

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: P775815

Luminaire Tested: HCDJBL510CSD-HCD81TRC-1000lm-2700K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P775815  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B042-HCD81TRC)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBL510CSD-HCD81TRC-1000lm-2700K  
Description: 8 INCH ROUND SHALLOW-WIDE SPECULAR CLEAR TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

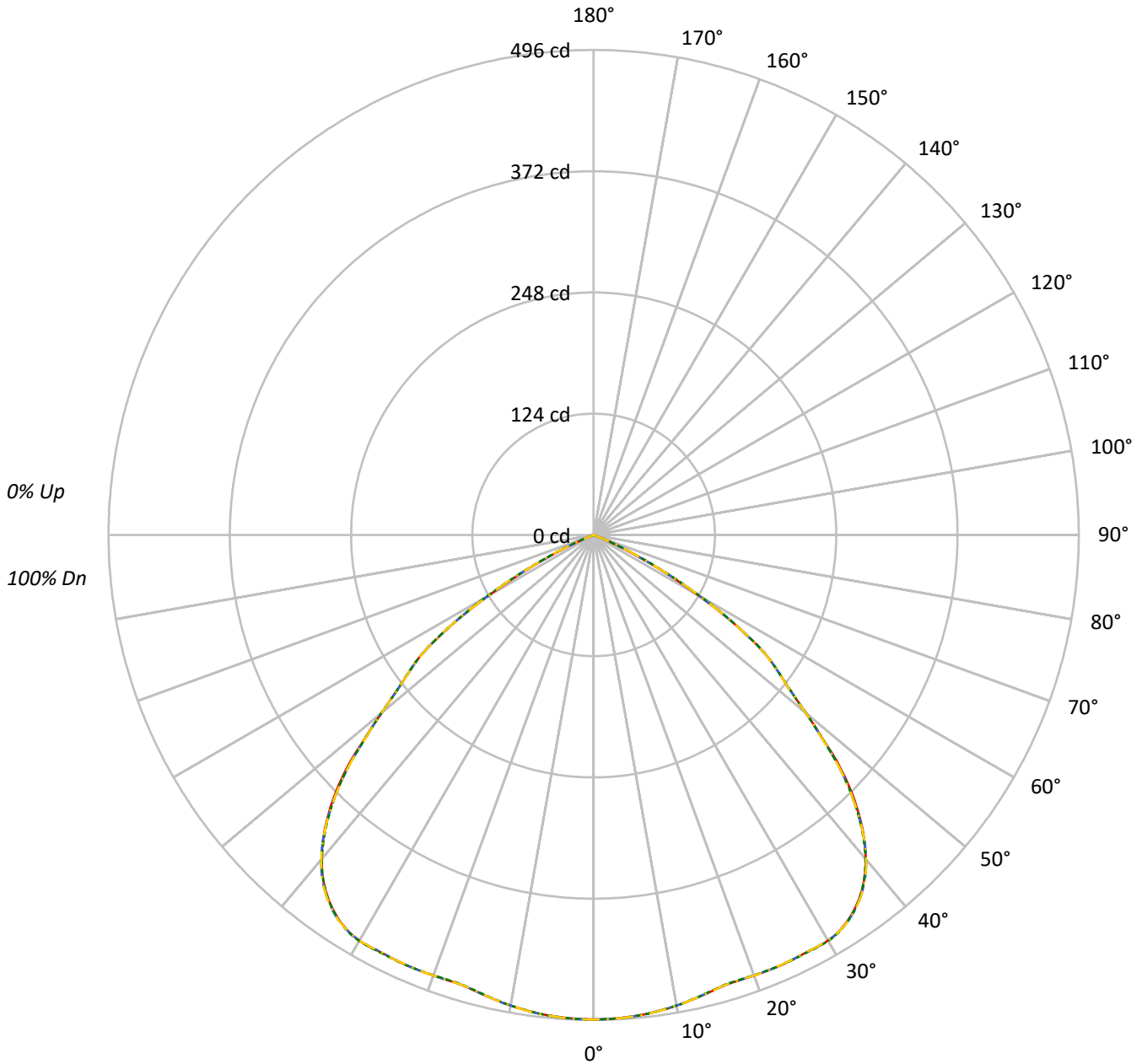
Lumens per Lamp: N/A  
Luminaire Lumens: 1213.0 lumens  
Efficiency: N/A  
Efficacy: 121.3 lumens/watt  
Spacing Criteria (0/90/45): 1.44 / 1.44 / 1.44  
Luminous Opening: Circular (Dia: 0.67' x H: 0')  
CIE Type: Direct

Input Watts (W): 10  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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	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	108	105	102	109	106	103	100	102	99	97	98	96	94	94	93	91	89								
2	103	97	91	87	101	95	90	86	91	87	84	88	85	82	85	83	80	78								
3	95	87	80	74	93	85	79	74	82	77	73	80	75	71	77	73	70	68								
4	88	78	70	64	86	77	69	64	74	68	63	72	67	62	70	65	62	60								
5	81	70	62	56	80	69	62	56	67	60	55	65	59	55	63	58	54	52								
6	75	63	55	50	74	63	55	49	61	54	49	59	53	49	58	52	48	46								
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41								
8	65	53	45	39	64	52	45	39	51	44	39	50	43	39	48	43	39	37								
9	61	48	41	35	60	48	40	35	47	40	35	46	39	35	45	39	35	33								
10	57	45	37	32	56	44	37	32	43	37	32	42	36	32	41	36	32	30								

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	15131	15131	15131	15131
5°	15133	15137	15133	15137
10°	15153	15150	15153	15150
15°	15213	15197	15213	15197
20°	15582	15572	15582	15572
25°	16159	16163	16159	16163
30°	16890	16904	16890	16904
35°	17364	17376	17364	17376
40°	17245	17225	17245	17225
45°	16113	16027	16113	16027
50°	13427	13451	13427	13451
55°	11534	11561	11534	11561
60°	7590	7797	7590	7797
65°	2695	3085	2695	3085
70°	80	152	80	152
75°	35	47	35	47
80°	18	35	18	35
85°	0	35	0	35

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 16113 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	47.0	3.9
10°-20°	136.5	11.3
20°-30°	222.0	18.3
30°-40°	290.4	23.9
40°-50°	282.1	23.3
50°-60°	187.4	15.4
60°-70°	47.2	3.9
70°-80°	0.4	0.0
80°-90°	0.1	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°	405.5	33.4
0°-40°	695.9	57.4
0°-60°	1165.4	96.1
0°-90°	1213.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1213.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	496	496	496	496	496	
5°	494	494	494	494	494	47
15°	481	481	481	481	481	137
25°	480	480	480	480	480	222
35°	466	466	466	466	466	290
45°	373	371	373	371	373	283
55°	217	217	217	217	217	187
65°	37	43	37	43	37	45
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°	495.6	495.6	495.6	495.6	495.6	495.6	495.6	495.6	495.6	495.6	495.6
0.5°	495.5	495.5	495.7	495.8	495.5	495.8	495.7	495.5	495.5	495.5	495.7
1°	495.4	495.5	495.6	495.7	495.5	495.7	495.6	495.5	495.4	495.5	495.6
1.5°	495.3	495.4	495.5	495.6	495.4	495.6	495.5	495.4	495.3	495.4	495.5
2°	495.2	495.2	495.4	495.5	495.3	495.5	495.4	495.2	495.2	495.2	495.4
2.5°	495.0	495.1	495.2	495.3	495.1	495.3	495.2	495.1	495.0	495.1	495.2
3°	494.9	494.9	495.1	495.2	494.9	495.2	495.1	494.9	494.9	494.9	495.1
3.5°	494.7	494.7	494.9	494.9	494.7	494.9	494.9	494.7	494.7	494.7	494.9
4°	494.4	494.5	494.6	494.7	494.4	494.7	494.6	494.5	494.4	494.5	494.6
4.5°	494.1	494.2	494.3	494.4	494.2	494.4	494.3	494.2	494.1	494.2	494.3
5°	493.8	493.9	494.0	494.1	493.9	494.1	494.0	493.9	493.8	493.9	494.0
5.5°	493.5	493.6	493.7	493.8	493.6	493.8	493.7	493.6	493.5	493.6	493.7
6°	493.1	493.2	493.3	493.4	493.2	493.4	493.3	493.2	493.1	493.2	493.3
6.5°	492.7	492.8	492.9	493.0	492.7	493.0	492.9	492.8	492.7	492.8	492.9
7°	492.3	492.3	492.4	492.5	492.2	492.5	492.4	492.3	492.3	492.3	492.4
7.5°	491.8	491.8	491.9	491.9	491.7	491.9	491.9	491.8	491.8	491.8	491.9
8°	491.2	491.3	491.3	491.4	491.2	491.4	491.3	491.3	491.2	491.3	491.3
8.5°	490.6	490.7	490.8	490.8	490.6	490.8	490.8	490.7	490.6	490.7	490.8
9°	490.1	490.1	490.2	490.2	490.0	490.2	490.2	490.1	490.1	490.1	490.2
9.5°	489.4	489.5	489.5	489.6	489.4	489.6	489.5	489.5	489.4	489.5	489.5
10°	488.8	488.8	488.9	488.9	488.7	488.9	488.9	488.8	488.8	488.8	488.9
10.5°	488.1	488.1	488.2	488.2	488.0	488.2	488.2	488.1	488.1	488.1	488.2
11°	487.4	487.4	487.5	487.5	487.2	487.5	487.5	487.4	487.4	487.4	487.5
11.5°	486.6	486.6	486.7	486.7	486.5	486.7	486.7	486.6	486.6	486.6	486.7
12°	485.9	485.9	485.9	485.9	485.7	485.9	485.9	485.9	485.9	485.9	485.9
12.5°	485.1	485.1	485.1	485.1	484.9	485.1	485.1	485.1	485.1	485.1	485.1
13°	484.4	484.3	484.4	484.3	484.1	484.3	484.4	484.3	484.4	484.3	484.4
13.5°	483.6	483.5	483.5	483.5	483.2	483.5	483.5	483.5	483.6	483.5	483.5
14°	482.8	482.8	482.7	482.7	482.4	482.7	482.7	482.8	482.8	482.8	482.7
14.5°	482.0	482.0	481.9	481.9	481.6	481.9	481.9	482.0	482.0	482.0	481.9
15°	481.3	481.2	481.1	481.1	480.8	481.1	481.1	481.2	481.3	481.2	481.1
15.5°	480.6	480.5	480.4	480.3	480.1	480.3	480.4	480.5	480.6	480.5	480.4
16°	480.1	480.0	479.9	479.7	479.5	479.7	479.9	480.0	480.1	480.0	479.9
16.5°	479.7	479.6	479.5	479.2	479.1	479.2	479.5	479.6	479.7	479.6	479.5
17°	479.4	479.4	479.3	479.0	478.8	479.0	479.3	479.4	479.4	479.4	479.3
17.5°	479.3	479.3	479.1	478.9	478.8	478.9	479.1	479.3	479.3	479.3	479.1
18°	479.3	479.3	479.1	479.0	478.8	479.0	479.1	479.3	479.3	479.3	479.1
18.5°	479.3	479.3	479.2	479.0	478.8	479.0	479.2	479.3	479.3	479.3	479.2
19°	479.4	479.4	479.3	479.2	479.0	479.2	479.3	479.4	479.4	479.4	479.3
19.5°	479.5	479.5	479.4	479.3	479.1	479.3	479.4	479.5	479.5	479.5	479.4
20°	479.6	479.6	479.5	479.4	479.3	479.4	479.5	479.6	479.6	479.6	479.5
20.5°	479.7	479.6	479.6	479.6	479.4	479.6	479.6	479.6	479.7	479.6	479.6
21°	479.7	479.7	479.7	479.7	479.6	479.7	479.7	479.7	479.7	479.7	479.7



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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°	479.9	479.8	479.8	479.9	479.9	479.9	479.8	479.8	479.9	479.8	479.8
23°	479.9	479.8	479.8	480.0	479.9	480.0	479.8	479.8	479.9	479.8	479.8
23.5°	479.9	479.8	479.7	479.9	479.9	479.9	479.7	479.8	479.9	479.8	479.7
24°	479.8	479.7	479.6	479.9	479.9	479.9	479.6	479.7	479.8	479.7	479.6
24.5°	479.8	479.6	479.6	479.9	479.9	479.9	479.6	479.6	479.8	479.6	479.6
25°	479.7	479.5	479.5	479.8	479.8	479.8	479.5	479.5	479.7	479.5	479.5
25.5°	479.6	479.4	479.4	479.8	479.8	479.8	479.4	479.4	479.6	479.4	479.4
26°	479.4	479.3	479.2	479.7	479.7	479.7	479.2	479.3	479.4	479.3	479.2
26.5°	479.3	479.2	479.1	479.6	479.6	479.6	479.1	479.2	479.3	479.2	479.1
27°	479.3	479.1	479.0	479.5	479.6	479.5	479.0	479.1	479.3	479.1	479.0
27.5°	479.3	479.2	479.0	479.5	479.6	479.5	479.0	479.2	479.3	479.2	479.0
28°	479.4	479.2	479.1	479.6	479.7	479.6	479.1	479.2	479.4	479.2	479.1
28.5°	479.5	479.3	479.1	479.7	479.8	479.7	479.1	479.3	479.5	479.3	479.1
29°	479.5	479.3	479.1	479.8	479.8	479.8	479.1	479.3	479.5	479.3	479.1
29.5°	479.4	479.2	479.1	479.7	479.7	479.7	479.1	479.2	479.4	479.2	479.1
30°	479.1	479.0	478.9	479.5	479.5	479.5	478.9	479.0	479.1	479.0	478.9
30.5°	478.7	478.6	478.6	479.2	479.1	479.2	478.6	478.6	478.7	478.6	478.6
31°	478.1	478.0	478.0	478.6	478.5	478.6	478.0	478.0	478.1	478.0	478.0
31.5°	477.3	477.3	477.4	477.9	477.7	477.9	477.4	477.3	477.3	477.3	477.4
32°	476.2	476.3	476.4	476.9	476.7	476.9	476.4	476.3	476.2	476.3	476.4
32.5°	475.0	475.1	475.3	475.7	475.5	475.7	475.3	475.1	475.0	475.1	475.3
33°	473.6	473.7	474.0	474.3	474.0	474.3	474.0	473.7	473.6	473.7	474.0
33.5°	472.0	472.1	472.5	472.7	472.4	472.7	472.5	472.1	472.0	472.1	472.5
34°	470.1	470.4	470.8	470.9	470.5	470.9	470.8	470.4	470.1	470.4	470.8
34.5°	468.1	468.4	468.9	468.9	468.5	468.9	468.9	468.4	468.1	468.4	468.9
35°	465.9	466.2	466.8	466.7	466.2	466.7	466.8	466.2	465.9	466.2	466.8
35.5°	463.6	464.0	464.5	464.4	463.9	464.4	464.5	464.0	463.6	464.0	464.5
36°	461.1	461.5	462.1	461.9	461.3	461.9	462.1	461.5	461.1	461.5	462.1
36.5°	458.3	458.9	459.5	459.2	458.5	459.2	459.5	458.9	458.3	458.9	459.5
37°	455.4	455.9	456.5	456.2	455.5	456.2	456.5	455.9	455.4	455.9	456.5
37.5°	452.3	452.9	453.3	453.0	452.3	453.0	453.3	452.9	452.3	452.9	453.3
38°	448.9	449.5	450.0	449.6	448.9	449.6	450.0	449.5	448.9	449.5	450.0
38.5°	445.2	445.9	446.4	445.9	445.1	445.9	446.4	445.9	445.2	445.9	446.4
39°	441.3	442.1	442.4	441.9	441.1	441.9	442.4	442.1	441.3	442.1	442.4
39.5°	437.2	437.9	438.1	437.5	436.7	437.5	438.1	437.9	437.2	437.9	438.1
40°	432.7	433.3	433.5	432.9	432.2	432.9	433.5	433.3	432.7	433.3	433.5
40.5°	428.0	428.5	428.6	428.0	427.2	428.0	428.6	428.5	428.0	428.5	428.6
41°	423.0	423.4	423.3	422.7	422.1	422.7	423.3	423.4	423.0	423.4	423.3
41.5°	417.7	418.0	417.8	417.2	416.7	417.2	417.8	418.0	417.7	418.0	417.8
42°	412.2	412.3	411.9	411.4	411.1	411.4	411.9	412.3	412.2	412.3	411.9
42.5°	406.5	406.4	405.8	405.4	405.1	405.4	405.8	406.4	406.5	406.4	405.8
43°	400.4	400.1	399.4	399.1	398.9	399.1	399.4	400.1	400.4	400.1	399.4
43.5°	394.0	393.6	392.6	392.5	392.4	392.5	392.6	393.6	394.0	393.6	392.6



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	373.2	372.3	370.9	370.9	371.2	370.9	370.9	372.3	373.2	372.3	370.9
45.5°	365.6	364.6	363.0	363.2	363.5	363.2	363.0	364.6	365.6	364.6	363.0
46°	357.6	356.6	355.0	355.2	355.7	355.2	355.0	356.6	357.6	356.6	355.0
46.5°	349.2	348.3	346.7	346.9	347.4	346.9	346.7	348.3	349.2	348.3	346.7
47°	340.4	339.5	338.0	338.2	338.6	338.2	338.0	339.5	340.4	339.5	338.0
47.5°	330.6	329.7	328.2	328.5	328.9	328.5	328.2	329.7	330.6	329.7	328.2
48°	320.0	319.2	318.0	318.5	318.9	318.5	318.0	319.2	320.0	319.2	318.0
48.5°	310.2	309.8	308.7	309.1	309.6	309.1	308.7	309.8	310.2	309.8	308.7
49°	301.0	300.8	300.2	300.5	300.8	300.5	300.2	300.8	301.0	300.8	300.2
49.5°	291.9	291.8	291.5	291.7	291.9	291.7	291.5	291.8	291.9	291.8	291.5
50°	282.7	282.6	282.6	282.9	283.2	282.9	282.6	282.6	282.7	282.6	282.6
50.5°	274.1	274.2	274.1	274.3	274.5	274.3	274.1	274.2	274.1	274.2	274.1
51°	266.3	266.3	266.2	266.4	266.2	266.4	266.2	266.3	266.3	266.3	266.2
51.5°	258.9	258.8	258.7	258.9	259.0	258.9	258.7	258.8	258.9	258.8	258.7
52°	251.8	251.8	251.8	252.1	252.4	252.1	251.8	251.8	251.8	251.8	251.8
52.5°	245.3	245.4	245.3	245.7	246.0	245.7	245.3	245.4	245.3	245.4	245.3
53°	239.5	239.4	239.4	239.9	240.1	239.9	239.4	239.4	239.5	239.4	239.4
53.5°	234.0	234.0	234.0	234.4	234.6	234.4	234.0	234.0	234.0	234.0	234.0
54°	228.7	228.6	228.6	229.0	229.0	229.0	228.6	228.6	228.7	228.6	228.6
54.5°	223.0	223.0	223.0	223.3	223.4	223.3	223.0	223.0	223.0	223.0	223.0
55°	216.7	216.7	216.7	217.2	217.2	217.2	216.7	216.7	216.7	216.7	216.7
55.5°	209.4	209.4	209.5	210.2	210.0	210.2	209.5	209.4	209.4	209.4	209.5
56°	201.1	201.3	201.6	202.2	202.1	202.2	201.6	201.3	201.1	201.3	201.6
56.5°	192.4	192.5	192.9	193.5	193.5	193.5	192.9	192.5	192.4	192.5	192.9
57°	183.3	183.4	183.9	184.5	184.3	184.5	183.9	183.4	183.3	183.4	183.9
57.5°	173.8	174.0	174.4	175.2	175.2	175.2	174.4	174.0	173.8	174.0	174.4
58°	164.3	164.3	164.9	165.8	166.0	165.8	164.9	164.3	164.3	164.3	164.9
58.5°	154.3	154.6	155.1	156.2	156.6	156.2	155.1	154.6	154.3	154.6	155.1
59°	144.3	144.7	145.3	146.4	146.9	146.4	145.3	144.7	144.3	144.7	145.3
59.5°	134.2	134.7	135.4	136.8	137.4	136.8	135.4	134.7	134.2	134.7	135.4
60°	124.3	124.9	125.8	127.1	127.7	127.1	125.8	124.9	124.3	124.9	125.8
60.5°	114.4	115.1	116.3	117.7	118.3	117.7	116.3	115.1	114.4	115.1	116.3
61°	104.7	105.6	107.0	108.3	108.8	108.3	107.0	105.6	104.7	105.6	107.0
61.5°	95.5	96.3	98.0	99.2	99.6	99.2	98.0	96.3	95.5	96.3	98.0
62°	86.3	87.3	89.0	90.1	90.6	90.1	89.0	87.3	86.3	87.3	89.0
62.5°	77.3	78.4	80.3	81.3	82.1	81.3	80.3	78.4	77.3	78.4	80.3
63°	68.4	69.7	71.8	72.8	73.6	72.8	71.8	69.7	68.4	69.7	71.8
63.5°	60.0	61.1	63.4	64.5	65.3	64.5	63.4	61.1	60.0	61.1	63.4
64°	52.1	53.3	55.4	56.6	57.2	56.6	55.4	53.3	52.1	53.3	55.4
64.5°	44.5	45.8	47.8	48.9	49.4	48.9	47.8	45.8	44.5	45.8	47.8
65°	37.3	38.7	40.9	42.1	42.7	42.1	40.9	38.7	37.3	38.7	40.9
65.5°	30.9	32.4	34.2	35.5	36.3	35.5	34.2	32.4	30.9	32.4	34.2
66°	24.7	26.7	28.0	29.3	30.1	29.3	28.0	26.7	24.7	26.7	28.0





TEST NUMBER: P775815

CATALOG NUMBER: HCDJBL510CSD-HCD81TRC-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	9.9	12.8	13.9	14.4	14.6	14.4	13.9	12.8	9.9	12.8	13.9
68°	6.0	9.2	10.2	10.8	11.3	10.8	10.2	9.2	6.0	9.2	10.2
68.5°	2.6	6.1	6.7	7.3	8.3	7.3	6.7	6.1	2.6	6.1	6.7
69°	1.6	3.7	4.5	4.8	6.0	4.8	4.5	3.7	1.6	3.7	4.5
69.5°	1.1	2.2	3.0	2.8	3.8	2.8	3.0	2.2	1.1	2.2	3.0
70°	0.9	1.3	1.6	1.5	1.7	1.5	1.6	1.3	0.9	1.3	1.6
70.5°	0.6	0.8	1.0	1.0	0.8	1.0	1.0	0.8	0.6	0.8	1.0
71°	0.5	0.6	0.8	0.8	0.7	0.8	0.8	0.6	0.5	0.6	0.8
71.5°	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.6
72°	0.5	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5
72.5°	0.4	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.4	0.5	0.5
73°	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.5
73.5°	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4
74°	0.3	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.4	0.4
74.5°	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4
75°	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3
75.5°	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3
76°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
76.5°	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3
77°	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3
77.5°	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
78°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
78.5°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
79°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
79.5°	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2
80°	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
80.5°	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
81°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
81.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
82°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
82.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
83°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
83.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
84°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1
84.5°	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.1	0.1	0.1	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: P775815  
CATALOG NUMBER: HCDJBL510CSD-HCD81TRC-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: P775815

CATALOG NUMBER: HCDJBL510CSD-HCD81TRC-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	495.6	495.6	495.6	495.6	495.6	495.6
0.5°	495.8	495.5	495.8	495.7	495.5	495.5
1°	495.7	495.5	495.7	495.6	495.5	495.4
1.5°	495.6	495.4	495.6	495.5	495.4	495.3
2°	495.5	495.3	495.5	495.4	495.2	495.2
2.5°	495.3	495.1	495.3	495.2	495.1	495.0
3°	495.2	494.9	495.2	495.1	494.9	494.9
3.5°	494.9	494.7	494.9	494.9	494.7	494.7
4°	494.7	494.4	494.7	494.6	494.5	494.4
4.5°	494.4	494.2	494.4	494.3	494.2	494.1
5°	494.1	493.9	494.1	494.0	493.9	493.8
5.5°	493.8	493.6	493.8	493.7	493.6	493.5
6°	493.4	493.2	493.4	493.3	493.2	493.1
6.5°	493.0	492.7	493.0	492.9	492.8	492.7
7°	492.5	492.2	492.5	492.4	492.3	492.3
7.5°	491.9	491.7	491.9	491.9	491.8	491.8
8°	491.4	491.2	491.4	491.3	491.3	491.2
8.5°	490.8	490.6	490.8	490.8	490.7	490.6
9°	490.2	490.0	490.2	490.2	490.1	490.1
9.5°	489.6	489.4	489.6	489.5	489.5	489.4
10°	488.9	488.7	488.9	488.9	488.8	488.8
10.5°	488.2	488.0	488.2	488.2	488.1	488.1
11°	487.5	487.2	487.5	487.5	487.4	487.4
11.5°	486.7	486.5	486.7	486.7	486.6	486.6
12°	485.9	485.7	485.9	485.9	485.9	485.9
12.5°	485.1	484.9	485.1	485.1	485.1	485.1
13°	484.3	484.1	484.3	484.4	484.3	484.4
13.5°	483.5	483.2	483.5	483.5	483.5	483.6
14°	482.7	482.4	482.7	482.7	482.8	482.8
14.5°	481.9	481.6	481.9	481.9	482.0	482.0
15°	481.1	480.8	481.1	481.1	481.2	481.3
15.5°	480.3	480.1	480.3	480.4	480.5	480.6
16°	479.7	479.5	479.7	479.9	480.0	480.1
16.5°	479.2	479.1	479.2	479.5	479.6	479.7
17°	479.0	478.8	479.0	479.3	479.4	479.4
17.5°	478.9	478.8	478.9	479.1	479.3	479.3
18°	479.0	478.8	479.0	479.1	479.3	479.3
18.5°	479.0	478.8	479.0	479.2	479.3	479.3
19°	479.2	479.0	479.2	479.3	479.4	479.4
19.5°	479.3	479.1	479.3	479.4	479.5	479.5
20°	479.4	479.3	479.4	479.5	479.6	479.6
20.5°	479.6	479.4	479.6	479.6	479.6	479.7
21°	479.7	479.6	479.7	479.7	479.7	479.7



TEST NUMBER: P775815

CATALOG NUMBER: HCDJBL510CSD-HCD81TRC-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	479.9	479.9	479.9	479.8	479.8	479.9
23°	480.0	479.9	480.0	479.8	479.8	479.9
23.5°	479.9	479.9	479.9	479.7	479.8	479.9
24°	479.9	479.9	479.9	479.6	479.7	479.8
24.5°	479.9	479.9	479.9	479.6	479.6	479.8
25°	479.8	479.8	479.8	479.5	479.5	479.7
25.5°	479.8	479.8	479.8	479.4	479.4	479.6
26°	479.7	479.7	479.7	479.2	479.3	479.4
26.5°	479.6	479.6	479.6	479.1	479.2	479.3
27°	479.5	479.6	479.5	479.0	479.1	479.3
27.5°	479.5	479.6	479.5	479.0	479.2	479.3
28°	479.6	479.7	479.6	479.1	479.2	479.4
28.5°	479.7	479.8	479.7	479.1	479.3	479.5
29°	479.8	479.8	479.8	479.1	479.3	479.5
29.5°	479.7	479.7	479.7	479.1	479.2	479.4
30°	479.5	479.5	479.5	478.9	479.0	479.1
30.5°	479.2	479.1	479.2	478.6	478.6	478.7
31°	478.6	478.5	478.6	478.0	478.0	478.1
31.5°	477.9	477.7	477.9	477.4	477.3	477.3
32°	476.9	476.7	476.9	476.4	476.3	476.2
32.5°	475.7	475.5	475.7	475.3	475.1	475.0
33°	474.3	474.0	474.3	474.0	473.7	473.6
33.5°	472.7	472.4	472.7	472.5	472.1	472.0
34°	470.9	470.5	470.9	470.8	470.4	470.1
34.5°	468.9	468.5	468.9	468.9	468.4	468.1
35°	466.7	466.2	466.7	466.8	466.2	465.9
35.5°	464.4	463.9	464.4	464.5	464.0	463.6
36°	461.9	461.3	461.9	462.1	461.5	461.1
36.5°	459.2	458.5	459.2	459.5	458.9	458.3
37°	456.2	455.5	456.2	456.5	455.9	455.4
37.5°	453.0	452.3	453.0	453.3	452.9	452.3
38°	449.6	448.9	449.6	450.0	449.5	448.9
38.5°	445.9	445.1	445.9	446.4	445.9	445.2
39°	441.9	441.1	441.9	442.4	442.1	441.3
39.5°	437.5	436.7	437.5	438.1	437.9	437.2
40°	432.9	432.2	432.9	433.5	433.3	432.7
40.5°	428.0	427.2	428.0	428.6	428.5	428.0
41°	422.7	422.1	422.7	423.3	423.4	423.0
41.5°	417.2	416.7	417.2	417.8	418.0	417.7
42°	411.4	411.1	411.4	411.9	412.3	412.2
42.5°	405.4	405.1	405.4	405.8	406.4	406.5
43°	399.1	398.9	399.1	399.4	400.1	400.4
43.5°	392.5	392.4	392.5	392.6	393.6	394.0



TEST NUMBER: P775815

CATALOG NUMBER: HCDJBL510CSD-HCD81TRC-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	370.9	371.2	370.9	370.9	372.3	373.2
45.5°	363.2	363.5	363.2	363.0	364.6	365.6
46°	355.2	355.7	355.2	355.0	356.6	357.6
46.5°	346.9	347.4	346.9	346.7	348.3	349.2
47°	338.2	338.6	338.2	338.0	339.5	340.4
47.5°	328.5	328.9	328.5	328.2	329.7	330.6
48°	318.5	318.9	318.5	318.0	319.2	320.0
48.5°	309.1	309.6	309.1	308.7	309.8	310.2
49°	300.5	300.8	300.5	300.2	300.8	301.0
49.5°	291.7	291.9	291.7	291.5	291.8	291.9
50°	282.9	283.2	282.9	282.6	282.6	282.7
50.5°	274.3	274.5	274.3	274.1	274.2	274.1
51°	266.4	266.2	266.4	266.2	266.3	266.3
51.5°	258.9	259.0	258.9	258.7	258.8	258.9
52°	252.1	252.4	252.1	251.8	251.8	251.8
52.5°	245.7	246.0	245.7	245.3	245.4	245.3
53°	239.9	240.1	239.9	239.4	239.4	239.5
53.5°	234.4	234.6	234.4	234.0	234.0	234.0
54°	229.0	229.0	229.0	228.6	228.6	228.7
54.5°	223.3	223.4	223.3	223.0	223.0	223.0
55°	217.2	217.2	217.2	216.7	216.7	216.7
55.5°	210.2	210.0	210.2	209.5	209.4	209.4
56°	202.2	202.1	202.2	201.6	201.3	201.1
56.5°	193.5	193.5	193.5	192.9	192.5	192.4
57°	184.5	184.3	184.5	183.9	183.4	183.3
57.5°	175.2	175.2	175.2	174.4	174.0	173.8
58°	165.8	166.0	165.8	164.9	164.3	164.3
58.5°	156.2	156.6	156.2	155.1	154.6	154.3
59°	146.4	146.9	146.4	145.3	144.7	144.3
59.5°	136.8	137.4	136.8	135.4	134.7	134.2
60°	127.1	127.7	127.1	125.8	124.9	124.3
60.5°	117.7	118.3	117.7	116.3	115.1	114.4
61°	108.3	108.8	108.3	107.0	105.6	104.7
61.5°	99.2	99.6	99.2	98.0	96.3	95.5
62°	90.1	90.6	90.1	89.0	87.3	86.3
62.5°	81.3	82.1	81.3	80.3	78.4	77.3
63°	72.8	73.6	72.8	71.8	69.7	68.4
63.5°	64.5	65.3	64.5	63.4	61.1	60.0
64°	56.6	57.2	56.6	55.4	53.3	52.1
64.5°	48.9	49.4	48.9	47.8	45.8	44.5
65°	42.1	42.7	42.1	40.9	38.7	37.3
65.5°	35.5	36.3	35.5	34.2	32.4	30.9
66°	29.3	30.1	29.3	28.0	26.7	24.7



TEST NUMBER: P775815  
 CATALOG NUMBER: HCDJBL510CSD-HCD81TRC-1000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	14.4	14.6	14.4	13.9	12.8	9.9
68°	10.8	11.3	10.8	10.2	9.2	6.0
68.5°	7.3	8.3	7.3	6.7	6.1	2.6
69°	4.8	6.0	4.8	4.5	3.7	1.6
69.5°	2.8	3.8	2.8	3.0	2.2	1.1
70°	1.5	1.7	1.5	1.6	1.3	0.9
70.5°	1.0	0.8	1.0	1.0	0.8	0.6
71°	0.8	0.7	0.8	0.8	0.6	0.5
71.5°	0.6	0.6	0.6	0.6	0.5	0.5
72°	0.6	0.6	0.6	0.5	0.5	0.5
72.5°	0.5	0.6	0.5	0.5	0.5	0.4
73°	0.5	0.5	0.5	0.5	0.4	0.4
73.5°	0.5	0.5	0.5	0.4	0.4	0.4
74°	0.4	0.5	0.4	0.4	0.4	0.3
74.5°	0.4	0.4	0.4	0.4	0.3	0.3
75°	0.4	0.4	0.4	0.3	0.3	0.3
75.5°	0.4	0.4	0.4	0.3	0.3	0.3
76°	0.3	0.3	0.3	0.3	0.3	0.3
76.5°	0.3	0.3	0.3	0.3	0.2	0.2
77°	0.3	0.3	0.3	0.3	0.2	0.2
77.5°	0.3	0.3	0.3	0.2	0.2	0.2
78°	0.2	0.2	0.2	0.2	0.2	0.2
78.5°	0.2	0.2	0.2	0.2	0.2	0.2
79°	0.2	0.2	0.2	0.2	0.2	0.2
79.5°	0.2	0.2	0.2	0.2	0.1	0.1
80°	0.2	0.2	0.2	0.1	0.1	0.1
80.5°	0.2	0.2	0.2	0.1	0.1	0.1
81°	0.1	0.1	0.1	0.1	0.1	0.1
81.5°	0.1	0.1	0.1	0.1	0.1	0.1
82°	0.1	0.1	0.1	0.1	0.1	0.1
82.5°	0.1	0.1	0.1	0.1	0.1	0.1
83°	0.1	0.1	0.1	0.1	0.1	0.1
83.5°	0.1	0.1	0.1	0.1	0.1	0.1
84°	0.1	0.1	0.1	0.1	0.0	0.0
84.5°	0.1	0.1	0.1	0.0	0.0	0.0
85°	0.1	0.1	0.1	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: P775815  
CATALOG NUMBER: HCDJBL510CSD-HCD81TRC-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°	479.8	479.8	479.7	479.8	479.7	479.8	479.7	479.8	479.8	479.8	479.7
22°	479.9	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.9	479.8	479.8



44°	387.3	386.8	385.6	385.5	385.6	385.5	385.6	386.8	387.3	386.8	385.6
44.5°	380.4	379.8	378.4	378.4	378.5	378.4	378.4	379.8	380.4	379.8	378.4



66.5°	19.8	21.4	22.8	23.8	24.1	23.8	22.8	21.4	19.8	21.4	22.8
67°	14.8	16.7	17.8	18.8	19.0	18.8	17.8	16.7	14.8	16.7	17.8



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°	479.8	479.7	479.8	479.7	479.8	479.8
22°	479.8	479.8	479.8	479.8	479.8	479.9



44°	385.5	385.6	385.5	385.6	386.8	387.3
44.5°	378.4	378.5	378.4	378.4	379.8	380.4

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66.5°	23.8	24.1	23.8	22.8	21.4	19.8
67°	18.8	19.0	18.8	17.8	16.7	14.8

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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)