

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: P583999

Luminaire Tested: **HC820D010-HM80520830-81WWW**

Issue Date: 10/21/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P583999  
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-HM80520830-81WWW  
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1969.1 lumens  
Efficiency: N/A  
Efficacy: 98.5 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

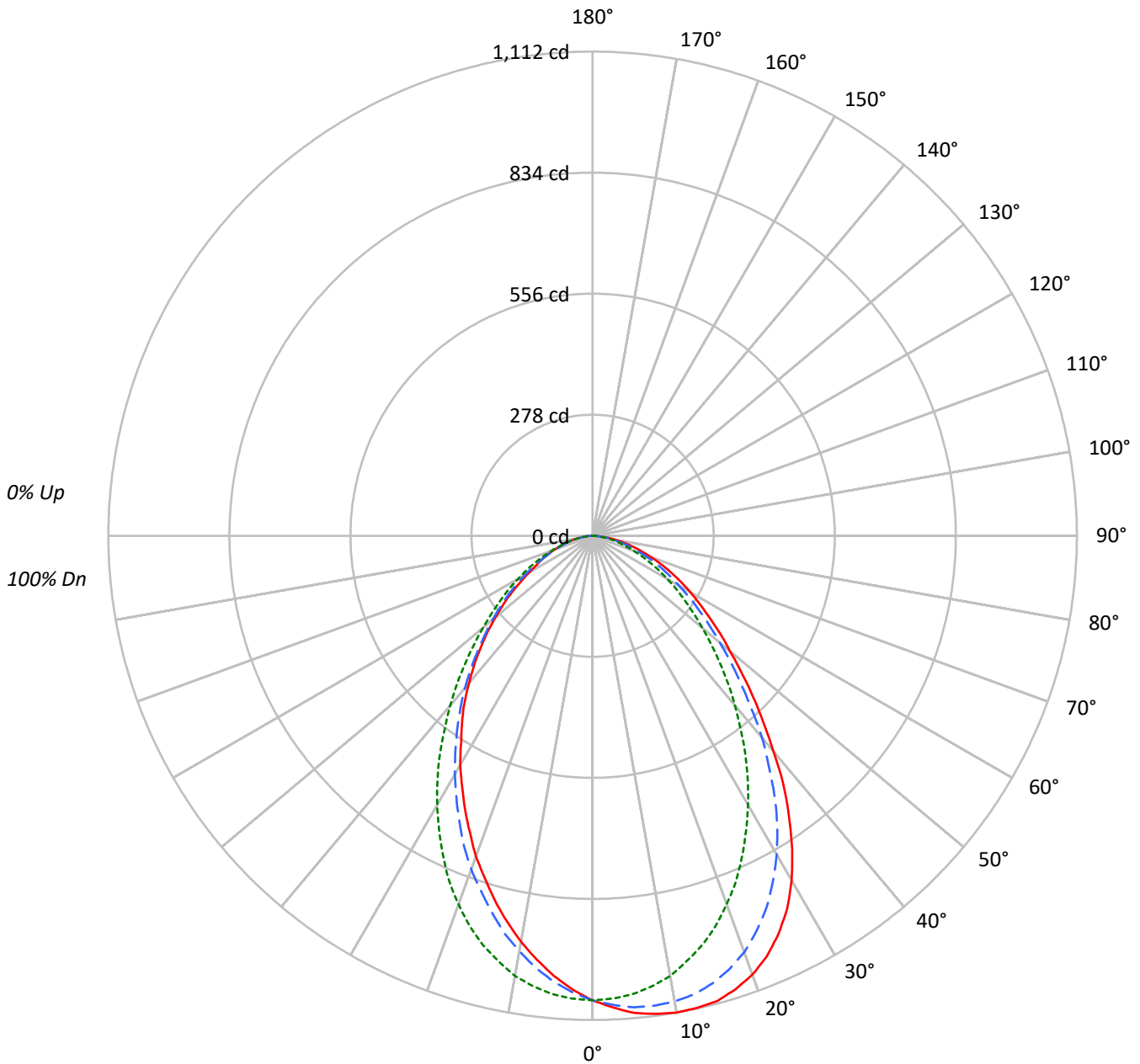
Input Watts (W): 20  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	32902	32902	32902
5°	34059	32712	31415
10°	34816	32139	29646
15°	35311	31059	27685
20°	35204	29547	25701
25°	34334	27634	23596
30°	32530	25413	21649
35°	29592	23001	19677
40°	25992	20453	17776
45°	22664	17993	15843
50°	19722	15764	13960
55°	17591	13854	12145
60°	15979	12143	10361
65°	14367	10565	9398
70°	12785	9007	8484
75°	11211	7589	7244
80°	9500	6180	6428
85°	7147	4599	5095



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	99.9	5.1
10°-20°	275.4	14.0
20°-30°	382.2	19.4
30°-40°	395.2	20.1
40°-50°	330.9	16.8
50°-60°	240.2	12.2
60°-70°	151.6	7.7
70°-80°	75.1	3.8
80°-90°	18.6	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°	757.5	38.5
0°-40°	1152.7	58.5
0°-60°	1723.8	87.5
0°-90°	1969.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1969.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1067	1067	1067	1067	1067	
5°	1100	1087	1057	1028	1015	105
15°	1106	1064	973	895	867	311
25°	1009	944	812	724	694	462
35°	786	728	611	542	523	490
45°	520	482	413	372	363	402
55°	327	298	258	236	226	295
65°	197	172	145	127	129	196
75°	94	78	64	61	61	101
85°	20	16	13	14	14	25
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°	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0
2.5°	1084.4	1084.4	1085.8	1084.4	1084.4	1084.4	1082.9	1082.9	1081.4	1081.4	1078.6
5°	1100.3	1097.4	1100.3	1097.4	1097.4	1097.4	1096.0	1093.0	1091.6	1088.7	1087.2
7.5°	1107.5	1106.1	1106.1	1104.6	1104.6	1103.2	1101.7	1100.3	1094.5	1093.0	1088.7
10°	1111.9	1110.4	1110.4	1109.0	1106.1	1106.1	1103.2	1101.7	1094.5	1091.6	1085.8
12.5°	1110.4	1110.4	1110.4	1109.0	1104.6	1103.2	1100.3	1096.0	1090.2	1084.4	1078.6
15°	1106.1	1106.1	1103.2	1101.7	1097.4	1094.5	1093.0	1085.8	1080.0	1072.8	1064.0
17.5°	1091.6	1091.6	1090.2	1087.2	1082.9	1080.0	1077.2	1069.8	1064.0	1052.5	1043.8
20°	1072.8	1071.4	1069.8	1065.6	1061.2	1059.8	1055.4	1045.2	1038.0	1029.3	1017.7
22.5°	1045.2	1043.8	1042.4	1039.5	1032.2	1029.3	1026.4	1019.2	1006.1	997.5	983.1
25°	1009.1	1009.1	1006.1	1001.9	994.7	991.7	987.3	980.1	968.5	955.5	943.9
27.5°	967.1	965.7	961.3	958.4	952.6	948.3	941.0	932.4	920.8	910.6	896.2
30°	913.6	913.6	910.6	906.2	899.0	896.2	890.4	880.2	868.7	855.6	845.5
32.5°	852.7	852.7	848.3	845.5	841.1	833.9	832.5	820.9	810.7	800.6	789.0
35°	786.1	787.6	784.7	778.9	771.6	771.6	768.8	758.6	747.0	736.9	728.2
37.5°	719.5	715.2	713.7	710.9	706.5	700.7	697.9	693.5	683.3	676.1	663.1
40°	645.7	647.1	644.2	641.4	639.9	635.6	634.1	626.8	619.6	611.0	605.2
42.5°	579.1	579.1	579.1	576.2	573.3	569.0	567.5	563.2	554.5	548.7	540.1
45°	519.7	515.4	515.4	513.9	512.5	509.6	505.3	502.4	496.6	492.2	482.1
47.5°	461.8	463.2	461.8	460.4	456.0	454.6	453.2	447.4	441.6	437.2	430.0
50°	411.1	414.1	411.1	411.1	408.3	406.8	403.9	399.6	395.3	388.1	380.7
52.5°	369.1	369.1	367.7	366.3	361.9	359.1	357.6	356.1	348.9	343.1	337.3
55°	327.2	328.6	328.6	324.3	322.8	320.0	318.5	314.2	311.2	302.6	298.2
57.5°	291.0	289.6	291.0	288.1	285.2	282.3	280.8	278.0	273.6	267.8	262.0
60°	259.1	256.3	256.3	254.8	251.9	250.5	247.5	243.3	238.9	233.1	228.7
62.5°	227.3	225.9	224.3	222.9	220.1	218.6	217.1	212.8	208.5	204.1	199.8
65°	196.9	196.9	195.5	192.5	191.1	189.7	188.2	185.3	179.5	176.6	172.3
67.5°	169.4	168.0	168.0	165.0	162.2	160.8	160.8	157.8	153.4	149.2	146.2
70°	141.8	143.4	141.8	140.4	137.6	137.6	134.6	133.2	127.4	126.0	121.6
72.5°	117.3	117.3	115.8	115.8	112.9	111.5	111.5	108.6	105.7	102.8	99.9
75°	94.1	94.1	94.1	92.7	91.3	88.3	88.3	86.9	83.9	81.1	78.1
77.5°	73.9	72.3	72.3	70.9	69.5	68.1	68.1	66.5	63.7	62.3	59.3
80°	53.5	52.1	52.1	52.1	49.2	50.7	49.2	47.8	46.3	44.9	43.4
82.5°	34.8	36.2	36.2	34.8	33.3	33.3	33.3	31.8	31.8	30.4	29.0
85°	20.2	20.2	20.2	20.2	18.8	18.8	18.8	17.4	17.4	17.4	16.0
87.5°	8.6	8.6	8.6	8.6	8.6	8.6	7.2	7.2	7.2	7.2	7.2
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°	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0
2.5°	1078.6	1075.6	1074.2	1072.8	1072.8	1071.4	1069.8	1067.0	1067.0	1064.0	1062.6
5°	1084.4	1080.0	1077.2	1074.2	1072.8	1069.8	1067.0	1062.6	1061.2	1056.8	1052.5
7.5°	1085.8	1078.6	1075.6	1069.8	1067.0	1064.0	1058.2	1054.0	1048.2	1043.8	1038.0
10°	1080.0	1074.2	1067.0	1059.8	1058.2	1054.0	1045.2	1039.5	1032.2	1026.4	1017.7
12.5°	1071.4	1062.6	1055.4	1046.7	1042.4	1038.0	1029.3	1020.7	1010.5	1000.4	991.7
15°	1056.8	1046.7	1036.6	1026.4	1020.7	1016.3	1006.1	996.1	985.9	972.9	964.2
17.5°	1035.1	1023.5	1013.4	1000.4	994.7	990.3	977.3	965.7	952.6	939.6	930.9
20°	1007.7	993.1	981.5	967.1	962.7	955.5	942.5	929.4	915.0	900.4	890.4
22.5°	971.5	956.9	943.9	929.4	922.2	915.0	902.0	886.0	871.5	859.9	849.9
25°	929.4	916.4	900.4	887.4	878.8	870.1	855.6	842.5	829.5	812.2	802.1
27.5°	883.1	867.2	855.6	838.3	829.5	823.7	807.8	790.5	778.9	763.0	751.4
30°	830.9	816.5	803.5	786.1	777.4	771.6	757.2	741.2	729.6	713.7	702.1
32.5°	776.0	760.0	744.2	732.6	722.4	716.6	700.7	690.5	676.1	663.1	650.0
35°	716.6	700.7	689.1	673.1	667.4	661.6	648.6	635.6	622.6	611.0	600.8
37.5°	652.9	641.4	628.4	616.8	612.4	606.6	590.6	579.1	569.0	557.4	548.7
40°	590.6	580.6	571.9	560.3	553.1	548.7	537.1	526.9	515.4	508.1	499.5
42.5°	534.3	522.7	513.9	505.3	498.0	493.7	483.6	476.3	467.6	460.4	450.2
45°	474.8	469.0	459.0	451.6	447.4	441.6	434.3	425.6	418.4	412.6	405.3
47.5°	422.7	416.9	409.7	401.1	398.1	393.8	386.5	380.7	374.9	369.1	361.9
50°	374.9	367.7	361.9	356.1	353.3	348.9	341.7	338.8	334.4	328.6	324.3
52.5°	331.6	325.8	320.0	312.8	311.2	308.4	304.0	298.2	293.8	291.0	288.1
55°	292.4	286.6	282.3	276.5	275.1	272.2	266.4	263.5	260.6	257.7	254.8
57.5°	257.7	251.9	246.1	243.3	240.3	237.5	235.9	231.7	228.7	227.3	224.3
60°	225.9	220.1	215.7	211.3	209.9	208.5	205.5	202.7	199.8	196.9	195.5
62.5°	195.5	189.7	186.8	183.9	181.0	181.0	178.1	175.2	172.3	170.8	168.0
65°	168.0	165.0	160.8	156.4	155.0	155.0	150.6	149.2	147.6	144.8	141.8
67.5°	141.8	139.0	134.6	133.2	131.8	130.3	128.8	126.0	123.0	121.6	118.7
70°	118.7	115.8	112.9	111.5	110.0	108.6	105.7	104.3	101.3	99.9	98.5
72.5°	95.5	94.1	91.3	89.7	88.3	86.9	85.5	83.9	81.1	79.7	78.1
75°	76.7	75.3	72.3	70.9	69.5	69.5	68.1	65.1	63.7	63.7	62.3
77.5°	57.9	56.5	55.0	53.5	52.1	52.1	50.7	49.2	47.8	47.8	46.3
80°	42.0	40.5	39.1	39.1	39.1	37.6	36.2	36.2	34.8	34.8	33.3
82.5°	27.5	27.5	26.0	26.0	26.0	24.6	24.6	23.2	23.2	23.2	23.2
85°	16.0	16.0	16.0	14.4	14.4	14.4	14.4	14.4	14.4	13.0	14.4
87.5°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	5.8	5.8	5.8
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°	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0
2.5°	1061.2	1059.8	1056.8	1056.8	1054.0	1054.0	1052.5	1051.0	1049.6	1048.2	1046.7
5°	1051.0	1045.2	1042.4	1040.9	1038.0	1036.6	1032.2	1029.3	1027.9	1025.0	1022.1
7.5°	1032.2	1026.4	1020.7	1019.2	1017.7	1011.9	1007.7	1003.3	1000.4	997.5	994.7
10°	1010.5	1004.7	997.5	994.7	991.7	984.5	978.7	974.3	968.5	962.7	961.3
12.5°	984.5	975.7	967.1	964.2	959.9	952.6	946.8	939.6	935.2	928.0	926.6
15°	954.1	943.9	936.7	929.4	926.6	919.4	909.2	903.4	894.7	891.8	884.6
17.5°	917.8	907.8	897.6	894.7	890.4	880.2	870.1	862.9	854.1	849.9	845.5
20°	880.2	867.2	857.1	854.1	848.3	839.7	829.5	822.3	815.1	806.4	802.1
22.5°	836.7	822.3	813.6	806.4	804.9	794.8	783.2	777.4	771.6	764.4	758.6
25°	789.0	776.0	765.8	760.0	757.2	748.4	739.8	732.6	723.9	719.5	712.3
27.5°	739.8	731.1	718.1	712.3	707.9	700.7	690.5	686.3	677.5	671.7	667.4
30°	692.1	678.9	671.7	664.5	660.1	652.9	644.2	639.9	632.6	626.8	622.6
32.5°	639.9	631.2	621.0	618.2	612.4	605.2	599.4	592.2	586.4	580.6	579.1
35°	592.2	580.6	570.4	567.5	563.2	555.9	553.1	548.7	541.5	540.1	534.3
37.5°	540.1	534.3	522.7	518.3	516.9	511.1	505.3	502.4	498.0	493.7	492.2
40°	490.8	483.6	477.8	473.4	470.6	466.2	460.4	459.0	456.0	450.2	448.8
42.5°	444.4	437.2	431.4	430.0	425.6	421.3	418.4	414.1	412.6	411.1	408.3
45°	399.6	395.3	389.5	388.1	386.5	380.7	377.9	374.9	372.1	370.7	367.7
47.5°	359.1	354.7	350.3	348.9	346.0	344.6	340.2	338.8	334.4	333.0	331.6
50°	320.0	317.0	314.2	312.8	309.8	308.4	305.4	302.6	299.6	298.2	296.8
52.5°	285.2	282.3	279.4	278.0	276.5	273.6	270.7	267.8	266.4	264.9	263.5
55°	251.9	249.0	247.5	246.1	244.7	243.3	238.9	237.5	235.9	234.5	231.7
57.5°	221.5	218.6	215.7	215.7	214.3	212.8	209.9	207.0	207.0	204.1	201.2
60°	194.0	191.1	188.2	186.8	185.3	182.4	181.0	179.5	178.1	176.6	173.8
62.5°	165.0	163.6	160.8	160.8	157.8	156.4	155.0	153.4	152.0	149.2	147.6
65°	140.4	139.0	136.0	134.6	134.6	133.2	130.3	128.8	127.4	127.4	126.0
67.5°	117.3	115.8	112.9	111.5	111.5	110.0	108.6	108.6	107.1	105.7	107.1
70°	97.0	94.1	94.1	92.7	92.7	91.3	89.7	89.7	89.7	91.3	91.3
72.5°	76.7	75.3	73.9	73.9	73.9	73.9	72.3	72.3	73.9	75.3	75.3
75°	60.8	59.3	59.3	59.3	57.9	57.9	59.3	59.3	60.8	60.8	60.8
77.5°	44.9	44.9	44.9	44.9	44.9	44.9	46.3	46.3	47.8	47.8	47.8
80°	33.3	33.3	33.3	33.3	33.3	34.8	34.8	34.8	34.8	34.8	36.2
82.5°	23.2	23.2	23.2	23.2	23.2	23.2	23.2	24.6	24.6	24.6	24.6
85°	13.0	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
87.5°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
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: P583999

CATALOG NUMBER: HC820D010-HM80520830-81WWW

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0	1067.0
2.5°	1045.2	1045.2	1045.2	1046.7	1043.8	1043.8	1043.8	1043.8
5°	1020.7	1019.2	1017.7	1019.2	1016.3	1016.3	1014.9	1014.9
7.5°	990.3	988.9	987.3	987.3	984.5	984.5	983.1	981.5
10°	956.9	954.1	955.5	952.6	951.2	949.7	948.3	946.8
12.5°	920.8	917.8	916.4	913.6	910.6	909.2	910.6	907.8
15°	881.7	877.3	875.9	873.0	870.1	868.7	868.7	867.2
17.5°	838.3	835.3	833.9	830.9	829.5	826.7	825.2	823.7
20°	797.7	790.5	791.9	789.0	787.6	781.8	781.8	783.2
22.5°	752.8	748.4	745.6	742.7	741.2	738.4	738.4	736.9
25°	707.9	703.6	702.1	699.3	697.9	694.9	693.5	693.5
27.5°	664.5	658.7	658.7	655.8	652.9	651.5	650.0	648.6
30°	618.2	613.8	612.4	612.4	611.0	611.0	606.6	608.0
32.5°	574.8	571.9	570.4	567.5	567.5	566.1	566.1	561.7
35°	531.3	526.9	528.5	525.5	524.1	522.7	524.1	522.7
37.5°	489.3	486.4	486.4	483.6	483.6	482.1	480.6	483.6
40°	447.4	445.9	444.4	443.0	444.4	443.0	440.1	441.6
42.5°	405.3	405.3	403.9	403.9	402.5	402.5	402.5	402.5
45°	367.7	366.3	366.3	364.9	364.9	364.9	364.9	363.3
47.5°	330.1	328.6	328.6	328.6	327.2	327.2	325.8	327.2
50°	293.8	293.8	292.4	292.4	293.8	292.4	291.0	291.0
52.5°	260.6	260.6	259.1	259.1	257.7	256.3	257.7	257.7
55°	230.1	228.7	227.3	227.3	225.9	224.3	224.3	225.9
57.5°	201.2	199.8	198.3	198.3	195.5	194.0	194.0	194.0
60°	173.8	170.8	170.8	169.4	169.4	168.0	168.0	168.0
62.5°	147.6	146.2	146.2	146.2	146.2	144.8	144.8	144.8
65°	126.0	126.0	126.0	127.4	127.4	128.8	128.8	128.8
67.5°	108.6	110.0	110.0	110.0	111.5	111.5	111.5	110.0
70°	92.7	92.7	92.7	94.1	94.1	94.1	94.1	94.1
72.5°	76.7	76.7	76.7	76.7	76.7	76.7	76.7	76.7
75°	60.8	62.3	62.3	62.3	60.8	62.3	62.3	60.8
77.5°	47.8	47.8	47.8	47.8	47.8	47.8	47.8	47.8
80°	36.2	36.2	36.2	36.2	36.2	36.2	36.2	36.2
82.5°	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6
85°	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
87.5°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
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)