

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: P584080

Luminaire Tested: **HC820D010-HM80520935-81WWW**

Issue Date: 10/21/2021

Test Information

Test Method: LM-41-14
Report Number: P584080
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-HM80520935-81WWW
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1880.1 lumens
Efficiency: N/A
Efficacy: 94.0 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

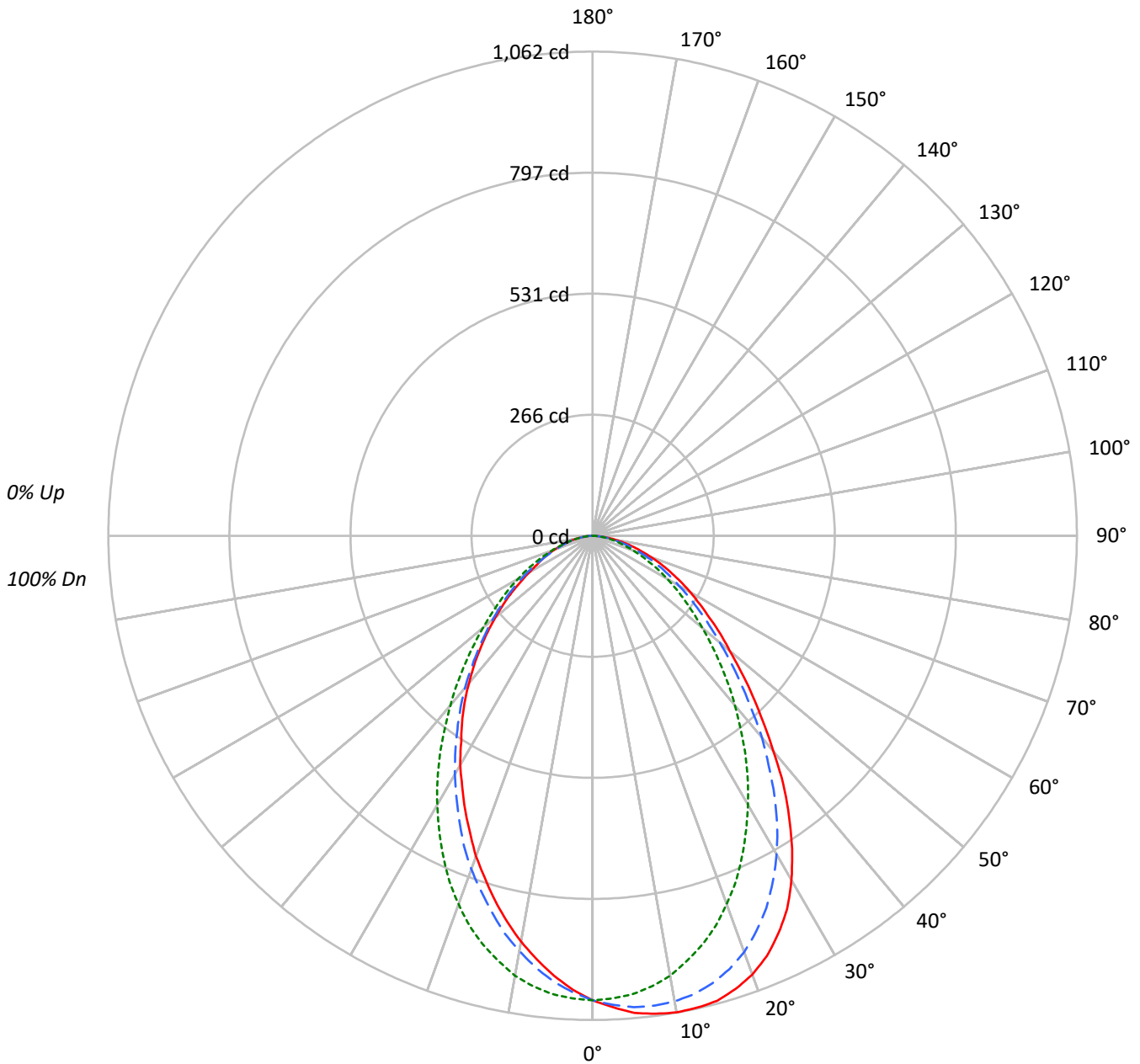
Input Watts (W): 20
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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			100
1	110	106	103	99	108	104	101	98	100	97	95	96	94	92	93	91	89	87			87
2	102	95	89	84	99	93	88	83	90	85	81	86	83	79	83	80	78	76			76
3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66			66
4	87	76	69	63	85	75	68	62	73	67	62	71	65	61	68	64	60	58			58
5	81	69	61	55	79	68	61	55	66	60	54	64	59	54	63	57	53	51			51
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46			46
7	70	58	50	44	69	57	50	44	56	49	44	54	48	44	53	48	43	41			41
8	66	53	46	40	64	53	45	40	51	45	40	50	44	40	49	44	39	38			38
9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34			34
10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	32			32

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	31416	31416	31416
5°	32520	31236	29995
10°	33241	30686	28306
15°	33712	29651	26433
20°	33609	28215	24543
25°	32779	26382	22531
30°	31056	24262	20673
35°	28256	21958	18784
40°	24817	19531	16971
45°	21639	17182	15128
50°	18829	15054	13332
55°	16795	13231	11591
60°	15258	11588	9892
65°	13710	10084	8975
70°	12217	8601	8096
75°	10699	7256	6910
80°	9092	5896	6126
85°	6864	4387	4883



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	95.4	5.1
10°-20°	262.9	14.0
20°-30°	364.9	19.4
30°-40°	377.3	20.1
40°-50°	315.9	16.8
50°-60°	229.3	12.2
60°-70°	144.7	7.7
70°-80°	71.7	3.8
80°-90°	17.8	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°	723.3	38.5
0°-40°	1100.6	58.5
0°-60°	1645.9	87.5
0°-90°	1880.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1880.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1019	1019	1019	1019	1019	
5°	1051	1038	1009	981	969	100
15°	1056	1016	929	854	828	297
25°	963	901	775	691	662	441
35°	751	695	583	517	499	467
45°	496	460	394	355	347	384
55°	312	285	246	225	216	282
65°	188	164	138	122	123	187
75°	90	75	61	58	58	96
85°	19	15	12	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°	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8
2.5°	1035.3	1035.3	1036.7	1035.3	1035.3	1035.3	1033.9	1033.9	1032.6	1032.6	1029.8
5°	1050.6	1047.7	1050.6	1047.7	1047.7	1047.7	1046.4	1043.6	1042.2	1039.5	1038.0
7.5°	1057.4	1056.0	1056.0	1054.7	1054.7	1053.3	1051.9	1050.6	1045.0	1043.6	1039.5
10°	1061.6	1060.1	1060.1	1058.8	1056.0	1056.0	1053.3	1051.9	1045.0	1042.2	1036.7
12.5°	1060.1	1060.1	1060.1	1058.8	1054.7	1053.3	1050.6	1046.4	1040.9	1035.3	1029.8
15°	1056.0	1056.0	1053.3	1051.9	1047.7	1045.0	1043.6	1036.7	1031.2	1024.2	1015.9
17.5°	1042.2	1042.2	1040.9	1038.0	1033.9	1031.2	1028.3	1021.5	1015.9	1004.9	996.7
20°	1024.2	1022.9	1021.5	1017.3	1013.2	1011.8	1007.7	998.0	991.1	982.8	971.7
22.5°	998.0	996.7	995.2	992.4	985.6	982.8	980.0	973.1	960.6	952.3	938.5
25°	963.4	963.4	960.6	956.5	949.6	946.9	942.6	935.8	924.7	912.3	901.3
27.5°	923.4	922.0	917.8	915.1	909.5	905.4	898.4	890.2	879.2	869.5	855.6
30°	872.2	872.2	869.5	865.3	858.4	855.6	850.1	840.4	829.4	816.9	807.2
32.5°	814.2	814.2	810.0	807.2	803.1	796.2	794.8	783.8	774.1	764.4	753.3
35°	750.6	752.0	749.2	743.6	736.7	736.7	734.0	724.3	713.2	703.5	695.3
37.5°	687.0	682.8	681.4	678.7	674.6	669.0	666.3	662.2	652.5	645.5	633.1
40°	616.5	617.8	615.1	612.4	611.0	606.8	605.4	598.6	591.6	583.3	577.8
42.5°	552.9	552.9	552.9	550.1	547.4	543.2	541.8	537.7	529.4	523.9	515.6
45°	496.2	492.1	492.1	490.6	489.3	486.5	482.4	479.7	474.1	470.0	460.3
47.5°	440.9	442.3	440.9	439.6	435.4	434.0	432.6	427.2	421.6	417.5	410.5
50°	392.5	395.4	392.5	392.5	389.8	388.4	385.7	381.5	377.4	370.4	363.6
52.5°	352.5	352.5	351.1	349.8	345.6	342.8	341.4	340.1	333.1	327.7	322.1
55°	312.4	313.8	313.8	309.6	308.3	305.4	304.1	300.0	297.2	288.9	284.7
57.5°	277.9	276.5	277.9	275.1	272.3	269.5	268.2	265.4	261.2	255.7	250.2
60°	247.4	244.7	244.7	243.3	240.5	239.1	236.4	232.3	228.1	222.6	218.4
62.5°	217.0	215.6	214.3	212.9	210.2	208.7	207.3	203.2	199.0	194.9	190.8
65°	187.9	187.9	186.6	183.8	182.5	181.1	179.7	176.9	171.4	168.7	164.5
67.5°	161.7	160.4	160.4	157.6	154.8	153.4	153.4	150.7	146.6	142.4	139.6
70°	135.5	136.9	135.5	134.0	131.3	131.3	128.6	127.2	121.6	120.2	116.1
72.5°	111.9	111.9	110.6	110.6	107.8	106.4	106.4	103.7	100.9	98.1	95.4
75°	89.8	89.8	89.8	88.4	87.1	84.3	84.3	83.0	80.1	77.4	74.6
77.5°	70.4	69.1	69.1	67.7	66.3	65.0	65.0	63.6	60.9	59.5	56.6
80°	51.2	49.8	49.8	49.8	47.0	48.3	47.0	45.6	44.2	42.9	41.5
82.5°	33.2	34.5	34.5	33.2	31.8	31.8	31.8	30.4	30.4	29.1	27.7
85°	19.4	19.4	19.4	19.4	18.0	18.0	18.0	16.5	16.5	16.5	15.2
87.5°	8.3	8.3	8.3	8.3	8.3	8.3	6.9	6.9	6.9	6.9	6.9
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°	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8
2.5°	1029.8	1027.0	1025.6	1024.2	1024.2	1022.9	1021.5	1018.8	1018.8	1015.9	1014.6
5°	1035.3	1031.2	1028.3	1025.6	1024.2	1021.5	1018.8	1014.6	1013.2	1009.1	1004.9
7.5°	1036.7	1029.8	1027.0	1021.5	1018.8	1015.9	1010.4	1006.2	1000.8	996.7	991.1
10°	1031.2	1025.6	1018.8	1011.8	1010.4	1006.2	998.0	992.4	985.6	980.0	971.7
12.5°	1022.9	1014.6	1007.7	999.4	995.2	991.1	982.8	974.4	964.9	955.2	946.9
15°	1009.1	999.4	989.7	980.0	974.4	970.3	960.6	951.0	941.3	928.8	920.5
17.5°	988.3	977.3	967.6	955.2	949.6	945.5	933.1	922.0	909.5	897.1	888.7
20°	962.0	948.2	937.2	923.4	919.2	912.3	899.9	887.4	873.6	859.8	850.1
22.5°	927.5	913.7	901.3	887.4	880.5	873.6	861.1	846.0	832.1	821.0	811.3
25°	887.4	874.9	859.8	847.4	839.0	830.7	816.9	804.5	792.1	775.4	765.8
27.5°	843.1	828.0	816.9	800.3	792.1	786.5	771.3	754.7	743.6	728.5	717.4
30°	793.4	779.6	767.1	750.6	742.3	736.7	722.9	707.7	696.7	681.4	670.4
32.5°	740.9	725.6	710.5	699.4	689.7	684.3	669.0	659.3	645.5	633.1	620.7
35°	684.3	669.0	657.9	642.8	637.2	631.7	619.2	606.8	594.4	583.3	573.6
37.5°	623.4	612.4	599.9	588.9	584.7	579.2	563.9	552.9	543.2	532.1	523.9
40°	563.9	554.2	546.0	535.0	528.0	523.9	512.9	503.2	492.1	485.2	476.8
42.5°	510.0	499.0	490.6	482.4	475.5	471.4	461.7	454.7	446.4	439.6	429.9
45°	453.4	447.9	438.2	431.3	427.2	421.6	414.6	406.4	399.5	394.0	387.0
47.5°	403.7	398.1	391.1	382.8	380.1	376.0	369.0	363.6	358.0	352.5	345.6
50°	358.0	351.1	345.6	340.1	337.2	333.1	326.2	323.4	319.3	313.8	309.6
52.5°	316.5	311.0	305.4	298.6	297.2	294.4	290.3	284.7	280.6	277.9	275.1
55°	279.2	273.6	269.5	264.1	262.6	259.9	254.4	251.5	248.8	246.1	243.3
57.5°	246.1	240.5	235.0	232.3	229.4	226.7	225.3	221.2	218.4	217.0	214.3
60°	215.6	210.2	205.9	201.8	200.5	199.0	196.3	193.5	190.8	187.9	186.6
62.5°	186.6	181.1	178.4	175.5	172.8	172.8	170.0	167.3	164.5	163.1	160.4
65°	160.4	157.6	153.4	149.3	147.9	147.9	143.7	142.4	141.0	138.2	135.5
67.5°	135.5	132.7	128.6	127.2	125.8	124.3	123.0	120.2	117.5	116.1	113.4
70°	113.4	110.6	107.8	106.4	105.1	103.7	100.9	99.5	96.8	95.4	94.0
72.5°	91.3	89.8	87.1	85.7	84.3	83.0	81.6	80.1	77.4	76.0	74.6
75°	73.3	71.9	69.1	67.7	66.3	66.3	65.0	62.2	60.9	60.9	59.5
77.5°	55.3	53.9	52.5	51.2	49.8	49.8	48.3	47.0	45.6	45.6	44.2
80°	40.1	38.7	37.4	37.4	37.4	35.9	34.5	34.5	33.2	33.2	31.8
82.5°	26.2	26.2	24.8	24.8	24.8	23.5	23.5	22.1	22.1	22.1	22.1
85°	15.2	15.2	15.2	13.8	13.8	13.8	13.8	13.8	13.8	12.4	13.8
87.5°	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	5.6	5.6	5.6
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8
2.5°	1013.2	1011.8	1009.1	1009.1	1006.2	1006.2	1004.9	1003.5	1002.1	1000.8	999.4
5°	1003.5	998.0	995.2	993.8	991.1	989.7	985.6	982.8	981.4	978.6	975.9
7.5°	985.6	980.0	974.4	973.1	971.7	966.2	962.0	957.9	955.2	952.3	949.6
10°	964.9	959.3	952.3	949.6	946.9	939.9	934.4	930.2	924.7	919.2	917.8
12.5°	939.9	931.7	923.4	920.5	916.4	909.5	904.0	897.1	892.9	886.0	884.6
15°	910.8	901.3	894.3	887.4	884.6	877.8	868.1	862.5	854.2	851.5	844.5
17.5°	876.3	866.6	857.0	854.2	850.1	840.4	830.7	823.9	815.6	811.3	807.2
20°	840.4	828.0	818.3	815.6	810.0	801.8	792.1	785.1	778.2	770.0	765.8
22.5°	798.9	785.1	776.8	770.0	768.5	758.8	747.9	742.3	736.7	729.9	724.3
25°	753.3	740.9	731.2	725.6	722.9	714.6	706.4	699.4	691.1	687.0	680.1
27.5°	706.4	698.1	685.6	680.1	675.9	669.0	659.3	655.2	646.9	641.4	637.2
30°	660.7	648.3	641.4	634.5	630.4	623.4	615.1	611.0	604.0	598.6	594.4
32.5°	611.0	602.7	593.0	590.2	584.7	577.8	572.2	565.4	559.8	554.2	552.9
35°	565.4	554.2	544.7	541.8	537.7	530.8	528.0	523.9	517.0	515.6	510.0
37.5°	515.6	510.0	499.0	494.9	493.5	487.9	482.4	479.7	475.5	471.4	470.0
40°	468.5	461.7	456.1	452.0	449.3	445.1	439.6	438.2	435.4	429.9	428.5
42.5°	424.3	417.5	411.9	410.5	406.4	402.2	399.5	395.4	394.0	392.5	389.8
45°	381.5	377.4	371.9	370.4	369.0	363.6	360.7	358.0	355.2	353.9	351.1
47.5°	342.8	338.6	334.5	333.1	330.4	329.0	324.8	323.4	319.3	318.0	316.5
50°	305.4	302.7	300.0	298.6	295.9	294.4	291.6	288.9	286.2	284.7	283.3
52.5°	272.3	269.5	266.8	265.4	264.1	261.2	258.5	255.7	254.4	252.9	251.5
55°	240.5	237.7	236.4	235.0	233.6	232.3	228.1	226.7	225.3	223.9	221.2
57.5°	211.5	208.7	205.9	205.9	204.6	203.2	200.5	197.6	197.6	194.9	192.1
60°	185.2	182.5	179.7	178.4	176.9	174.1	172.8	171.4	170.0	168.7	165.8
62.5°	157.6	156.1	153.4	153.4	150.7	149.3	147.9	146.6	145.1	142.4	141.0
65°	134.0	132.7	129.9	128.6	128.6	127.2	124.3	123.0	121.6	121.6	120.2
67.5°	111.9	110.6	107.8	106.4	106.4	105.1	103.7	103.7	102.2	100.9	102.2
70°	92.7	89.8	89.8	88.4	88.4	87.1	85.7	85.7	85.7	87.1	87.1
72.5°	73.3	71.9	70.4	70.4	70.4	70.4	69.1	69.1	70.4	71.9	71.9
75°	58.0	56.6	56.6	56.6	55.3	55.3	56.6	56.6	58.0	58.0	58.0
77.5°	42.9	42.9	42.9	42.9	42.9	42.9	44.2	44.2	45.6	45.6	45.6
80°	31.8	31.8	31.8	31.8	31.8	33.2	33.2	33.2	33.2	33.2	34.5
82.5°	22.1	22.1	22.1	22.1	22.1	22.1	22.1	23.5	23.5	23.5	23.5
85°	12.4	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8
87.5°	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
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):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8	1018.8
2.5°	998.0	998.0	998.0	999.4	996.7	996.7	996.7	996.7
5°	974.4	973.1	971.7	973.1	970.3	970.3	969.0	969.0
7.5°	945.5	944.1	942.6	942.6	939.9	939.9	938.5	937.2
10°	913.7	910.8	912.3	909.5	908.1	906.7	905.4	904.0
12.5°	879.2	876.3	874.9	872.2	869.5	868.1	869.5	866.6
15°	841.8	837.7	836.3	833.5	830.7	829.4	829.4	828.0
17.5°	800.3	797.6	796.2	793.4	792.1	789.2	787.9	786.5
20°	761.6	754.7	756.1	753.3	752.0	746.4	746.4	747.9
22.5°	718.8	714.6	711.9	709.1	707.7	704.9	704.9	703.5
25°	675.9	671.7	670.4	667.6	666.3	663.5	662.2	662.2
27.5°	634.5	628.9	628.9	626.1	623.4	622.0	620.7	619.2
30°	590.2	586.0	584.7	584.7	583.3	583.3	579.2	580.6
32.5°	548.8	546.0	544.7	541.8	541.8	540.4	540.4	536.3
35°	507.3	503.2	504.5	501.8	500.3	499.0	500.3	499.0
37.5°	467.2	464.4	464.4	461.7	461.7	460.3	458.9	461.7
40°	427.2	425.8	424.3	422.9	424.3	422.9	420.2	421.6
42.5°	387.0	387.0	385.7	385.7	384.3	384.3	384.3	384.3
45°	351.1	349.8	349.8	348.3	348.3	348.3	348.3	346.9
47.5°	315.1	313.8	313.8	313.8	312.4	312.4	311.0	312.4
50°	280.6	280.6	279.2	279.2	280.6	279.2	277.9	277.9
52.5°	248.8	248.8	247.4	247.4	246.1	244.7	246.1	246.1
55°	219.7	218.4	217.0	217.0	215.6	214.3	214.3	215.6
57.5°	192.1	190.8	189.4	189.4	186.6	185.2	185.2	185.2
60°	165.8	163.1	163.1	161.7	161.7	160.4	160.4	160.4
62.5°	141.0	139.6	139.6	139.6	139.6	138.2	138.2	138.2
65°	120.2	120.2	120.2	121.6	121.6	123.0	123.0	123.0
67.5°	103.7	105.1	105.1	105.1	106.4	106.4	106.4	105.1
70°	88.4	88.4	88.4	89.8	89.8	89.8	89.8	89.8
72.5°	73.3	73.3	73.3	73.3	73.3	73.3	73.3	73.3
75°	58.0	59.5	59.5	59.5	58.0	59.5	59.5	58.0
77.5°	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6
80°	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5
82.5°	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
85°	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8
87.5°	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
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)