

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: P775705

Luminaire Tested: HCDJBL510CSD-HCD4TSQMB-1000lm-2700K

Issue Date: 2/7/2024

Test Information

Test Method: LM-79-2019
Report Number: P775705
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B006-HCD4TSQMB)
Test Lab:
Issue Date: 2/7/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD4TSQMB-1000lm-2700K
Description: 4 INCH SQUARE MEDIUM MATTE BLACK TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 2700K CCT
Ballast/Driver: -

Summary

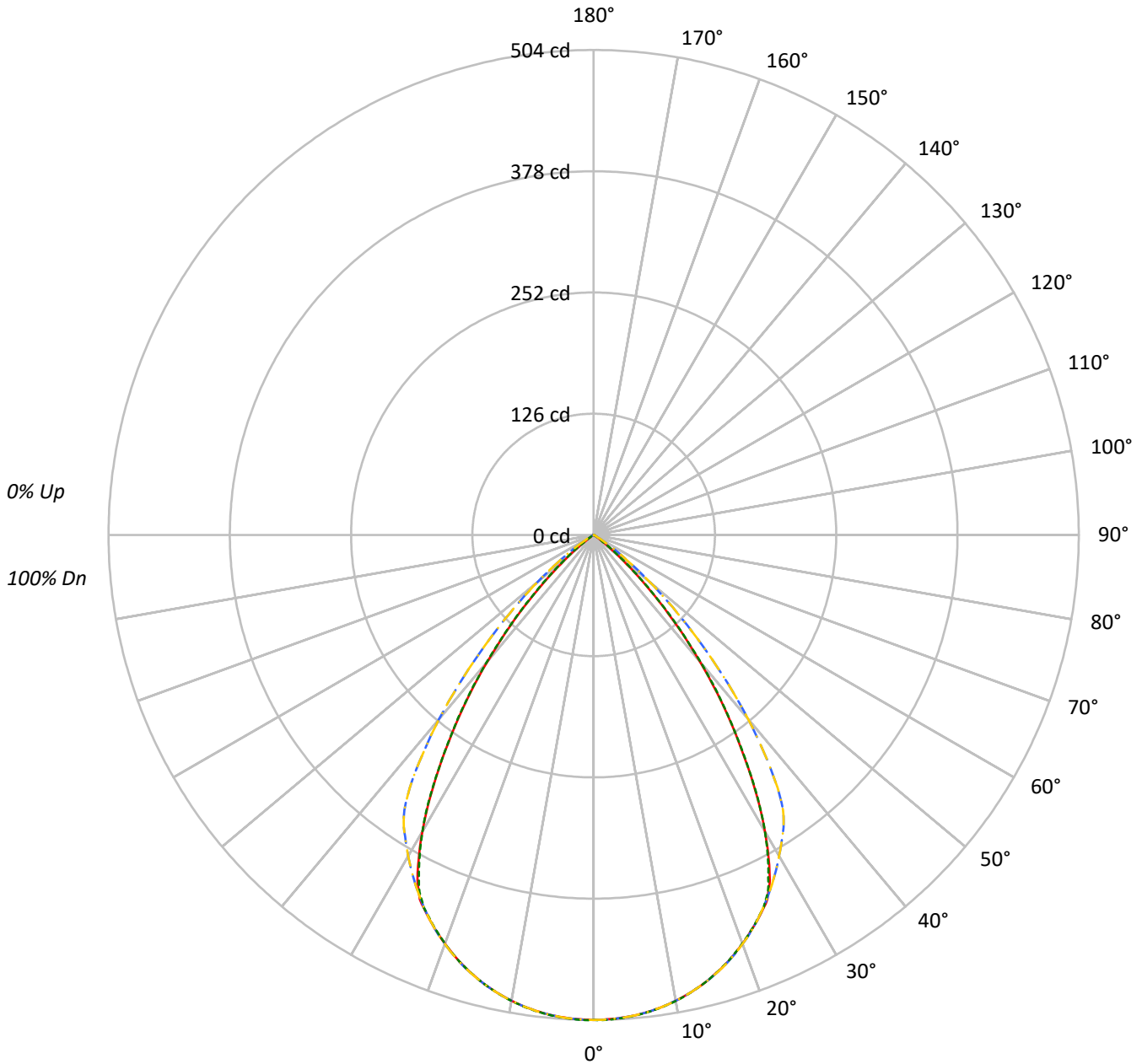
Lumens per Lamp: N/A
Luminaire Lumens: 667.0 lumens
Efficiency: N/A
Efficacy: 66.7 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1.1 / 1.14
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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



TEST NUMBER: P775705
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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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	113	110	107	105	110	108	105	103	104	102	100	100	98	97	97	95	94	92					92			
2	107	101	97	93	104	100	96	92	96	93	90	93	91	88	90	88	86	85					85			
3	100	93	88	84	98	92	87	83	89	85	81	87	83	80	84	82	79	77					77			
4	95	86	80	75	93	85	79	75	83	78	74	81	77	73	79	75	72	71					71			
5	89	80	73	68	87	79	73	68	77	72	67	75	71	67	74	70	66	65					65			
6	84	74	67	62	82	73	67	62	71	66	62	70	65	61	69	64	61	59					59			
7	79	69	62	57	77	68	62	57	67	61	57	65	60	56	64	60	56	55					55			
8	74	64	57	53	73	63	57	53	62	56	52	61	56	52	60	55	52	50					50			
9	70	60	53	49	69	59	53	49	58	52	48	57	52	48	56	52	48	47					47			
10	67	56	49	45	65	55	49	45	54	49	45	54	48	45	53	48	45	43					43			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	49826	49826	49826	49826
5°	49709	49739	49709	49739
10°	49340	49360	49340	49360
15°	48637	48647	48637	48647
20°	47544	47523	47544	47523
25°	46122	45936	46122	45936
30°	40620	40609	40620	40609
35°	31723	31831	31723	31831
40°	22141	22361	22141	22361
45°	12567	12902	12567	12902
50°	4998	5367	4998	5367
55°	741	948	741	948
60°	158	158	158	158
65°	117	117	117	117
70°	87	87	87	87
75°	76	76	76	76
80°	57	57	57	57
85°	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 21247 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	47.5	7.1
10°-20°	133.8	20.1
20°-30°	192.8	28.9
30°-40°	181.9	27.3
40°-50°	93.8	14.1
50°-60°	16.4	2.5
60°-70°	0.6	0.1
70°-80°	0.2	0.0
80°-90°	0.0	0.0
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°	374.1	56.1
0°-40°	556.0	83.4
0°-60°	666.2	99.9
0°-90°	667.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	667.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	504	504	504	504	504	
5°	501	501	501	501	501	48
15°	475	475	475	475	475	134
25°	423	421	423	421	423	191
35°	263	264	263	264	263	163
45°	90	92	90	92	90	71
55°	4	6	4	6	4	8
65°	0	0	0	0	0	1
75°	0	0	0	0	0	0
85°	0	0	0	0	0	0
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°	504.1	504.1	504.1	504.1	504.1	504.1	504.1	504.1	504.1	504.1	504.1
0.5°	504.0	504.0	504.0	504.1	504.4	504.1	504.0	504.0	504.0	504.0	504.0
1°	503.9	503.9	503.9	504.0	504.3	504.0	503.9	503.9	503.9	503.9	503.9
1.5°	503.7	503.8	503.8	503.8	504.1	503.8	503.8	503.8	503.7	503.8	503.8
2°	503.5	503.5	503.6	503.6	503.9	503.6	503.6	503.5	503.5	503.5	503.6
2.5°	503.2	503.2	503.3	503.4	503.6	503.4	503.3	503.2	503.2	503.2	503.3
3°	502.9	502.9	503.0	503.0	503.3	503.0	503.0	502.9	502.9	502.9	503.0
3.5°	502.5	502.5	502.6	502.6	502.9	502.6	502.6	502.5	502.5	502.5	502.6
4°	502.1	502.1	502.1	502.2	502.4	502.2	502.1	502.1	502.1	502.1	502.1
4.5°	501.6	501.6	501.6	501.6	501.9	501.6	501.6	501.6	501.6	501.6	501.6
5°	501.0	501.0	501.0	501.0	501.3	501.0	501.0	501.0	501.0	501.0	501.0
5.5°	500.3	500.3	500.4	500.4	500.6	500.4	500.4	500.3	500.3	500.3	500.4
6°	499.6	499.6	499.6	499.7	499.9	499.7	499.6	499.6	499.6	499.6	499.6
6.5°	498.8	498.8	498.9	498.9	499.1	498.9	498.9	498.8	498.8	498.8	498.9
7°	498.0	498.0	498.0	498.1	498.3	498.1	498.0	498.0	498.0	498.0	498.0
7.5°	497.1	497.1	497.1	497.1	497.4	497.1	497.1	497.1	497.1	497.1	497.1
8°	496.1	496.1	496.2	496.2	496.4	496.2	496.2	496.1	496.1	496.1	496.2
8.5°	495.1	495.1	495.1	495.1	495.3	495.1	495.1	495.1	495.1	495.1	495.1
9°	494.0	494.0	494.0	494.0	494.2	494.0	494.0	494.0	494.0	494.0	494.0
9.5°	492.8	492.8	492.8	492.8	493.0	492.8	492.8	492.8	492.8	492.8	492.8
10°	491.6	491.6	491.6	491.6	491.8	491.6	491.6	491.6	491.6	491.6	491.6
10.5°	490.3	490.3	490.3	490.2	490.5	490.2	490.3	490.3	490.3	490.3	490.3
11°	488.9	488.9	489.0	488.9	489.1	488.9	489.0	488.9	488.9	488.9	489.0
11.5°	487.5	487.5	487.5	487.4	487.6	487.4	487.5	487.5	487.5	487.5	487.5
12°	486.0	486.0	486.0	485.9	486.1	485.9	486.0	486.0	486.0	486.0	486.0
12.5°	484.3	484.4	484.4	484.3	484.4	484.3	484.4	484.4	484.3	484.4	484.4
13°	482.7	482.8	482.8	482.6	482.8	482.6	482.8	482.8	482.7	482.8	482.8
13.5°	481.0	481.0	481.1	480.9	481.1	480.9	481.1	481.0	481.0	481.0	481.1
14°	479.2	479.3	479.3	479.1	479.2	479.1	479.3	479.3	479.2	479.3	479.3
14.5°	477.3	477.4	477.5	477.3	477.3	477.3	477.5	477.4	477.3	477.4	477.5
15°	475.3	475.5	475.5	475.3	475.4	475.3	475.5	475.5	475.3	475.5	475.5
15.5°	473.3	473.5	473.5	473.3	473.3	473.3	473.5	473.5	473.3	473.5	473.5
16°	471.2	471.4	471.5	471.2	471.2	471.2	471.5	471.4	471.2	471.4	471.5
16.5°	469.1	469.2	469.4	469.1	469.0	469.1	469.4	469.2	469.1	469.2	469.4
17°	466.9	467.0	467.2	466.8	466.8	466.8	467.2	467.0	466.9	467.0	467.2
17.5°	464.5	464.7	464.9	464.5	464.5	464.5	464.9	464.7	464.5	464.7	464.9
18°	462.2	462.3	462.5	462.2	462.1	462.2	462.5	462.3	462.2	462.3	462.5
18.5°	459.8	459.9	460.1	459.7	459.6	459.7	460.1	459.9	459.8	459.9	460.1
19°	457.2	457.4	457.6	457.2	457.0	457.2	457.6	457.4	457.2	457.4	457.6
19.5°	454.7	454.8	455.0	454.6	454.5	454.6	455.0	454.8	454.7	454.8	455.0
20°	452.0	452.2	452.4	451.9	451.8	451.9	452.4	452.2	452.0	452.2	452.4
20.5°	449.4	449.5	449.7	449.2	449.1	449.2	449.7	449.5	449.4	449.5	449.7
21°	446.6	446.7	446.9	446.4	446.3	446.4	446.9	446.7	446.6	446.7	446.9



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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°	438.0	438.0	438.1	437.7	437.7	437.7	438.1	438.0	438.0	438.0	438.1
23°	435.0	435.0	435.0	434.7	434.6	434.7	435.0	435.0	435.0	435.0	435.0
23.5°	432.0	432.0	431.8	431.6	431.6	431.6	431.8	432.0	432.0	432.0	431.8
24°	428.9	428.9	428.6	428.5	428.7	428.5	428.6	428.9	428.9	428.9	428.6
24.5°	425.8	425.7	425.3	425.3	425.6	425.3	425.3	425.7	425.8	425.7	425.3
25°	422.9	422.4	421.9	422.0	421.2	422.0	421.9	422.4	422.9	422.4	421.9
25.5°	419.5	419.2	418.5	418.8	417.0	418.8	418.5	419.2	419.5	419.2	418.5
26°	413.8	415.9	415.0	415.6	412.8	415.6	415.0	415.9	413.8	415.9	415.0
26.5°	409.0	412.6	411.5	412.2	406.7	412.2	411.5	412.6	409.0	412.6	411.5
27°	403.2	409.5	407.9	407.5	399.6	407.5	407.9	409.5	403.2	409.5	407.9
27.5°	396.0	405.2	404.2	403.2	393.2	403.2	404.2	405.2	396.0	405.2	404.2
28°	388.4	399.5	400.5	398.6	386.1	398.6	400.5	399.5	388.4	399.5	400.5
28.5°	380.7	394.6	396.8	392.1	378.7	392.1	396.8	394.6	380.7	394.6	396.8
29°	372.6	388.5	393.0	385.3	371.5	385.3	393.0	388.5	372.6	388.5	393.0
29.5°	364.4	381.3	389.2	378.7	363.7	378.7	389.2	381.3	364.4	381.3	389.2
30°	355.9	373.9	385.3	371.7	355.8	371.7	385.3	373.9	355.9	373.9	385.3
30.5°	347.2	366.1	381.5	364.4	347.6	364.4	381.5	366.1	347.2	366.1	381.5
31°	338.2	358.3	377.6	356.9	339.2	356.9	377.6	358.3	338.2	358.3	377.6
31.5°	329.1	350.2	373.7	349.4	330.1	349.4	373.7	350.2	329.1	350.2	373.7
32°	319.8	342.0	369.8	341.7	320.8	341.7	369.8	342.0	319.8	342.0	369.8
32.5°	310.3	333.5	366.0	333.8	311.4	333.8	366.0	333.5	310.3	333.5	366.0
33°	300.8	325.0	362.1	325.5	302.1	325.5	362.1	325.0	300.8	325.0	362.1
33.5°	291.2	316.1	357.6	317.0	292.0	317.0	357.6	316.1	291.2	316.1	357.6
34°	281.8	307.1	352.8	308.1	282.4	308.1	352.8	307.1	281.8	307.1	352.8
34.5°	272.3	298.0	347.2	298.9	272.9	298.9	347.2	298.0	272.3	298.0	347.2
35°	262.9	288.9	340.4	289.6	263.8	289.6	340.4	288.9	262.9	288.9	340.4
35.5°	253.7	279.9	333.1	280.5	254.4	280.5	333.1	279.9	253.7	279.9	333.1
36°	244.6	270.7	325.0	271.2	245.6	271.2	325.0	270.7	244.6	270.7	325.0
36.5°	235.4	261.7	316.3	262.1	236.6	262.1	316.3	261.7	235.4	261.7	316.3
37°	226.3	252.7	307.1	253.1	227.7	253.1	307.1	252.7	226.3	252.7	307.1
37.5°	217.1	243.8	297.8	244.4	218.7	244.4	297.8	243.8	217.1	243.8	297.8
38°	207.9	234.9	288.2	235.6	209.7	235.6	288.2	234.9	207.9	234.9	288.2
38.5°	198.6	226.3	278.7	227.1	200.5	227.1	278.7	226.3	198.6	226.3	278.7
39°	189.6	217.6	269.1	218.6	191.5	218.6	269.1	217.6	189.6	217.6	269.1
39.5°	180.7	208.9	259.4	210.2	182.2	210.2	259.4	208.9	180.7	208.9	259.4
40°	171.6	200.1	249.5	201.6	173.3	201.6	249.5	200.1	171.6	200.1	249.5
40.5°	162.7	191.4	239.5	192.9	164.3	192.9	239.5	191.4	162.7	191.4	239.5
41°	154.1	182.8	229.5	184.3	155.6	184.3	229.5	182.8	154.1	182.8	229.5
41.5°	145.5	174.2	219.4	175.7	147.1	175.7	219.4	174.2	145.5	174.2	219.4
42°	137.2	165.8	209.3	167.1	138.9	167.1	209.3	165.8	137.2	165.8	209.3
42.5°	129.0	157.4	199.4	158.8	130.8	158.8	199.4	157.4	129.0	157.4	199.4
43°	120.9	149.2	189.5	150.4	122.8	150.4	189.5	149.2	120.9	149.2	189.5
43.5°	112.8	141.1	179.8	142.5	115.0	142.5	179.8	141.1	112.8	141.1	179.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	89.9	117.7	152.0	119.2	92.3	119.2	152.0	117.7	89.9	117.7	152.0
45.5°	82.9	110.2	143.3	111.9	85.2	111.9	143.3	110.2	82.9	110.2	143.3
46°	76.2	102.9	135.0	104.7	78.4	104.7	135.0	102.9	76.2	102.9	135.0
46.5°	69.4	95.5	126.8	97.5	71.9	97.5	126.8	95.5	69.4	95.5	126.8
47°	63.0	88.5	118.8	90.4	65.8	90.4	118.8	88.5	63.0	88.5	118.8
47.5°	56.6	81.7	111.1	83.4	59.8	83.4	111.1	81.7	56.6	81.7	111.1
48°	51.0	75.2	103.7	76.9	54.0	76.9	103.7	75.2	51.0	75.2	103.7
48.5°	45.6	68.8	96.6	70.7	48.8	70.7	96.6	68.8	45.6	68.8	96.6
49°	41.1	62.5	89.5	64.6	44.0	64.6	89.5	62.5	41.1	62.5	89.5
49.5°	36.8	56.6	82.7	58.8	39.4	58.8	82.7	56.6	36.8	56.6	82.7
50°	32.5	51.0	76.0	53.2	34.9	53.2	76.0	51.0	32.5	51.0	76.0
50.5°	28.4	45.7	69.8	48.0	30.5	48.0	69.8	45.7	28.4	45.7	69.8
51°	24.5	41.1	63.8	43.3	26.8	43.3	63.8	41.1	24.5	41.1	63.8
51.5°	21.3	36.7	58.1	38.7	23.3	38.7	58.1	36.7	21.3	36.7	58.1
52°	18.2	32.4	52.6	34.3	20.0	34.3	52.6	32.4	18.2	32.4	52.6
52.5°	15.3	28.2	47.4	30.1	16.9	30.1	47.4	28.2	15.3	28.2	47.4
53°	12.6	24.4	42.8	26.4	14.0	26.4	42.8	24.4	12.6	24.4	42.8
53.5°	10.4	21.0	38.3	23.0	11.2	23.0	38.3	21.0	10.4	21.0	38.3
54°	8.1	17.9	34.1	19.7	8.9	19.7	34.1	17.9	8.1	17.9	34.1
54.5°	5.9	15.0	30.2	16.6	7.2	16.6	30.2	15.0	5.9	15.0	30.2
55°	4.3	12.5	26.4	13.7	5.5	13.7	26.4	12.5	4.3	12.5	26.4
55.5°	2.7	10.2	23.0	11.0	3.8	11.0	23.0	10.2	2.7	10.2	23.0
56°	1.8	8.0	19.7	8.6	2.1	8.6	19.7	8.0	1.8	8.0	19.7
56.5°	1.4	5.8	16.9	6.6	1.3	6.6	16.9	5.8	1.4	5.8	16.9
57°	1.0	3.8	14.4	4.8	1.1	4.8	14.4	3.8	1.0	3.8	14.4
57.5°	1.0	2.4	12.1	3.2	1.0	3.2	12.1	2.4	1.0	2.4	12.1
58°	0.9	1.5	10.1	2.1	1.0	2.1	10.1	1.5	0.9	1.5	10.1
58.5°	0.9	1.0	8.4	1.5	0.9	1.5	8.4	1.0	0.9	1.0	8.4
59°	0.8	0.8	6.8	1.1	0.9	1.1	6.8	0.8	0.8	0.8	6.8
59.5°	0.8	0.8	5.5	0.8	0.9	0.8	5.5	0.8	0.8	0.8	5.5
60°	0.8	0.8	4.4	0.8	0.8	0.8	4.4	0.8	0.8	0.8	4.4
60.5°	0.7	0.7	3.4	0.8	0.8	0.8	3.4	0.7	0.7	0.7	3.4
61°	0.7	0.7	2.7	0.7	0.8	0.7	2.7	0.7	0.7	0.7	2.7
61.5°	0.7	0.7	2.0	0.7	0.7	0.7	2.0	0.7	0.7	0.7	2.0
62°	0.6	0.6	1.5	0.7	0.7	0.7	1.5	0.6	0.6	0.6	1.5
62.5°	0.6	0.6	1.1	0.6	0.7	0.6	1.1	0.6	0.6	0.6	1.1
63°	0.6	0.6	0.8	0.6	0.6	0.6	0.8	0.6	0.6	0.6	0.8
63.5°	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.6
64°	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5
64.5°	0.5	0.5	0.4	0.5	0.6	0.5	0.4	0.5	0.5	0.5	0.4
65°	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.4
65.5°	0.5	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.4
66°	0.5	0.4	0.3	0.4	0.5	0.4	0.3	0.4	0.5	0.4	0.3



TEST NUMBER: P775705

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3
68°	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.3
68.5°	0.4	0.3	0.2	0.3	0.4	0.3	0.2	0.3	0.4	0.3	0.2
69°	0.3	0.3	0.2	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.2
69.5°	0.3	0.3	0.2	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.2
70°	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2
70.5°	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2
71°	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2
71.5°	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2
72°	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2
72.5°	0.2	0.2	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.1
73°	0.2	0.2	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.1
73.5°	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1
74°	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1
74.5°	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1
75°	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1
75.5°	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1
76°	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1
76.5°	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
77°	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
77.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
78°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
78.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
79°	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0
79.5°	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0
80°	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0
80.5°	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0
81°	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0
81.5°	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P775705

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-2700K

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: P775705

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	504.1	504.1	504.1	504.1	504.1	504.1
0.5°	504.1	504.4	504.1	504.0	504.0	504.0
1°	504.0	504.3	504.0	503.9	503.9	503.9
1.5°	503.8	504.1	503.8	503.8	503.8	503.7
2°	503.6	503.9	503.6	503.6	503.5	503.5
2.5°	503.4	503.6	503.4	503.3	503.2	503.2
3°	503.0	503.3	503.0	503.0	502.9	502.9
3.5°	502.6	502.9	502.6	502.6	502.5	502.5
4°	502.2	502.4	502.2	502.1	502.1	502.1
4.5°	501.6	501.9	501.6	501.6	501.6	501.6
5°	501.0	501.3	501.0	501.0	501.0	501.0
5.5°	500.4	500.6	500.4	500.4	500.3	500.3
6°	499.7	499.9	499.7	499.6	499.6	499.6
6.5°	498.9	499.1	498.9	498.9	498.8	498.8
7°	498.1	498.3	498.1	498.0	498.0	498.0
7.5°	497.1	497.4	497.1	497.1	497.1	497.1
8°	496.2	496.4	496.2	496.2	496.1	496.1
8.5°	495.1	495.3	495.1	495.1	495.1	495.1
9°	494.0	494.2	494.0	494.0	494.0	494.0
9.5°	492.8	493.0	492.8	492.8	492.8	492.8
10°	491.6	491.8	491.6	491.6	491.6	491.6
10.5°	490.2	490.5	490.2	490.3	490.3	490.3
11°	488.9	489.1	488.9	489.0	488.9	488.9
11.5°	487.4	487.6	487.4	487.5	487.5	487.5
12°	485.9	486.1	485.9	486.0	486.0	486.0
12.5°	484.3	484.4	484.3	484.4	484.4	484.3
13°	482.6	482.8	482.6	482.8	482.8	482.7
13.5°	480.9	481.1	480.9	481.1	481.0	481.0
14°	479.1	479.2	479.1	479.3	479.3	479.2
14.5°	477.3	477.3	477.3	477.5	477.4	477.3
15°	475.3	475.4	475.3	475.5	475.5	475.3
15.5°	473.3	473.3	473.3	473.5	473.5	473.3
16°	471.2	471.2	471.2	471.5	471.4	471.2
16.5°	469.1	469.0	469.1	469.4	469.2	469.1
17°	466.8	466.8	466.8	467.2	467.0	466.9
17.5°	464.5	464.5	464.5	464.9	464.7	464.5
18°	462.2	462.1	462.2	462.5	462.3	462.2
18.5°	459.7	459.6	459.7	460.1	459.9	459.8
19°	457.2	457.0	457.2	457.6	457.4	457.2
19.5°	454.6	454.5	454.6	455.0	454.8	454.7
20°	451.9	451.8	451.9	452.4	452.2	452.0
20.5°	449.2	449.1	449.2	449.7	449.5	449.4
21°	446.4	446.3	446.4	446.9	446.7	446.6

TEST NUMBER: P775705

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	437.7	437.7	437.7	438.1	438.0	438.0
23°	434.7	434.6	434.7	435.0	435.0	435.0
23.5°	431.6	431.6	431.6	431.8	432.0	432.0
24°	428.5	428.7	428.5	428.6	428.9	428.9
24.5°	425.3	425.6	425.3	425.3	425.7	425.8
25°	422.0	421.2	422.0	421.9	422.4	422.9
25.5°	418.8	417.0	418.8	418.5	419.2	419.5
26°	415.6	412.8	415.6	415.0	415.9	413.8
26.5°	412.2	406.7	412.2	411.5	412.6	409.0
27°	407.5	399.6	407.5	407.9	409.5	403.2
27.5°	403.2	393.2	403.2	404.2	405.2	396.0
28°	398.6	386.1	398.6	400.5	399.5	388.4
28.5°	392.1	378.7	392.1	396.8	394.6	380.7
29°	385.3	371.5	385.3	393.0	388.5	372.6
29.5°	378.7	363.7	378.7	389.2	381.3	364.4
30°	371.7	355.8	371.7	385.3	373.9	355.9
30.5°	364.4	347.6	364.4	381.5	366.1	347.2
31°	356.9	339.2	356.9	377.6	358.3	338.2
31.5°	349.4	330.1	349.4	373.7	350.2	329.1
32°	341.7	320.8	341.7	369.8	342.0	319.8
32.5°	333.8	311.4	333.8	366.0	333.5	310.3
33°	325.5	302.1	325.5	362.1	325.0	300.8
33.5°	317.0	292.0	317.0	357.6	316.1	291.2
34°	308.1	282.4	308.1	352.8	307.1	281.8
34.5°	298.9	272.9	298.9	347.2	298.0	272.3
35°	289.6	263.8	289.6	340.4	288.9	262.9
35.5°	280.5	254.4	280.5	333.1	279.9	253.7
36°	271.2	245.6	271.2	325.0	270.7	244.6
36.5°	262.1	236.6	262.1	316.3	261.7	235.4
37°	253.1	227.7	253.1	307.1	252.7	226.3
37.5°	244.4	218.7	244.4	297.8	243.8	217.1
38°	235.6	209.7	235.6	288.2	234.9	207.9
38.5°	227.1	200.5	227.1	278.7	226.3	198.6
39°	218.6	191.5	218.6	269.1	217.6	189.6
39.5°	210.2	182.2	210.2	259.4	208.9	180.7
40°	201.6	173.3	201.6	249.5	200.1	171.6
40.5°	192.9	164.3	192.9	239.5	191.4	162.7
41°	184.3	155.6	184.3	229.5	182.8	154.1
41.5°	175.7	147.1	175.7	219.4	174.2	145.5
42°	167.1	138.9	167.1	209.3	165.8	137.2
42.5°	158.8	130.8	158.8	199.4	157.4	129.0
43°	150.4	122.8	150.4	189.5	149.2	120.9
43.5°	142.5	115.0	142.5	179.8	141.1	112.8



TEST NUMBER: P775705

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	119.2	92.3	119.2	152.0	117.7	89.9
45.5°	111.9	85.2	111.9	143.3	110.2	82.9
46°	104.7	78.4	104.7	135.0	102.9	76.2
46.5°	97.5	71.9	97.5	126.8	95.5	69.4
47°	90.4	65.8	90.4	118.8	88.5	63.0
47.5°	83.4	59.8	83.4	111.1	81.7	56.6
48°	76.9	54.0	76.9	103.7	75.2	51.0
48.5°	70.7	48.8	70.7	96.6	68.8	45.6
49°	64.6	44.0	64.6	89.5	62.5	41.1
49.5°	58.8	39.4	58.8	82.7	56.6	36.8
50°	53.2	34.9	53.2	76.0	51.0	32.5
50.5°	48.0	30.5	48.0	69.8	45.7	28.4
51°	43.3	26.8	43.3	63.8	41.1	24.5
51.5°	38.7	23.3	38.7	58.1	36.7	21.3
52°	34.3	20.0	34.3	52.6	32.4	18.2
52.5°	30.1	16.9	30.1	47.4	28.2	15.3
53°	26.4	14.0	26.4	42.8	24.4	12.6
53.5°	23.0	11.2	23.0	38.3	21.0	10.4
54°	19.7	8.9	19.7	34.1	17.9	8.1
54.5°	16.6	7.2	16.6	30.2	15.0	5.9
55°	13.7	5.5	13.7	26.4	12.5	4.3
55.5°	11.0	3.8	11.0	23.0	10.2	2.7
56°	8.6	2.1	8.6	19.7	8.0	1.8
56.5°	6.6	1.3	6.6	16.9	5.8	1.4
57°	4.8	1.1	4.8	14.4	3.8	1.0
57.5°	3.2	1.0	3.2	12.1	2.4	1.0
58°	2.1	1.0	2.1	10.1	1.5	0.9
58.5°	1.5	0.9	1.5	8.4	1.0	0.9
59°	1.1	0.9	1.1	6.8	0.8	0.8
59.5°	0.8	0.9	0.8	5.5	0.8	0.8
60°	0.8	0.8	0.8	4.4	0.8	0.8
60.5°	0.8	0.8	0.8	3.4	0.7	0.7
61°	0.7	0.8	0.7	2.7	0.7	0.7
61.5°	0.7	0.7	0.7	2.0	0.7	0.7
62°	0.7	0.7	0.7	1.5	0.6	0.6
62.5°	0.6	0.7	0.6	1.1	0.6	0.6
63°	0.6	0.6	0.6	0.8	0.6	0.6
63.5°	0.6	0.6	0.6	0.6	0.5	0.6
64°	0.5	0.6	0.5	0.5	0.5	0.5
64.5°	0.5	0.6	0.5	0.4	0.5	0.5
65°	0.5	0.5	0.5	0.4	0.5	0.5
65.5°	0.5	0.5	0.5	0.4	0.4	0.5
66°	0.4	0.5	0.4	0.3	0.4	0.5



TEST NUMBER: P775705

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	0.4	0.4	0.4	0.3	0.4	0.4
68°	0.4	0.4	0.4	0.3	0.3	0.4
68.5°	0.3	0.4	0.3	0.2	0.3	0.4
69°	0.3	0.4	0.3	0.2	0.3	0.3
69.5°	0.3	0.4	0.3	0.2	0.3	0.3
70°	0.3	0.3	0.3	0.2	0.3	0.3
70.5°	0.3	0.3	0.3	0.2	0.3	0.3
71°	0.3	0.3	0.3	0.2	0.2	0.3
71.5°	0.2	0.3	0.2	0.2	0.2	0.3
72°	0.2	0.3	0.2	0.2	0.2	0.3
72.5°	0.2	0.3	0.2	0.1	0.2	0.2
73°	0.2	0.3	0.2	0.1	0.2	0.2
73.5°	0.2	0.2	0.2	0.1	0.2	0.2
74°	0.2	0.2	0.2	0.1	0.2	0.2
74.5°	0.2	0.2	0.2	0.1	0.2	0.2
75°	0.2	0.2	0.2	0.1	0.2	0.2
75.5°	0.2	0.2	0.2	0.1	0.1	0.2
76°	0.1	0.2	0.1	0.1	0.1	0.2
76.5°	0.1	0.2	0.1	0.1	0.1	0.1
77°	0.1	0.2	0.1	0.1	0.1	0.1
77.5°	0.1	0.1	0.1	0.1	0.1	0.1
78°	0.1	0.1	0.1	0.1	0.1	0.1
78.5°	0.1	0.1	0.1	0.1	0.1	0.1
79°	0.1	0.1	0.1	0.0	0.1	0.1
79.5°	0.1	0.1	0.1	0.0	0.1	0.1
80°	0.1	0.1	0.1	0.0	0.1	0.1
80.5°	0.1	0.1	0.1	0.0	0.1	0.1
81°	0.1	0.1	0.1	0.0	0.1	0.1
81.5°	0.1	0.1	0.1	0.0	0.0	0.1
82°	0.0	0.1	0.0	0.0	0.0	0.0
82.5°	0.0	0.1	0.0	0.0	0.0	0.0
83°	0.0	0.1	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P775705

CATALOG NUMBER: HCDJBL510CSD-HCD4TSQMB-1000lm-2700K

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°	443.8	443.9	444.0	443.6	443.5	443.6	444.0	443.9	443.8	443.9	444.0
22°	440.9	441.0	441.1	440.6	440.6	440.6	441.1	441.0	440.9	441.0	441.1



44°	105.0	133.1	170.2	134.5	107.2	134.5	170.2	133.1	105.0	133.1	170.2
44.5°	97.4	125.4	161.0	126.8	99.6	126.8	161.0	125.4	97.4	125.4	161.0



66.5°	0.4	0.4	0.3	0.4	0.5	0.4	0.3	0.4	0.4	0.4	0.3
67°	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3



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

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21.5°	443.6	443.5	443.6	444.0	443.9	443.8
22°	440.6	440.6	440.6	441.1	441.0	440.9



44°	134.5	107.2	134.5	170.2	133.1	105.0
44.5°	126.8	99.6	126.8	161.0	125.4	97.4

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66.5°	0.4	0.5	0.4	0.3	0.4	0.4
67°	0.4	0.4	0.4	0.3	0.4	0.4

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

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(END OF REPORT)