

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: P775667

Luminaire Tested: HCDJBS510CSD-HCD4TRC-1000lm-3500K

Issue Date: 2/7/2024

Test Information

Test Method: LM-79-2019
Report Number: P775667
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2310613A001)
Test Lab:
Issue Date: 2/7/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL510CSD-HCD4TRC-1000lm-3500K
Description: 4 INCH ROUND MEDIUM SPECULAR CLEAR TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

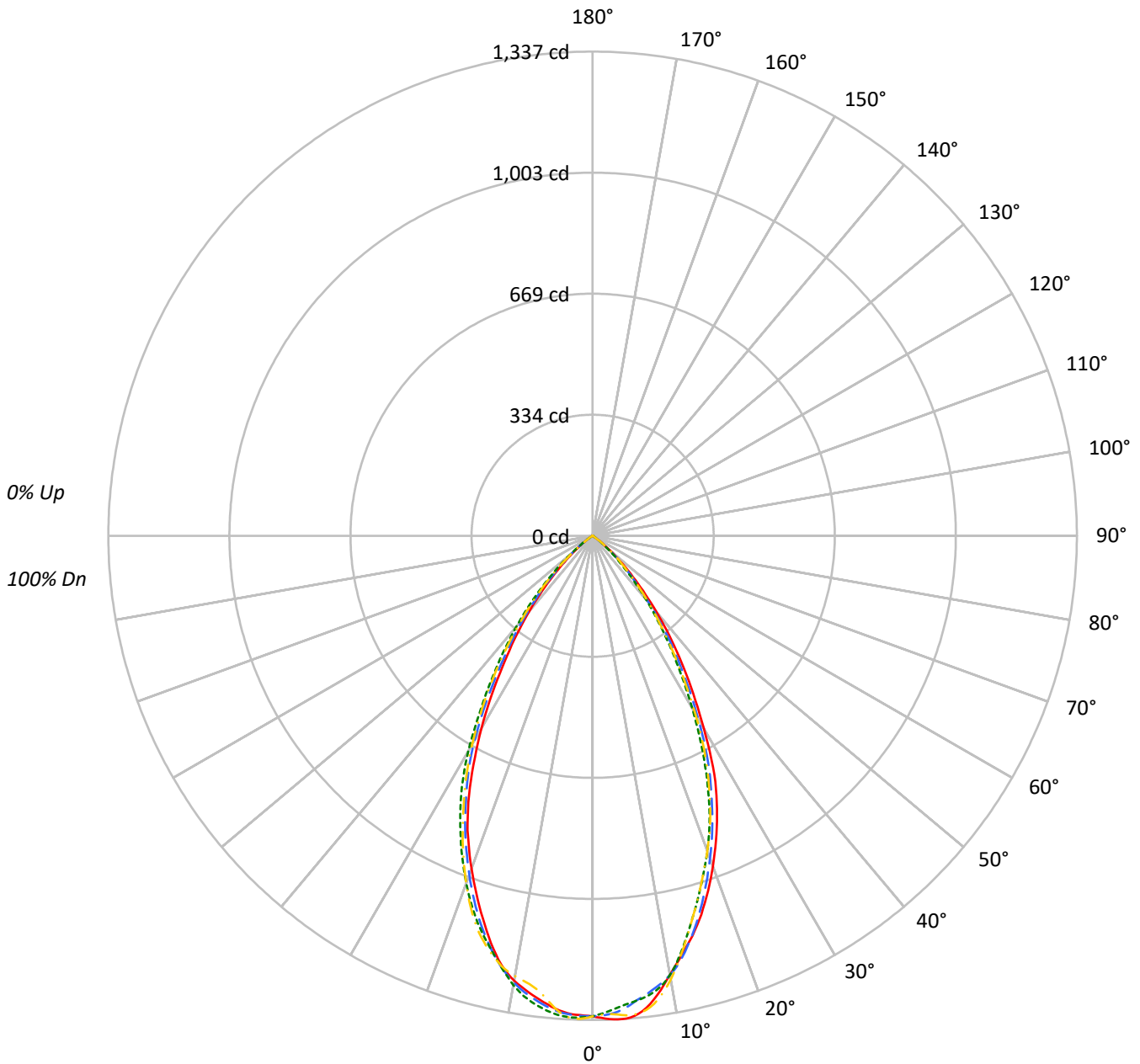
Lumens per Lamp: N/A
Luminaire Lumens: 1207.1 lumens
Efficiency: N/A
Efficacy: 120.7 lumens/watt
Spacing Criteria (0/90/45): 0.87 / 0.87 / 0.88
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					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	111	108	106	111	108	106	104	104	103	101	101	99	98	97	96	95	93					93			
2	108	103	98	95	105	101	97	94	98	95	92	95	92	90	92	90	88	86					86			
3	102	95	90	86	100	94	89	86	91	87	84	89	86	83	87	84	82	80					80			
4	97	89	83	79	95	88	82	78	85	81	77	83	80	76	82	78	76	74					74			
5	91	83	77	72	90	82	76	72	80	75	71	78	74	71	77	73	70	69					69			
6	87	78	71	67	85	77	71	67	75	70	66	74	69	66	72	68	65	64					64			
7	82	73	66	62	81	72	66	62	71	65	62	69	65	61	68	64	61	60					60			
8	78	68	62	58	77	68	62	58	67	61	57	66	61	57	65	60	57	56					56			
9	74	64	58	54	73	64	58	54	63	58	54	62	57	54	61	57	53	52					52			
10	71	61	55	51	70	60	54	51	59	54	50	59	54	50	58	53	50	49					49			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	166990	166990	166990	166990
5°	168121	163181	164874	166933
10°	157222	157298	159432	160991
15°	145142	140673	147136	149833
20°	129989	124016	130913	136592
25°	112615	103964	112726	120086
30°	89139	79824	89124	99732
35°	65817	57014	65018	75235
40°	44948	37588	44554	53705
45°	26430	20521	26020	33585
50°	11238	9124	12119	16290
55°	2282	2238	3840	4805
60°	378	453	428	579
65°	208	238	208	328
70°	110	147	147	184
75°	49	97	97	146
80°	0	72	72	72
85°	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 270°
 Vertical Angle: 45°
 Luminance: 33585 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	122.8	10.2
10°-20°	312.3	25.9
20°-30°	366.3	30.3
30°-40°	268.2	22.2
40°-50°	118.3	9.8
50°-60°	18.1	1.5
60°-70°	0.9	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°	801.4	66.4
0°-40°	1069.6	88.6
0°-60°	1205.9	99.9
0°-90°	1207.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1207.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1327	1327	1327	1327	1327	
5°	1331	1292	1305	1321	1331	124
15°	1114	1080	1129	1150	1114	310
25°	811	749	812	865	811	367
35°	428	371	423	490	428	268
45°	148	115	146	189	148	117
55°	10	10	18	22	10	15
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°	1326.9	1326.9	1326.9	1326.9	1326.9	1326.9	1326.9	1326.9	1326.9	1326.9	1326.9
0.5°	1329.4	1327.6	1325.8	1325.5	1323.6	1323.6	1324.6	1325.3	1326.0	1326.3	1326.6
1°	1331.5	1328.2	1325.0	1323.3	1320.8	1321.0	1322.7	1324.0	1325.0	1325.7	1326.5
1.5°	1333.5	1328.9	1323.9	1320.5	1317.2	1318.9	1321.5	1323.3	1324.3	1324.9	1326.0
2°	1335.3	1329.4	1322.2	1317.0	1313.3	1316.8	1321.5	1323.8	1323.6	1323.9	1325.2
2.5°	1336.6	1329.1	1319.6	1312.3	1309.3	1315.1	1322.4	1324.7	1322.2	1322.0	1324.2
3°	1337.3	1328.0	1316.3	1307.1	1305.1	1314.0	1324.0	1325.6	1320.3	1319.2	1322.6
3.5°	1337.2	1325.9	1311.8	1301.5	1301.4	1313.3	1325.9	1326.5	1317.3	1315.5	1320.9
4°	1336.2	1322.7	1306.6	1295.5	1297.9	1312.8	1327.4	1326.6	1313.8	1310.9	1318.4
4.5°	1334.1	1318.3	1300.4	1289.9	1294.7	1312.2	1328.0	1325.9	1309.8	1305.4	1315.1
5°	1330.8	1312.9	1294.2	1284.6	1291.7	1311.0	1327.4	1324.0	1305.1	1299.3	1311.1
5.5°	1325.9	1306.7	1288.1	1279.6	1288.7	1309.0	1325.4	1321.2	1300.0	1292.6	1306.6
6°	1319.8	1299.5	1282.1	1275.4	1285.6	1305.9	1321.9	1317.0	1294.8	1286.1	1301.7
6.5°	1311.9	1291.9	1276.3	1271.3	1282.1	1302.1	1317.0	1312.0	1289.4	1279.6	1296.6
7°	1302.6	1283.7	1270.9	1267.4	1277.9	1296.7	1310.7	1305.7	1284.0	1274.0	1291.3
7.5°	1292.3	1274.7	1265.0	1263.5	1273.0	1289.7	1303.1	1298.7	1278.3	1268.3	1285.8
8°	1281.0	1265.3	1259.2	1259.2	1267.2	1281.4	1293.4	1290.4	1272.4	1263.2	1280.0
8.5°	1269.0	1254.7	1253.1	1254.3	1260.2	1271.9	1282.6	1281.4	1266.6	1258.9	1274.1
9°	1256.0	1244.3	1246.6	1248.6	1251.7	1260.5	1270.6	1271.4	1260.4	1255.0	1267.4
9.5°	1242.9	1233.6	1239.4	1242.0	1242.1	1248.1	1257.9	1260.3	1254.4	1250.9	1260.3
10°	1230.3	1222.8	1231.5	1234.3	1230.9	1234.6	1243.5	1248.5	1247.6	1246.6	1252.5
10.5°	1218.1	1211.8	1222.7	1225.1	1218.7	1219.7	1228.7	1235.7	1240.0	1241.9	1244.5
11°	1206.3	1200.9	1213.0	1213.7	1205.6	1204.2	1212.8	1222.2	1231.3	1236.7	1235.6
11.5°	1194.8	1189.4	1201.8	1202.4	1190.5	1188.7	1196.7	1207.7	1221.9	1230.2	1226.3
12°	1183.2	1177.7	1189.7	1189.1	1175.1	1170.5	1179.0	1192.5	1211.3	1222.7	1216.3
12.5°	1172.0	1165.6	1177.2	1174.1	1159.4	1153.7	1162.6	1176.7	1199.7	1213.6	1205.3
13°	1161.0	1153.7	1163.8	1159.0	1143.7	1138.6	1145.6	1161.0	1186.4	1203.0	1194.0
13.5°	1150.0	1140.8	1150.3	1144.7	1127.6	1120.6	1129.0	1145.0	1172.9	1191.8	1182.3
14°	1138.4	1127.5	1136.3	1128.7	1111.3	1104.7	1112.3	1128.8	1159.1	1179.0	1170.2
14.5°	1126.3	1113.9	1122.1	1113.0	1095.3	1089.3	1096.5	1113.3	1144.5	1165.6	1157.6
15°	1114.0	1100.1	1107.2	1097.1	1079.7	1073.0	1079.7	1097.8	1129.3	1151.9	1144.2
15.5°	1101.2	1085.6	1092.2	1081.1	1064.1	1057.0	1064.3	1082.2	1114.4	1137.9	1130.7
16°	1088.0	1071.3	1076.6	1065.0	1048.5	1041.8	1047.9	1067.1	1099.2	1122.9	1117.0
16.5°	1073.7	1056.2	1061.1	1049.3	1032.8	1026.7	1032.4	1052.6	1084.4	1108.0	1103.0
17°	1060.0	1041.3	1045.0	1033.2	1017.9	1011.1	1016.8	1037.0	1069.5	1093.0	1088.6
17.5°	1045.4	1025.7	1029.2	1017.2	1002.4	996.2	1002.0	1022.2	1053.6	1077.6	1073.6
18°	1030.8	1010.4	1012.9	1001.4	986.9	980.8	985.7	1007.6	1038.6	1062.0	1058.6
18.5°	1015.9	994.6	996.7	985.4	971.4	965.7	970.4	992.8	1023.9	1045.7	1043.0
19°	1001.1	979.1	979.9	969.2	956.4	950.7	955.3	977.6	1008.4	1030.2	1027.5
19.5°	985.9	963.3	964.2	953.2	941.2	936.3	940.9	963.2	993.1	1013.8	1011.7
20°	970.6	948.0	947.6	937.5	926.0	921.4	925.4	948.4	977.5	997.7	995.8
20.5°	955.2	932.3	931.4	921.5	910.8	906.7	910.4	933.3	962.0	981.3	979.7
21°	939.7	916.1	915.1	905.3	894.7	891.3	895.5	918.6	946.3	965.2	963.5



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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°	892.7	866.9	863.3	853.4	843.8	843.0	848.8	872.9	899.0	916.6	915.2
23°	876.8	849.7	845.5	835.5	825.5	825.2	831.5	856.4	883.3	900.6	899.3
23.5°	860.6	832.8	827.7	816.9	806.4	808.3	814.4	839.7	866.0	883.6	882.4
24°	844.1	815.5	810.1	798.1	787.1	790.1	796.3	821.7	848.2	866.5	864.9
24.5°	827.9	798.4	792.2	778.5	767.8	771.9	778.2	803.4	829.7	848.9	847.8
25°	811.0	780.6	774.4	759.3	748.7	753.6	760.2	785.0	811.8	831.0	831.5
25.5°	794.4	763.3	756.5	739.6	729.4	735.3	742.0	766.8	792.3	813.0	813.4
26°	777.2	745.8	738.6	719.8	709.2	715.1	723.9	748.5	772.7	794.9	796.4
26.5°	759.0	727.6	720.4	699.9	688.8	696.1	705.6	730.1	753.2	776.8	779.4
27°	739.3	708.7	701.9	680.2	668.7	675.5	686.2	710.3	733.6	758.7	762.4
27.5°	719.3	690.0	682.1	660.8	648.6	655.3	668.0	689.8	712.9	740.7	745.4
28°	698.8	670.2	662.2	641.4	628.2	635.2	647.7	668.9	692.2	722.7	728.4
28.5°	677.6	649.8	642.6	621.8	608.2	614.9	627.8	648.4	672.4	703.1	709.8
29°	655.9	629.5	622.5	602.8	588.4	594.6	607.8	627.5	652.7	683.5	690.7
29.5°	634.2	608.6	602.1	583.7	568.8	574.3	587.2	607.9	633.1	663.7	671.0
30°	613.4	587.7	582.5	564.7	549.3	553.9	566.2	587.2	613.3	643.6	651.1
30.5°	593.1	566.7	562.9	545.9	529.7	534.1	546.3	566.9	593.6	623.4	630.8
31°	573.2	545.2	543.3	526.3	510.9	514.1	526.0	547.6	573.7	603.9	610.4
31.5°	554.0	524.8	524.3	507.4	492.0	494.8	506.2	528.7	554.0	584.6	590.4
32°	534.7	505.4	505.6	488.7	473.4	477.1	486.6	509.4	534.9	565.4	570.3
32.5°	516.8	486.1	487.1	469.6	455.4	458.6	468.4	491.2	515.3	546.5	550.3
33°	499.3	467.3	469.1	450.8	437.5	440.9	449.6	472.8	496.0	527.5	530.7
33.5°	481.6	448.8	451.3	433.4	420.0	424.4	431.8	454.9	477.1	509.4	510.3
34°	463.7	431.1	433.6	416.1	403.3	406.3	414.3	437.5	458.6	491.4	490.7
34.5°	445.7	414.0	416.5	398.9	386.9	389.8	397.0	420.2	440.5	473.4	471.9
35°	428.4	397.1	399.0	382.7	371.1	374.9	380.3	403.3	423.2	455.7	453.7
35.5°	411.5	380.8	381.7	369.6	355.4	358.5	364.1	387.1	406.5	437.8	435.1
36°	394.2	371.3	370.3	353.8	340.5	341.7	348.6	370.7	390.9	420.2	417.4
36.5°	378.0	354.4	353.0	338.0	325.8	327.3	333.5	355.3	375.1	402.7	400.1
37°	362.8	337.4	335.6	322.2	311.2	312.1	318.4	339.6	359.7	385.5	383.8
37.5°	347.6	320.4	318.1	306.4	297.0	297.3	304.3	323.9	345.0	368.9	367.2
38°	332.5	303.5	300.7	291.8	282.8	283.2	290.4	309.8	329.6	352.2	351.6
38.5°	317.3	289.1	284.9	277.4	268.7	269.3	276.8	295.7	315.2	336.7	336.0
39°	302.2	275.3	270.9	262.8	255.1	256.4	263.5	280.6	300.3	321.0	320.8
39.5°	287.7	261.6	256.7	248.7	241.6	243.4	250.1	267.0	285.8	305.9	305.5
40°	273.6	247.9	243.1	234.8	228.8	230.8	237.4	253.8	271.2	290.7	291.0
40.5°	259.6	234.7	229.0	220.9	215.4	218.6	225.2	240.3	257.8	276.1	276.7
41°	245.6	222.2	216.6	207.8	203.3	206.6	213.3	227.4	243.7	261.7	262.7
41.5°	232.3	209.6	204.0	195.1	190.9	195.1	201.9	214.9	230.2	247.8	248.7
42°	219.1	197.5	191.9	182.8	179.1	184.0	190.7	202.9	217.4	233.9	235.5
42.5°	206.4	185.7	179.7	170.9	167.5	173.2	180.0	191.2	205.0	220.7	222.4
43°	194.1	173.8	168.8	159.7	156.3	162.7	169.9	179.6	192.9	207.6	209.7
43.5°	182.3	162.5	157.9	148.7	145.6	152.4	159.8	168.7	180.8	194.9	197.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	148.5	131.0	127.6	118.1	115.3	124.3	131.6	138.1	146.2	159.9	163.4
45.5°	137.9	121.0	118.2	109.0	106.4	115.8	122.8	128.5	135.4	149.2	152.7
46°	127.6	111.8	109.4	100.2	98.9	107.5	114.3	119.4	125.2	138.9	142.2
46.5°	117.3	102.9	101.0	92.0	91.3	100.0	106.1	110.8	114.9	129.0	132.2
47°	107.4	94.3	92.9	84.3	83.6	92.5	98.9	102.4	105.6	119.4	123.0
47.5°	97.8	86.1	85.2	77.1	76.1	85.1	91.7	94.9	98.0	110.3	113.8
48°	89.1	78.2	77.8	70.5	68.6	77.6	84.5	87.5	90.5	102.5	104.8
48.5°	80.4	70.8	70.9	64.2	62.6	70.3	77.2	80.0	82.9	94.7	96.8
49°	72.2	63.8	64.2	58.2	57.0	63.9	69.9	72.5	75.2	86.8	88.8
49.5°	64.7	57.2	58.0	52.8	51.7	57.8	63.3	66.0	67.8	79.1	80.8
50°	57.4	50.9	51.9	47.8	46.6	52.0	57.3	59.7	61.9	71.3	72.9
50.5°	50.9	44.9	46.3	42.9	41.9	46.5	51.4	54.0	56.4	64.7	66.1
51°	44.7	39.3	41.0	38.1	37.4	41.2	45.9	48.7	51.1	58.4	59.7
51.5°	38.8	34.8	35.9	34.2	33.2	36.4	40.5	43.5	46.1	52.7	53.3
52°	34.2	30.4	31.6	30.3	29.0	31.8	35.7	38.7	41.4	47.4	47.4
52.5°	29.7	25.9	27.5	26.3	25.0	27.5	30.9	34.0	37.0	42.2	41.7
53°	25.3	21.4	23.3	22.3	21.2	23.3	26.5	29.6	32.8	37.3	36.5
53.5°	20.8	17.0	19.2	18.4	17.7	19.6	22.5	25.4	28.5	32.7	31.5
54°	16.4	13.8	15.8	15.1	14.7	16.2	18.7	21.6	24.5	28.4	26.9
54.5°	13.2	11.0	12.7	12.2	12.4	13.7	15.3	17.9	20.7	24.1	22.8
55°	10.4	8.2	9.9	9.4	10.2	11.2	12.8	14.8	17.5	20.4	18.9
55.5°	7.6	5.7	7.3	6.8	7.9	8.7	10.5	12.4	15.0	17.0	15.4
56°	5.2	3.8	5.0	4.8	5.6	6.2	8.1	10.1	12.6	14.3	13.1
56.5°	3.4	3.3	3.4	3.4	3.4	3.8	5.7	7.7	10.2	11.7	10.6
57°	3.0	2.9	3.1	3.1	2.9	2.9	3.3	5.4	7.7	9.1	8.2
57.5°	2.6	2.4	2.7	2.8	2.6	2.6	2.6	3.0	5.3	6.5	5.8
58°	2.2	2.0	2.4	2.5	2.4	2.3	2.3	2.4	2.8	3.9	3.4
58.5°	1.9	1.8	2.1	2.2	2.2	2.2	2.1	2.1	2.3	2.8	2.6
59°	1.7	1.7	1.9	2.0	2.0	2.0	1.9	1.9	2.0	2.3	2.3
59.5°	1.6	1.6	1.8	1.9	1.9	1.9	1.8	1.8	1.8	2.0	2.1
60°	1.5	1.3	1.6	1.7	1.8	1.7	1.7	1.6	1.7	1.8	1.9
60.5°	1.3	1.2	1.5	1.6	1.7	1.6	1.5	1.5	1.6	1.7	1.8
61°	1.2	1.2	1.3	1.5	1.5	1.5	1.3	1.3	1.3	1.6	1.6
61.5°	1.1	1.1	1.2	1.3	1.5	1.3	1.2	1.2	1.2	1.3	1.5
62°	1.0	1.0	1.1	1.2	1.3	1.2	1.2	1.1	1.1	1.2	1.3
62.5°	0.9	0.9	1.1	1.2	1.2	1.1	1.1	1.1	1.1	1.2	1.2
63°	0.9	0.9	1.0	1.1	1.1	1.1	1.0	1.0	1.0	1.1	1.1
63.5°	0.8	0.8	0.9	1.0	1.0	1.0	0.9	0.9	0.9	1.0	1.1
64°	0.8	0.8	0.9	0.9	1.0	0.9	0.9	0.9	0.9	0.9	1.0
64.5°	0.7	0.7	0.8	0.9	0.9	0.9	0.8	0.8	0.8	0.9	0.9
65°	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.9
65.5°	0.6	0.6	0.7	0.8	0.8	0.8	0.7	0.7	0.7	0.8	0.8
66°	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.7	0.7



TEST NUMBER: P775667

CATALOG NUMBER: HCDJBL510CSD-HCD4TRC-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.6
68°	0.4	0.4	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6
68.5°	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
69°	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.5
69.5°	0.3	0.3	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5
70°	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
70.5°	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4
71°	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4
71.5°	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4
72°	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
72.5°	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
73°	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3
73.5°	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3
74°	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
74.5°	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75°	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75.5°	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76°	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2
76.5°	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2
77°	0.1	0.1	0.1	0.1	0.1	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	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
79.5°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
80°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
80.5°	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1
81°	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1
81.5°	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
82°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	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: P775667

CATALOG NUMBER: HCDJBL510CSD-HCD4TRC-1000lm-3500K

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: P775667

CATALOG NUMBER: HCDJBL510CSD-HCD4TRC-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1326.9	1326.9	1326.9	1326.9	1326.9	1326.9
0.5°	1328.1	1328.0	1328.9	1330.0	1330.1	1329.4
1°	1328.8	1329.6	1331.1	1332.6	1332.8	1331.5
1.5°	1329.3	1330.7	1332.5	1334.1	1334.9	1333.5
2°	1329.6	1331.3	1332.6	1334.6	1336.5	1335.3
2.5°	1329.8	1331.2	1331.4	1333.6	1337.0	1336.6
3°	1329.7	1330.5	1328.4	1330.4	1336.4	1337.3
3.5°	1329.6	1329.3	1323.8	1325.5	1334.3	1337.2
4°	1329.5	1327.3	1317.7	1318.2	1330.9	1336.2
4.5°	1328.9	1324.7	1310.2	1309.5	1326.0	1334.1
5°	1328.1	1321.4	1301.2	1299.7	1319.6	1330.8
5.5°	1327.2	1317.4	1292.1	1289.3	1312.2	1325.9
6°	1325.7	1313.0	1282.8	1279.4	1304.9	1319.8
6.5°	1323.2	1308.3	1273.9	1270.3	1297.3	1311.9
7°	1319.6	1303.2	1266.2	1262.4	1288.3	1302.6
7.5°	1314.8	1297.9	1260.0	1255.8	1279.9	1292.3
8°	1308.1	1291.7	1254.7	1250.3	1271.0	1281.0
8.5°	1300.0	1285.2	1250.3	1246.1	1261.8	1269.0
9°	1290.9	1277.6	1246.2	1242.1	1252.3	1256.0
9.5°	1280.3	1269.1	1243.1	1238.4	1243.0	1242.9
10°	1268.2	1259.8	1239.1	1234.5	1233.4	1230.3
10.5°	1256.4	1249.5	1234.7	1230.5	1223.9	1218.1
11°	1243.8	1238.7	1229.9	1225.7	1214.0	1206.3
11.5°	1230.6	1227.4	1224.2	1220.2	1204.5	1194.8
12°	1218.3	1216.2	1217.1	1213.6	1194.9	1183.2
12.5°	1206.4	1204.9	1209.7	1205.9	1185.2	1172.0
13°	1194.1	1193.6	1201.7	1198.2	1176.0	1161.0
13.5°	1182.0	1182.7	1192.9	1189.5	1165.9	1150.0
14°	1170.3	1171.7	1183.7	1180.3	1155.6	1138.4
14.5°	1158.5	1161.2	1174.2	1170.9	1144.8	1126.3
15°	1146.5	1150.0	1163.7	1160.8	1133.6	1114.0
15.5°	1134.5	1139.1	1152.8	1150.4	1121.5	1101.2
16°	1121.7	1127.5	1141.3	1138.9	1109.2	1088.0
16.5°	1109.1	1115.7	1129.6	1126.5	1096.5	1073.7
17°	1095.1	1103.1	1117.1	1113.6	1083.2	1060.0
17.5°	1081.5	1090.5	1103.7	1099.7	1069.4	1045.4
18°	1067.0	1077.1	1089.3	1085.1	1055.2	1030.8
18.5°	1052.6	1063.4	1074.9	1069.7	1039.9	1015.9
19°	1037.3	1048.9	1059.5	1053.5	1025.2	1001.1
19.5°	1022.3	1035.0	1044.1	1037.0	1010.1	985.9
20°	1006.7	1019.9	1028.6	1020.9	994.7	970.6
20.5°	991.5	1005.5	1011.9	1004.1	979.0	955.2
21°	975.9	990.1	996.0	987.1	963.4	939.7



TEST NUMBER: P775667

CATALOG NUMBER: HCDJBL510CSD-HCD4TRC-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	929.8	944.7	947.1	935.1	915.0	892.7
23°	913.7	929.3	930.0	917.7	898.6	876.8
23.5°	897.7	913.2	912.6	899.7	881.2	860.6
24°	882.1	897.4	895.5	881.1	864.4	844.1
24.5°	866.3	881.2	877.8	862.9	846.8	827.9
25°	849.8	864.8	859.4	844.8	830.1	811.0
25.5°	833.8	848.4	842.0	827.0	811.9	794.4
26°	817.9	831.9	824.8	809.7	795.0	777.2
26.5°	801.0	815.4	807.3	792.0	777.4	759.0
27°	784.0	798.6	790.1	774.8	759.5	739.3
27.5°	767.1	781.4	772.4	757.3	740.2	719.3
28°	750.1	763.4	754.5	739.4	722.7	698.8
28.5°	733.2	744.6	736.6	721.2	703.5	677.6
29°	714.3	725.9	718.5	703.3	683.7	655.9
29.5°	694.7	706.4	700.6	684.5	664.1	634.2
30°	674.1	686.3	681.7	665.5	643.9	613.4
30.5°	653.0	665.8	662.0	645.9	622.8	593.1
31°	633.5	644.6	642.7	626.3	602.5	573.2
31.5°	611.9	623.3	622.9	606.8	581.5	554.0
32°	589.4	602.8	603.4	587.9	561.6	534.7
32.5°	569.7	582.6	583.4	568.9	541.9	516.8
33°	549.3	563.1	564.6	550.6	522.5	499.3
33.5°	528.9	543.2	544.3	532.3	504.1	481.6
34°	509.6	525.4	525.7	513.8	486.4	463.7
34.5°	491.3	507.4	507.7	495.6	469.1	445.7
35°	473.5	489.7	489.1	477.9	451.9	428.4
35.5°	456.1	472.3	471.2	460.0	435.4	411.5
36°	438.9	455.2	454.0	442.5	418.8	394.2
36.5°	421.7	438.4	436.7	424.5	402.9	378.0
37°	404.8	421.5	419.1	406.9	386.9	362.8
37.5°	388.2	404.8	403.1	390.3	369.9	347.6
38°	371.7	388.0	386.1	374.2	354.6	332.5
38.5°	355.4	371.8	368.3	358.4	339.5	317.3
39°	339.4	356.9	353.3	342.6	324.2	302.2
39.5°	324.0	341.8	338.4	326.8	309.0	287.7
40°	309.1	326.9	323.6	311.0	293.9	273.6
40.5°	294.5	312.0	308.7	295.2	279.6	259.6
41°	281.2	297.1	293.8	280.4	265.5	245.6
41.5°	266.9	282.9	278.9	265.9	251.7	232.3
42°	253.6	269.0	264.3	251.8	238.1	219.1
42.5°	240.4	254.9	250.2	238.3	225.0	206.4
43°	228.3	241.1	236.2	225.0	211.8	194.1
43.5°	215.2	227.6	222.5	211.5	198.7	182.3



TEST NUMBER: P775667

CATALOG NUMBER: HCDJBL510CSD-HCD4TRC-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	179.9	188.7	184.0	174.3	161.4	148.5
45.5°	168.0	176.5	171.7	162.6	149.8	137.9
46°	157.1	164.7	159.9	151.1	138.7	127.6
46.5°	146.1	153.2	148.7	140.1	127.9	117.3
47°	135.7	142.0	137.5	129.4	117.5	107.4
47.5°	125.3	131.1	126.8	119.1	107.4	97.8
48°	115.5	120.7	116.3	109.0	98.0	89.1
48.5°	106.0	110.7	106.5	99.8	89.2	80.4
49°	97.4	101.2	97.2	90.5	80.6	72.2
49.5°	88.9	92.1	88.3	81.8	72.5	64.7
50°	80.3	83.2	79.2	73.3	65.2	57.4
50.5°	71.8	74.9	71.3	65.4	57.8	50.9
51°	64.5	67.1	63.6	58.1	51.1	44.7
51.5°	57.5	59.8	56.7	51.2	45.0	38.8
52°	50.8	53.0	49.7	44.6	39.0	34.2
52.5°	44.7	46.6	43.6	38.8	34.4	29.7
53°	39.1	40.5	37.7	34.2	29.7	25.3
53.5°	33.7	35.2	33.3	29.5	25.2	20.8
54°	28.6	30.8	28.8	25.0	20.5	16.4
54.5°	24.2	26.3	24.4	20.4	16.0	13.2
55°	20.1	21.9	19.9	15.9	13.0	10.4
55.5°	16.4	17.3	15.4	12.7	10.1	7.6
56°	13.9	14.1	12.4	10.1	7.4	5.2
56.5°	11.4	11.3	9.8	7.3	4.9	3.4
57°	8.9	8.5	7.0	5.0	3.3	3.0
57.5°	6.4	6.1	4.9	3.4	3.0	2.6
58°	3.9	4.2	3.5	3.0	2.6	2.2
58.5°	3.0	3.7	3.2	2.7	2.2	1.9
59°	2.6	3.3	2.8	2.3	1.9	1.7
59.5°	2.4	2.8	2.5	2.0	1.7	1.6
60°	2.2	2.3	2.1	1.8	1.6	1.5
60.5°	2.0	2.1	2.0	1.7	1.5	1.3
61°	1.9	2.0	1.8	1.6	1.3	1.2
61.5°	1.7	1.8	1.7	1.5	1.2	1.1
62°	1.6	1.7	1.6	1.3	1.1	1.0
62.5°	1.5	1.6	1.5	1.2	1.0	0.9
63°	1.3	1.5	1.3	1.1	1.0	0.9
63.5°	1.2	1.3	1.2	1.0	0.9	0.8
64°	1.1	1.2	1.1	0.9	0.8	0.8
64.5°	1.1	1.1	1.0	0.9	0.8	0.7
65°	1.0	1.1	1.0	0.8	0.7	0.7
65.5°	0.9	1.0	0.9	0.8	0.7	0.6
66°	0.9	0.9	0.8	0.7	0.6	0.6



TEST NUMBER: P775667

CATALOG NUMBER: HCDJBL510CSD-HCD4TRC-1000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	0.7	0.8	0.7	0.6	0.5	0.5
68°	0.7	0.7	0.6	0.5	0.5	0.4
68.5°	0.6	0.7	0.6	0.5	0.4	0.4
69°	0.6	0.6	0.6	0.5	0.4	0.4
69.5°	0.5	0.6	0.5	0.4	0.4	0.3
70°	0.5	0.5	0.5	0.4	0.3	0.3
70.5°	0.5	0.5	0.5	0.4	0.3	0.3
71°	0.4	0.5	0.4	0.4	0.3	0.3
71.5°	0.4	0.4	0.4	0.3	0.3	0.2
72°	0.4	0.4	0.4	0.3	0.3	0.2
72.5°	0.4	0.4	0.3	0.3	0.2	0.2
73°	0.3	0.3	0.3	0.3	0.2	0.2
73.5°	0.3	0.3	0.3	0.2	0.2	0.2
74°	0.3	0.3	0.3	0.2	0.2	0.2
74.5°	0.3	0.3	0.3	0.2	0.2	0.1
75°	0.2	0.3	0.2	0.2	0.2	0.1
75.5°	0.2	0.2	0.2	0.2	0.1	0.1
76°	0.2	0.2	0.2	0.2	0.1	0.1
76.5°	0.2	0.2	0.2	0.1	0.1	0.1
77°	0.2	0.2	0.2	0.1	0.1	0.1
77.5°	0.2	0.2	0.2	0.1	0.1	0.1
78°	0.2	0.2	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	0.1	0.1	0.1
79.5°	0.1	0.1	0.1	0.1	0.1	0.0
80°	0.1	0.1	0.1	0.1	0.0	0.0
80.5°	0.1	0.1	0.1	0.1	0.0	0.0
81°	0.1	0.1	0.1	0.1	0.0	0.0
81.5°	0.1	0.1	0.1	0.0	0.0	0.0
82°	0.1	0.1	0.1	0.0	0.0	0.0
82.5°	0.1	0.1	0.1	0.0	0.0	0.0
83°	0.1	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: P775667

CATALOG NUMBER: HCDJBL510CSD-HCD4TRC-1000lm-3500K

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°	924.3	900.1	898.2	888.2	878.3	876.0	881.2	903.8	930.4	948.7	947.5
22°	908.8	883.5	881.2	870.8	861.3	859.7	865.3	888.8	914.8	932.8	931.3



44°	170.7	151.6	147.3	137.9	135.3	142.8	150.0	158.1	168.8	182.8	185.8
44.5°	159.3	141.1	137.3	127.8	125.1	133.4	140.6	147.9	157.4	171.2	174.3



66.5°	0.5	0.5	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.7	0.7
67°	0.5	0.5	0.6	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.7



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°	960.5	975.2	979.8	970.0	947.4	924.3
22°	944.8	959.7	963.3	952.9	931.7	908.8



44°	203.1	214.4	209.2	198.7	185.8	170.7
44.5°	191.2	201.4	196.7	186.4	173.8	159.3

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66.5°	0.8	0.9	0.8	0.7	0.6	0.5
67°	0.8	0.8	0.7	0.6	0.5	0.5

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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)