

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: P584012

Luminaire Tested: **HC820D010-HM80520835-81WWW**

Issue Date: 10/21/2021

Test Information

Test Method: LM-41-14
Report Number: P584012
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-HM80520835-81WWW
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2048.6 lumens
Efficiency: N/A
Efficacy: 102.4 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

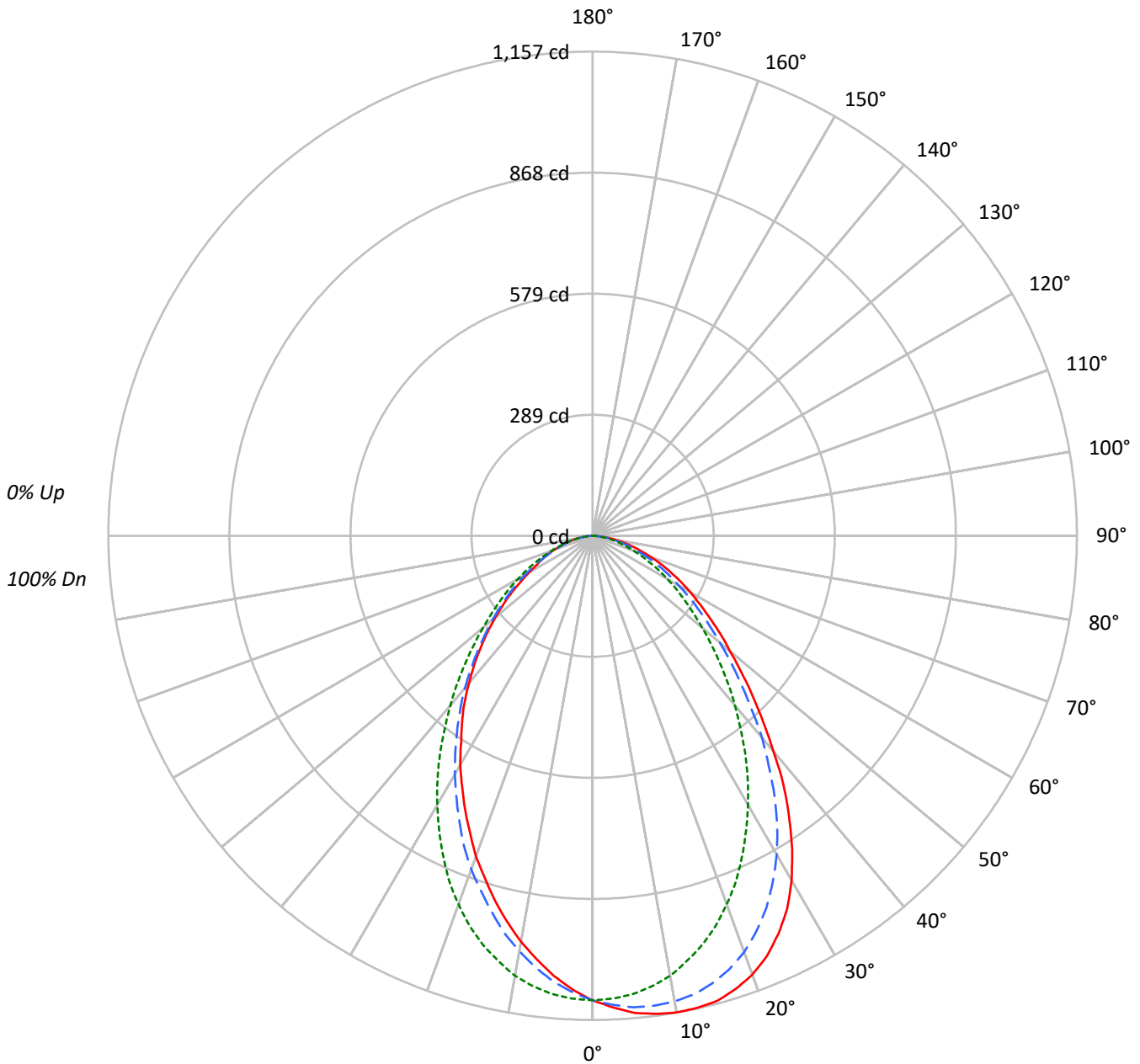
Input Watts (W): 20
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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	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°	34228	34228	34228
5°	35430	34034	32681
10°	36219	33435	30842
15°	36735	32310	28802
20°	36622	30745	26738
25°	35715	28747	24545
30°	33837	26438	22525
35°	30785	23927	20467
40°	27039	21278	18489
45°	23575	18721	16484
50°	20523	16397	14521
55°	18300	14413	12634
60°	16627	12631	10774
65°	14943	10989	9777
70°	13308	9368	8827
75°	11664	7899	7530
80°	9891	6428	6695
85°	7430	4812	5307



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.0	5.1
10°-20°	286.5	14.0
20°-30°	397.6	19.4
30°-40°	411.1	20.1
40°-50°	344.2	16.8
50°-60°	249.9	12.2
60°-70°	157.7	7.7
70°-80°	78.1	3.8
80°-90°	19.4	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°	788.1	38.5
0°-40°	1199.2	58.5
0°-60°	1793.3	87.5
0°-90°	2048.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2048.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1110	1110	1110	1110	1110	
5°	1145	1131	1100	1069	1056	109
15°	1151	1107	1012	931	902	324
25°	1050	982	845	753	721	481
35°	818	758	636	563	544	509
45°	541	502	429	387	378	418
55°	340	310	268	246	235	307
65°	205	179	151	132	134	204
75°	98	81	66	63	63	105
85°	21	16	14	15	15	26
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°	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0
2.5°	1128.1	1128.1	1129.6	1128.1	1128.1	1128.1	1126.6	1126.6	1125.0	1125.0	1122.1
5°	1144.6	1141.7	1144.6	1141.7	1141.7	1141.7	1140.2	1137.1	1135.7	1132.6	1131.1
7.5°	1152.2	1150.7	1150.7	1149.1	1149.1	1147.7	1146.2	1144.6	1138.6	1137.1	1132.6
10°	1156.7	1155.2	1155.2	1153.6	1150.7	1150.7	1147.7	1146.2	1138.6	1135.7	1129.6
12.5°	1155.2	1155.2	1155.2	1153.6	1149.1	1147.7	1144.6	1140.2	1134.1	1128.1	1122.1
15°	1150.7	1150.7	1147.7	1146.2	1141.7	1138.6	1137.1	1129.6	1123.6	1116.0	1106.9
17.5°	1135.7	1135.7	1134.1	1131.1	1126.6	1123.6	1120.5	1113.0	1106.9	1095.0	1085.9
20°	1116.0	1114.5	1113.0	1108.5	1104.0	1102.5	1098.0	1087.4	1079.9	1070.9	1058.8
22.5°	1087.4	1085.9	1084.4	1081.4	1073.8	1070.9	1067.8	1060.3	1046.8	1037.7	1022.7
25°	1049.7	1049.7	1046.8	1042.3	1034.7	1031.6	1027.2	1019.6	1007.5	994.1	982.0
27.5°	1006.1	1004.6	1000.1	997.0	991.0	986.5	978.9	969.9	957.9	947.4	932.2
30°	950.3	950.3	947.4	942.9	935.3	932.2	926.2	915.7	903.6	890.2	879.5
32.5°	887.1	887.1	882.6	879.5	875.0	867.5	866.1	854.0	843.5	832.8	820.8
35°	817.8	819.4	816.3	810.3	802.8	802.8	799.7	789.2	777.2	766.6	757.5
37.5°	748.6	744.1	742.5	739.5	735.0	728.9	726.0	721.4	710.9	703.4	689.8
40°	671.7	673.3	670.2	667.2	665.7	661.2	659.7	652.1	644.7	635.6	629.5
42.5°	602.5	602.5	602.5	599.4	596.4	591.9	590.4	585.9	576.8	570.8	561.8
45°	540.6	536.2	536.2	534.6	533.2	530.1	525.6	522.7	516.7	512.0	501.5
47.5°	480.5	481.9	480.5	478.9	474.5	472.9	471.4	465.4	459.3	454.8	447.3
50°	427.8	430.7	427.8	427.8	424.7	423.3	420.2	415.7	411.2	403.7	396.1
52.5°	384.0	384.0	382.6	381.1	376.6	373.5	372.0	370.6	363.0	357.0	350.9
55°	340.4	341.8	341.8	337.3	335.8	332.9	331.3	326.8	323.9	314.8	310.3
57.5°	302.7	301.2	302.7	299.8	296.7	293.7	292.2	289.1	284.6	278.6	272.6
60°	269.6	266.5	266.5	265.1	262.0	260.5	257.6	253.1	248.5	242.4	237.9
62.5°	236.5	235.0	233.4	231.9	229.0	227.4	225.9	221.4	216.9	212.4	207.8
65°	204.8	204.8	203.3	200.3	198.8	197.3	195.7	192.8	186.8	183.8	179.2
67.5°	176.2	174.7	174.7	171.7	168.7	167.1	167.1	164.2	159.7	155.1	152.1
70°	147.6	149.1	147.6	146.1	143.1	143.1	140.1	138.5	132.5	131.1	126.5
72.5°	122.0	122.0	120.4	120.4	117.5	116.0	116.0	113.0	109.9	107.0	103.9
75°	97.9	97.9	97.9	96.3	94.9	91.8	91.8	90.4	87.3	84.4	81.3
77.5°	76.8	75.3	75.3	73.8	72.3	70.8	70.8	69.3	66.3	64.8	61.7
80°	55.7	54.3	54.3	54.3	51.2	52.7	51.2	49.6	48.2	46.7	45.2
82.5°	36.2	37.7	37.7	36.2	34.6	34.6	34.6	33.1	33.1	31.7	30.1
85°	21.0	21.0	21.0	21.0	19.6	19.6	19.6	18.1	18.1	18.1	16.5
87.5°	9.0	9.0	9.0	9.0	9.0	9.0	7.6	7.6	7.6	7.6	7.6
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°	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0
2.5°	1122.1	1119.0	1117.6	1116.0	1116.0	1114.5	1113.0	1110.0	1110.0	1106.9	1105.5
5°	1128.1	1123.6	1120.5	1117.6	1116.0	1113.0	1110.0	1105.5	1104.0	1099.5	1095.0
7.5°	1129.6	1122.1	1119.0	1113.0	1110.0	1106.9	1100.9	1096.4	1090.4	1085.9	1079.9
10°	1123.6	1117.6	1110.0	1102.5	1100.9	1096.4	1087.4	1081.4	1073.8	1067.8	1058.8
12.5°	1114.5	1105.5	1098.0	1089.0	1084.4	1079.9	1070.9	1061.8	1051.3	1040.8	1031.6
15°	1099.5	1089.0	1078.3	1067.8	1061.8	1057.3	1046.8	1036.3	1025.6	1012.1	1003.0
17.5°	1076.9	1064.9	1054.2	1040.8	1034.7	1030.2	1016.6	1004.6	991.0	977.5	968.4
20°	1048.3	1033.2	1021.1	1006.1	1001.6	994.1	980.5	966.9	951.9	936.9	926.2
22.5°	1010.6	995.6	982.0	966.9	959.4	951.9	938.3	921.7	906.7	894.7	884.1
25°	966.9	953.4	936.9	923.3	914.2	905.2	890.2	876.6	863.0	844.9	834.4
27.5°	918.8	902.2	890.2	872.1	863.0	857.0	840.4	822.3	810.3	793.7	781.7
30°	864.5	849.5	835.9	817.8	808.8	802.8	787.7	771.1	759.1	742.5	730.5
32.5°	807.3	790.8	774.1	762.2	751.5	745.5	728.9	718.4	703.4	689.8	676.2
35°	745.5	728.9	716.9	700.3	694.3	688.3	674.7	661.2	647.6	635.6	625.0
37.5°	679.3	667.2	653.6	641.6	637.1	631.1	614.5	602.5	591.9	579.9	570.8
40°	614.5	604.0	594.9	582.8	575.3	570.8	558.7	548.2	536.2	528.6	519.6
42.5°	555.8	543.7	534.6	525.6	518.1	513.6	503.1	495.5	486.5	478.9	468.4
45°	494.0	487.9	477.4	470.0	465.4	459.3	451.9	442.8	435.2	429.3	421.7
47.5°	439.8	433.8	426.2	417.2	414.2	409.7	402.1	396.1	390.1	384.0	376.6
50°	390.1	382.6	376.6	370.6	367.5	363.0	355.4	352.5	347.9	341.8	337.3
52.5°	344.9	338.9	332.9	325.3	323.9	320.8	316.3	310.3	305.8	302.7	299.8
55°	304.2	298.2	293.7	287.7	286.2	283.2	277.2	274.1	271.2	268.1	265.1
57.5°	268.1	262.0	256.0	253.1	250.0	247.0	245.5	241.0	237.9	236.5	233.4
60°	235.0	229.0	224.5	219.9	218.4	216.9	213.8	210.9	207.8	204.8	203.3
62.5°	203.3	197.3	194.3	191.2	188.3	188.3	185.2	182.3	179.2	177.8	174.7
65°	174.7	171.7	167.1	162.6	161.1	161.1	156.6	155.1	153.7	150.6	147.6
67.5°	147.6	144.6	140.1	138.5	137.1	135.6	134.0	131.1	128.0	126.5	123.5
70°	123.5	120.4	117.5	116.0	114.4	113.0	109.9	108.4	105.4	103.9	102.4
72.5°	99.4	97.9	94.9	93.4	91.8	90.4	88.9	87.3	84.4	82.9	81.3
75°	79.8	78.4	75.3	73.8	72.3	72.3	70.8	67.7	66.3	66.3	64.8
77.5°	60.3	58.7	57.2	55.7	54.3	54.3	52.7	51.2	49.6	49.6	48.2
80°	43.7	42.2	40.7	40.7	40.7	39.1	37.7	37.7	36.2	36.2	34.6
82.5°	28.6	28.6	27.1	27.1	27.1	25.6	25.6	24.1	24.1	24.1	24.1
85°	16.5	16.5	16.5	15.0	15.0	15.0	15.0	15.0	15.0	13.6	15.0
87.5°	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	6.0	6.0	6.0
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°	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0
2.5°	1104.0	1102.5	1099.5	1099.5	1096.4	1096.4	1095.0	1093.5	1091.9	1090.4	1089.0
5°	1093.5	1087.4	1084.4	1082.9	1079.9	1078.3	1073.8	1070.9	1069.4	1066.3	1063.3
7.5°	1073.8	1067.8	1061.8	1060.3	1058.8	1052.8	1048.3	1043.7	1040.8	1037.7	1034.7
10°	1051.3	1045.2	1037.7	1034.7	1031.6	1024.2	1018.2	1013.6	1007.5	1001.6	1000.1
12.5°	1024.2	1015.1	1006.1	1003.0	998.6	991.0	985.0	977.5	972.9	965.5	963.9
15°	992.5	982.0	974.4	966.9	963.9	956.4	945.8	939.8	930.8	927.8	920.2
17.5°	954.9	944.3	933.8	930.8	926.2	915.7	905.2	897.6	888.6	884.1	879.5
20°	915.7	902.2	891.6	888.6	882.6	873.5	863.0	855.5	848.0	838.9	834.4
22.5°	870.5	855.5	846.4	838.9	837.4	826.8	814.8	808.8	802.8	795.2	789.2
25°	820.8	807.3	796.8	790.8	787.7	778.7	769.6	762.2	753.1	748.6	741.0
27.5°	769.6	760.6	747.0	741.0	736.5	728.9	718.4	713.9	704.8	698.8	694.3
30°	720.0	706.4	698.8	691.4	686.7	679.3	670.2	665.7	658.1	652.1	647.6
32.5°	665.7	656.7	646.1	643.1	637.1	629.5	623.5	616.1	610.0	604.0	602.5
35°	616.1	604.0	593.4	590.4	585.9	578.4	575.3	570.8	563.3	561.8	555.8
37.5°	561.8	555.8	543.7	539.2	537.7	531.7	525.6	522.7	518.1	513.6	512.0
40°	510.6	503.1	497.0	492.5	489.5	485.0	478.9	477.4	474.5	468.4	466.9
42.5°	462.4	454.8	448.8	447.3	442.8	438.3	435.2	430.7	429.3	427.8	424.7
45°	415.7	411.2	405.2	403.7	402.1	396.1	393.1	390.1	387.1	385.6	382.6
47.5°	373.5	369.0	364.5	363.0	359.9	358.5	353.9	352.5	347.9	346.4	344.9
50°	332.9	329.9	326.8	325.3	322.3	320.8	317.8	314.8	311.8	310.3	308.7
52.5°	296.7	293.7	290.7	289.1	287.7	284.6	281.7	278.6	277.2	275.6	274.1
55°	262.0	259.1	257.6	256.0	254.5	253.1	248.5	247.0	245.5	244.0	241.0
57.5°	230.5	227.4	224.5	224.5	222.9	221.4	218.4	215.4	215.4	212.4	209.3
60°	201.8	198.8	195.7	194.3	192.8	189.8	188.3	186.8	185.2	183.8	180.7
62.5°	171.7	170.2	167.1	167.1	164.2	162.6	161.1	159.7	158.2	155.1	153.7
65°	146.1	144.6	141.6	140.1	140.1	138.5	135.6	134.0	132.5	132.5	131.1
67.5°	122.0	120.4	117.5	116.0	116.0	114.4	113.0	113.0	111.5	109.9	111.5
70°	100.9	97.9	97.9	96.3	96.3	94.9	93.4	93.4	93.4	94.9	94.9
72.5°	79.8	78.4	76.8	76.8	76.8	76.8	75.3	75.3	76.8	78.4	78.4
75°	63.2	61.7	61.7	61.7	60.3	60.3	61.7	61.7	63.2	63.2	63.2
77.5°	46.7	46.7	46.7	46.7	46.7	46.7	48.2	48.2	49.6	49.6	49.6
80°	34.6	34.6	34.6	34.6	34.6	36.2	36.2	36.2	36.2	36.2	37.7
82.5°	24.1	24.1	24.1	24.1	24.1	24.1	24.1	25.6	25.6	25.6	25.6
85°	13.6	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
87.5°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
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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CATALOG NUMBER: HC820D010-HM80520835-81WWW

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0	1110.0
2.5°	1087.4	1087.4	1087.4	1089.0	1085.9	1085.9	1085.9	1085.9
5°	1061.8	1060.3	1058.8	1060.3	1057.3	1057.3	1055.8	1055.8
7.5°	1030.2	1028.7	1027.2	1027.2	1024.2	1024.2	1022.7	1021.1
10°	995.6	992.5	994.1	991.0	989.6	988.0	986.5	985.0
12.5°	957.9	954.9	953.4	950.3	947.4	945.8	947.4	944.3
15°	917.2	912.7	911.2	908.2	905.2	903.6	903.6	902.2
17.5°	872.1	869.0	867.5	864.5	863.0	860.0	858.5	857.0
20°	829.9	822.3	823.9	820.8	819.4	813.3	813.3	814.8
22.5°	783.2	778.7	775.6	772.7	771.1	768.1	768.1	766.6
25°	736.5	732.0	730.5	727.4	726.0	722.9	721.4	721.4
27.5°	691.4	685.3	685.3	682.3	679.3	677.8	676.2	674.7
30°	643.1	638.6	637.1	637.1	635.6	635.6	631.1	632.6
32.5°	598.0	594.9	593.4	590.4	590.4	588.9	588.9	584.4
35°	552.7	548.2	549.7	546.7	545.3	543.7	545.3	543.7
37.5°	509.1	506.0	506.0	503.1	503.1	501.5	500.0	503.1
40°	465.4	463.9	462.4	460.9	462.4	460.9	457.9	459.3
42.5°	421.7	421.7	420.2	420.2	418.7	418.7	418.7	418.7
45°	382.6	381.1	381.1	379.5	379.5	379.5	379.5	378.0
47.5°	343.4	341.8	341.8	341.8	340.4	340.4	338.9	340.4
50°	305.8	305.8	304.2	304.2	305.8	304.2	302.7	302.7
52.5°	271.2	271.2	269.6	269.6	268.1	266.5	268.1	268.1
55°	239.5	237.9	236.5	236.5	235.0	233.4	233.4	235.0
57.5°	209.3	207.8	206.4	206.4	203.3	201.8	201.8	201.8
60°	180.7	177.8	177.8	176.2	176.2	174.7	174.7	174.7
62.5°	153.7	152.1	152.1	152.1	152.1	150.6	150.6	150.6
65°	131.1	131.1	131.1	132.5	132.5	134.0	134.0	134.0
67.5°	113.0	114.4	114.4	114.4	116.0	116.0	116.0	114.4
70°	96.3	96.3	96.3	97.9	97.9	97.9	97.9	97.9
72.5°	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8
75°	63.2	64.8	64.8	64.8	63.2	64.8	64.8	63.2
77.5°	49.6	49.6	49.6	49.6	49.6	49.6	49.6	49.6
80°	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7
82.5°	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6
85°	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
87.5°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
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)