

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: P584097

Luminaire Tested: **HC820D010-HM80520940-81WWW**

Issue Date: 10/21/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P584097  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2109-368-16)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 10/21/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HC820D010-HM80520940-81WWW  
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1935.9 lumens  
Efficiency: N/A  
Efficacy: 96.8 lumens/watt  
Spacing Criteria (0/90/45): 1.09 / 1.04 / 1.13  
Luminous Opening: Circular (Dia: 0.67' x H: 0')  
CIE Type: Direct

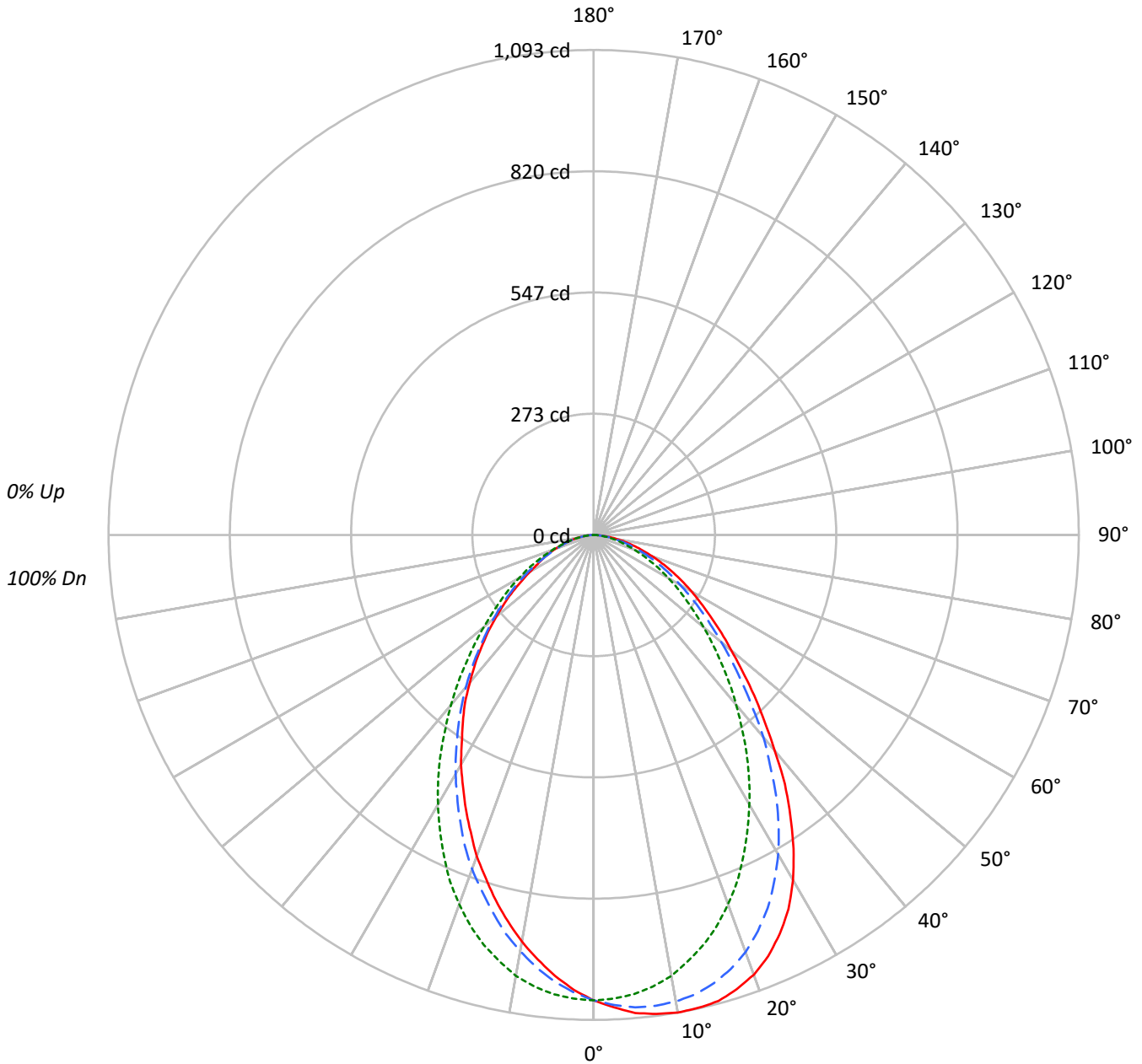
Input Watts (W): 20  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20									20									20									20									
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	110	106	103	99	108	104	101	98	100	97	95	96	94	92	93	91	89	87																			
2	102	95	89	84	99	93	88	83	90	85	81	86	83	79	83	80	78	76																			
3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66																			
4	87	76	69	63	85	75	68	62	73	67	62	71	65	61	68	64	60	58																			
5	81	69	61	55	79	68	61	55	66	60	54	64	59	54	63	57	53	51																			
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46																			
7	70	58	50	44	69	57	50	44	56	49	44	54	48	44	53	48	43	41																			
8	66	53	46	40	64	53	45	40	51	45	40	50	44	40	49	44	39	38																			
9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34																			
10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	32																			

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

	0°	90°	180°
0°	32344	32344	32344
5°	33480	32161	30883
10°	34227	31597	29145
15°	34714	30535	27218
20°	34610	29051	25268
25°	33755	27165	23198
30°	31978	24982	21282
35°	29091	22609	19342
40°	25549	20107	17474
45°	22284	17692	15577
50°	19391	15495	13720
55°	17290	13618	11935
60°	15708	11940	10182
65°	14126	10383	9245
70°	12577	8854	8349
75°	11033	7458	7125
80°	9358	6073	6322
85°	7076	4529	5024



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	98.2	5.1
10°-20°	270.7	14.0
20°-30°	375.8	19.4
30°-40°	388.5	20.1
40°-50°	325.3	16.8
50°-60°	236.1	12.2
60°-70°	149.0	7.7
70°-80°	73.8	3.8
80°-90°	18.3	0.9
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°	744.7	38.5
0°-40°	1133.2	58.5
0°-60°	1694.7	87.5
0°-90°	1935.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1935.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1049	1049	1049	1049	1049	
5°	1082	1069	1039	1010	998	103
15°	1087	1046	956	880	853	306
25°	992	928	798	712	682	455
35°	773	716	601	532	514	481
45°	511	474	406	366	357	395
55°	322	293	253	232	222	290
65°	194	169	142	125	127	193
75°	93	77	63	60	60	99
85°	20	16	13	14	14	24
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°	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9
2.5°	1066.0	1066.0	1067.5	1066.0	1066.0	1066.0	1064.6	1064.6	1063.2	1063.2	1060.4
5°	1081.6	1078.8	1081.6	1078.8	1078.8	1078.8	1077.4	1074.6	1073.1	1070.3	1068.9
7.5°	1088.9	1087.4	1087.4	1085.9	1085.9	1084.5	1083.1	1081.6	1076.0	1074.6	1070.3
10°	1093.1	1091.7	1091.7	1090.3	1087.4	1087.4	1084.5	1083.1	1076.0	1073.1	1067.5
12.5°	1091.7	1091.7	1091.7	1090.3	1085.9	1084.5	1081.6	1077.4	1071.7	1066.0	1060.4
15°	1087.4	1087.4	1084.5	1083.1	1078.8	1076.0	1074.6	1067.5	1061.8	1054.7	1046.1
17.5°	1073.1	1073.1	1071.7	1068.9	1064.6	1061.8	1059.0	1051.9	1046.1	1034.7	1026.2
20°	1054.7	1053.3	1051.9	1047.5	1043.2	1041.8	1037.6	1027.6	1020.5	1011.9	1000.6
22.5°	1027.6	1026.2	1024.8	1022.0	1014.7	1011.9	1009.1	1002.0	989.2	980.6	966.4
25°	992.1	992.1	989.2	985.0	977.8	974.9	970.7	963.6	952.2	939.3	928.0
27.5°	950.8	949.4	945.0	942.2	936.5	932.2	925.2	916.6	905.2	895.2	881.1
30°	898.1	898.1	895.2	891.0	883.9	881.1	875.3	865.3	854.0	841.1	831.2
32.5°	838.3	838.3	834.0	831.2	826.9	819.8	818.4	807.0	797.0	787.1	775.6
35°	772.8	774.2	771.4	765.7	758.6	758.6	755.8	745.8	734.4	724.4	715.9
37.5°	707.4	703.1	701.6	698.8	694.5	688.9	686.0	681.8	671.7	664.6	651.9
40°	634.7	636.2	633.3	630.5	629.1	624.8	623.4	616.3	609.2	600.6	594.9
42.5°	569.4	569.4	569.4	566.4	563.6	559.3	557.9	553.6	545.1	539.5	530.8
45°	511.0	506.7	506.7	505.3	503.9	501.0	496.7	493.8	488.2	483.9	474.0
47.5°	454.0	455.4	454.0	452.6	448.3	446.9	445.5	439.8	434.1	429.8	422.7
50°	404.2	407.1	404.2	404.2	401.4	400.0	397.2	392.8	388.5	381.4	374.3
52.5°	363.0	363.0	361.5	360.0	355.8	352.9	351.5	350.1	343.0	337.3	331.7
55°	321.6	323.0	323.0	318.8	317.4	314.5	313.1	308.9	306.0	297.5	293.3
57.5°	286.0	284.6	286.0	283.2	280.4	277.5	276.1	273.3	269.0	263.3	257.6
60°	254.7	251.9	251.9	250.5	247.6	246.2	243.4	239.1	234.9	229.2	224.9
62.5°	223.4	222.0	220.6	219.1	216.3	214.9	213.5	209.2	205.0	200.7	196.4
65°	193.6	193.6	192.2	189.2	187.8	186.4	185.0	182.1	176.5	173.6	169.4
67.5°	166.5	165.1	165.1	162.3	159.5	158.0	158.0	155.1	150.8	146.6	143.7
70°	139.5	140.9	139.5	138.1	135.2	135.2	132.4	131.0	125.3	123.9	119.5
72.5°	115.2	115.2	113.8	113.8	111.0	109.6	109.6	106.7	103.9	101.1	98.2
75°	92.6	92.6	92.6	91.1	89.7	86.9	86.9	85.3	82.5	79.7	76.8
77.5°	72.6	71.2	71.2	69.7	68.3	66.9	66.9	65.5	62.6	61.2	58.4
80°	52.7	51.2	51.2	51.2	48.3	49.8	48.3	46.9	45.5	44.1	42.7
82.5°	34.2	35.6	35.6	34.2	32.7	32.7	32.7	31.3	31.3	29.9	28.5
85°	20.0	20.0	20.0	20.0	18.6	18.6	18.6	17.0	17.0	17.0	15.6
87.5°	8.5	8.5	8.5	8.5	8.5	8.5	7.1	7.1	7.1	7.1	7.1
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°	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9
2.5°	1060.4	1057.5	1056.1	1054.7	1054.7	1053.3	1051.9	1048.9	1048.9	1046.1	1044.7
5°	1066.0	1061.8	1059.0	1056.1	1054.7	1051.9	1048.9	1044.7	1043.2	1039.0	1034.7
7.5°	1067.5	1060.4	1057.5	1051.9	1048.9	1046.1	1040.4	1036.1	1030.5	1026.2	1020.5
10°	1061.8	1056.1	1048.9	1041.8	1040.4	1036.1	1027.6	1022.0	1014.7	1009.1	1000.6
12.5°	1053.3	1044.7	1037.6	1029.0	1024.8	1020.5	1011.9	1003.4	993.5	983.5	974.9
15°	1039.0	1029.0	1019.1	1009.1	1003.4	999.1	989.2	979.2	969.2	956.5	947.8
17.5°	1017.7	1006.2	996.3	983.5	977.8	973.5	960.7	949.4	936.5	923.7	915.2
20°	990.6	976.3	965.0	950.8	946.4	939.3	926.6	913.8	899.5	885.3	875.3
22.5°	955.1	940.8	928.0	913.8	906.6	899.5	886.7	871.0	856.8	845.5	835.4
25°	913.8	900.9	885.3	872.4	863.9	855.4	841.1	828.3	815.6	798.4	788.5
27.5°	868.2	852.6	841.1	824.1	815.6	809.8	794.2	777.2	765.7	750.1	738.6
30°	817.0	802.7	789.9	772.8	764.3	758.6	744.4	728.7	717.4	701.6	690.3
32.5°	762.9	747.3	731.5	720.2	710.3	704.5	688.9	678.9	664.6	651.9	639.1
35°	704.5	688.9	677.5	661.8	656.1	650.5	637.6	624.8	612.0	600.6	590.6
37.5°	641.9	630.5	617.7	606.4	602.0	596.3	580.7	569.4	559.3	548.0	539.5
40°	580.7	570.8	562.2	550.8	543.7	539.5	528.0	518.1	506.7	499.5	491.0
42.5°	525.2	513.8	505.3	496.7	489.6	485.3	475.4	468.3	459.7	452.6	442.7
45°	466.9	461.1	451.2	444.1	439.8	434.1	426.9	418.4	411.3	405.7	398.6
47.5°	415.6	409.9	402.8	394.2	391.4	387.1	380.0	374.3	368.7	363.0	355.8
50°	368.7	361.5	355.8	350.1	347.3	343.0	335.9	333.1	328.8	323.0	318.8
52.5°	325.9	320.2	314.5	307.4	306.0	303.2	298.9	293.3	288.9	286.0	283.2
55°	287.5	281.8	277.5	271.9	270.4	267.6	261.9	259.1	256.1	253.3	250.5
57.5°	253.3	247.6	242.0	239.1	236.3	233.4	232.0	227.8	224.9	223.4	220.6
60°	222.0	216.3	212.1	207.8	206.4	205.0	202.1	199.3	196.4	193.6	192.2
62.5°	192.2	186.4	183.6	180.7	177.9	177.9	175.1	172.2	169.4	168.0	165.1
65°	165.1	162.3	158.0	153.7	152.2	152.2	148.0	146.6	145.1	142.3	139.5
67.5°	139.5	136.6	132.4	131.0	129.5	128.1	126.7	123.9	121.0	119.5	116.7
70°	116.7	113.8	111.0	109.6	108.2	106.7	103.9	102.5	99.6	98.2	96.8
72.5°	94.0	92.6	89.7	88.3	86.9	85.3	83.9	82.5	79.7	78.2	76.8
75°	75.4	74.0	71.2	69.7	68.3	68.3	66.9	64.1	62.6	62.6	61.2
77.5°	57.0	55.6	54.1	52.7	51.2	51.2	49.8	48.3	46.9	46.9	45.5
80°	41.3	39.8	38.4	38.4	38.4	37.0	35.6	35.6	34.2	34.2	32.7
82.5°	27.1	27.1	25.6	25.6	25.6	24.2	24.2	22.8	22.8	22.8	22.8
85°	15.6	15.6	15.6	14.2	14.2	14.2	14.2	14.2	14.2	12.8	14.2
87.5°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	5.7	5.7	5.7
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°	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9
2.5°	1043.2	1041.8	1039.0	1039.0	1036.1	1036.1	1034.7	1033.3	1031.9	1030.5	1029.0
5°	1033.3	1027.6	1024.8	1023.4	1020.5	1019.1	1014.7	1011.9	1010.5	1007.7	1004.8
7.5°	1014.7	1009.1	1003.4	1002.0	1000.6	994.9	990.6	986.4	983.5	980.6	977.8
10°	993.5	987.8	980.6	977.8	974.9	967.8	962.1	957.9	952.2	946.4	945.0
12.5°	967.8	959.3	950.8	947.8	943.6	936.5	930.8	923.7	919.5	912.3	910.8
15°	937.9	928.0	920.9	913.8	910.8	903.8	893.8	888.2	879.6	876.7	869.6
17.5°	902.3	892.4	882.5	879.6	875.3	865.3	855.4	848.3	839.7	835.4	831.2
20°	865.3	852.6	842.5	839.7	834.0	825.5	815.6	808.4	801.3	792.8	788.5
22.5°	822.7	808.4	799.9	792.8	791.3	781.4	770.0	764.3	758.6	751.5	745.8
25°	775.6	762.9	752.9	747.3	744.4	735.8	727.3	720.2	711.7	707.4	700.2
27.5°	727.3	718.8	705.9	700.2	696.0	688.9	678.9	674.7	666.1	660.4	656.1
30°	680.4	667.5	660.4	653.3	649.0	641.9	633.3	629.1	622.0	616.3	612.0
32.5°	629.1	620.6	610.6	607.8	602.0	594.9	589.2	582.1	576.5	570.8	569.4
35°	582.1	570.8	560.7	557.9	553.6	546.6	543.7	539.5	532.3	530.8	525.2
37.5°	530.8	525.2	513.8	509.6	508.1	502.5	496.7	493.8	489.6	485.3	483.9
40°	482.5	475.4	469.7	465.4	462.5	458.3	452.6	451.2	448.3	442.7	441.2
42.5°	437.0	429.8	424.1	422.7	418.4	414.2	411.3	407.1	405.7	404.2	401.4
45°	392.8	388.5	382.8	381.4	380.0	374.3	371.5	368.7	365.8	364.4	361.5
47.5°	352.9	348.7	344.4	343.0	340.2	338.8	334.5	333.1	328.8	327.3	325.9
50°	314.5	311.7	308.9	307.4	304.6	303.2	300.3	297.5	294.7	293.3	291.7
52.5°	280.4	277.5	274.7	273.3	271.9	269.0	266.2	263.3	261.9	260.5	259.1
55°	247.6	244.8	243.4	242.0	240.5	239.1	234.9	233.4	232.0	230.6	227.8
57.5°	217.7	214.9	212.1	212.1	210.6	209.2	206.4	203.5	203.5	200.7	197.9
60°	190.8	187.8	185.0	183.6	182.1	179.3	177.9	176.5	175.1	173.6	170.8
62.5°	162.3	160.9	158.0	158.0	155.1	153.7	152.2	150.8	149.4	146.6	145.1
65°	138.1	136.6	133.8	132.4	132.4	131.0	128.1	126.7	125.3	125.3	123.9
67.5°	115.2	113.8	111.0	109.6	109.6	108.2	106.7	106.7	105.3	103.9	105.3
70°	95.4	92.6	92.6	91.1	91.1	89.7	88.3	88.3	88.3	89.7	89.7
72.5°	75.4	74.0	72.6	72.6	72.6	72.6	71.2	71.2	72.6	74.0	74.0
75°	59.8	58.4	58.4	58.4	57.0	57.0	58.4	58.4	59.8	59.8	59.8
77.5°	44.1	44.1	44.1	44.1	44.1	44.1	45.5	45.5	46.9	46.9	46.9
80°	32.7	32.7	32.7	32.7	32.7	34.2	34.2	34.2	34.2	34.2	35.6
82.5°	22.8	22.8	22.8	22.8	22.8	22.8	22.8	24.2	24.2	24.2	24.2
85°	12.8	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
87.5°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
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: P584097

CATALOG NUMBER: HC820D010-HM80520940-81WWW

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9	1048.9
2.5°	1027.6	1027.6	1027.6	1029.0	1026.2	1026.2	1026.2	1026.2
5°	1003.4	1002.0	1000.6	1002.0	999.1	999.1	997.7	997.7
7.5°	973.5	972.1	970.7	970.7	967.8	967.8	966.4	965.0
10°	940.8	937.9	939.3	936.5	935.1	933.7	932.2	930.8
12.5°	905.2	902.3	900.9	898.1	895.2	893.8	895.2	892.4
15°	866.8	862.5	861.1	858.3	855.4	854.0	854.0	852.6
17.5°	824.1	821.3	819.8	817.0	815.6	812.7	811.3	809.8
20°	784.3	777.2	778.6	775.6	774.2	768.5	768.5	770.0
22.5°	740.1	735.8	733.0	730.1	728.7	725.9	725.9	724.4
25°	696.0	691.7	690.3	687.5	686.0	683.2	681.8	681.8
27.5°	653.3	647.6	647.6	644.8	641.9	640.5	639.1	637.6
30°	607.8	603.5	602.0	602.0	600.6	600.6	596.3	597.7
32.5°	565.0	562.2	560.7	557.9	557.9	556.5	556.5	552.2
35°	522.3	518.1	519.5	516.7	515.2	513.8	515.2	513.8
37.5°	481.1	478.2	478.2	475.4	475.4	474.0	472.6	475.4
40°	439.8	438.4	437.0	435.6	437.0	435.6	432.7	434.1
42.5°	398.6	398.6	397.2	397.2	395.6	395.6	395.6	395.6
45°	361.5	360.0	360.0	358.6	358.6	358.6	358.6	357.2
47.5°	324.5	323.0	323.0	323.0	321.6	321.6	320.2	321.6
50°	288.9	288.9	287.5	287.5	288.9	287.5	286.0	286.0
52.5°	256.1	256.1	254.7	254.7	253.3	251.9	253.3	253.3
55°	226.4	224.9	223.4	223.4	222.0	220.6	220.6	222.0
57.5°	197.9	196.4	195.0	195.0	192.2	190.8	190.8	190.8
60°	170.8	168.0	168.0	166.5	166.5	165.1	165.1	165.1
62.5°	145.1	143.7	143.7	143.7	143.7	142.3	142.3	142.3
65°	123.9	123.9	123.9	125.3	125.3	126.7	126.7	126.7
67.5°	106.7	108.2	108.2	108.2	109.6	109.6	109.6	108.2
70°	91.1	91.1	91.1	92.6	92.6	92.6	92.6	92.6
72.5°	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4
75°	59.8	61.2	61.2	61.2	59.8	61.2	61.2	59.8
77.5°	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9
80°	35.6	35.6	35.6	35.6	35.6	35.6	35.6	35.6
82.5°	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2
85°	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
87.5°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
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)