

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: P584021

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

Issue Date: 10/21/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P584021  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2109-368-14)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 10/21/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HC820D010-HM80520840-81RWWC  
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, SPECULAR TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2304.5 lumens  
Efficiency: N/A  
Efficacy: 115.2 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.08 / 1.17  
Luminous Opening: Circular (Dia: 0.67' x H: 0')  
CIE Type: Direct

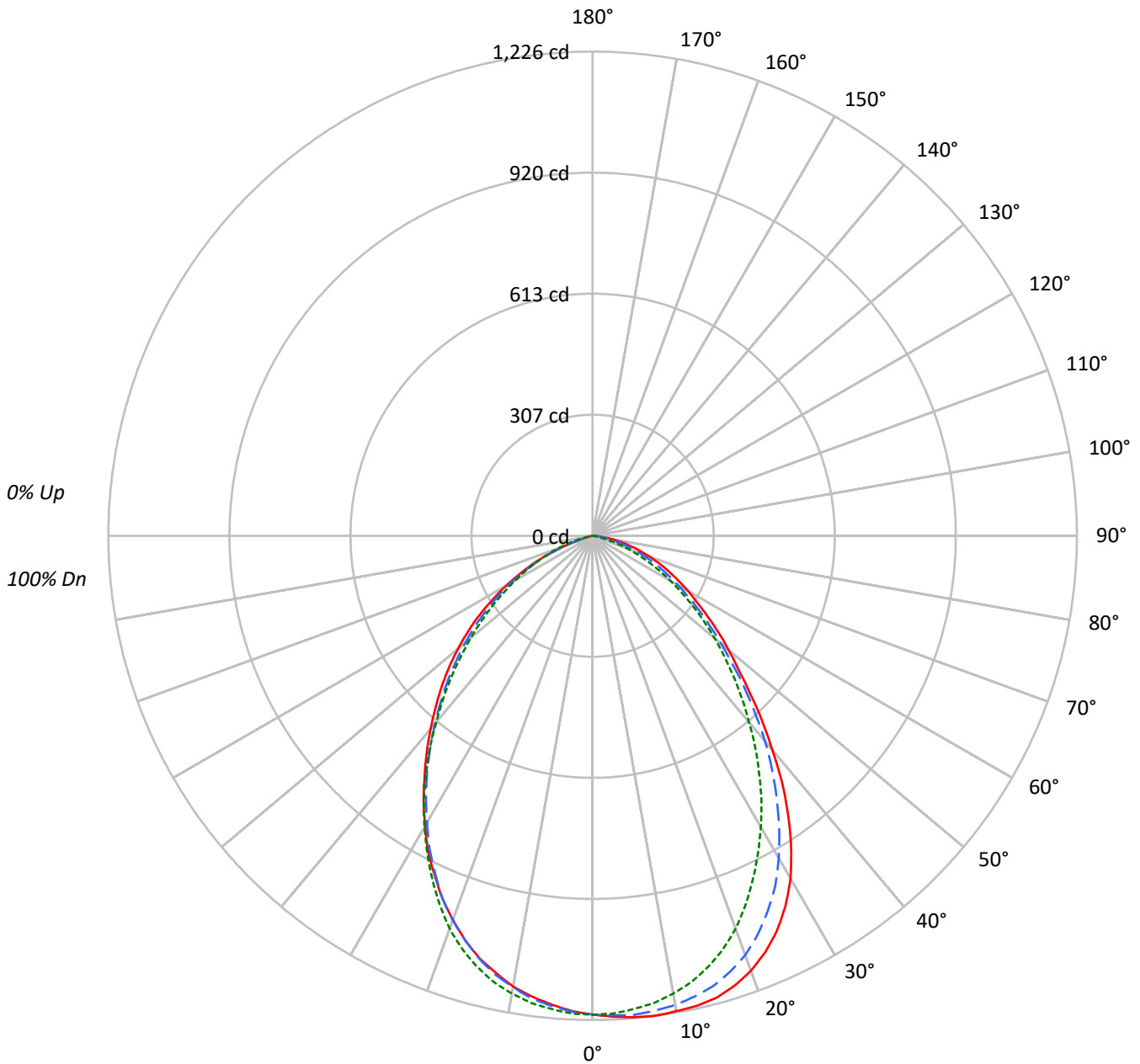
Input Watts (W): 20  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	111	107	104	101	108	105	102	99	101	98	96	97	95	93	93	92	90	88								
2	103	96	90	85	100	94	89	84	91	86	82	87	84	81	85	82	79	77								
3	95	86	79	73	93	84	78	73	82	76	72	79	74	70	76	73	69	67								
4	88	77	70	64	86	76	69	64	74	68	63	72	66	62	69	65	61	59								
5	81	70	62	56	80	69	62	56	67	61	56	65	59	55	63	58	54	52								
6	76	64	56	50	74	63	55	50	61	55	50	60	54	49	58	53	49	47								
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44	42								
8	66	54	46	41	65	53	46	41	52	45	40	51	45	40	50	44	40	38								
9	62	50	42	37	61	49	42	37	48	42	37	47	41	37	46	41	37	35								
10	58	46	39	34	57	46	39	34	45	38	34	44	38	34	43	38	34	32								

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

	0°	90°	180°
0°	37389	37389	37389
5°	37882	37232	36882
10°	38273	36851	36294
15°	38660	36074	35350
20°	38463	34742	33947
25°	37566	32663	32221
30°	35681	30319	30205
35°	32483	27668	27913
40°	28476	24764	25674
45°	24565	22027	23584
50°	21516	19338	21353
55°	19058	16623	18795
60°	17176	13975	15579
65°	15476	11222	11930
70°	13578	8177	6564
75°	11581	4241	1728
80°	8914	1154	302
85°	5732	0	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	114.4	5.0
10°-20°	321.6	14.0
20°-30°	456.5	19.8
30°-40°	480.5	20.9
40°-50°	408.8	17.7
50°-60°	295.4	12.8
60°-70°	168.0	7.3
70°-80°	52.9	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°	892.5	38.7
0°-40°	1373.0	59.6
0°-60°	2077.1	90.1
0°-90°	2304.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2304.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1212	1212	1212	1212	1212	
5°	1224	1218	1203	1195	1192	117
15°	1211	1180	1130	1109	1107	341
25°	1104	1049	960	944	947	506
35°	863	813	735	730	742	537
45°	563	542	505	518	541	438
55°	354	329	309	327	350	320
65°	212	183	154	152	164	210
75°	97	74	36	16	14	105
85°	16	10	0	0	0	21
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°	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5
2.5°	1219.0	1220.7	1217.5	1217.5	1220.7	1217.5	1219.0	1219.0	1217.5	1217.5	1215.8
5°	1223.8	1222.3	1222.3	1222.3	1223.8	1220.7	1219.0	1220.7	1217.5	1217.5	1217.5
7.5°	1225.5	1225.5	1223.8	1222.3	1222.3	1222.3	1220.7	1219.0	1217.5	1214.2	1212.5
10°	1222.3	1222.3	1223.8	1220.7	1220.7	1217.5	1217.5	1214.2	1214.2	1211.0	1206.1
12.5°	1219.0	1217.5	1217.5	1214.2	1214.2	1211.0	1211.0	1206.1	1204.5	1199.6	1194.8
15°	1211.0	1209.3	1206.1	1204.5	1202.8	1201.3	1198.0	1196.3	1191.5	1185.1	1180.2
17.5°	1194.8	1193.1	1191.5	1188.3	1185.1	1183.4	1181.8	1176.9	1170.4	1165.6	1157.5
20°	1172.1	1170.4	1170.4	1165.6	1164.0	1159.1	1157.5	1151.0	1146.2	1136.5	1130.0
22.5°	1141.3	1143.0	1139.7	1136.5	1133.2	1128.3	1125.1	1118.6	1110.6	1100.8	1092.8
25°	1104.1	1105.6	1102.5	1099.3	1094.4	1091.1	1087.9	1078.2	1070.1	1058.7	1049.0
27.5°	1057.2	1057.2	1057.2	1053.9	1045.8	1044.2	1041.0	1031.2	1019.9	1010.1	1000.4
30°	1002.1	1000.4	1000.4	995.6	992.4	985.9	981.1	972.9	964.9	953.5	942.2
32.5°	935.7	937.3	932.5	929.3	924.4	924.4	917.9	911.4	901.7	890.4	879.1
35°	862.9	864.5	861.2	859.7	851.5	849.9	848.3	840.2	833.8	825.6	812.6
37.5°	788.4	786.7	785.2	785.2	780.4	777.0	773.9	769.0	759.3	752.8	746.3
40°	707.4	707.4	707.4	705.9	704.2	700.9	699.4	696.1	689.7	683.2	678.3
42.5°	634.6	634.6	633.0	631.4	628.1	629.8	626.5	623.3	616.8	611.9	608.7
45°	563.3	563.3	563.3	565.0	561.8	556.8	556.8	553.6	550.5	547.1	542.3
47.5°	500.2	505.1	501.9	500.2	501.9	495.4	495.4	492.2	488.9	485.7	479.2
50°	448.5	448.5	448.5	445.1	443.6	443.6	438.8	435.4	433.9	430.6	424.1
52.5°	401.5	398.2	398.2	396.7	395.0	391.7	391.7	388.5	382.0	378.8	374.0
55°	354.5	354.5	352.9	351.3	349.6	348.1	346.4	341.6	338.4	333.4	328.6
57.5°	312.4	315.7	314.1	310.9	307.6	307.6	304.4	301.1	296.2	291.4	286.5
60°	278.5	276.8	276.8	275.2	272.0	270.3	268.8	263.8	259.0	254.1	249.3
62.5°	242.8	242.8	242.8	239.6	236.4	234.7	233.1	229.9	223.4	218.6	215.4
65°	212.1	210.5	208.9	207.2	205.5	202.4	200.7	197.5	192.7	187.8	183.0
67.5°	181.3	179.7	179.7	178.1	173.2	171.6	171.6	166.8	161.9	157.1	152.1
70°	150.6	150.6	150.6	147.3	145.7	144.1	142.4	139.2	134.4	129.5	124.7
72.5°	124.7	123.0	123.0	121.4	116.5	114.9	113.4	110.0	105.2	102.0	98.7
75°	97.2	97.2	95.5	93.9	92.3	90.7	89.0	85.8	81.0	76.1	74.5
77.5°	74.5	72.8	72.8	71.3	68.0	66.4	66.4	63.1	58.3	55.1	51.8
80°	50.2	51.8	50.2	48.6	46.9	45.3	43.7	42.1	38.9	35.6	32.4
82.5°	30.7	32.4	30.7	30.7	29.2	27.5	27.5	24.2	22.7	21.0	19.4
85°	16.2	16.2	16.2	16.2	14.5	14.5	14.5	13.0	11.3	9.7	9.7
87.5°	4.8	6.5	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°	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5
2.5°	1217.5	1215.8	1214.2	1214.2	1214.2	1214.2	1214.2	1212.5	1211.0	1211.0	1211.0
5°	1214.2	1214.2	1214.2	1212.5	1211.0	1211.0	1207.6	1206.1	1204.5	1202.8	1201.3
7.5°	1211.0	1207.6	1206.1	1204.5	1202.8	1202.8	1199.6	1196.3	1196.3	1193.1	1189.9
10°	1201.3	1199.6	1196.3	1193.1	1191.5	1189.9	1186.6	1181.8	1180.2	1176.9	1173.7
12.5°	1189.9	1186.6	1183.4	1176.9	1175.3	1173.7	1167.2	1162.4	1159.1	1157.5	1149.4
15°	1175.3	1168.9	1164.0	1155.9	1154.2	1151.0	1146.2	1141.3	1134.8	1130.0	1126.8
17.5°	1149.4	1143.0	1134.8	1126.8	1123.5	1123.5	1115.5	1109.0	1100.8	1097.6	1091.1
20°	1118.6	1110.6	1104.1	1094.4	1089.6	1084.6	1079.8	1070.1	1063.6	1058.7	1050.7
22.5°	1083.1	1071.7	1063.6	1053.9	1045.8	1041.0	1032.8	1024.8	1016.6	1011.8	1005.3
25°	1037.7	1028.0	1015.1	1005.3	1000.4	993.9	984.3	976.2	968.1	960.0	956.7
27.5°	987.6	974.6	963.2	951.9	947.0	942.2	930.8	921.1	914.6	906.6	903.3
30°	932.5	919.5	906.6	896.9	892.1	883.9	877.4	866.1	858.0	851.5	843.5
32.5°	869.4	859.7	848.3	833.8	830.5	824.0	814.3	809.4	799.7	794.9	788.4
35°	801.4	794.9	783.5	772.2	767.4	764.2	756.0	746.3	739.8	735.0	731.8
37.5°	736.6	728.5	717.1	709.1	705.9	700.9	691.2	686.4	679.9	676.7	670.2
40°	667.0	658.8	650.8	646.0	641.1	637.8	631.4	626.5	620.1	615.2	613.6
42.5°	599.0	594.1	587.7	581.2	579.5	574.7	571.5	566.7	561.8	560.1	555.3
45°	537.5	532.6	526.1	519.6	518.1	514.8	513.2	508.4	505.1	505.1	505.1
47.5°	476.0	471.1	464.6	461.3	463.0	456.5	456.5	455.0	451.6	451.6	453.3
50°	420.9	414.4	412.9	409.6	406.4	403.1	404.7	399.9	399.9	403.1	401.5
52.5°	369.1	362.6	361.0	357.8	356.1	356.1	354.5	354.5	352.9	354.5	354.5
55°	322.2	317.2	314.1	310.9	309.2	309.2	309.2	307.6	306.0	309.2	310.9
57.5°	280.0	278.5	275.2	270.3	268.8	267.1	265.5	265.5	265.5	265.5	267.1
60°	242.8	239.6	236.4	231.6	231.6	229.9	228.2	226.6	226.6	226.6	226.6
62.5°	210.5	205.5	200.7	197.5	195.9	194.3	192.7	189.4	189.4	189.4	189.4
65°	178.1	173.2	170.0	166.8	163.5	163.5	160.3	158.6	155.4	153.8	150.6
67.5°	147.3	144.1	140.9	135.9	134.4	132.7	129.5	127.9	123.0	121.4	119.9
70°	119.9	114.9	111.7	108.5	106.9	103.7	100.4	97.2	93.9	90.7	87.5
72.5°	93.9	89.0	85.8	82.6	79.3	79.3	74.5	71.3	66.4	63.1	58.3
75°	69.6	64.8	61.5	56.6	55.1	53.4	48.6	45.3	40.4	35.6	32.4
77.5°	46.9	43.7	40.4	35.6	32.4	32.4	27.5	24.2	21.0	16.2	14.5
80°	29.2	25.9	22.7	19.4	19.4	16.2	14.5	11.3	8.0	6.5	4.8
82.5°	16.2	14.5	13.0	9.7	9.7	8.0	6.5	4.8	3.2	1.7	1.7
85°	8.0	6.5	4.8	4.8	3.2	3.2	3.2	1.7	1.7	0.0	0.0
87.5°	3.2	1.7	1.7	1.7	1.7	1.7	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



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**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5
2.5°	1209.3	1209.3	1207.6	1207.6	1207.6	1206.1	1207.6	1206.1	1206.1	1206.1	1207.6
5°	1202.8	1199.6	1199.6	1198.0	1198.0	1196.3	1198.0	1196.3	1194.8	1193.1	1194.8
7.5°	1189.9	1186.6	1185.1	1183.4	1183.4	1183.4	1181.8	1180.2	1181.8	1176.9	1180.2
10°	1172.1	1170.4	1167.2	1165.6	1164.0	1165.6	1164.0	1160.7	1160.7	1160.7	1159.1
12.5°	1149.4	1146.2	1144.5	1143.0	1139.7	1139.7	1141.3	1138.0	1138.0	1134.8	1134.8
15°	1121.8	1118.6	1115.5	1115.5	1112.1	1112.1	1110.6	1110.6	1109.0	1107.3	1107.3
17.5°	1087.9	1083.1	1079.8	1081.4	1079.8	1078.2	1078.2	1074.9	1073.4	1074.9	1074.9
20°	1047.4	1044.2	1041.0	1042.5	1039.3	1037.7	1039.3	1034.5	1036.1	1036.1	1036.1
22.5°	1002.1	1000.4	995.6	995.6	992.4	990.8	992.4	992.4	993.9	992.4	992.4
25°	951.9	948.7	945.5	945.5	943.8	942.2	943.8	945.5	943.8	945.5	945.5
27.5°	898.4	893.6	893.6	890.4	890.4	892.1	890.4	892.1	893.6	893.6	896.9
30°	840.2	838.6	837.0	835.3	835.3	837.0	837.0	837.0	838.6	841.8	841.8
32.5°	785.2	781.9	778.7	778.7	781.9	780.4	781.9	781.9	785.2	785.2	788.4
35°	725.3	725.3	722.0	723.6	723.6	723.6	723.6	726.9	730.1	731.8	735.0
37.5°	670.2	665.3	667.0	667.0	668.7	667.0	671.8	671.8	675.0	675.0	678.3
40°	610.3	610.3	611.9	610.3	611.9	611.9	615.2	618.4	620.1	623.3	624.9
42.5°	553.6	556.8	553.6	555.3	556.8	558.5	560.1	561.8	568.2	571.5	576.3
45°	501.9	503.5	505.1	506.7	505.1	508.4	509.9	513.2	518.1	519.6	521.3
47.5°	451.6	453.3	455.0	456.5	456.5	459.8	461.3	464.6	467.8	469.5	471.1
50°	403.1	406.4	407.9	407.9	409.6	412.9	416.1	416.1	419.3	424.1	425.8
52.5°	359.4	359.4	362.6	364.3	365.8	365.8	370.7	372.3	374.0	377.2	380.5
55°	310.9	315.7	317.2	317.2	320.6	323.7	325.4	327.1	327.1	333.4	333.4
57.5°	268.8	270.3	273.6	273.6	273.6	278.5	278.5	281.7	283.3	285.0	288.2
60°	226.6	229.9	229.9	231.6	229.9	233.1	234.7	237.9	239.6	241.2	242.8
62.5°	187.8	187.8	189.4	189.4	189.4	189.4	192.7	192.7	195.9	197.5	199.2
65°	150.6	150.6	150.6	150.6	150.6	150.6	150.6	150.6	152.1	152.1	155.4
67.5°	116.5	114.9	111.7	113.4	111.7	111.7	110.0	110.0	111.7	111.7	114.9
70°	84.2	82.6	79.3	79.3	77.7	76.1	74.5	72.8	71.3	71.3	71.3
72.5°	55.1	51.8	46.9	45.3	45.3	42.1	38.9	37.2	37.2	37.2	37.2
75°	27.5	24.2	21.0	19.4	19.4	16.2	17.8	16.2	16.2	16.2	16.2
77.5°	11.3	8.0	6.5	6.5	6.5	4.8	4.8	4.8	4.8	4.8	4.8
80°	3.2	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
82.5°	1.7	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
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: P584021

CATALOG NUMBER: HC820D010-HM80520840-81RWWC

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5	1212.5
2.5°	1206.1	1206.1	1202.8	1204.5	1204.5	1204.5	1204.5	1204.5
5°	1191.5	1193.1	1191.5	1193.1	1193.1	1191.5	1191.5	1191.5
7.5°	1176.9	1178.6	1176.9	1178.6	1178.6	1178.6	1176.9	1176.9
10°	1159.1	1159.1	1159.1	1159.1	1159.1	1157.5	1159.1	1159.1
12.5°	1134.8	1134.8	1134.8	1136.5	1136.5	1134.8	1134.8	1133.2
15°	1109.0	1105.6	1107.3	1109.0	1107.3	1107.3	1107.3	1107.3
17.5°	1073.4	1074.9	1073.4	1073.4	1073.4	1073.4	1074.9	1073.4
20°	1036.1	1036.1	1037.7	1036.1	1036.1	1036.1	1036.1	1034.5
22.5°	993.9	992.4	992.4	993.9	993.9	992.4	993.9	993.9
25°	947.0	948.7	947.0	947.0	948.7	948.7	948.7	947.0
27.5°	896.9	898.4	900.1	898.4	898.4	898.4	900.1	901.7
30°	845.0	848.3	845.0	845.0	848.3	846.7	848.3	848.3
32.5°	790.0	794.9	791.6	794.9	794.9	796.5	794.9	796.5
35°	735.0	739.8	739.8	739.8	741.5	743.1	743.1	741.5
37.5°	683.2	684.7	684.7	688.0	689.7	691.2	691.2	689.7
40°	629.8	633.0	634.6	634.6	634.6	637.8	641.1	637.8
42.5°	578.0	579.5	581.2	581.2	584.4	586.0	587.7	587.7
45°	527.8	531.0	532.6	534.3	535.8	539.1	537.5	540.8
47.5°	476.0	480.8	482.4	484.0	487.3	488.9	490.5	492.2
50°	428.9	432.3	432.3	435.4	440.3	440.3	443.6	445.1
52.5°	382.0	383.7	385.3	386.9	390.2	393.4	393.4	396.7
55°	336.8	338.4	338.4	339.9	341.6	348.1	349.6	349.6
57.5°	289.8	289.8	293.0	294.7	296.2	299.5	299.5	299.5
60°	244.4	246.1	246.1	247.7	249.3	252.6	254.1	252.6
62.5°	199.2	200.7	200.7	202.4	205.5	207.2	205.5	205.5
65°	157.1	158.6	158.6	160.3	163.5	163.5	161.9	163.5
67.5°	114.9	114.9	114.9	114.9	114.9	114.9	114.9	114.9
70°	72.8	71.3	69.6	71.3	71.3	71.3	69.6	72.8
72.5°	35.6	37.2	37.2	37.2	37.2	37.2	37.2	35.6
75°	16.2	16.2	14.5	14.5	14.5	16.2	16.2	14.5
77.5°	4.8	4.8	4.8	4.8	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°	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
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)