

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: P583998

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

Issue Date: 10/21/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P583998  
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-HM80520830-81WWBB  
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE BAFFLE TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1804.1 lumens  
Efficiency: N/A  
Efficacy: 90.2 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

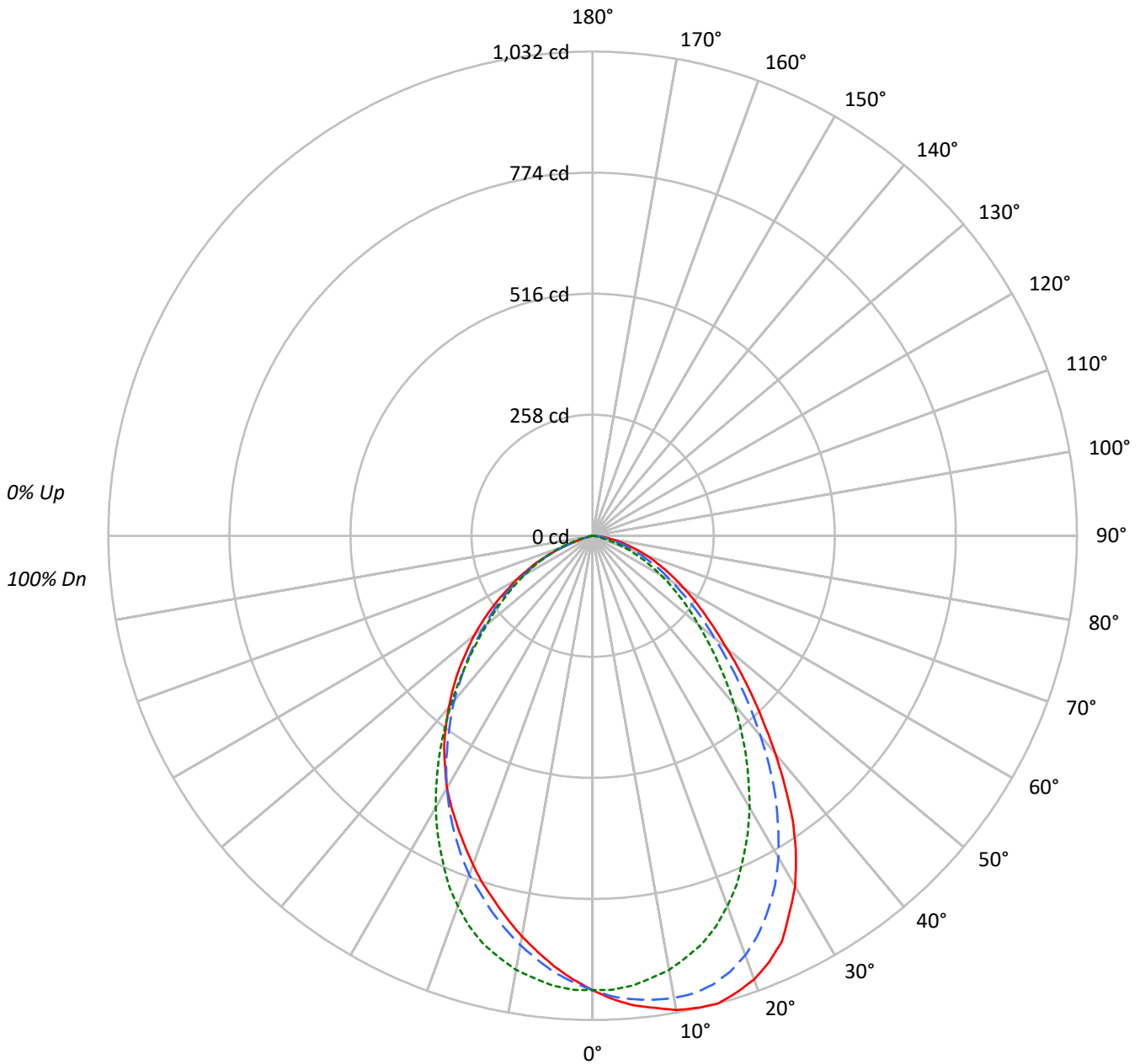
Input Watts (W): 20  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	29865	29865	29865
5°	31100	29800	28546
10°	32139	29421	27154
15°	32952	28744	25744
20°	33019	27555	24467
25°	32462	25811	23201
30°	30725	23817	22115
35°	28015	21420	20765
40°	24362	18879	19173
45°	20897	16349	17553
50°	17851	14094	15764
55°	15645	12145	13698
60°	13932	10361	11520
65°	12360	8449	9194
70°	10963	6266	5220
75°	9138	3276	1549
80°	7192	1030	249
85°	5095	495	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	91.3	5.1
10°-20°	255.8	14.2
20°-30°	362.0	20.1
30°-40°	378.8	21.0
40°-50°	315.9	17.5
50°-60°	224.0	12.4
60°-70°	129.0	7.2
70°-80°	41.5	2.3
80°-90°	5.7	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°	709.1	39.3
0°-40°	1087.9	60.3
0°-60°	1627.8	90.2
0°-90°	1804.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1804.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	968	968	968	968	968	
5°	1005	992	963	934	922	96
15°	1032	990	900	830	806	290
25°	954	883	759	698	682	435
35°	744	679	569	538	552	461
45°	479	440	375	379	402	371
55°	291	261	226	238	255	263
65°	169	142	116	116	126	169
75°	77	56	28	13	13	83
85°	14	7	1	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°	968.5	968.5	968.5	968.5	968.5	968.5	968.5	968.5	968.5	968.5	968.5
2.5°	988.9	987.3	985.9	987.3	985.9	987.3	985.9	985.9	984.5	983.1	983.1
5°	1004.7	1003.3	1003.3	1003.3	1001.9	1000.4	1000.4	998.9	996.1	994.7	991.7
7.5°	1014.9	1016.3	1016.3	1016.3	1013.4	1013.4	1010.5	1007.7	1004.7	1001.9	997.5
10°	1026.4	1026.4	1025.0	1023.6	1020.7	1019.2	1017.8	1014.9	1010.5	1004.7	1000.4
12.5°	1030.8	1030.8	1029.4	1026.4	1025.0	1023.6	1022.1	1017.8	1012.0	1004.7	998.9
15°	1032.2	1029.4	1027.9	1026.4	1023.6	1019.2	1019.2	1013.4	1006.2	997.5	990.3
17.5°	1020.7	1022.1	1019.2	1016.3	1012.0	1009.1	1004.7	1000.4	991.7	981.5	974.3
20°	1006.2	1004.7	1003.3	998.9	993.1	991.7	987.3	980.1	972.9	961.3	951.2
22.5°	983.1	981.5	978.7	975.7	969.9	967.1	962.7	954.1	943.9	932.4	920.8
25°	954.1	951.2	946.8	941.0	936.7	933.8	928.0	919.4	907.8	894.7	883.1
27.5°	907.8	912.0	909.2	900.4	896.2	890.4	888.9	877.3	867.2	854.1	841.1
30°	862.9	862.9	858.5	854.1	846.9	842.6	836.9	828.1	817.9	802.1	791.9
32.5°	806.4	804.9	799.2	797.7	791.9	783.2	781.8	770.2	760.0	748.4	735.4
35°	744.2	741.2	735.4	731.1	728.2	723.9	719.5	709.4	699.3	687.7	678.9
37.5°	673.1	673.1	671.7	664.5	661.6	658.7	654.4	644.2	638.4	626.9	618.2
40°	605.2	603.8	599.4	598.0	595.0	590.6	587.8	582.0	573.3	564.6	555.9
42.5°	538.5	540.1	534.3	535.7	529.9	526.9	525.5	516.9	512.5	503.8	496.6
45°	479.2	477.8	474.8	473.4	470.6	467.6	464.8	460.4	453.2	444.4	440.1
47.5°	424.2	419.8	419.8	418.4	417.0	411.2	409.7	405.4	401.1	392.3	386.5
50°	372.1	372.1	372.1	370.7	366.3	364.9	361.9	357.6	353.3	347.5	338.8
52.5°	330.1	330.1	330.1	328.6	322.8	321.4	320.0	314.2	308.4	304.0	298.2
55°	291.0	292.4	291.0	288.1	283.8	283.8	279.4	276.5	270.7	266.4	260.6
57.5°	257.7	257.7	254.8	253.3	250.5	249.0	246.1	243.3	235.9	231.7	224.3
60°	225.9	224.3	224.3	221.5	218.6	215.7	214.3	209.9	207.1	199.8	194.0
62.5°	196.9	196.9	194.0	194.0	188.2	188.2	186.8	182.4	178.1	170.8	168.0
65°	169.4	169.4	168.0	166.5	162.2	160.8	159.2	155.0	150.6	146.2	141.8
67.5°	144.8	144.8	141.8	140.4	137.6	136.0	133.2	130.3	126.0	121.6	117.3
70°	121.6	120.2	118.7	117.3	114.4	112.9	110.0	107.1	102.8	99.9	95.5
72.5°	98.5	98.5	97.0	94.1	92.7	91.3	89.7	86.9	82.5	78.1	75.3
75°	76.7	76.7	76.7	73.9	70.9	69.5	69.5	66.5	63.7	59.3	56.5
77.5°	59.3	57.9	56.5	56.5	53.5	52.1	50.7	49.2	44.9	43.4	40.5
80°	40.5	42.0	40.5	39.1	37.6	36.2	36.2	33.3	31.8	29.0	26.0
82.5°	27.5	26.0	26.0	24.6	24.6	23.2	23.2	20.2	18.8	17.4	16.0
85°	14.4	14.4	13.0	13.0	13.0	11.6	11.6	10.2	10.2	8.6	7.2
87.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	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°	968.5	968.5	968.5	968.5	968.5	968.5	968.5	968.5	968.5	968.5	968.5
2.5°	981.5	978.7	977.3	977.3	975.7	974.3	972.9	971.5	968.5	968.5	965.7
5°	988.9	985.9	984.5	980.1	977.3	977.3	971.5	969.9	965.7	962.7	959.9
7.5°	994.7	988.9	984.5	980.1	977.3	974.3	968.5	962.7	956.9	951.2	948.3
10°	994.7	988.9	981.5	974.3	971.5	968.5	961.3	952.6	945.4	939.6	932.4
12.5°	991.7	983.1	974.3	968.5	962.7	958.4	949.7	941.0	932.4	920.8	915.0
15°	983.1	971.5	962.7	952.6	948.3	941.0	933.8	920.8	910.6	900.4	893.2
17.5°	965.7	951.2	941.0	930.9	923.6	919.4	907.8	896.2	884.6	873.0	864.3
20°	939.6	926.6	915.0	902.0	896.2	890.4	875.9	864.3	852.7	839.7	831.1
22.5°	907.8	894.7	878.8	868.7	859.9	852.7	839.7	826.7	815.1	803.5	791.9
25°	868.7	855.6	841.1	825.3	819.5	812.2	797.7	784.7	771.6	758.6	748.4
27.5°	826.7	809.3	797.7	780.4	774.6	767.4	751.4	736.9	725.3	715.2	703.6
30°	776.0	763.0	747.0	731.1	725.3	718.1	705.1	692.1	680.5	668.9	657.3
32.5°	721.0	707.9	692.1	680.5	671.7	665.9	652.9	641.4	629.8	618.2	608.0
35°	663.1	648.6	637.0	625.4	618.2	611.0	598.0	587.8	579.1	569.0	558.8
37.5°	603.8	593.6	582.0	569.0	561.7	555.9	545.8	534.3	526.9	518.3	511.1
40°	545.8	534.3	524.1	512.5	506.7	502.4	492.2	483.6	476.3	469.0	464.8
42.5°	486.4	476.3	466.2	459.0	454.6	450.2	443.0	432.8	428.5	421.3	417.0
45°	431.4	422.8	415.5	405.4	402.5	399.6	390.9	383.7	379.3	374.9	372.1
47.5°	379.3	373.5	364.9	359.1	354.7	351.8	346.0	340.2	335.9	333.0	330.1
50°	334.4	327.2	321.4	315.6	312.8	308.4	302.6	299.6	296.8	293.8	293.8
52.5°	292.4	285.2	279.4	275.1	272.2	269.3	264.9	263.5	260.6	260.6	259.1
55°	253.3	249.0	243.3	237.5	235.9	234.5	231.7	228.7	227.3	225.9	227.3
57.5°	220.1	215.7	209.9	205.5	204.1	202.7	201.3	198.3	196.9	196.9	196.9
60°	189.7	185.3	181.0	176.6	176.6	173.8	172.3	170.8	169.4	168.0	168.0
62.5°	162.2	157.8	153.4	150.6	149.2	147.6	144.8	143.4	141.8	141.8	140.4
65°	137.6	131.8	130.3	126.0	124.5	123.0	121.6	118.7	117.3	115.8	114.4
67.5°	112.9	110.0	105.7	102.8	101.3	99.9	98.5	95.5	94.1	92.7	89.7
70°	91.3	88.3	85.5	82.5	81.1	79.7	76.7	73.9	72.3	69.5	65.1
72.5°	70.9	68.1	65.1	62.3	60.8	59.3	56.5	53.5	50.7	47.8	44.9
75°	53.5	50.7	46.3	43.4	42.0	42.0	37.6	34.8	31.8	27.5	24.6
77.5°	37.6	33.3	31.8	29.0	27.5	24.6	21.7	18.8	16.0	14.4	11.6
80°	24.6	21.7	18.8	17.4	16.0	14.4	13.0	10.2	7.2	5.8	4.4
82.5°	14.4	13.0	11.6	10.2	8.6	7.2	5.8	5.8	4.4	2.8	1.4
85°	7.2	5.8	4.4	4.4	2.8	2.8	2.8	1.4	1.4	1.4	1.4
87.5°	2.8	1.4	1.4	1.4	1.4	1.4	1.4	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°	968.5	968.5	968.5	968.5	968.5	968.5	968.5	968.5	968.5	968.5	968.5
2.5°	964.2	962.7	961.3	959.9	959.9	956.9	956.9	955.5	952.6	951.2	951.2
5°	955.5	951.2	948.3	946.8	945.4	941.0	939.6	936.7	933.8	930.9	929.4
7.5°	942.5	935.2	932.4	930.9	926.6	922.2	919.4	915.0	910.6	906.2	904.8
10°	926.6	919.4	912.0	909.2	904.8	902.0	896.2	890.4	886.0	881.7	877.3
12.5°	906.2	897.6	890.4	887.4	883.1	877.3	868.7	865.7	858.5	855.6	849.9
15°	883.1	873.0	865.7	861.4	857.1	848.3	842.6	836.9	829.5	826.7	820.9
17.5°	854.1	842.6	835.3	831.1	828.1	820.9	812.2	804.9	797.7	794.8	790.5
20°	819.5	812.2	802.1	797.7	794.8	786.1	777.4	774.6	768.8	763.0	758.6
22.5°	780.4	773.1	763.0	758.6	757.2	750.0	742.7	738.4	734.0	729.6	725.3
25°	739.8	731.1	722.4	719.5	716.6	710.9	705.1	702.1	697.9	694.9	692.1
27.5°	696.3	687.7	680.5	676.1	673.1	668.9	665.9	663.1	660.1	657.3	655.8
30°	650.0	641.4	635.6	632.7	629.8	628.4	624.0	622.6	621.1	618.2	619.6
32.5°	603.8	596.4	590.6	586.4	586.4	583.4	582.0	582.0	580.6	580.6	580.6
35°	553.1	548.7	544.3	542.9	541.5	540.1	538.5	540.1	538.5	540.1	541.5
37.5°	506.7	502.4	499.5	498.0	496.6	498.0	496.6	496.6	498.0	500.9	502.4
40°	459.0	456.0	453.2	454.6	453.2	453.2	453.2	457.4	459.0	460.4	461.8
42.5°	414.1	411.2	409.7	409.7	411.2	409.7	412.6	414.1	417.0	421.3	424.2
45°	370.7	369.1	369.1	370.7	369.1	372.1	372.1	374.9	379.3	382.3	385.1
47.5°	330.1	330.1	330.1	331.6	331.6	333.0	335.9	337.3	340.2	343.1	346.0
50°	292.4	293.8	295.4	295.4	295.4	298.2	301.2	302.6	304.0	305.4	309.8
52.5°	259.1	260.6	260.6	262.0	263.5	264.9	266.4	269.3	270.7	273.6	275.1
55°	227.3	227.3	230.1	231.7	231.7	231.7	234.5	234.5	237.5	238.9	241.7
57.5°	196.9	198.3	198.3	199.8	199.8	201.3	202.7	204.1	205.5	207.1	208.5
60°	168.0	168.0	168.0	169.4	170.8	172.3	170.8	173.8	173.8	176.6	178.1
62.5°	140.4	141.8	141.8	141.8	141.8	141.8	141.8	143.4	144.8	146.2	147.6
65°	114.4	114.4	114.4	112.9	114.4	112.9	114.4	115.8	115.8	117.3	118.7
67.5°	88.3	88.3	85.5	85.5	86.9	86.9	86.9	86.9	85.5	88.3	88.3
70°	63.7	62.3	60.8	59.3	59.3	57.9	57.9	56.5	56.5	56.5	56.5
72.5°	42.0	39.1	36.2	34.8	33.3	33.3	30.4	29.0	30.4	30.4	30.4
75°	21.7	18.8	17.4	16.0	14.4	14.4	13.0	13.0	13.0	13.0	13.0
77.5°	8.6	7.2	5.8	5.8	4.4	4.4	4.4	4.4	4.4	4.4	4.4
80°	2.8	2.8	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
82.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
85°	1.4	0.0	0.0	1.4	0.0	1.4	1.4	1.4	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°	968.5	968.5	968.5	968.5	968.5	968.5	968.5	968.5
2.5°	949.7	949.7	948.3	949.7	946.8	948.3	946.8	946.8
5°	928.0	925.2	925.2	925.2	923.6	923.6	922.2	922.2
7.5°	902.0	900.4	899.0	897.6	896.2	894.7	894.7	894.7
10°	875.9	873.0	873.0	871.5	868.7	867.2	867.2	867.2
12.5°	845.5	844.1	842.6	842.6	836.9	838.3	836.9	836.9
15°	816.5	815.1	815.1	810.7	807.9	807.9	807.9	806.4
17.5°	786.1	784.7	783.2	780.4	777.4	777.4	776.0	777.4
20°	754.2	752.8	750.0	750.0	748.4	747.0	744.2	745.6
22.5°	722.4	719.5	718.1	718.1	716.6	716.6	713.7	713.7
25°	689.1	687.7	686.3	687.7	684.7	684.7	681.9	681.9
27.5°	654.4	652.9	652.9	652.9	651.5	652.9	651.5	651.5
30°	619.6	619.6	618.2	618.2	619.6	618.2	619.6	621.1
32.5°	582.0	582.0	583.4	583.4	584.9	584.9	584.9	584.9
35°	542.9	545.8	545.8	547.3	548.7	550.1	550.1	551.6
37.5°	506.7	508.1	509.6	511.1	513.9	513.9	513.9	513.9
40°	467.6	469.0	472.0	470.6	476.3	477.8	476.3	476.3
42.5°	427.1	430.0	431.4	434.3	435.8	438.6	440.1	440.1
45°	389.5	390.9	393.8	396.7	398.1	402.5	402.5	402.5
47.5°	350.3	353.3	354.7	357.6	359.1	363.3	364.9	363.3
50°	312.8	315.6	318.5	318.5	322.8	324.3	327.2	328.6
52.5°	276.5	278.0	280.8	282.3	285.2	288.1	289.6	291.0
55°	241.7	243.3	246.1	246.1	250.5	251.9	254.8	254.8
57.5°	209.9	211.3	214.3	212.8	215.7	218.6	218.6	217.1
60°	179.5	179.5	179.5	182.4	183.9	185.3	186.8	186.8
62.5°	147.6	150.6	152.0	152.0	153.4	155.0	155.0	153.4
65°	118.7	121.6	123.0	123.0	124.5	124.5	124.5	126.0
67.5°	89.7	89.7	89.7	91.3	89.7	89.7	89.7	89.7
70°	56.5	56.5	56.5	56.5	55.0	56.5	56.5	57.9
72.5°	30.4	30.4	30.4	30.4	30.4	30.4	30.4	30.4
75°	13.0	13.0	13.0	14.4	13.0	13.0	13.0	13.0
77.5°	5.8	4.4	5.8	5.8	4.4	4.4	4.4	4.4
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
82.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
85°	0.0	1.4	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)