

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO COMMERCIAL

Report Number: P584030

Luminaire Tested: **HC820D010-HM80520840-81WWWB**

Issue Date: 10/21/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P584030  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2109-368-18)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 10/21/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HC820D010-HM80520840-81WWWB  
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, BLACK BAFFLE TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2291.5 lumens  
Efficiency: N/A  
Efficacy: 114.6 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.09 / 1.18  
Luminous Opening: Circular (Dia: 0.67' x H: 0')  
CIE Type: Direct

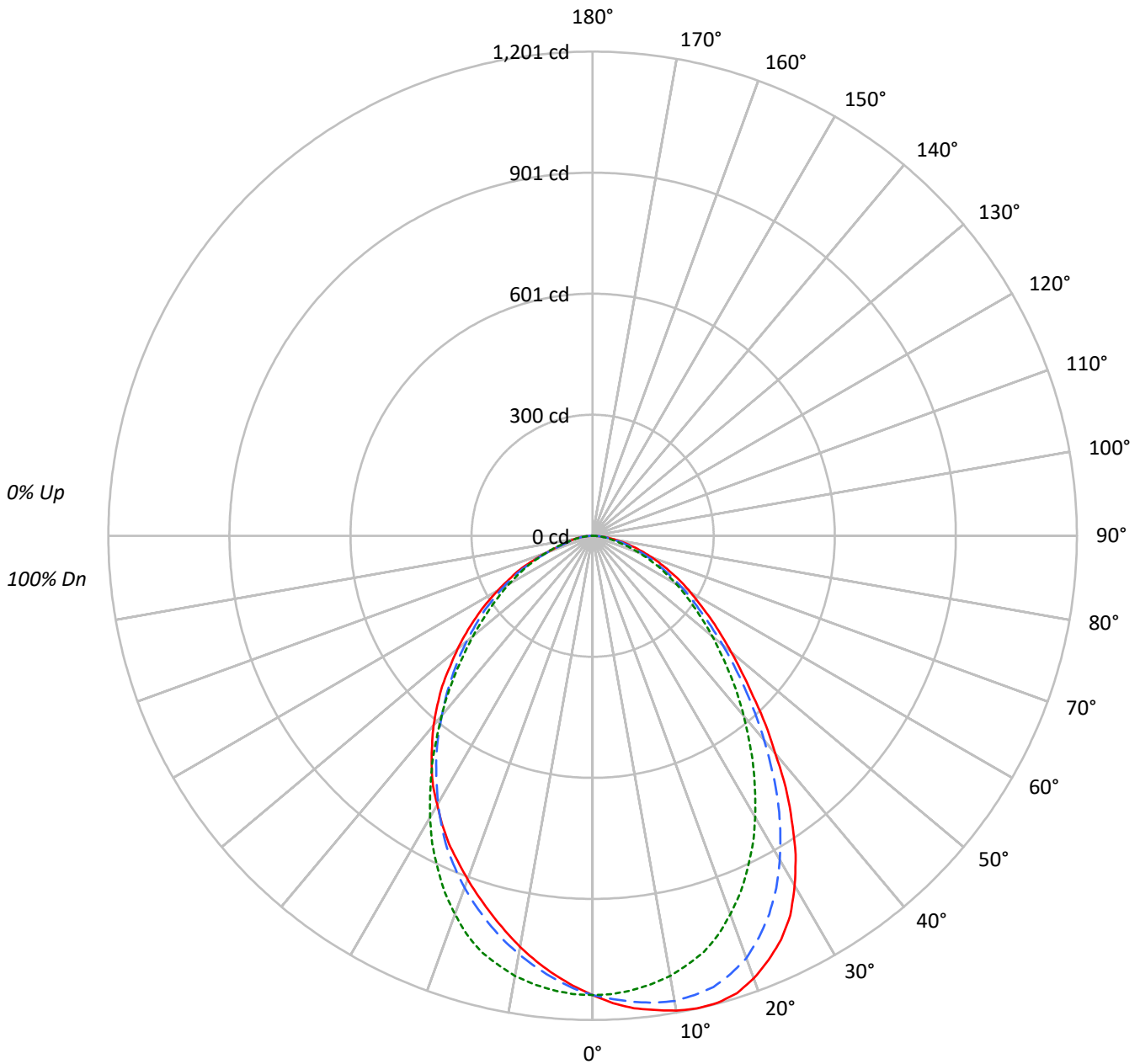
Input Watts (W): 20  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	110	106	103	99	108	104	101	98	100	97	95	96	94	92	92	91	89	87								
2	102	94	88	83	99	93	87	82	89	85	81	86	82	79	83	80	77	75								
3	94	84	77	71	91	83	76	71	80	74	69	77	72	68	75	71	67	65								
4	87	76	68	62	84	75	67	61	72	66	61	70	64	60	68	63	59	57								
5	80	69	60	54	78	67	60	54	65	59	54	64	58	53	62	57	52	50								
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45								
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	40								
8	65	52	45	39	64	52	44	39	51	44	39	49	43	39	48	43	38	37								
9	61	48	41	36	60	48	41	36	47	40	35	46	40	35	45	39	35	33								
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	30								

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

	0°	90°	180°
0°	35132	35132	35132
5°	36421	35018	33814
10°	37452	34712	32433
15°	38287	34101	30998
20°	38345	32769	29744
25°	37610	30945	28689
30°	35674	28699	27431
35°	32412	26136	26200
40°	28339	23452	24688
45°	24561	20893	23008
50°	21506	18556	20964
55°	19139	16446	18967
60°	17268	14771	16670
65°	15585	12988	14520
70°	14002	10945	10792
75°	12331	8674	8102
80°	10353	7174	7760
85°	8031	6298	6864



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	107.5	4.7
10°-20°	302.7	13.2
20°-30°	432.7	18.9
30°-40°	459.7	20.1
40°-50°	395.8	17.3
50°-60°	295.9	12.9
60°-70°	188.8	8.2
70°-80°	85.9	3.7
80°-90°	22.5	1.0
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°	842.9	36.8
0°-40°	1302.6	56.8
0°-60°	1994.4	87.0
0°-90°	2291.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2291.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1139	1139	1139	1139	1139	
5°	1177	1160	1131	1102	1092	113
15°	1199	1159	1068	995	971	338
25°	1105	1036	910	855	843	506
35°	861	801	694	676	696	536
45°	563	532	479	492	528	438
55°	356	327	306	332	353	320
65°	214	189	178	186	199	213
75°	104	89	73	66	68	110
85°	23	19	18	19	19	27
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3
2.5°	1160.4	1157.2	1158.8	1157.2	1158.8	1158.8	1155.5	1155.5	1155.5	1155.5	1150.7
5°	1176.6	1175.0	1175.0	1173.4	1171.7	1173.4	1171.7	1170.2	1166.9	1165.3	1160.4
7.5°	1186.4	1186.4	1186.4	1186.4	1184.7	1183.1	1181.4	1178.2	1175.0	1171.7	1168.5
10°	1196.1	1197.6	1196.1	1194.4	1192.8	1189.6	1187.9	1184.7	1179.9	1175.0	1171.7
12.5°	1200.9	1200.9	1199.3	1199.3	1196.1	1194.4	1189.6	1184.7	1179.9	1175.0	1166.9
15°	1199.3	1199.3	1197.6	1196.1	1191.2	1189.6	1186.4	1181.4	1173.4	1166.9	1158.8
17.5°	1189.6	1187.9	1184.7	1184.7	1178.2	1176.6	1173.4	1166.9	1158.8	1149.1	1139.3
20°	1168.5	1168.5	1166.9	1165.3	1158.8	1154.0	1150.7	1142.6	1136.1	1124.8	1115.1
22.5°	1139.3	1142.6	1139.3	1136.1	1128.1	1126.4	1121.6	1111.9	1102.2	1089.2	1077.9
25°	1105.4	1103.8	1102.2	1098.9	1092.4	1089.2	1082.7	1073.0	1063.3	1048.8	1035.8
27.5°	1061.7	1055.2	1055.2	1048.8	1043.9	1039.1	1035.8	1026.1	1013.1	1001.9	985.7
30°	1001.9	1003.4	995.4	993.7	985.7	982.4	976.0	966.2	954.9	941.9	928.9
32.5°	937.1	932.2	932.2	925.7	919.2	914.4	912.9	901.5	891.8	878.8	865.8
35°	861.0	861.0	856.1	854.6	848.1	844.8	839.9	833.5	822.2	810.9	801.2
37.5°	786.5	783.3	781.7	778.5	773.6	768.8	768.8	757.4	755.8	742.9	729.9
40°	704.0	707.3	704.0	699.2	697.5	694.3	692.7	686.3	681.3	670.1	661.9
42.5°	634.4	631.2	631.2	629.5	623.2	623.2	619.8	616.6	608.5	605.3	595.6
45°	563.2	566.4	561.6	563.2	556.7	556.7	556.7	550.2	543.8	539.0	532.5
47.5°	501.8	503.3	503.3	498.4	496.9	496.9	493.6	490.4	485.6	479.1	474.2
50°	448.3	449.9	446.7	445.0	441.8	440.2	440.2	433.8	430.5	424.0	420.8
52.5°	399.8	399.8	398.1	398.1	393.3	393.3	390.1	385.2	381.9	378.7	370.7
55°	356.0	356.0	354.5	352.8	352.8	348.0	346.3	341.5	338.3	331.8	326.9
57.5°	313.9	315.6	313.9	312.4	310.7	309.1	305.9	301.1	297.7	292.9	289.7
60°	280.0	280.0	278.4	276.7	273.5	271.9	270.3	267.0	262.2	259.0	254.1
62.5°	247.6	246.0	244.4	242.8	239.5	239.5	236.3	233.1	228.2	224.9	221.7
65°	213.6	213.6	212.1	212.1	210.4	207.2	205.5	203.9	197.4	195.9	189.4
67.5°	182.9	184.5	181.3	181.3	178.0	178.0	176.4	171.5	170.0	166.7	163.5
70°	155.3	155.3	155.3	153.8	150.5	148.9	147.3	144.1	142.4	139.2	135.9
72.5°	127.9	127.9	126.2	126.2	124.6	123.0	121.4	118.2	118.2	114.9	111.7
75°	103.5	103.5	102.0	100.4	98.7	98.7	97.2	95.5	92.2	90.7	89.0
77.5°	79.3	79.3	79.3	77.7	76.1	76.1	76.1	72.8	69.6	69.6	68.0
80°	58.3	58.3	56.6	56.6	55.1	55.1	55.1	53.4	51.8	50.1	48.6
82.5°	38.9	38.9	38.9	38.9	37.2	37.2	37.2	35.6	34.0	34.0	34.0
85°	22.7	22.7	22.7	22.7	21.0	21.0	21.0	21.0	21.0	19.4	19.4
87.5°	9.7	8.0	9.7	8.0	9.7	8.0	9.7	8.0	8.0	8.0	8.0
90°	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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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3
2.5°	1152.3	1150.7	1149.1	1147.5	1147.5	1145.8	1142.6	1141.0	1139.3	1137.8	1137.8
5°	1158.8	1157.2	1154.0	1150.7	1149.1	1145.8	1142.6	1139.3	1136.1	1131.3	1129.6
7.5°	1163.7	1158.8	1155.5	1149.1	1147.5	1144.3	1139.3	1134.5	1128.1	1121.6	1116.8
10°	1163.7	1157.2	1152.3	1144.3	1141.0	1137.8	1131.3	1123.3	1115.1	1108.6	1100.6
12.5°	1160.4	1152.3	1144.3	1136.1	1131.3	1126.4	1116.8	1108.6	1098.9	1089.2	1082.7
15°	1149.1	1139.3	1129.6	1119.9	1115.1	1108.6	1098.9	1087.6	1077.9	1068.2	1056.8
17.5°	1128.1	1118.3	1107.1	1095.7	1089.2	1084.4	1069.8	1061.7	1047.1	1037.4	1027.7
20°	1100.6	1089.2	1074.7	1063.3	1055.2	1050.3	1039.1	1024.4	1013.1	998.6	988.9
22.5°	1065.0	1050.3	1035.8	1024.4	1016.4	1009.9	995.4	980.8	971.0	958.1	946.8
25°	1022.9	1008.2	993.7	977.5	969.5	963.0	950.0	937.1	924.1	909.5	899.9
27.5°	972.7	956.5	943.6	928.9	920.9	911.2	896.7	883.7	870.8	861.0	848.1
30°	917.7	899.9	886.9	872.3	864.3	856.1	841.6	828.6	817.4	806.0	799.5
32.5°	851.3	838.4	825.4	810.9	804.4	799.5	785.0	772.0	759.1	749.4	744.4
35°	788.2	773.6	762.3	749.4	741.2	736.4	723.4	712.2	705.7	694.3	687.8
37.5°	721.8	710.5	697.5	684.6	679.8	674.9	665.2	653.9	644.2	636.0	632.8
40°	652.2	642.5	631.2	623.2	618.2	613.3	605.3	597.1	590.8	582.6	579.4
42.5°	585.9	579.4	569.7	560.0	555.1	553.5	543.8	537.3	534.0	530.8	527.6
45°	526.0	516.3	509.8	503.3	498.4	495.3	490.4	485.6	482.3	479.1	475.9
47.5°	467.7	459.7	453.2	448.3	443.5	441.8	438.6	433.8	430.5	430.5	430.5
50°	414.3	407.8	401.4	398.1	396.6	393.3	390.1	388.4	386.8	386.8	386.8
52.5°	367.4	360.9	356.0	352.8	352.8	349.6	346.3	344.7	344.7	344.7	344.7
55°	323.6	318.8	315.6	312.4	309.1	307.6	307.6	307.6	305.9	305.9	307.6
57.5°	284.9	281.6	276.7	273.5	271.9	271.9	270.3	268.7	270.3	271.9	273.5
60°	249.3	246.0	244.4	239.5	239.5	239.5	237.9	237.9	237.9	239.5	241.1
62.5°	216.9	215.2	212.1	210.4	208.7	208.7	207.2	207.2	207.2	207.2	208.7
65°	187.7	184.5	181.3	181.3	181.3	179.7	179.7	176.4	178.0	178.0	176.4
67.5°	160.3	157.0	155.3	153.8	152.1	152.1	150.5	148.9	147.3	147.3	147.3
70°	134.3	131.1	131.1	127.9	127.9	126.2	124.6	124.6	123.0	121.4	119.7
72.5°	108.4	106.9	105.2	103.5	103.5	103.5	102.0	100.4	98.7	97.2	93.9
75°	85.8	85.8	82.5	81.0	81.0	79.3	77.7	76.1	74.5	72.8	71.2
77.5°	66.3	64.8	61.5	59.9	59.9	59.9	58.3	56.6	55.1	53.4	51.8
80°	48.6	46.9	45.3	43.7	43.7	43.7	42.1	42.1	40.4	40.4	40.4
82.5°	32.4	32.4	30.7	30.7	30.7	30.7	29.1	29.1	29.1	29.1	29.1
85°	19.4	19.4	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8
87.5°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
90°	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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**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3
2.5°	1134.5	1134.5	1131.3	1129.6	1128.1	1129.6	1126.4	1124.8	1123.3	1123.3	1121.6
5°	1124.8	1123.3	1116.8	1115.1	1113.4	1111.9	1108.6	1105.4	1102.2	1100.6	1098.9
7.5°	1111.9	1107.1	1100.6	1098.9	1097.3	1092.4	1087.6	1084.4	1079.5	1077.9	1074.7
10°	1094.1	1087.6	1082.7	1077.9	1074.7	1069.8	1065.0	1060.1	1053.6	1052.0	1047.1
12.5°	1073.0	1065.0	1055.2	1053.6	1048.8	1042.3	1035.8	1030.9	1026.1	1022.9	1018.1
15°	1047.1	1039.1	1029.3	1024.4	1019.6	1014.7	1006.7	1000.2	995.4	990.5	985.7
17.5°	1016.4	1006.7	998.6	993.7	990.5	982.4	976.0	967.8	963.0	958.1	953.3
20°	979.2	971.0	959.8	954.9	953.3	946.8	938.7	935.4	928.9	924.1	920.9
22.5°	937.1	928.9	919.2	916.0	909.5	906.4	898.2	895.0	891.8	886.9	885.3
25°	890.2	882.0	874.0	872.3	867.5	864.3	859.4	854.6	854.6	849.7	849.7
27.5°	841.6	833.5	827.0	823.7	822.2	818.9	814.0	812.5	810.9	809.2	809.2
30°	789.8	780.1	776.8	775.3	773.6	770.4	768.8	765.5	767.1	768.8	767.1
32.5°	734.7	731.5	725.0	721.8	723.4	721.8	718.5	721.8	720.2	723.4	725.0
35°	681.3	678.1	674.9	674.9	671.6	671.6	671.6	673.3	676.5	678.1	681.3
37.5°	629.5	624.7	623.2	621.5	623.2	623.2	623.2	626.3	629.5	632.8	637.7
40°	574.6	571.3	571.3	571.3	571.3	576.1	574.6	577.8	581.1	585.9	590.8
42.5°	522.8	522.8	524.3	524.3	524.3	524.3	527.6	532.5	537.3	542.2	547.0
45°	474.2	474.2	474.2	477.4	477.4	479.1	485.6	488.8	491.9	496.9	501.8
47.5°	428.8	428.8	430.5	432.1	433.8	437.0	440.2	445.0	449.9	453.2	458.0
50°	386.8	388.4	391.7	394.9	394.9	396.6	401.4	404.6	407.8	412.8	414.3
52.5°	346.3	349.6	352.8	354.5	356.0	359.3	360.9	365.7	367.4	372.2	373.9
55°	309.1	310.7	315.6	317.2	317.2	320.4	323.6	326.9	331.8	331.8	335.0
57.5°	275.2	276.7	280.0	281.6	280.0	284.9	286.5	289.7	291.4	294.6	296.2
60°	241.1	244.4	246.0	246.0	247.6	249.3	252.5	252.5	255.7	259.0	259.0
62.5°	208.7	210.4	212.1	213.6	215.2	213.6	218.4	218.4	221.7	223.4	226.6
65°	178.0	179.7	179.7	181.3	181.3	182.9	182.9	184.5	186.2	189.4	191.0
67.5°	147.3	147.3	147.3	148.9	147.3	148.9	148.9	150.5	150.5	153.8	155.3
70°	119.7	118.2	116.5	116.5	116.5	116.5	114.9	116.5	116.5	118.2	118.2
72.5°	92.2	90.7	89.0	87.3	87.3	85.8	84.2	85.8	85.8	87.3	87.3
75°	69.6	66.3	66.3	66.3	64.8	64.8	64.8	66.3	66.3	66.3	68.0
77.5°	51.8	51.8	50.1	50.1	50.1	51.8	51.8	53.4	53.4	53.4	53.4
80°	38.9	40.4	40.4	40.4	40.4	42.1	42.1	42.1	42.1	43.7	43.7
82.5°	29.1	29.1	29.1	29.1	30.7	30.7	30.7	30.7	30.7	30.7	30.7
85°	17.8	19.4	19.4	17.8	19.4	19.4	19.4	19.4	19.4	19.4	19.4
87.5°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
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: P584030

CATALOG NUMBER: HC820D010-HM80520840-81WWWB

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3	1139.3
2.5°	1119.9	1119.9	1119.9	1119.9	1118.3	1118.3	1118.3	1116.8
5°	1095.7	1095.7	1095.7	1092.4	1094.1	1094.1	1090.9	1092.4
7.5°	1071.4	1069.8	1068.2	1068.2	1066.5	1065.0	1063.3	1065.0
10°	1043.9	1039.1	1039.1	1037.4	1037.4	1034.1	1034.1	1035.8
12.5°	1013.1	1009.9	1009.9	1008.2	1006.7	1005.1	1003.4	1003.4
15°	982.4	979.2	977.5	976.0	974.3	971.0	972.7	971.0
17.5°	951.6	946.8	946.8	945.1	943.6	940.3	940.3	938.7
20°	916.0	914.4	911.2	912.9	911.2	907.9	906.4	906.4
22.5°	880.5	880.5	878.8	878.8	877.2	875.6	874.0	874.0
25°	846.4	844.8	846.4	846.4	841.6	841.6	841.6	843.2
27.5°	807.5	809.2	807.5	807.5	807.5	807.5	809.2	807.5
30°	768.8	768.8	768.8	770.4	773.6	772.0	772.0	770.4
32.5°	726.7	728.3	728.3	729.9	731.5	734.7	734.7	736.4
35°	684.6	687.8	689.5	687.8	692.7	692.7	696.0	696.0
37.5°	640.9	642.5	645.7	647.4	650.6	652.2	653.9	653.9
40°	594.0	600.5	602.1	603.6	608.5	608.5	610.1	613.3
42.5°	550.2	556.7	558.4	560.0	563.2	568.1	566.4	569.7
45°	508.1	513.0	514.6	516.3	521.1	522.8	522.8	527.6
47.5°	462.9	466.1	467.7	470.9	474.2	477.4	480.7	479.1
50°	417.6	422.4	425.6	427.3	432.1	433.8	435.3	437.0
52.5°	377.1	380.4	381.9	383.6	388.4	390.1	391.7	394.9
55°	338.3	339.8	343.1	341.5	346.3	348.0	349.6	352.8
57.5°	299.4	301.1	302.6	302.6	305.9	309.1	310.7	312.4
60°	262.2	265.5	267.0	267.0	267.0	270.3	270.3	270.3
62.5°	228.2	228.2	229.8	229.8	233.1	233.1	233.1	233.1
65°	192.5	194.2	195.9	195.9	199.0	197.4	200.7	199.0
67.5°	155.3	155.3	158.6	158.6	157.0	158.6	158.6	158.6
70°	118.2	118.2	119.7	119.7	119.7	119.7	119.7	119.7
72.5°	87.3	87.3	87.3	89.0	87.3	87.3	89.0	87.3
75°	68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0
77.5°	53.4	53.4	55.1	55.1	55.1	55.1	55.1	55.1
80°	43.7	43.7	43.7	43.7	45.3	43.7	43.7	43.7
82.5°	32.4	30.7	32.4	30.7	32.4	32.4	32.4	32.4
85°	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4
87.5°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Report Generated By 670245859 / DESKTOP-HRDQ47P





— 0°-180°    - - 45°-225°    - - - - 90°-270°















(END OF REPORT)