

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: P584028

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

Issue Date: 10/21/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P584028  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2109-368-17)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 10/21/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HC820D010-HM80520840-81WWBB  
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE BAFFLE TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2016.5 lumens  
Efficiency: N/A  
Efficacy: 100.8 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.07 / 1.16  
Luminous Opening: Circular (Dia: 0.67' x H: 0')  
CIE Type: Direct

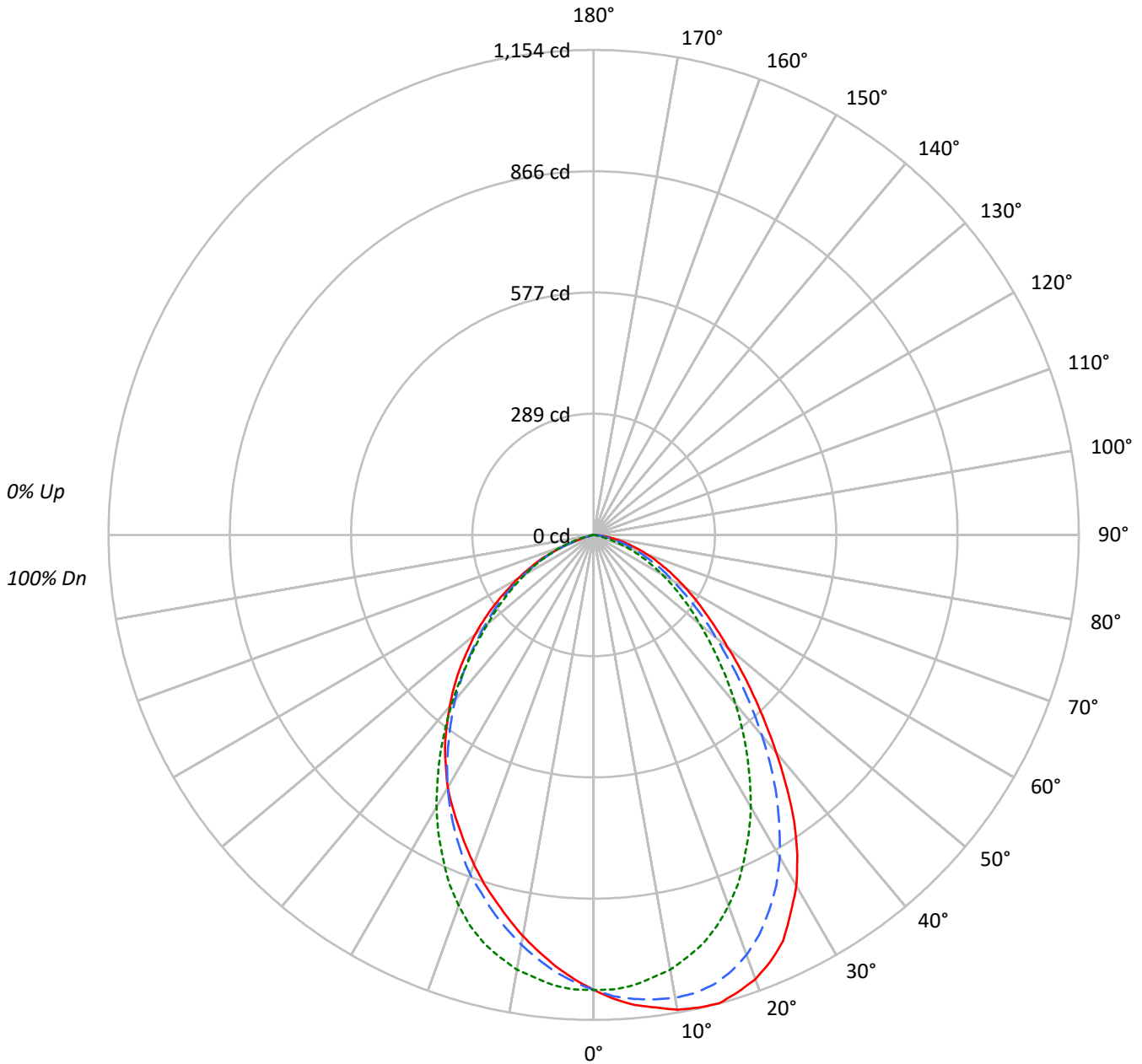
Input Watts (W): 20  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20									
RC	80									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	111	107	104	101	108	105	102	99	101	98	96	97	95	93	93	92	90	88																			
2	103	96	90	86	100	94	89	85	91	86	83	88	84	81	85	82	79	77																			
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67																			
4	88	78	70	64	86	76	69	64	74	68	63	72	66	62	70	65	61	59																			
5	82	70	63	57	80	69	62	56	67	61	56	65	60	55	64	59	55	53																			
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	58	53	49	47																			
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	49	44	43																			
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40	39																			
9	62	50	43	37	61	50	42	37	48	42	37	47	41	37	46	41	37	35																			
10	59	47	39	34	57	46	39	34	45	39	34	44	38	34	43	38	34	32																			

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

	0°	90°	180°
0°	33383	33383	33383
5°	34761	33310	31907
10°	35921	32884	30348
15°	36834	32132	28773
20°	36907	30797	27345
25°	36283	28852	25933
30°	34339	26620	24718
35°	31312	23938	23208
40°	27224	21105	21431
45°	23357	18277	19620
50°	19947	15759	17625
55°	17489	13575	15306
60°	15572	11576	12871
65°	13820	9442	10273
70°	12253	7005	5842
75°	10222	3658	1728
80°	8044	1154	302
85°	5732	601	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	102.0	5.1
10°-20°	285.9	14.2
20°-30°	404.7	20.1
30°-40°	423.4	21.0
40°-50°	353.1	17.5
50°-60°	250.4	12.4
60°-70°	144.2	7.2
70°-80°	46.4	2.3
80°-90°	6.4	0.3
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°	792.6	39.3
0°-40°	1215.9	60.3
0°-60°	1819.4	90.2
0°-90°	2016.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2016.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1083	1083	1083	1083	1083	
5°	1123	1108	1076	1044	1031	108
15°	1154	1107	1006	927	901	324
25°	1066	987	848	780	762	487
35°	832	759	636	602	616	516
45°	536	492	419	424	450	415
55°	325	291	252	265	285	294
65°	189	159	129	129	141	189
75°	86	63	31	14	14	93
85°	16	8	2	0	0	20
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°	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6
2.5°	1105.2	1103.6	1102.0	1103.6	1102.0	1103.6	1102.0	1102.0	1100.3	1098.8	1098.8
5°	1123.0	1121.4	1121.4	1121.4	1119.8	1118.2	1118.2	1116.5	1113.3	1111.7	1108.5
7.5°	1134.4	1135.9	1135.9	1135.9	1132.7	1132.7	1129.5	1126.2	1123.0	1119.8	1114.9
10°	1147.2	1147.2	1145.7	1144.1	1140.7	1139.2	1137.6	1134.4	1129.5	1123.0	1118.2
12.5°	1152.1	1152.1	1150.6	1147.2	1145.7	1144.1	1142.4	1137.6	1131.1	1123.0	1116.5
15°	1153.8	1150.6	1148.9	1147.2	1144.1	1139.2	1139.2	1132.7	1124.7	1114.9	1106.8
17.5°	1140.7	1142.4	1139.2	1135.9	1131.1	1127.9	1123.0	1118.2	1108.5	1097.1	1089.0
20°	1124.7	1123.0	1121.4	1116.5	1110.0	1108.5	1103.6	1095.5	1087.4	1074.4	1063.1
22.5°	1098.8	1097.1	1093.8	1090.6	1084.1	1080.9	1076.1	1066.4	1055.1	1042.1	1029.2
25°	1066.4	1063.1	1058.2	1051.9	1046.9	1043.7	1037.2	1027.5	1014.6	1000.0	987.1
27.5°	1014.6	1019.5	1016.2	1006.5	1001.6	995.1	993.6	980.6	969.2	954.7	940.2
30°	964.4	964.4	959.5	954.7	946.7	941.8	935.3	925.6	914.3	896.4	885.1
32.5°	901.3	899.7	893.2	891.6	885.1	875.4	873.9	860.9	849.5	836.6	822.1
35°	831.8	828.5	822.1	817.1	813.9	809.1	804.2	792.9	781.5	768.7	759.0
37.5°	752.5	752.5	750.8	742.8	739.5	736.3	731.4	720.1	713.6	700.7	691.0
40°	676.3	674.8	670.0	668.3	665.1	660.3	657.0	650.5	640.8	631.1	621.4
42.5°	602.0	603.5	597.1	598.7	592.3	589.0	587.3	577.6	572.8	563.1	555.1
45°	535.6	534.0	530.7	529.2	525.9	522.7	519.5	514.5	506.5	496.8	491.9
47.5°	474.1	469.3	469.3	467.6	466.1	459.6	457.9	453.1	448.2	438.5	432.0
50°	415.8	415.8	415.8	414.3	409.4	407.8	404.6	399.6	394.8	388.4	378.6
52.5°	368.9	368.9	368.9	367.4	360.9	359.2	357.7	351.2	344.7	339.8	333.3
55°	325.3	326.8	325.3	322.0	317.1	317.1	312.3	309.1	302.6	297.7	291.2
57.5°	288.1	288.1	284.7	283.2	279.9	278.4	275.1	271.9	263.7	258.9	250.8
60°	252.5	250.8	250.8	247.6	244.3	241.1	239.5	234.6	231.4	223.3	216.8
62.5°	220.1	220.1	216.8	216.8	210.4	210.4	208.7	203.9	199.0	190.9	187.7
65°	189.4	189.4	187.7	186.0	181.2	179.7	178.0	173.2	168.3	163.5	158.6
67.5°	161.8	161.8	158.6	157.0	153.8	152.1	148.8	145.6	140.8	135.9	131.1
70°	135.9	134.3	132.7	131.1	127.9	126.2	122.9	119.7	114.9	111.7	106.9
72.5°	110.0	110.0	108.4	105.2	103.5	101.9	100.4	97.0	92.2	87.3	84.2
75°	85.8	85.8	85.8	82.5	79.3	77.7	77.7	74.5	71.2	66.3	63.1
77.5°	66.3	64.8	63.1	63.1	59.9	58.3	56.6	55.0	50.1	48.6	45.3
80°	45.3	46.9	45.3	43.7	42.1	40.4	40.4	37.2	35.6	32.4	29.1
82.5°	30.7	29.1	29.1	27.5	27.5	25.9	25.9	22.7	21.0	19.4	17.8
85°	16.2	16.2	14.5	14.5	14.5	13.0	13.0	11.3	11.3	9.7	8.0
87.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	3.2	3.2	3.2
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°	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6
2.5°	1097.1	1093.8	1092.3	1092.3	1090.6	1089.0	1087.4	1085.8	1082.6	1082.6	1079.3
5°	1105.2	1102.0	1100.3	1095.5	1092.3	1092.3	1085.8	1084.1	1079.3	1076.1	1072.9
7.5°	1111.7	1105.2	1100.3	1095.5	1092.3	1089.0	1082.6	1076.1	1069.6	1063.1	1059.9
10°	1111.7	1105.2	1097.1	1089.0	1085.8	1082.6	1074.4	1064.7	1056.7	1050.2	1042.1
12.5°	1108.5	1098.8	1089.0	1082.6	1076.1	1071.2	1061.6	1051.9	1042.1	1029.2	1022.7
15°	1098.8	1085.8	1076.1	1064.7	1059.9	1051.9	1043.7	1029.2	1017.8	1006.5	998.4
17.5°	1079.3	1063.1	1051.9	1040.5	1032.4	1027.5	1014.6	1001.6	988.7	975.7	966.0
20°	1050.2	1035.7	1022.7	1008.1	1001.6	995.1	978.9	966.0	953.0	938.5	928.8
22.5°	1014.6	1000.0	982.2	970.9	961.2	953.0	938.5	924.0	911.0	898.1	885.1
25°	970.9	956.4	940.2	922.3	915.9	907.8	891.6	877.0	862.5	848.0	836.6
27.5°	924.0	904.6	891.6	872.2	865.7	857.7	839.8	823.6	810.7	799.4	786.4
30°	867.4	852.8	835.0	817.1	810.7	802.6	788.0	773.5	760.5	747.6	734.6
32.5°	805.9	791.2	773.5	760.5	750.8	744.3	729.8	716.9	703.9	691.0	679.6
35°	741.1	724.9	712.0	699.0	691.0	682.8	668.3	657.0	647.3	635.9	624.6
37.5°	674.8	663.5	650.5	635.9	627.9	621.4	610.0	597.1	589.0	579.3	571.3
40°	610.0	597.1	585.8	572.8	566.4	561.4	550.2	540.4	532.4	524.3	519.5
42.5°	543.7	532.4	521.0	513.0	508.1	503.3	495.1	483.8	478.9	470.9	466.1
45°	482.3	472.4	464.4	453.1	449.9	446.6	436.9	428.8	424.0	419.1	415.8
47.5°	424.0	417.5	407.8	401.3	396.4	393.3	386.8	380.2	375.4	372.2	368.9
50°	373.7	365.7	359.2	352.7	349.5	344.7	338.2	335.0	331.7	328.5	328.5
52.5°	326.8	318.8	312.3	307.4	304.2	300.9	296.1	294.6	291.2	291.2	289.7
55°	283.2	278.4	271.9	265.4	263.7	262.2	258.9	255.7	254.0	252.5	254.0
57.5°	246.0	241.1	234.6	229.8	228.1	226.6	224.9	221.7	220.1	220.1	220.1
60°	211.9	207.1	202.2	197.4	197.4	194.2	192.5	190.9	189.4	187.7	187.7
62.5°	181.2	176.4	171.5	168.3	166.7	165.0	161.8	160.2	158.6	158.6	157.0
65°	153.8	147.3	145.6	140.8	139.1	137.6	135.9	132.7	131.1	129.4	127.9
67.5°	126.2	122.9	118.1	114.9	113.2	111.7	110.0	106.9	105.2	103.5	100.4
70°	101.9	98.7	95.5	92.2	90.7	89.0	85.8	82.5	81.0	77.7	72.8
72.5°	79.3	76.0	72.8	69.6	68.0	66.3	63.1	59.9	56.6	53.4	50.1
75°	59.9	56.6	51.8	48.6	46.9	46.9	42.1	38.9	35.6	30.7	27.5
77.5°	42.1	37.2	35.6	32.4	30.7	27.5	24.2	21.0	17.8	16.2	13.0
80°	27.5	24.2	21.0	19.4	17.8	16.2	14.5	11.3	8.0	6.5	4.8
82.5°	16.2	14.5	13.0	11.3	9.7	8.0	6.5	6.5	4.8	3.2	1.7
85°	8.0	6.5	4.8	4.8	3.2	3.2	3.2	1.7	1.7	1.7	1.7
87.5°	3.2	1.7	1.7	1.7	1.7	1.7	1.7	0.0	0.0	0.0	0.0
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°	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6
2.5°	1077.7	1076.1	1074.4	1072.9	1072.9	1069.6	1069.6	1067.9	1064.7	1063.1	1063.1
5°	1067.9	1063.1	1059.9	1058.2	1056.7	1051.9	1050.2	1046.9	1043.7	1040.5	1038.9
7.5°	1053.4	1045.4	1042.1	1040.5	1035.7	1030.8	1027.5	1022.7	1017.8	1013.0	1011.3
10°	1035.7	1027.5	1019.5	1016.2	1011.3	1008.1	1001.6	995.1	990.3	985.4	980.6
12.5°	1013.0	1003.3	995.1	991.9	987.1	980.6	970.9	967.7	959.5	956.4	949.9
15°	987.1	975.7	967.7	962.9	958.0	948.2	941.8	935.3	927.2	924.0	917.5
17.5°	954.7	941.8	933.7	928.8	925.6	917.5	907.8	899.7	891.6	888.4	883.5
20°	915.9	907.8	896.4	891.6	888.4	878.7	869.0	865.7	859.2	852.8	848.0
22.5°	872.2	864.0	852.8	848.0	846.3	838.2	830.1	825.3	820.4	815.6	810.7
25°	826.9	817.1	807.4	804.2	801.0	794.5	788.0	784.8	780.0	776.7	773.5
27.5°	778.3	768.7	760.5	755.7	752.5	747.6	744.3	741.1	737.9	734.6	733.1
30°	726.6	716.9	710.4	707.2	703.9	702.2	697.4	695.8	694.2	691.0	692.5
32.5°	674.8	666.6	660.3	655.3	655.3	652.1	650.5	650.5	648.9	648.9	648.9
35°	618.2	613.3	608.4	606.8	605.2	603.5	602.0	603.5	602.0	603.5	605.2
37.5°	566.4	561.4	558.3	556.6	555.1	556.6	555.1	555.1	556.6	559.9	561.4
40°	513.0	509.7	506.5	508.1	506.5	506.5	506.5	511.3	513.0	514.5	516.2
42.5°	462.8	459.6	457.9	457.9	459.6	457.9	461.2	462.8	466.1	470.9	474.1
45°	414.3	412.6	412.6	414.3	412.6	415.8	415.8	419.1	424.0	427.2	430.5
47.5°	368.9	368.9	368.9	370.6	370.6	372.2	375.4	377.1	380.2	383.6	386.8
50°	326.8	328.5	330.1	330.1	330.1	333.3	336.6	338.2	339.8	341.5	346.3
52.5°	289.7	291.2	291.2	292.9	294.6	296.1	297.7	300.9	302.6	305.8	307.4
55°	254.0	254.0	257.3	258.9	258.9	258.9	262.2	262.2	265.4	267.0	270.2
57.5°	220.1	221.7	221.7	223.3	223.3	224.9	226.6	228.1	229.8	231.4	233.0
60°	187.7	187.7	187.7	189.4	190.9	192.5	190.9	194.2	194.2	197.4	199.0
62.5°	157.0	158.6	158.6	158.6	158.6	158.6	158.6	160.2	161.8	163.5	165.0
65°	127.9	127.9	127.9	126.2	127.9	126.2	127.9	129.4	129.4	131.1	132.7
67.5°	98.7	98.7	95.5	95.5	97.0	97.0	97.0	97.0	95.5	98.7	98.7
70°	71.2	69.6	68.0	66.3	66.3	64.8	64.8	63.1	63.1	63.1	63.1
72.5°	46.9	43.7	40.4	38.9	37.2	37.2	33.9	32.4	33.9	33.9	33.9
75°	24.2	21.0	19.4	17.8	16.2	16.2	14.5	14.5	14.5	14.5	14.5
77.5°	9.7	8.0	6.5	6.5	4.8	4.8	4.8	4.8	4.8	4.8	4.8
80°	3.2	3.2	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
82.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
85°	1.7	0.0	0.0	1.7	0.0	1.7	1.7	1.7	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
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: P584028

CATALOG NUMBER: HC820D010-HM80520840-81WWBB

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6	1082.6
2.5°	1061.6	1061.6	1059.9	1061.6	1058.2	1059.9	1058.2	1058.2
5°	1037.2	1034.0	1034.0	1034.0	1032.4	1032.4	1030.8	1030.8
7.5°	1008.1	1006.5	1004.9	1003.3	1001.6	1000.0	1000.0	1000.0
10°	978.9	975.7	975.7	974.1	970.9	969.2	969.2	969.2
12.5°	945.0	943.4	941.8	941.8	935.3	937.0	935.3	935.3
15°	912.6	911.0	911.0	906.1	902.9	902.9	902.9	901.3
17.5°	878.7	877.0	875.4	872.2	869.0	869.0	867.4	869.0
20°	843.1	841.5	838.2	838.2	836.6	835.0	831.8	833.3
22.5°	807.4	804.2	802.6	802.6	801.0	801.0	797.7	797.7
25°	770.2	768.7	767.0	768.7	765.3	765.3	762.2	762.2
27.5°	731.4	729.8	729.8	729.8	728.2	729.8	728.2	728.2
30°	692.5	692.5	691.0	691.0	692.5	691.0	692.5	694.2
32.5°	650.5	650.5	652.1	652.1	653.8	653.8	653.8	653.8
35°	606.8	610.0	610.0	611.7	613.3	614.9	614.9	616.5
37.5°	566.4	568.0	569.6	571.3	574.5	574.5	574.5	574.5
40°	522.7	524.3	527.5	525.9	532.4	534.0	532.4	532.4
42.5°	477.4	480.6	482.3	485.4	487.1	490.3	491.9	491.9
45°	435.3	436.9	440.2	443.4	445.0	449.9	449.9	449.9
47.5°	391.6	394.8	396.4	399.6	401.3	406.1	407.8	406.1
50°	349.5	352.7	356.0	356.0	360.9	362.5	365.7	367.4
52.5°	309.1	310.6	313.9	315.6	318.8	322.0	323.6	325.3
55°	270.2	271.9	275.1	275.1	279.9	281.6	284.7	284.7
57.5°	234.6	236.3	239.5	237.8	241.1	244.3	244.3	242.8
60°	200.7	200.7	200.7	203.9	205.5	207.1	208.7	208.7
62.5°	165.0	168.3	169.9	169.9	171.5	173.2	173.2	171.5
65°	132.7	135.9	137.6	137.6	139.1	139.1	139.1	140.8
67.5°	100.4	100.4	100.4	101.9	100.4	100.4	100.4	100.4
70°	63.1	63.1	63.1	63.1	61.5	63.1	63.1	64.8
72.5°	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9
75°	14.5	14.5	14.5	16.2	14.5	14.5	14.5	14.5
77.5°	6.5	4.8	6.5	6.5	4.8	4.8	4.8	4.8
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
82.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
85°	0.0	1.7	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
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)