349.6	336.6	333.9	338.6
35°	399.6	369.1	344.2	331.6	328.9	333.7
35.5°	394.1	363.9	339.0	326.5	324.0	328.9
36°	388.7	358.6	333.9	321.4	319.0	324.0
36.5°	383.3	353.1	328.7	316.4	314.1	319.2
37°	377.7	347.6	323.4	311.1	309.2	314.2
37.5°	372.1	342.2	318.1	306.0	304.2	309.4
38°	366.3	336.7	312.8	300.9	299.2	304.4
38.5°	360.9	331.2	307.6	295.9	294.3	299.7
39°	354.9	325.6	302.4	290.8	289.4	294.8
39.5°	349.0	320.0	297.1	285.9	284.5	289.8
40°	343.2	314.4	291.8	280.7	279.4	284.8
40.5°	337.3	308.8	286.4	275.7	274.6	280.1
41°	331.4	303.3	281.2	270.6	269.7	275.0
41.5°	325.4	297.7	275.9	265.7	264.8	270.2
42°	319.5	292.2	270.7	260.8	259.8	265.3
42.5°	313.6	286.6	265.5	255.7	255.1	260.5
43°	307.4	281.0	260.4	250.8	250.3	255.6
43.5°	301.3	275.4	255.1	245.8	245.3	250.8

TEST NUMBER: P775626

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	283.2	258.8	239.8	231.2	230.9	236.1
45.5°	277.3	253.5	234.8	226.3	226.1	231.5
46°	271.0	248.1	229.8	221.6	221.4	226.6
46.5°	265.1	242.5	224.8	216.8	216.6	221.8
47°	259.0	237.1	219.7	212.1	212.0	217.0
47.5°	253.0	231.7	214.7	207.3	207.3	212.3
48°	246.9	226.4	209.8	202.5	202.6	207.5
48.5°	241.0	221.0	204.8	197.9	197.9	202.8
49°	235.2	215.8	200.1	193.3	193.3	198.1
49.5°	229.3	210.6	195.2	188.5	188.9	193.5
50°	223.3	205.3	190.3	184.0	184.4	188.8
50.5°	217.4	200.1	185.5	179.5	179.7	184.2
51°	211.9	194.9	180.9	175.0	175.2	179.6
51.5°	206.1	189.8	176.3	170.3	170.8	175.0
52°	200.5	184.8	171.6	166.1	166.4	170.5
52.5°	194.9	179.8	167.0	161.6	162.0	166.0
53°	189.5	174.7	162.6	157.2	157.6	161.4
53.5°	184.0	169.9	158.1	152.8	153.2	156.7
54°	178.8	164.9	153.7	148.6	148.9	152.3
54.5°	173.5	160.2	149.4	144.4	144.8	147.8
55°	168.3	155.4	145.2	140.3	140.6	143.4
55.5°	163.1	150.9	141.0	136.2	136.4	139.0
56°	158.2	146.2	136.8	132.2	132.2	134.6
56.5°	153.3	141.9	132.8	128.2	128.1	130.3
57°	148.5	137.3	128.7	124.2	124.0	126.0
57.5°	143.8	133.0	124.7	120.4	119.9	121.8
58°	139.1	128.7	120.9	116.6	116.2	117.5
58.5°	134.5	124.6	117.0	112.8	112.1	113.4
59°	130.1	120.5	113.3	109.2	108.3	109.3
59.5°	125.7	116.6	109.5	105.6	104.4	105.2
60°	121.4	112.5	105.9	102.1	100.8	101.4
60.5°	117.1	108.7	102.3	98.4	97.0	97.4
61°	113.1	104.9	98.7	95.0	93.4	93.5
61.5°	109.0	101.3	95.3	91.7	89.8	89.7
62°	105.1	97.7	91.9	88.4	86.5	86.1
62.5°	101.3	94.1	88.4	85.0	83.0	82.3
63°	97.5	90.6	85.1	81.8	79.7	78.8
63.5°	93.9	87.4	81.9	78.6	76.5	75.3
64°	90.3	83.9	78.7	75.4	73.3	72.0
64.5°	87.0	80.8	75.5	72.4	70.2	68.5
65°	83.7	77.7	72.6	69.3	67.3	65.3
65.5°	80.3	74.6	69.5	66.4	64.3	62.1
66°	77.0	71.6	66.6	63.4	61.5	58.9



TEST NUMBER: P775626

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	67.9	63.1	58.3	55.1	53.0	50.3
68°	64.9	60.3	55.7	52.6	50.2	47.8
68.5°	62.2	57.7	53.2	50.1	47.6	45.4
69°	59.4	55.1	50.7	47.8	45.0	43.2
69.5°	56.8	52.6	48.4	45.4	42.6	41.2
70°	54.2	50.2	46.1	43.3	40.3	40.0
70.5°	51.8	47.9	43.9	41.3	38.4	39.3
71°	49.2	45.6	41.8	39.4	36.9	38.6
71.5°	46.9	43.4	39.8	37.6	36.1	37.9
72°	44.6	41.2	37.9	36.1	35.3	37.2
72.5°	42.5	39.2	36.6	34.7	34.6	36.2
73°	40.2	37.3	34.9	33.3	33.8	35.3
73.5°	38.2	35.5	33.2	32.0	33.0	34.5
74°	36.2	33.8	31.4	30.5	32.0	33.6
74.5°	34.3	32.1	29.7	29.5	31.0	32.8
75°	32.4	30.3	28.3	28.5	30.0	31.7
75.5°	30.6	28.5	26.9	27.6	28.9	30.7
76°	28.8	26.9	25.6	26.6	27.8	29.6
76.5°	27.1	25.4	24.3	25.7	26.6	28.4
77°	25.4	23.9	23.2	24.7	25.4	27.3
77.5°	23.8	22.5	21.9	23.6	24.3	26.0
78°	22.2	21.0	20.8	22.6	23.1	24.8
78.5°	20.5	19.6	19.6	21.4	21.7	23.5
79°	19.0	18.3	18.5	20.3	20.4	22.2
79.5°	17.5	16.8	17.5	19.2	19.1	20.8
80°	16.0	15.6	16.4	18.0	17.7	19.5
80.5°	14.6	14.4	15.4	16.8	16.3	18.1
81°	13.2	13.2	14.4	15.6	15.0	16.6
81.5°	11.8	12.0	13.4	14.4	13.6	15.2
82°	10.6	10.8	12.2	13.3	12.2	13.8
82.5°	9.4	9.7	11.1	12.0	10.9	12.4
83°	8.1	8.7	9.9	10.9	9.6	10.7
83.5°	6.8	7.6	8.8	9.8	8.4	9.2
84°	5.6	6.4	7.6	8.7	7.2	7.7
84.5°	4.4	5.3	6.3	7.6	6.2	6.2
85°	3.3	4.2	5.1	6.3	5.4	4.9
85.5°	2.2	3.2	3.8	5.1	4.6	4.0
86°	1.3	2.1	2.9	3.9	3.8	3.5
86.5°	0.5	1.1	1.9	3.0	3.1	2.9
87°	0.0	0.2	1.0	2.0	2.3	2.3
87.5°	0.0	0.0	0.1	1.0	1.5	1.8
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: P775626

CATALOG NUMBER: HCDJBL510CSD-HCD41TRH-HCD41TRLWW-1000lm-3000K

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°	457.6	470.8	486.1	505.7	527.2	547.0	560.6	566.6	564.7	553.4	537.2
22°	453.5	466.8	482.4	502.3	524.1	544.5	558.5	564.6	562.7	551.1	534.5



44°	245.8	261.5	276.4	297.3	322.8	353.4	378.8	391.6	386.5	359.0	328.5
44.5°	241.1	256.6	271.4	292.1	317.3	347.4	372.5	385.1	379.7	352.3	322.0



66.5°	55.9	68.7	80.0	90.4	98.4	106.2	111.4	112.1	106.2	94.7	84.1
67°	53.1	65.5	76.8	87.2	94.8	102.3	107.2	107.8	101.8	91.0	80.6



89°	0.3	2.7	5.4	6.4	5.4	4.3	2.4	0.6	0.1	0.0	0.0
89.5°	0.1	1.9	4.2	5.2	4.2	3.2	1.5	0.3	0.0	0.0	0.0

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21.5°	515.0	494.2	474.1	461.2	455.8	457.6
22°	511.9	490.4	469.8	456.9	451.6	453.5



44°	295.2	269.9	250.1	241.0	240.5	245.8
44.5°	289.4	264.4	244.9	236.0	235.7	241.1



66.5°	73.9	68.6	63.8	60.6	58.5	55.9
67°	70.8	65.7	60.9	57.9	55.7	53.1

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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)