

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: P593613

Luminaire Tested: **HC820D010-HM80520950-81RWWC**

Issue Date: 10/21/2021

Test Information

Test Method: LM-41-14
Report Number: P593613
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-HM80520950-81RWWC
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, SPECULAR TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2027.0 lumens
Efficiency: N/A
Efficacy: 101.3 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

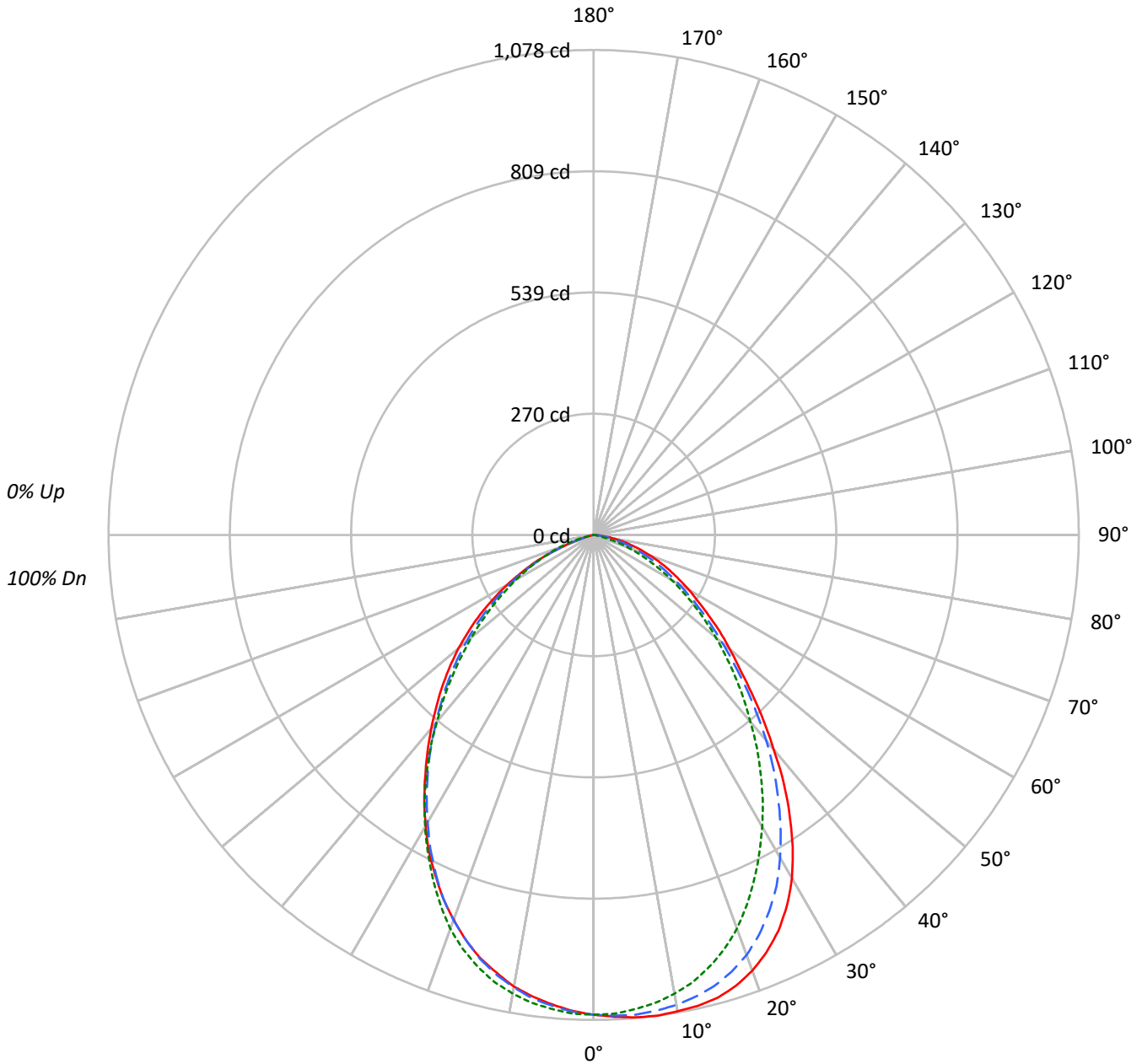
Input Watts (W): 20
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	32887	32887	32887
5°	33319	32749	32440
10°	33660	32414	31923
15°	34002	31729	31094
20°	33829	30561	29859
25°	33041	28730	28342
30°	31384	26669	26570
35°	28572	24333	24548
40°	25046	21781	22582
45°	21608	19376	20741
50°	18920	17011	18786
55°	16763	14623	16537
60°	15104	12298	13697
65°	13608	9865	10492
70°	11937	7195	5779
75°	10187	3729	1525
80°	7831	1012	249
85°	5024	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	100.6	5.0
10°-20°	282.9	14.0
20°-30°	401.5	19.8
30°-40°	422.6	20.9
40°-50°	359.5	17.7
50°-60°	259.8	12.8
60°-70°	147.8	7.3
70°-80°	46.6	2.3
80°-90°	5.6	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°	785.0	38.7
0°-40°	1207.6	59.6
0°-60°	1827.0	90.1
0°-90°	2027.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2027.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1066	1066	1066	1066	1066	
5°	1076	1071	1058	1051	1048	103
15°	1065	1038	994	975	974	300
25°	971	923	844	830	833	445
35°	759	715	646	642	652	472
45°	496	477	444	456	476	385
55°	312	289	272	288	308	281
65°	186	161	135	134	144	185
75°	86	66	31	14	13	92
85°	14	8	0	0	0	18
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°	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5
2.5°	1072.2	1073.6	1070.8	1070.8	1073.6	1070.8	1072.2	1072.2	1070.8	1070.8	1069.4
5°	1076.4	1075.0	1075.0	1075.0	1076.4	1073.6	1072.2	1073.6	1070.8	1070.8	1070.8
7.5°	1077.9	1077.9	1076.4	1075.0	1075.0	1075.0	1073.6	1072.2	1070.8	1067.9	1066.5
10°	1075.0	1075.0	1076.4	1073.6	1073.6	1070.8	1070.8	1067.9	1067.9	1065.1	1060.8
12.5°	1072.2	1070.8	1070.8	1067.9	1067.9	1065.1	1065.1	1060.8	1059.4	1055.2	1050.9
15°	1065.1	1063.7	1060.8	1059.4	1058.0	1056.6	1053.8	1052.3	1048.0	1042.3	1038.0
17.5°	1050.9	1049.4	1048.0	1045.1	1042.3	1040.9	1039.5	1035.2	1029.5	1025.3	1018.1
20°	1030.9	1029.5	1029.5	1025.3	1023.8	1019.5	1018.1	1012.4	1008.1	999.6	993.9
22.5°	1003.9	1005.3	1002.5	999.6	996.8	992.5	989.7	983.9	976.8	968.3	961.2
25°	971.1	972.5	969.7	966.9	962.6	959.8	956.8	948.3	941.2	931.3	922.7
27.5°	929.9	929.9	929.9	926.9	919.8	918.4	915.6	907.1	897.0	888.5	880.0
30°	881.4	880.0	880.0	875.7	872.9	867.1	862.9	855.8	848.7	838.7	828.7
32.5°	823.0	824.4	820.2	817.4	813.1	813.1	807.4	801.6	793.1	783.2	773.1
35°	759.0	760.4	757.5	756.1	749.0	747.6	746.2	739.0	733.3	726.2	714.8
37.5°	693.5	692.1	690.6	690.6	686.4	683.4	680.6	676.3	667.8	662.2	656.5
40°	622.2	622.2	622.2	620.8	619.4	616.5	615.1	612.3	606.6	600.9	596.7
42.5°	558.1	558.1	556.7	555.3	552.5	553.9	551.0	548.2	542.5	538.3	535.4
45°	495.5	495.5	495.5	496.9	494.1	489.8	489.8	487.0	484.1	481.3	477.1
47.5°	439.9	444.3	441.4	439.9	441.4	435.7	435.7	432.8	430.0	427.2	421.5
50°	394.4	394.4	394.4	391.6	390.2	390.2	385.9	383.1	381.7	378.7	373.0
52.5°	353.2	350.3	350.3	348.8	347.4	344.6	344.6	341.7	336.0	333.2	329.0
55°	311.8	311.8	310.4	309.0	307.6	306.1	304.7	300.5	297.6	293.4	289.0
57.5°	274.8	277.7	276.2	273.4	270.6	270.6	267.7	264.9	260.6	256.3	252.0
60°	244.9	243.5	243.5	242.1	239.2	237.8	236.4	232.1	227.8	223.5	219.3
62.5°	213.6	213.6	213.6	210.8	207.9	206.5	205.1	202.2	196.4	192.2	189.4
65°	186.5	185.1	183.7	182.3	180.8	178.0	176.6	173.8	169.5	165.1	160.9
67.5°	159.5	158.0	158.0	156.6	152.4	150.9	150.9	146.7	142.4	138.2	133.8
70°	132.4	132.4	132.4	129.5	128.1	126.7	125.3	122.5	118.2	113.9	109.7
72.5°	109.7	108.3	108.3	106.9	102.5	101.1	99.6	96.8	92.6	89.7	86.9
75°	85.5	85.5	84.0	82.6	81.2	79.8	78.4	75.4	71.2	66.9	65.5
77.5°	65.5	64.1	64.1	62.6	59.8	58.4	58.4	55.6	51.3	48.5	45.5
80°	44.1	45.5	44.1	42.7	41.3	39.8	38.4	37.0	34.2	31.3	28.5
82.5°	27.1	28.5	27.1	27.1	25.6	24.2	24.2	21.4	20.0	18.6	17.1
85°	14.2	14.2	14.2	14.2	12.8	12.8	12.8	11.3	9.9	8.5	8.5
87.5°	4.3	5.7	4.3	4.3	4.3	4.3	4.3	4.3	2.8	2.8	2.8
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5
2.5°	1070.8	1069.4	1067.9	1067.9	1067.9	1067.9	1067.9	1066.5	1065.1	1065.1	1065.1
5°	1067.9	1067.9	1067.9	1066.5	1065.1	1065.1	1062.3	1060.8	1059.4	1058.0	1056.6
7.5°	1065.1	1062.3	1060.8	1059.4	1058.0	1058.0	1055.2	1052.3	1052.3	1049.4	1046.5
10°	1056.6	1055.2	1052.3	1049.4	1048.0	1046.5	1043.7	1039.5	1038.0	1035.2	1032.4
12.5°	1046.5	1043.7	1040.9	1035.2	1033.8	1032.4	1026.7	1022.4	1019.5	1018.1	1011.0
15°	1033.8	1028.1	1023.8	1016.6	1015.2	1012.4	1008.1	1003.9	998.2	993.9	991.1
17.5°	1011.0	1005.3	998.2	991.1	988.2	988.2	981.1	975.4	968.3	965.5	959.8
20°	983.9	976.8	971.1	962.6	958.2	954.0	949.7	941.2	935.6	931.3	924.1
22.5°	952.6	942.6	935.6	926.9	919.8	915.6	908.5	901.4	894.2	889.9	884.3
25°	912.7	904.2	892.8	884.3	880.0	874.3	865.7	858.6	851.5	844.4	841.6
27.5°	868.7	857.2	847.3	837.2	833.0	828.7	818.8	810.3	804.5	797.4	794.5
30°	820.2	808.8	797.4	788.9	784.6	777.5	771.7	761.8	754.7	749.0	741.8
32.5°	764.6	756.1	746.2	733.3	730.5	724.8	716.3	711.9	703.4	699.2	693.5
35°	704.8	699.2	689.2	679.2	674.9	672.1	665.0	656.5	650.7	646.4	643.6
37.5°	647.9	640.8	630.8	623.6	620.8	616.5	608.0	603.8	598.1	595.3	589.5
40°	586.6	579.5	572.4	568.2	563.9	561.0	555.3	551.0	545.4	541.1	539.7
42.5°	526.8	522.6	516.9	511.2	509.8	505.5	502.7	498.3	494.1	492.7	488.4
45°	472.8	468.4	462.8	457.1	455.7	452.8	451.4	447.2	444.3	444.3	444.3
47.5°	418.7	414.4	408.6	405.8	407.2	401.5	401.5	400.1	397.3	397.3	398.7
50°	370.2	364.5	363.1	360.3	357.4	354.6	356.0	351.8	351.8	354.6	353.2
52.5°	324.7	318.9	317.5	314.6	313.2	313.2	311.8	311.8	310.4	311.8	311.8
55°	283.3	279.1	276.2	273.4	272.0	272.0	272.0	270.6	269.1	272.0	273.4
57.5°	246.3	244.9	242.1	237.8	236.4	235.0	233.6	233.6	233.6	233.6	235.0
60°	213.6	210.8	207.9	203.7	203.7	202.2	200.8	199.4	199.4	199.4	199.4
62.5°	185.1	180.8	176.6	173.8	172.3	170.9	169.5	166.5	166.5	166.5	166.5
65°	156.6	152.4	149.5	146.7	143.8	143.8	141.0	139.6	136.6	135.2	132.4
67.5°	129.5	126.7	123.9	119.6	118.2	116.8	113.9	112.5	108.3	106.9	105.3
70°	105.3	101.1	98.2	95.4	94.0	91.1	88.3	85.5	82.6	79.8	76.9
72.5°	82.6	78.4	75.4	72.6	69.7	69.7	65.5	62.6	58.4	55.6	51.3
75°	61.2	57.0	54.1	49.9	48.5	47.0	42.7	39.8	35.6	31.3	28.5
77.5°	41.3	38.4	35.6	31.3	28.5	28.5	24.2	21.4	18.6	14.2	12.8
80°	25.6	22.8	20.0	17.1	17.1	14.2	12.8	9.9	7.1	5.7	4.3
82.5°	14.2	12.8	11.3	8.5	8.5	7.1	5.7	4.3	2.8	1.4	1.4
85°	7.1	5.7	4.3	4.3	2.8	2.8	2.8	1.4	1.4	0.0	0.0
87.5°	2.8	1.4	1.4	1.4	1.4	1.4	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°	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5
2.5°	1063.7	1063.7	1062.3	1062.3	1062.3	1060.8	1062.3	1060.8	1060.8	1060.8	1062.3
5°	1058.0	1055.2	1055.2	1053.8	1053.8	1052.3	1053.8	1052.3	1050.9	1049.4	1050.9
7.5°	1046.5	1043.7	1042.3	1040.9	1040.9	1040.9	1039.5	1038.0	1039.5	1035.2	1038.0
10°	1030.9	1029.5	1026.7	1025.3	1023.8	1025.3	1023.8	1021.0	1021.0	1021.0	1019.5
12.5°	1011.0	1008.1	1006.7	1005.3	1002.5	1002.5	1003.9	1001.0	1001.0	998.2	998.2
15°	986.7	983.9	981.1	981.1	978.2	978.2	976.8	976.8	975.4	974.0	974.0
17.5°	956.8	952.6	949.7	951.2	949.7	948.3	948.3	945.5	944.1	945.5	945.5
20°	921.3	918.4	915.6	917.0	914.2	912.7	914.2	909.9	911.3	911.3	911.3
22.5°	881.4	880.0	875.7	875.7	872.9	871.5	872.9	872.9	874.3	872.9	872.9
25°	837.2	834.4	831.5	831.5	830.1	828.7	830.1	831.5	830.1	831.5	831.5
27.5°	790.3	786.0	786.0	783.2	783.2	784.6	783.2	784.6	786.0	786.0	788.9
30°	739.0	737.6	736.1	734.7	734.7	736.1	736.1	736.1	737.6	740.4	740.4
32.5°	690.6	687.8	684.9	684.9	687.8	686.4	687.8	687.8	690.6	690.6	693.5
35°	637.9	637.9	635.1	636.5	636.5	636.5	636.5	639.3	642.2	643.6	646.4
37.5°	589.5	585.2	586.6	586.6	588.0	586.6	590.9	590.9	593.8	593.8	596.7
40°	536.9	536.9	538.3	536.9	538.3	538.3	541.1	544.0	545.4	548.2	549.6
42.5°	487.0	489.8	487.0	488.4	489.8	491.2	492.7	494.1	499.7	502.7	507.0
45°	441.4	442.9	444.3	445.7	444.3	447.2	448.6	451.4	455.7	457.1	458.5
47.5°	397.3	398.7	400.1	401.5	401.5	404.4	405.8	408.6	411.6	413.0	414.4
50°	354.6	357.4	358.9	358.9	360.3	363.1	365.9	365.9	368.8	373.0	374.5
52.5°	316.1	316.1	318.9	320.4	321.9	321.9	326.1	327.5	329.0	331.8	334.6
55°	273.4	277.7	279.1	279.1	281.9	284.7	286.2	287.6	287.6	293.4	293.4
57.5°	236.4	237.8	240.7	240.7	240.7	244.9	244.9	247.7	249.2	250.6	253.4
60°	199.4	202.2	202.2	203.7	202.2	205.1	206.5	209.3	210.8	212.2	213.6
62.5°	165.1	165.1	166.5	166.5	166.5	166.5	169.5	169.5	172.3	173.8	175.2
65°	132.4	132.4	132.4	132.4	132.4	132.4	132.4	132.4	133.8	133.8	136.6
67.5°	102.5	101.1	98.2	99.6	98.2	98.2	96.8	96.8	98.2	98.2	101.1
70°	74.0	72.6	69.7	69.7	68.3	66.9	65.5	64.1	62.6	62.6	62.6
72.5°	48.5	45.5	41.3	39.8	39.8	37.0	34.2	32.7	32.7	32.7	32.7
75°	24.2	21.4	18.6	17.1	17.1	14.2	15.7	14.2	14.2	14.2	14.2
77.5°	9.9	7.1	5.7	5.7	5.7	4.3	4.3	4.3	4.3	4.3	4.3
80°	2.8	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
82.5°	1.4	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: P593613

CATALOG NUMBER: HC820D010-HM80520950-81RWWC

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5	1066.5
2.5°	1060.8	1060.8	1058.0	1059.4	1059.4	1059.4	1059.4	1059.4
5°	1048.0	1049.4	1048.0	1049.4	1049.4	1048.0	1048.0	1048.0
7.5°	1035.2	1036.6	1035.2	1036.6	1036.6	1036.6	1035.2	1035.2
10°	1019.5	1019.5	1019.5	1019.5	1019.5	1018.1	1019.5	1019.5
12.5°	998.2	998.2	998.2	999.6	999.6	998.2	998.2	996.8
15°	975.4	972.5	974.0	975.4	974.0	974.0	974.0	974.0
17.5°	944.1	945.5	944.1	944.1	944.1	944.1	945.5	944.1
20°	911.3	911.3	912.7	911.3	911.3	911.3	911.3	909.9
22.5°	874.3	872.9	872.9	874.3	874.3	872.9	874.3	874.3
25°	833.0	834.4	833.0	833.0	834.4	834.4	834.4	833.0
27.5°	788.9	790.3	791.7	790.3	790.3	790.3	791.7	793.1
30°	743.2	746.2	743.2	743.2	746.2	744.7	746.2	746.2
32.5°	694.9	699.2	696.3	699.2	699.2	700.6	699.2	700.6
35°	646.4	650.7	650.7	650.7	652.1	653.5	653.5	652.1
37.5°	600.9	602.3	602.3	605.2	606.6	608.0	608.0	606.6
40°	553.9	556.7	558.1	558.1	558.1	561.0	563.9	561.0
42.5°	508.4	509.8	511.2	511.2	514.1	515.5	516.9	516.9
45°	464.2	467.0	468.4	469.8	471.3	474.2	472.8	475.6
47.5°	418.7	422.9	424.3	425.8	428.6	430.0	431.4	432.8
50°	377.3	380.1	380.1	383.1	387.3	387.3	390.2	391.6
52.5°	336.0	337.5	338.9	340.3	343.1	346.0	346.0	348.8
55°	296.2	297.6	297.6	299.0	300.5	306.1	307.6	307.6
57.5°	254.8	254.8	257.7	259.2	260.6	263.5	263.5	263.5
60°	215.0	216.4	216.4	217.8	219.3	222.1	223.5	222.1
62.5°	175.2	176.6	176.6	178.0	180.8	182.3	180.8	180.8
65°	138.2	139.6	139.6	141.0	143.8	143.8	142.4	143.8
67.5°	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1
70°	64.1	62.6	61.2	62.6	62.6	62.6	61.2	64.1
72.5°	31.3	32.7	32.7	32.7	32.7	32.7	32.7	31.3
75°	14.2	14.2	12.8	12.8	12.8	14.2	14.2	12.8
77.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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



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













(END OF REPORT)