

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: P584011

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

Issue Date: 10/21/2021

Test Information

Test Method: LM-41-14
Report Number: P584011
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2109-368-17)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 10/21/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: HC820D010-HM80520835-81WWBB
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE BAFFLE TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1876.8 lumens
Efficiency: N/A
Efficacy: 93.8 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.07 / 1.16
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

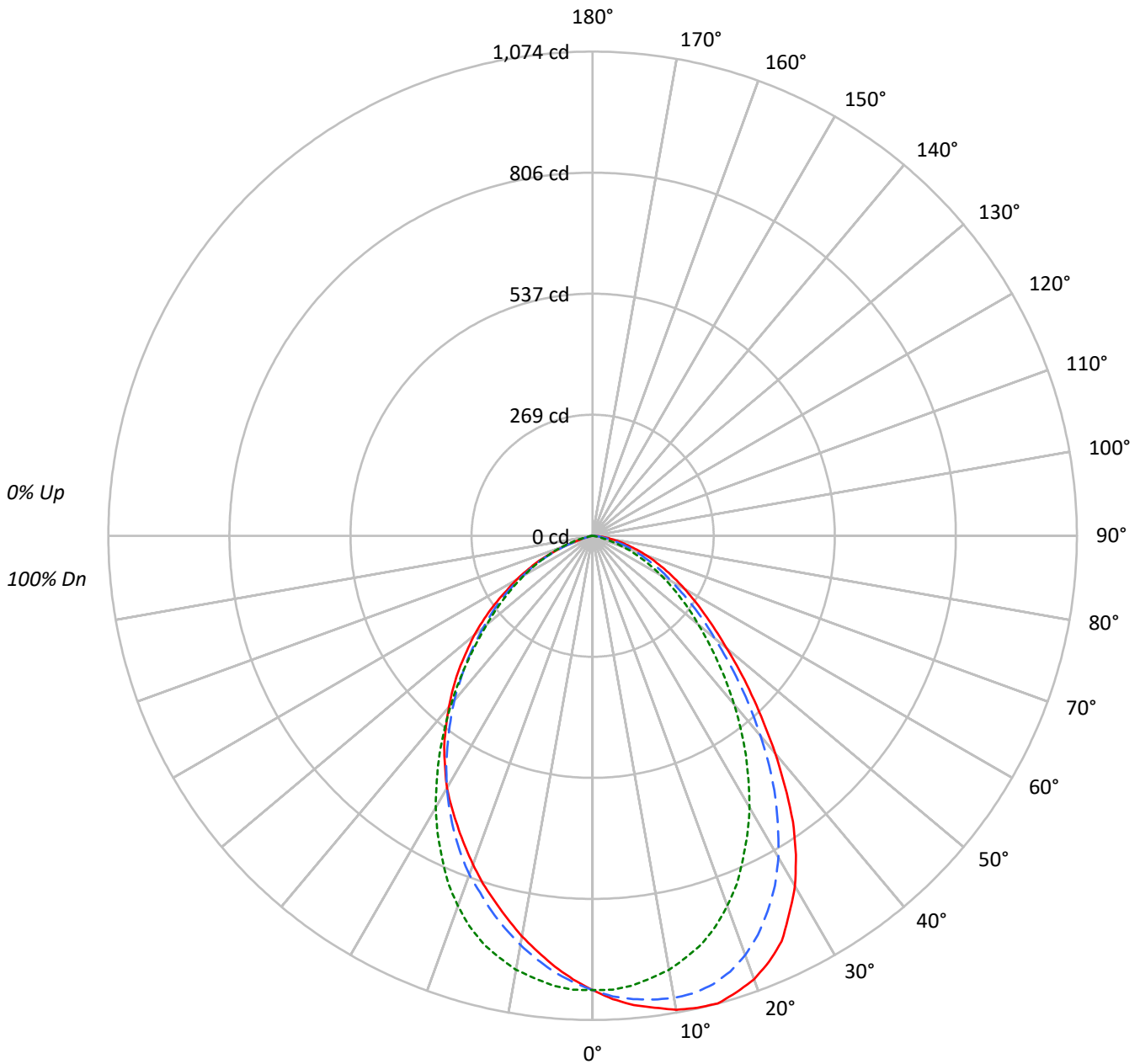
Input Watts (W): 20
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				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			100
1	111	107	104	101	108	105	102	99	101	98	96	97	95	93	93	92	90	88			88
2	103	96	90	86	100	94	89	85	91	86	83	88	84	81	85	82	79	77			77
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67			67
4	88	78	70	64	86	76	69	64	74	68	63	72	66	62	70	65	61	59			59
5	82	70	63	57	80	69	62	56	67	61	56	65	60	55	64	59	55	53			53
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	58	53	49	47			47
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	49	44	43			43
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40	39			39
9	62	50	43	37	61	50	42	37	48	42	37	47	41	37	46	41	37	35			35
10	59	47	39	34	57	46	39	34	45	39	34	44	38	34	43	38	34	32			32

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	31074	31074	31074
5°	32353	31004	29697
10°	33435	30607	28250
15°	34280	29910	26781
20°	34351	28664	25452
25°	33769	26852	24137
30°	31961	24775	23005
35°	29144	22282	21604
40°	25340	19640	19946
45°	21744	17012	18259
50°	18570	14670	16397
55°	16274	12634	14252
60°	14493	10774	11983
65°	12856	8785	9566
70°	11405	6519	5437
75°	9508	3407	1620
80°	7494	1065	266
85°	5307	531	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	94.9	5.1
10°-20°	266.1	14.2
20°-30°	376.6	20.1
30°-40°	394.1	21.0
40°-50°	328.7	17.5
50°-60°	233.1	12.4
60°-70°	134.2	7.2
70°-80°	43.2	2.3
80°-90°	5.9	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°	737.7	39.3
0°-40°	1131.7	60.3
0°-60°	1693.5	90.2
0°-90°	1876.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1876.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1008	1008	1008	1008	1008	
5°	1045	1032	1002	972	959	100
15°	1074	1030	937	863	839	302
25°	992	919	789	726	709	453
35°	774	706	592	560	574	480
45°	499	458	390	395	419	386
55°	303	271	235	247	265	274
65°	176	148	120	120	131	176
75°	80	59	29	14	14	86
85°	15	8	2	0	0	19
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°	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7
2.5°	1028.7	1027.2	1025.6	1027.2	1025.6	1027.2	1025.6	1025.6	1024.2	1022.7	1022.7
5°	1045.2	1043.7	1043.7	1043.7	1042.3	1040.8	1040.8	1039.2	1036.3	1034.7	1031.6
7.5°	1055.8	1057.3	1057.3	1057.3	1054.3	1054.3	1051.3	1048.3	1045.2	1042.3	1037.7
10°	1067.8	1067.8	1066.3	1064.9	1061.8	1060.4	1058.8	1055.8	1051.3	1045.2	1040.8
12.5°	1072.3	1072.3	1070.9	1067.8	1066.3	1064.9	1063.3	1058.8	1052.8	1045.2	1039.2
15°	1073.8	1070.9	1069.4	1067.8	1064.9	1060.4	1060.4	1054.3	1046.8	1037.7	1030.2
17.5°	1061.8	1063.3	1060.4	1057.3	1052.8	1049.7	1045.2	1040.8	1031.6	1021.1	1013.7
20°	1046.8	1045.2	1043.7	1039.2	1033.2	1031.6	1027.2	1019.6	1012.1	1000.1	989.6
22.5°	1022.7	1021.1	1018.2	1015.1	1009.1	1006.1	1001.6	992.5	982.0	969.9	957.9
25°	992.5	989.6	985.0	978.9	974.4	971.5	965.5	956.4	944.3	930.8	918.8
27.5°	944.3	948.9	945.8	936.9	932.2	926.2	924.8	912.7	902.2	888.6	875.0
30°	897.6	897.6	893.1	888.6	881.1	876.6	870.5	861.6	850.9	834.4	823.9
32.5°	838.9	837.4	831.4	829.9	823.9	814.9	813.3	801.3	790.8	778.7	765.1
35°	774.2	771.1	765.1	760.6	757.5	753.1	748.6	738.0	727.4	715.5	706.4
37.5°	700.3	700.3	698.8	691.4	688.3	685.3	680.7	670.2	664.2	652.1	643.1
40°	629.5	628.1	623.5	622.1	619.0	614.5	611.4	605.4	596.4	587.3	578.4
42.5°	560.3	561.8	555.8	557.3	551.3	548.2	546.7	537.7	533.2	524.1	516.7
45°	498.6	497.0	494.0	492.5	489.5	486.5	483.4	478.9	471.4	462.4	457.9
47.5°	441.2	436.7	436.7	435.3	433.8	427.8	426.2	421.7	417.2	408.1	402.1
50°	387.1	387.1	387.1	385.6	381.1	379.5	376.6	372.0	367.5	361.5	352.5
52.5°	343.4	343.4	343.4	341.8	335.9	334.4	332.9	326.8	320.8	316.3	310.3
55°	302.7	304.2	302.7	299.8	295.1	295.1	290.7	287.7	281.7	277.2	271.2
57.5°	268.1	268.1	265.1	263.6	260.5	259.1	256.0	253.1	245.5	241.0	233.4
60°	235.0	233.4	233.4	230.5	227.4	224.5	222.9	218.4	215.4	207.8	201.8
62.5°	204.8	204.8	201.8	201.8	195.7	195.7	194.3	189.8	185.2	177.8	174.7
65°	176.2	176.2	174.7	173.2	168.7	167.1	165.7	161.1	156.6	152.1	147.6
67.5°	150.6	150.6	147.6	146.1	143.1	141.6	138.5	135.6	131.1	126.5	122.0
70°	126.5	125.1	123.5	122.0	119.0	117.5	114.4	111.5	107.0	103.9	99.4
72.5°	102.4	102.4	100.9	97.9	96.5	94.9	93.4	90.4	85.8	81.3	78.4
75°	79.8	79.8	79.8	76.8	73.8	72.3	72.3	69.3	66.3	61.7	58.7
77.5°	61.7	60.3	58.7	58.7	55.7	54.3	52.7	51.2	46.7	45.2	42.2
80°	42.2	43.7	42.2	40.7	39.1	37.7	37.7	34.6	33.1	30.1	27.1
82.5°	28.6	27.1	27.1	25.6	25.6	24.1	24.1	21.0	19.6	18.1	16.5
85°	15.0	15.0	13.6	13.6	13.6	12.1	12.1	10.5	10.5	9.0	7.6
87.5°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	3.0	3.0	3.0
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7
2.5°	1021.1	1018.2	1016.6	1016.6	1015.1	1013.7	1012.1	1010.6	1007.7	1007.7	1004.6
5°	1028.7	1025.6	1024.2	1019.6	1016.6	1016.6	1010.6	1009.1	1004.6	1001.6	998.6
7.5°	1034.7	1028.7	1024.2	1019.6	1016.6	1013.7	1007.7	1001.6	995.6	989.6	986.5
10°	1034.7	1028.7	1021.1	1013.7	1010.6	1007.7	1000.1	991.0	983.5	977.5	969.9
12.5°	1031.6	1022.7	1013.7	1007.7	1001.6	997.0	988.0	978.9	969.9	957.9	951.9
15°	1022.7	1010.6	1001.6	991.0	986.5	978.9	971.5	957.9	947.4	936.9	929.3
17.5°	1004.6	989.6	978.9	968.4	961.0	956.4	944.3	932.2	920.3	908.2	899.1
20°	977.5	963.9	951.9	938.3	932.2	926.2	911.2	899.1	887.1	873.5	864.5
22.5°	944.3	930.8	914.3	903.6	894.7	887.1	873.5	860.0	848.0	835.9	823.9
25°	903.6	890.2	875.0	858.5	852.5	844.9	829.9	816.3	802.8	789.2	778.7
27.5°	860.0	841.9	829.9	811.8	805.8	798.2	781.7	766.6	754.6	744.1	732.0
30°	807.3	793.7	777.2	760.6	754.6	747.0	733.4	720.0	707.9	695.8	683.8
32.5°	750.1	736.5	720.0	707.9	698.8	692.8	679.3	667.2	655.2	643.1	632.6
35°	689.8	674.8	662.7	650.7	643.1	635.6	622.1	611.4	602.5	591.9	581.3
37.5°	628.1	617.5	605.4	591.9	584.4	578.4	567.8	555.8	548.2	539.2	531.7
40°	567.8	555.8	545.3	533.2	527.2	522.7	512.0	503.1	495.5	487.9	483.4
42.5°	506.0	495.5	485.0	477.4	472.9	468.4	460.9	450.3	445.9	438.3	433.8
45°	448.8	439.8	432.3	421.7	418.7	415.7	406.6	399.2	394.6	390.1	387.1
47.5°	394.6	388.5	379.5	373.5	369.0	365.9	359.9	353.9	349.4	346.4	343.4
50°	347.9	340.4	334.4	328.4	325.3	320.8	314.8	311.8	308.7	305.8	305.8
52.5°	304.2	296.7	290.7	286.2	283.2	280.1	275.6	274.1	271.2	271.2	269.6
55°	263.6	259.1	253.1	247.0	245.5	244.0	241.0	237.9	236.5	235.0	236.5
57.5°	229.0	224.5	218.4	213.8	212.4	210.9	209.3	206.4	204.8	204.8	204.8
60°	197.3	192.8	188.3	183.8	183.8	180.7	179.2	177.8	176.2	174.7	174.7
62.5°	168.7	164.2	159.7	156.6	155.1	153.7	150.6	149.1	147.6	147.6	146.1
65°	143.1	137.1	135.6	131.1	129.5	128.0	126.5	123.5	122.0	120.4	119.0
67.5°	117.5	114.4	109.9	107.0	105.4	103.9	102.4	99.4	97.9	96.5	93.4
70°	94.9	91.8	88.9	85.8	84.4	82.9	79.8	76.8	75.3	72.3	67.7
72.5°	73.8	70.8	67.7	64.8	63.2	61.7	58.7	55.7	52.7	49.6	46.7
75°	55.7	52.7	48.2	45.2	43.7	43.7	39.1	36.2	33.1	28.6	25.6
77.5°	39.1	34.6	33.1	30.1	28.6	25.6	22.6	19.6	16.5	15.0	12.1
80°	25.6	22.6	19.6	18.1	16.5	15.0	13.6	10.5	7.6	6.0	4.5
82.5°	15.0	13.6	12.1	10.5	9.0	7.6	6.0	6.0	4.5	3.0	1.5
85°	7.6	6.0	4.5	4.5	3.0	3.0	3.0	1.5	1.5	1.5	1.5
87.5°	3.0	1.5	1.5	1.5	1.5	1.5	1.5	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°	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7
2.5°	1003.0	1001.6	1000.1	998.6	998.6	995.6	995.6	994.1	991.0	989.6	989.6
5°	994.1	989.6	986.5	985.0	983.5	978.9	977.5	974.4	971.5	968.4	967.0
7.5°	980.5	972.9	969.9	968.4	963.9	959.4	956.4	951.9	947.4	942.9	941.3
10°	963.9	956.4	948.9	945.8	941.3	938.3	932.2	926.2	921.7	917.2	912.7
12.5°	942.9	933.8	926.2	923.3	918.8	912.7	903.6	900.7	893.1	890.2	884.1
15°	918.8	908.2	900.7	896.2	891.6	882.6	876.6	870.5	863.0	860.0	854.0
17.5°	888.6	876.6	869.0	864.5	861.6	854.0	844.9	837.4	829.9	826.8	822.3
20°	852.5	844.9	834.4	829.9	826.8	817.8	808.8	805.8	799.7	793.7	789.2
22.5°	811.8	804.2	793.7	789.2	787.7	780.1	772.7	768.2	763.6	759.1	754.6
25°	769.6	760.6	751.5	748.6	745.5	739.5	733.4	730.5	726.0	722.9	720.0
27.5°	724.4	715.5	707.9	703.4	700.3	695.8	692.8	689.8	686.7	683.8	682.3
30°	676.2	667.2	661.2	658.1	655.2	653.6	649.2	647.6	646.1	643.1	644.7
32.5°	628.1	620.6	614.5	610.0	610.0	607.0	605.4	605.4	604.0	604.0	604.0
35°	575.4	570.8	566.3	564.8	563.3	561.8	560.3	561.8	560.3	561.8	563.3
37.5°	527.2	522.7	519.6	518.1	516.7	518.1	516.7	516.7	518.1	521.1	522.7
40°	477.4	474.5	471.4	472.9	471.4	471.4	471.4	476.0	477.4	478.9	480.5
42.5°	430.7	427.8	426.2	426.2	427.8	426.2	429.3	430.7	433.8	438.3	441.2
45°	385.6	384.0	384.0	385.6	384.0	387.1	387.1	390.1	394.6	397.6	400.6
47.5°	343.4	343.4	343.4	344.9	344.9	346.4	349.4	350.9	353.9	357.0	359.9
50°	304.2	305.8	307.2	307.2	307.2	310.3	313.2	314.8	316.3	317.8	322.3
52.5°	269.6	271.2	271.2	272.6	274.1	275.6	277.2	280.1	281.7	284.6	286.2
55°	236.5	236.5	239.5	241.0	241.0	241.0	244.0	244.0	247.0	248.5	251.5
57.5°	204.8	206.4	206.4	207.8	207.8	209.3	210.9	212.4	213.8	215.4	216.9
60°	174.7	174.7	174.7	176.2	177.8	179.2	177.8	180.7	180.7	183.8	185.2
62.5°	146.1	147.6	147.6	147.6	147.6	147.6	147.6	149.1	150.6	152.1	153.7
65°	119.0	119.0	119.0	117.5	119.0	117.5	119.0	120.4	120.4	122.0	123.5
67.5°	91.8	91.8	88.9	88.9	90.4	90.4	90.4	90.4	88.9	91.8	91.8
70°	66.3	64.8	63.2	61.7	61.7	60.3	60.3	58.7	58.7	58.7	58.7
72.5°	43.7	40.7	37.7	36.2	34.6	34.6	31.7	30.1	31.7	31.7	31.7
75°	22.6	19.6	18.1	16.5	15.0	15.0	13.6	13.6	13.6	13.6	13.6
77.5°	9.0	7.6	6.0	6.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5
80°	3.0	3.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
82.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
85°	1.5	0.0	0.0	1.5	0.0	1.5	1.5	1.5	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



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CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7	1007.7
2.5°	988.0	988.0	986.5	988.0	985.0	986.5	985.0	985.0
5°	965.5	962.4	962.4	962.4	961.0	961.0	959.4	959.4
7.5°	938.3	936.9	935.3	933.8	932.2	930.8	930.8	930.8
10°	911.2	908.2	908.2	906.7	903.6	902.2	902.2	902.2
12.5°	879.5	878.1	876.6	876.6	870.5	872.1	870.5	870.5
15°	849.5	848.0	848.0	843.5	840.4	840.4	840.4	838.9
17.5°	817.8	816.3	814.9	811.8	808.8	808.8	807.3	808.8
20°	784.7	783.2	780.1	780.1	778.7	777.2	774.2	775.6
22.5°	751.5	748.6	747.0	747.0	745.5	745.5	742.5	742.5
25°	716.9	715.5	713.9	715.5	712.4	712.4	709.4	709.4
27.5°	680.7	679.3	679.3	679.3	677.8	679.3	677.8	677.8
30°	644.7	644.7	643.1	643.1	644.7	643.1	644.7	646.1
32.5°	605.4	605.4	607.0	607.0	608.5	608.5	608.5	608.5
35°	564.8	567.8	567.8	569.4	570.8	572.3	572.3	573.9
37.5°	527.2	528.7	530.1	531.7	534.6	534.6	534.6	534.6
40°	486.5	487.9	491.0	489.5	495.5	497.0	495.5	495.5
42.5°	444.3	447.3	448.8	451.9	453.3	456.4	457.9	457.9
45°	405.2	406.6	409.7	412.6	414.2	418.7	418.7	418.7
47.5°	364.5	367.5	369.0	372.0	373.5	378.0	379.5	378.0
50°	325.3	328.4	331.3	331.3	335.9	337.3	340.4	341.8
52.5°	287.7	289.2	292.2	293.7	296.7	299.8	301.2	302.7
55°	251.5	253.1	256.0	256.0	260.5	262.0	265.1	265.1
57.5°	218.4	219.9	222.9	221.4	224.5	227.4	227.4	225.9
60°	186.8	186.8	186.8	189.8	191.2	192.8	194.3	194.3
62.5°	153.7	156.6	158.2	158.2	159.7	161.1	161.1	159.7
65°	123.5	126.5	128.0	128.0	129.5	129.5	129.5	131.1
67.5°	93.4	93.4	93.4	94.9	93.4	93.4	93.4	93.4
70°	58.7	58.7	58.7	58.7	57.2	58.7	58.7	60.3
72.5°	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7
75°	13.6	13.6	13.6	15.0	13.6	13.6	13.6	13.6
77.5°	6.0	4.5	6.0	6.0	4.5	4.5	4.5	4.5
80°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
82.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
85°	0.0	1.5	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)