

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: P775844

Luminaire Tested: HCDJBL510CSD-HCD82TRC-1000lm-5000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P775844
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B062-HCD82TRC)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD82TRC-1000lm-5000K
Description: 8 INCH ROUND NARROW SPECULAR CLEAR TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT
Ballast/Driver: -

Summary

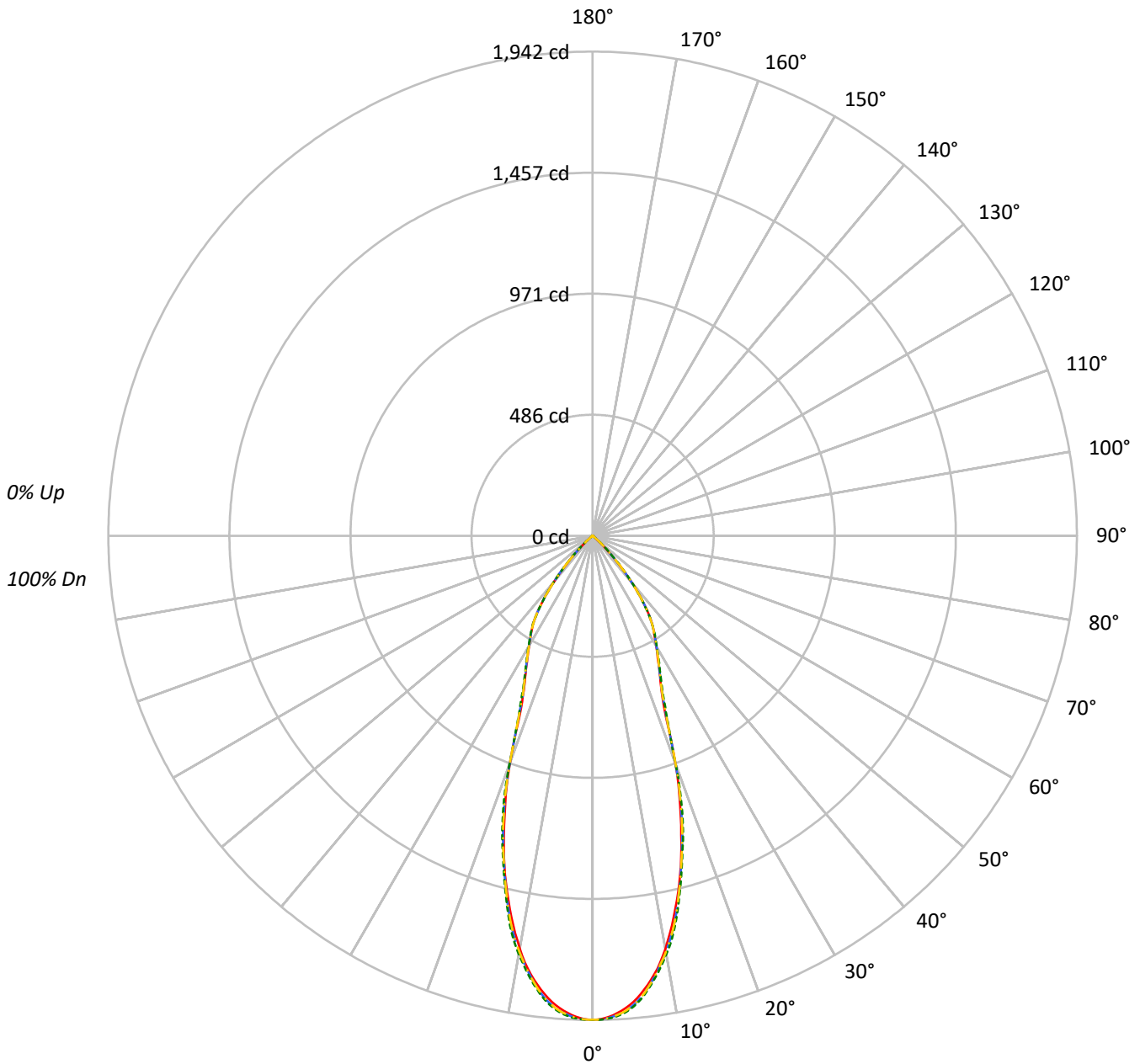
Lumens per Lamp: N/A
Luminaire Lumens: 1185.6 lumens
Efficiency: N/A
Efficacy: 118.6 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 0.66 / 0.66
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

Input Watts (W): 10
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20										
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	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	100	100	100	100		
	1	114	111	109	107	111	109	107	105	105	103	102	101	100	99	98	97	96	94	94	94	94	94	94		
	2	108	104	100	97	106	102	99	96	99	96	94	96	94	92	93	91	90	88	88	88	88	88	88		
	3	103	97	92	89	101	96	91	88	93	90	87	91	88	85	89	86	84	82	82	82	82	82	82		
	4	98	91	86	82	97	90	85	81	88	84	80	86	82	80	84	81	79	77	77	77	77	77	77		
	5	94	86	80	76	92	85	80	76	83	79	75	81	78	74	80	77	74	72	72	72	72	72	72		
	6	89	81	75	71	88	80	75	71	79	74	70	77	73	70	76	72	69	68	68	68	68	68	68		
	7	85	76	71	67	84	76	70	67	75	70	66	73	69	66	72	68	65	64	64	64	64	64	64		
	8	81	72	67	63	80	72	66	63	71	66	62	70	65	62	69	65	62	61	61	61	61	61	61		
	9	78	69	63	59	77	68	63	59	67	62	59	66	62	59	66	62	59	57	57	57	57	57	57		
	10	75	65	60	56	74	65	60	56	64	59	56	63	59	56	63	59	56	54	54	54	54	54	54		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	59268	59268	59268	59268
5°	57497	58079	57497	58079
10°	52132	52835	52132	52835
15°	43226	43602	43226	43602
20°	31479	31609	31479	31609
25°	21687	21987	21687	21987
30°	17969	18155	17969	18155
35°	14998	14927	14998	14927
40°	9601	9732	9601	9732
45°	3886	4266	3886	4266
50°	731	812	731	812
55°	224	218	224	218
60°	140	140	140	140
65°	101	101	101	101
70°	62	80	62	80
75°	47	47	47	47
80°	35	35	35	35
85°	0	35	0	35

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 45°
 Luminance: 4266 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.0	14.7
10°-20°	375.2	31.6
20°-30°	307.8	26.0
30°-40°	242.3	20.4
40°-50°	79.7	6.7
50°-60°	4.7	0.4
60°-70°	1.4	0.1
70°-80°	0.5	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°	857.0	72.3
0°-40°	1099.3	92.7
0°-60°	1183.7	99.8
0°-90°	1185.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1185.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1941	1941	1941	1941	1941	
5°	1876	1895	1876	1895	1876	173
15°	1368	1380	1368	1380	1368	372
25°	644	653	644	653	644	306
35°	402	400	402	400	402	242
45°	90	99	90	99	90	77
55°	4	4	4	4	4	4
65°	1	1	1	1	1	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°	1941.3	1941.3	1941.3	1941.3	1941.3	1941.3	1941.3	1941.3	1941.3	1941.3	1941.3
0.5°	1940.4	1940.6	1941.6	1939.7	1941.8	1939.7	1941.6	1940.6	1940.4	1940.6	1941.6
1°	1938.4	1938.8	1940.3	1938.5	1940.7	1938.5	1940.3	1938.8	1938.4	1938.8	1940.3
1.5°	1934.8	1935.7	1938.0	1936.6	1938.9	1936.6	1938.0	1935.7	1934.8	1935.7	1938.0
2°	1930.0	1931.3	1934.7	1933.7	1937.0	1933.7	1934.7	1931.3	1930.0	1931.3	1934.7
2.5°	1923.8	1925.8	1930.1	1929.9	1933.5	1929.9	1930.1	1925.8	1923.8	1925.8	1930.1
3°	1916.6	1919.3	1924.5	1924.6	1928.8	1924.6	1924.5	1919.3	1916.6	1919.3	1924.5
3.5°	1908.3	1911.8	1917.7	1918.0	1922.7	1918.0	1917.7	1911.8	1908.3	1911.8	1917.7
4°	1899.1	1903.7	1909.6	1910.0	1915.2	1910.0	1909.6	1903.7	1899.1	1903.7	1909.6
4.5°	1888.3	1894.1	1899.9	1900.9	1906.0	1900.9	1899.9	1894.1	1888.3	1894.1	1899.9
5°	1876.1	1883.5	1888.8	1890.2	1895.1	1890.2	1888.8	1883.5	1876.1	1883.5	1888.8
5.5°	1862.6	1871.3	1875.6	1878.3	1882.5	1878.3	1875.6	1871.3	1862.6	1871.3	1875.6
6°	1847.8	1857.6	1861.0	1865.0	1867.7	1865.0	1861.0	1857.6	1847.8	1857.6	1861.0
6.5°	1831.6	1842.1	1844.4	1850.2	1851.2	1850.2	1844.4	1842.1	1831.6	1842.1	1844.4
7°	1814.5	1824.8	1826.3	1834.3	1832.8	1834.3	1826.3	1824.8	1814.5	1824.8	1826.3
7.5°	1796.4	1805.9	1806.5	1817.0	1813.6	1817.0	1806.5	1805.9	1796.4	1805.9	1806.5
8°	1777.0	1785.4	1785.8	1798.1	1793.0	1798.1	1785.8	1785.4	1777.0	1785.4	1785.8
8.5°	1755.8	1762.7	1763.7	1777.4	1771.9	1777.4	1763.7	1762.7	1755.8	1762.7	1763.7
9°	1733.1	1738.5	1740.9	1754.8	1749.5	1754.8	1740.9	1738.5	1733.1	1738.5	1740.9
9.5°	1708.2	1712.0	1717.7	1730.3	1727.4	1730.3	1717.7	1712.0	1708.2	1712.0	1717.7
10°	1681.6	1684.5	1693.4	1703.4	1704.3	1703.4	1693.4	1684.5	1681.6	1684.5	1693.4
10.5°	1653.5	1655.3	1668.3	1674.9	1680.5	1674.9	1668.3	1655.3	1653.5	1655.3	1668.3
11°	1624.8	1625.6	1642.3	1645.2	1654.5	1645.2	1642.3	1625.6	1624.8	1625.6	1642.3
11.5°	1594.9	1595.4	1614.3	1614.5	1625.9	1614.5	1614.3	1595.4	1594.9	1595.4	1614.3
12°	1564.7	1565.1	1583.4	1584.0	1595.2	1584.0	1583.4	1565.1	1564.7	1565.1	1583.4
12.5°	1532.9	1535.5	1550.1	1553.0	1561.0	1553.0	1550.1	1535.5	1532.9	1535.5	1550.1
13°	1501.7	1505.4	1515.6	1521.4	1526.6	1521.4	1515.6	1505.4	1501.7	1505.4	1515.6
13.5°	1469.3	1474.4	1479.7	1487.9	1489.8	1487.9	1479.7	1474.4	1469.3	1474.4	1479.7
14°	1436.6	1441.7	1443.9	1452.9	1452.8	1452.9	1443.9	1441.7	1436.6	1441.7	1443.9
14.5°	1402.7	1406.8	1408.4	1417.5	1416.3	1417.5	1408.4	1406.8	1402.7	1406.8	1408.4
15°	1367.6	1370.2	1372.8	1381.1	1379.5	1381.1	1372.8	1370.2	1367.6	1370.2	1372.8
15.5°	1330.1	1331.6	1337.3	1344.7	1345.0	1344.7	1337.3	1331.6	1330.1	1331.6	1337.3
16°	1291.9	1292.9	1301.4	1308.0	1309.6	1308.0	1301.4	1292.9	1291.9	1292.9	1301.4
16.5°	1251.7	1254.6	1264.8	1271.7	1275.5	1271.7	1264.8	1254.6	1251.7	1254.6	1264.8
17°	1212.8	1216.2	1227.4	1235.6	1240.6	1235.6	1227.4	1216.2	1212.8	1216.2	1227.4
17.5°	1173.5	1178.2	1188.3	1198.3	1203.1	1198.3	1188.3	1178.2	1173.5	1178.2	1188.3
18°	1135.6	1139.0	1148.3	1159.2	1163.4	1159.2	1148.3	1139.0	1135.6	1139.0	1148.3
18.5°	1096.2	1099.4	1106.5	1117.4	1120.6	1117.4	1106.5	1099.4	1096.2	1099.4	1106.5
19°	1055.8	1057.9	1063.5	1071.6	1074.9	1071.6	1063.5	1057.9	1055.8	1057.9	1063.5
19.5°	1013.6	1013.8	1017.9	1024.1	1027.2	1024.1	1017.9	1013.8	1013.6	1013.8	1017.9
20°	968.9	968.9	971.1	974.5	972.9	974.5	971.1	968.9	968.9	968.9	971.1
20.5°	924.9	923.4	924.3	924.2	919.5	924.2	924.3	923.4	924.9	923.4	924.3
21°	879.7	878.7	874.7	878.7	877.2	878.7	874.7	878.7	879.7	878.7	874.7



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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°	753.3	758.3	765.1	773.3	769.7	773.3	765.1	758.3	753.3	758.3	765.1
23°	723.8	727.2	734.2	745.4	745.5	745.4	734.2	727.2	723.8	727.2	734.2
23.5°	702.0	701.5	705.9	716.7	718.1	716.7	705.9	701.5	702.0	701.5	705.9
24°	678.7	681.0	683.8	692.5	693.2	692.5	683.8	681.0	678.7	681.0	683.8
24.5°	660.7	661.9	664.4	669.9	669.9	669.9	664.4	661.9	660.7	661.9	664.4
25°	643.8	645.3	647.8	653.0	652.7	653.0	647.8	645.3	643.8	645.3	647.8
25.5°	628.0	628.8	631.4	636.2	636.5	636.2	631.4	628.8	628.0	628.8	631.4
26°	612.8	613.4	615.3	618.9	619.5	618.9	615.3	613.4	612.8	613.4	615.3
26.5°	598.4	598.6	600.8	604.1	604.4	604.1	600.8	598.6	598.4	598.6	600.8
27°	583.8	584.4	586.7	590.9	592.0	590.9	586.7	584.4	583.8	584.4	586.7
27.5°	570.0	570.9	573.1	577.1	578.6	577.1	573.1	570.9	570.0	570.9	573.1
28°	557.0	557.8	560.0	563.0	564.4	563.0	560.0	557.8	557.0	557.8	560.0
28.5°	544.9	545.4	547.4	549.7	550.9	549.7	547.4	545.4	544.9	545.4	547.4
29°	533.0	533.3	535.2	537.3	538.5	537.3	535.2	533.3	533.0	533.3	535.2
29.5°	521.2	521.8	523.4	525.6	526.7	525.6	523.4	521.8	521.2	521.8	523.4
30°	509.7	510.3	511.8	513.9	515.0	513.9	511.8	510.3	509.7	510.3	511.8
30.5°	498.5	499.0	500.5	502.5	503.3	502.5	500.5	499.0	498.5	499.0	500.5
31°	487.5	488.0	489.4	491.5	492.6	491.5	489.4	488.0	487.5	488.0	489.4
31.5°	476.9	477.5	478.9	480.9	481.6	480.9	478.9	477.5	476.9	477.5	478.9
32°	466.8	467.2	468.6	470.5	471.3	470.5	468.6	467.2	466.8	467.2	468.6
32.5°	457.1	457.5	458.5	460.3	460.9	460.3	458.5	457.5	457.1	457.5	458.5
33°	447.7	447.9	448.5	449.3	449.9	449.3	448.5	447.9	447.7	447.9	448.5
33.5°	438.0	438.0	437.8	437.4	438.3	437.4	437.8	438.0	438.0	438.0	437.8
34°	427.0	426.6	426.4	425.0	427.1	425.0	426.4	426.6	427.0	426.6	426.4
34.5°	415.2	414.2	414.1	412.3	413.9	412.3	414.1	414.2	415.2	414.2	414.1
35°	402.4	401.1	401.1	399.4	400.5	399.4	401.1	401.1	402.4	401.1	401.1
35.5°	388.4	387.9	387.3	385.8	386.4	385.8	387.3	387.9	388.4	387.9	387.3
36°	373.9	373.7	372.5	371.7	371.8	371.7	372.5	373.7	373.9	373.7	372.5
36.5°	358.6	359.0	357.3	356.8	356.1	356.8	357.3	359.0	358.6	359.0	357.3
37°	342.0	343.3	341.8	341.5	340.7	341.5	341.8	343.3	342.0	343.3	341.8
37.5°	325.6	326.6	326.2	325.6	325.3	325.6	326.2	326.6	325.6	326.6	326.2
38°	309.2	310.0	309.4	309.8	309.5	309.8	309.4	310.0	309.2	310.0	309.4
38.5°	292.8	292.4	292.6	292.7	293.5	292.7	292.6	292.4	292.8	292.4	292.6
39°	276.0	275.1	275.6	275.6	277.3	275.6	275.6	275.1	276.0	275.1	275.6
39.5°	258.5	257.9	258.7	259.3	260.6	259.3	258.7	257.9	258.5	257.9	258.7
40°	240.9	241.3	242.2	243.2	244.2	243.2	242.2	241.3	240.9	241.3	242.2
40.5°	223.4	224.4	225.4	227.7	227.6	227.7	225.4	224.4	223.4	224.4	225.4
41°	206.4	207.6	209.0	211.8	211.3	211.8	209.0	207.6	206.4	207.6	209.0
41.5°	189.4	190.9	192.7	196.0	195.2	196.0	192.7	190.9	189.4	190.9	192.7
42°	173.2	174.6	177.1	180.4	179.9	180.4	177.1	174.6	173.2	174.6	177.1
42.5°	157.5	158.9	162.1	165.5	165.2	165.5	162.1	158.9	157.5	158.9	162.1
43°	142.3	144.2	147.5	151.3	151.0	151.3	147.5	144.2	142.3	144.2	147.5
43.5°	128.8	129.8	133.1	136.8	137.1	136.8	133.1	129.8	128.8	129.8	133.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	90.0	90.4	94.0	97.5	98.8	97.5	94.0	90.4	90.0	90.4	94.0
45.5°	77.6	78.6	82.6	85.6	87.4	85.6	82.6	78.6	77.6	78.6	82.6
46°	66.7	67.5	71.9	75.3	77.2	75.3	71.9	67.5	66.7	67.5	71.9
46.5°	56.9	58.2	61.6	65.9	68.1	65.9	61.6	58.2	56.9	58.2	61.6
47°	48.0	49.5	52.1	56.9	59.1	56.9	52.1	49.5	48.0	49.5	52.1
47.5°	40.3	41.8	44.2	48.4	50.0	48.4	44.2	41.8	40.3	41.8	44.2
48°	33.4	35.2	36.9	40.6	40.9	40.6	36.9	35.2	33.4	35.2	36.9
48.5°	27.5	29.1	30.5	33.7	33.2	33.7	30.5	29.1	27.5	29.1	30.5
49°	22.8	23.8	24.7	27.7	26.9	27.7	24.7	23.8	22.8	23.8	24.7
49.5°	19.1	19.4	20.5	22.3	21.3	22.3	20.5	19.4	19.1	19.4	20.5
50°	15.4	15.2	16.4	18.1	17.1	18.1	16.4	15.2	15.4	15.2	16.4
50.5°	11.6	12.0	12.7	14.4	13.4	14.4	12.7	12.0	11.6	12.0	12.7
51°	9.0	9.2	10.3	11.5	10.7	11.5	10.3	9.2	9.0	9.2	10.3
51.5°	6.7	7.6	8.2	9.6	9.5	9.6	8.2	7.6	6.7	7.6	8.2
52°	5.9	6.3	6.9	7.6	8.3	7.6	6.9	6.3	5.9	6.3	6.9
52.5°	5.3	5.4	6.0	6.4	7.0	6.4	6.0	5.4	5.3	5.4	6.0
53°	5.0	5.1	5.1	5.5	5.9	5.5	5.1	5.1	5.0	5.1	5.1
53.5°	4.8	4.8	4.9	4.8	4.7	4.8	4.9	4.8	4.8	4.8	4.9
54°	4.6	4.6	4.6	4.6	4.5	4.6	4.6	4.6	4.6	4.6	4.6
54.5°	4.4	4.4	4.4	4.4	4.3	4.4	4.4	4.4	4.4	4.4	4.4
55°	4.2	4.2	4.2	4.2	4.1	4.2	4.2	4.2	4.2	4.2	4.2
55.5°	3.9	3.9	3.9	3.9	3.8	3.9	3.9	3.9	3.9	3.9	3.9
56°	3.7	3.7	3.7	3.7	3.6	3.7	3.7	3.7	3.7	3.7	3.7
56.5°	3.5	3.5	3.6	3.5	3.4	3.5	3.6	3.5	3.5	3.5	3.6
57°	3.3	3.3	3.4	3.3	3.3	3.3	3.4	3.3	3.3	3.3	3.4
57.5°	3.1	3.2	3.2	3.1	3.1	3.1	3.2	3.2	3.1	3.2	3.2
58°	3.0	3.0	3.0	3.0	2.9	3.0	3.0	3.0	3.0	3.0	3.0
58.5°	2.8	2.9	2.9	2.8	2.8	2.8	2.9	2.9	2.8	2.9	2.9
59°	2.7	2.7	2.7	2.7	2.6	2.7	2.7	2.7	2.7	2.7	2.7
59.5°	2.5	2.6	2.6	2.6	2.5	2.6	2.6	2.6	2.5	2.6	2.6
60°	2.3	2.3	2.5	2.3	2.3	2.3	2.5	2.3	2.3	2.3	2.5
60.5°	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3
61°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
61.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
62°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
62.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
63°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
63.5°	1.6	1.6	1.7	1.6	1.6	1.6	1.7	1.6	1.6	1.6	1.7
64°	1.5	1.5	1.6	1.6	1.5	1.6	1.6	1.5	1.5	1.5	1.6
64.5°	1.4	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.4	1.5	1.5
65°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
65.5°	1.3	1.3	1.4	1.3	1.3	1.3	1.4	1.3	1.3	1.3	1.4
66°	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.3	1.3



TEST NUMBER: P775844

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
68°	1.0	1.0	1.1	1.1	1.0	1.1	1.1	1.0	1.0	1.0	1.1
68.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
69°	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.9	0.9	0.9	1.0
69.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
70°	0.7	0.7	0.9	0.9	0.9	0.9	0.9	0.7	0.7	0.7	0.9
70.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
71°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
71.5°	0.6	0.6	0.7	0.7	0.6	0.7	0.7	0.6	0.6	0.6	0.7
72°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
72.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
73°	0.5	0.5	0.5	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.5
73.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
74°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
74.5°	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.5
75°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
75.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
76°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
76.5°	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3
77°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
77.5°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
78°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
78.5°	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3
79°	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2
79.5°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.5°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81.5°	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2
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°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
84.5°	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
85°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1
85.5°	0.0	0.0	0.0	0.1	0.1	0.1	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: P775844
CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-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: P775844

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1941.3	1941.3	1941.3	1941.3	1941.3	1941.3
0.5°	1939.7	1941.8	1939.7	1941.6	1940.6	1940.4
1°	1938.5	1940.7	1938.5	1940.3	1938.8	1938.4
1.5°	1936.6	1938.9	1936.6	1938.0	1935.7	1934.8
2°	1933.7	1937.0	1933.7	1934.7	1931.3	1930.0
2.5°	1929.9	1933.5	1929.9	1930.1	1925.8	1923.8
3°	1924.6	1928.8	1924.6	1924.5	1919.3	1916.6
3.5°	1918.0	1922.7	1918.0	1917.7	1911.8	1908.3
4°	1910.0	1915.2	1910.0	1909.6	1903.7	1899.1
4.5°	1900.9	1906.0	1900.9	1899.9	1894.1	1888.3
5°	1890.2	1895.1	1890.2	1888.8	1883.5	1876.1
5.5°	1878.3	1882.5	1878.3	1875.6	1871.3	1862.6
6°	1865.0	1867.7	1865.0	1861.0	1857.6	1847.8
6.5°	1850.2	1851.2	1850.2	1844.4	1842.1	1831.6
7°	1834.3	1832.8	1834.3	1826.3	1824.8	1814.5
7.5°	1817.0	1813.6	1817.0	1806.5	1805.9	1796.4
8°	1798.1	1793.0	1798.1	1785.8	1785.4	1777.0
8.5°	1777.4	1771.9	1777.4	1763.7	1762.7	1755.8
9°	1754.8	1749.5	1754.8	1740.9	1738.5	1733.1
9.5°	1730.3	1727.4	1730.3	1717.7	1712.0	1708.2
10°	1703.4	1704.3	1703.4	1693.4	1684.5	1681.6
10.5°	1674.9	1680.5	1674.9	1668.3	1655.3	1653.5
11°	1645.2	1654.5	1645.2	1642.3	1625.6	1624.8
11.5°	1614.5	1625.9	1614.5	1614.3	1595.4	1594.9
12°	1584.0	1595.2	1584.0	1583.4	1565.1	1564.7
12.5°	1553.0	1561.0	1553.0	1550.1	1535.5	1532.9
13°	1521.4	1526.6	1521.4	1515.6	1505.4	1501.7
13.5°	1487.9	1489.8	1487.9	1479.7	1474.4	1469.3
14°	1452.9	1452.8	1452.9	1443.9	1441.7	1436.6
14.5°	1417.5	1416.3	1417.5	1408.4	1406.8	1402.7
15°	1381.1	1379.5	1381.1	1372.8	1370.2	1367.6
15.5°	1344.7	1345.0	1344.7	1337.3	1331.6	1330.1
16°	1308.0	1309.6	1308.0	1301.4	1292.9	1291.9
16.5°	1271.7	1275.5	1271.7	1264.8	1254.6	1251.7
17°	1235.6	1240.6	1235.6	1227.4	1216.2	1212.8
17.5°	1198.3	1203.1	1198.3	1188.3	1178.2	1173.5
18°	1159.2	1163.4	1159.2	1148.3	1139.0	1135.6
18.5°	1117.4	1120.6	1117.4	1106.5	1099.4	1096.2
19°	1071.6	1074.9	1071.6	1063.5	1057.9	1055.8
19.5°	1024.1	1027.2	1024.1	1017.9	1013.8	1013.6
20°	974.5	972.9	974.5	971.1	968.9	968.9
20.5°	924.2	919.5	924.2	924.3	923.4	924.9
21°	878.7	877.2	878.7	874.7	878.7	879.7

TEST NUMBER: P775844

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	773.3	769.7	773.3	765.1	758.3	753.3
23°	745.4	745.5	745.4	734.2	727.2	723.8
23.5°	716.7	718.1	716.7	705.9	701.5	702.0
24°	692.5	693.2	692.5	683.8	681.0	678.7
24.5°	669.9	669.9	669.9	664.4	661.9	660.7
25°	653.0	652.7	653.0	647.8	645.3	643.8
25.5°	636.2	636.5	636.2	631.4	628.8	628.0
26°	618.9	619.5	618.9	615.3	613.4	612.8
26.5°	604.1	604.4	604.1	600.8	598.6	598.4
27°	590.9	592.0	590.9	586.7	584.4	583.8
27.5°	577.1	578.6	577.1	573.1	570.9	570.0
28°	563.0	564.4	563.0	560.0	557.8	557.0
28.5°	549.7	550.9	549.7	547.4	545.4	544.9
29°	537.3	538.5	537.3	535.2	533.3	533.0
29.5°	525.6	526.7	525.6	523.4	521.8	521.2
30°	513.9	515.0	513.9	511.8	510.3	509.7
30.5°	502.5	503.3	502.5	500.5	499.0	498.5
31°	491.5	492.6	491.5	489.4	488.0	487.5
31.5°	480.9	481.6	480.9	478.9	477.5	476.9
32°	470.5	471.3	470.5	468.6	467.2	466.8
32.5°	460.3	460.9	460.3	458.5	457.5	457.1
33°	449.3	449.9	449.3	448.5	447.9	447.7
33.5°	437.4	438.3	437.4	437.8	438.0	438.0
34°	425.0	427.1	425.0	426.4	426.6	427.0
34.5°	412.3	413.9	412.3	414.1	414.2	415.2
35°	399.4	400.5	399.4	401.1	401.1	402.4
35.5°	385.8	386.4	385.8	387.3	387.9	388.4
36°	371.7	371.8	371.7	372.5	373.7	373.9
36.5°	356.8	356.1	356.8	357.3	359.0	358.6
37°	341.5	340.7	341.5	341.8	343.3	342.0
37.5°	325.6	325.3	325.6	326.2	326.6	325.6
38°	309.8	309.5	309.8	309.4	310.0	309.2
38.5°	292.7	293.5	292.7	292.6	292.4	292.8
39°	275.6	277.3	275.6	275.6	275.1	276.0
39.5°	259.3	260.6	259.3	258.7	257.9	258.5
40°	243.2	244.2	243.2	242.2	241.3	240.9
40.5°	227.7	227.6	227.7	225.4	224.4	223.4
41°	211.8	211.3	211.8	209.0	207.6	206.4
41.5°	196.0	195.2	196.0	192.7	190.9	189.4
42°	180.4	179.9	180.4	177.1	174.6	173.2
42.5°	165.5	165.2	165.5	162.1	158.9	157.5
43°	151.3	151.0	151.3	147.5	144.2	142.3
43.5°	136.8	137.1	136.8	133.1	129.8	128.8



TEST NUMBER: P775844

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	97.5	98.8	97.5	94.0	90.4	90.0
45.5°	85.6	87.4	85.6	82.6	78.6	77.6
46°	75.3	77.2	75.3	71.9	67.5	66.7
46.5°	65.9	68.1	65.9	61.6	58.2	56.9
47°	56.9	59.1	56.9	52.1	49.5	48.0
47.5°	48.4	50.0	48.4	44.2	41.8	40.3
48°	40.6	40.9	40.6	36.9	35.2	33.4
48.5°	33.7	33.2	33.7	30.5	29.1	27.5
49°	27.7	26.9	27.7	24.7	23.8	22.8
49.5°	22.3	21.3	22.3	20.5	19.4	19.1
50°	18.1	17.1	18.1	16.4	15.2	15.4
50.5°	14.4	13.4	14.4	12.7	12.0	11.6
51°	11.5	10.7	11.5	10.3	9.2	9.0
51.5°	9.6	9.5	9.6	8.2	7.6	6.7
52°	7.6	8.3	7.6	6.9	6.3	5.9
52.5°	6.4	7.0	6.4	6.0	5.4	5.3
53°	5.5	5.9	5.5	5.1	5.1	5.0
53.5°	4.8	4.7	4.8	4.9	4.8	4.8
54°	4.6	4.5	4.6	4.6	4.6	4.6
54.5°	4.4	4.3	4.4	4.4	4.4	4.4
55°	4.2	4.1	4.2	4.2	4.2	4.2
55.5°	3.9	3.8	3.9	3.9	3.9	3.9
56°	3.7	3.6	3.7	3.7	3.7	3.7
56.5°	3.5	3.4	3.5	3.6	3.5	3.5
57°	3.3	3.3	3.3	3.4	3.3	3.3
57.5°	3.1	3.1	3.1	3.2	3.2	3.1
58°	3.0	2.9	3.0	3.0	3.0	3.0
58.5°	2.8	2.8	2.8	2.9	2.9	2.8
59°	2.7	2.6	2.7	2.7	2.7	2.7
59.5°	2.6	2.5	2.6	2.6	2.6	2.5
60°	2.3	2.3	2.3	2.5	2.3	2.3
60.5°	2.2	2.2	2.2	2.3	2.2	2.2
61°	2.1	2.1	2.1	2.1	2.1	2.1
61.5°	2.0	2.0	2.0	2.0	2.0	2.0
62°	1.9	1.9	1.9	1.9	1.9	1.9
62.5°	1.8	1.8	1.8	1.8	1.8	1.8
63°	1.7	1.7	1.7	1.7	1.7	1.7
63.5°	1.6	1.6	1.6	1.7	1.6	1.6
64°	1.6	1.5	1.6	1.6	1.5	1.5
64.5°	1.5	1.4	1.5	1.5	1.5	1.4
65°	1.4	1.4	1.4	1.4	1.4	1.4
65.5°	1.3	1.3	1.3	1.4	1.3	1.3
66°	1.3	1.3	1.3	1.3	1.3	1.2



TEST NUMBER: P775844

CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-1000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	1.1	1.1	1.1	1.1	1.1	1.1
68°	1.1	1.0	1.1	1.1	1.0	1.0
68.5°	1.0	1.0	1.0	1.0	1.0	1.0
69°	1.0	0.9	1.0	1.0	0.9	0.9
69.5°	0.9	0.9	0.9	0.9	0.9	0.9
70°	0.9	0.9	0.9	0.9	0.7	0.7
70.5°	0.7	0.7	0.7	0.7	0.7	0.7
71°	0.7	0.7	0.7	0.7	0.7	0.7
71.5°	0.7	0.6	0.7	0.7	0.6	0.6
72°	0.6	0.6	0.6	0.6	0.6	0.6
72.5°	0.6	0.6	0.6	0.6	0.6	0.6
73°	0.6	0.5	0.6	0.5	0.5	0.5
73.5°	0.5	0.5	0.5	0.5	0.5	0.5
74°	0.5	0.5	0.5	0.5	0.5	0.5
74.5°	0.5	0.5	0.5	0.5	0.4	0.4
75°	0.4	0.4	0.4	0.4	0.4	0.4
75.5°	0.4	0.4	0.4	0.4	0.4	0.4
76°	0.4	0.4	0.4	0.4	0.4	0.4
76.5°	0.4	0.4	0.4	0.3	0.3	0.3
77°	0.3	0.3	0.3	0.3	0.3	0.3
77.5°	0.3	0.3	0.3	0.3	0.3	0.3
78°	0.3	0.3	0.3	0.3	0.3	0.3
78.5°	0.3	0.3	0.3	0.3	0.2	0.2
79°	0.3	0.2	0.3	0.2	0.2	0.2
79.5°	0.2	0.2	0.2	0.2	0.2	0.2
80°	0.2	0.2	0.2	0.2	0.2	0.2
80.5°	0.2	0.2	0.2	0.2	0.2	0.2
81°	0.2	0.2	0.2	0.2	0.2	0.2
81.5°	0.2	0.2	0.2	0.2	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	0.1	0.1
84.5°	0.1	0.1	0.1	0.1	0.1	0.1
85°	0.1	0.1	0.1	0.1	0.0	0.0
85.5°	0.1	0.1	0.1	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: P775844
CATALOG NUMBER: HCDJBL510CSD-HCD82TRC-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°	833.7	833.1	834.6	839.3	838.7	839.3	834.6	833.1	833.7	833.1	834.6
22°	786.9	794.3	797.9	804.0	803.3	804.0	797.9	794.3	786.9	794.3	797.9



44°	115.5	116.3	119.3	123.0	123.5	123.0	119.3	116.3	115.5	116.3	119.3
44.5°	102.6	103.1	106.0	109.8	110.9	109.8	106.0	103.1	102.6	103.1	106.0



66.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
67°	1.1	1.1	1.2	1.2	1.1	1.2	1.2	1.1	1.1	1.1	1.2



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°	839.3	838.7	839.3	834.6	833.1	833.7
22°	804.0	803.3	804.0	797.9	794.3	786.9

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44°	123.0	123.5	123.0	119.3	116.3	115.5
44.5°	109.8	110.9	109.8	106.0	103.1	102.6

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66.5°	1.2	1.2	1.2	1.2	1.2	1.2
67°	1.2	1.1	1.2	1.2	1.1	1.1

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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)