

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO

Report Number: P644114

Luminaire Tested: ML5615LSWW9FS1E - 592W WW - 1200LM - 4000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644114
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-116)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 592W WW - 1200LM - 4000K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 903.4 lumens
Efficiency: N/A
Efficacy: 67.4 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.13 / 1.23
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

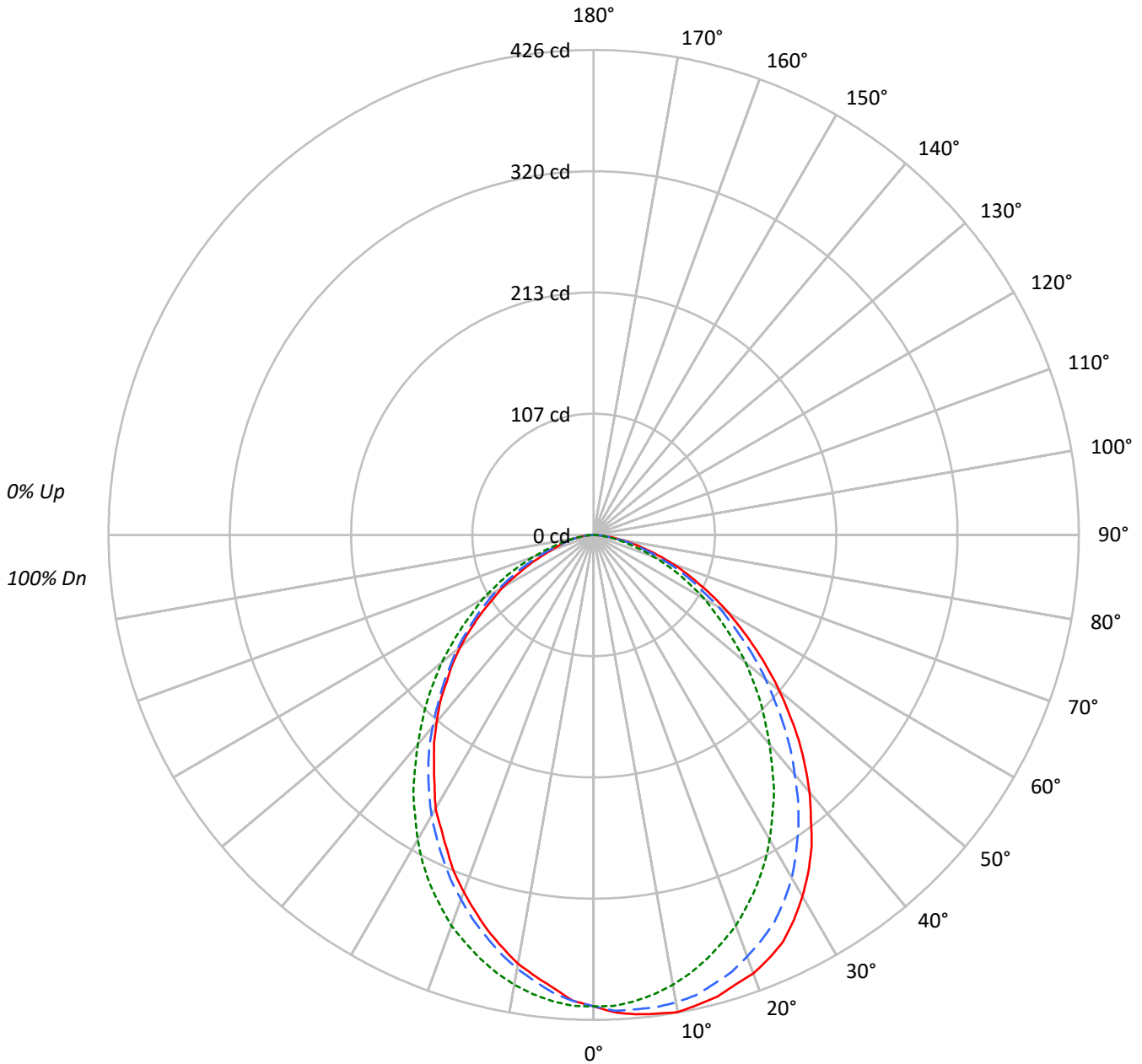
Input Watts (W): 13.4
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					70					50					30				
RW	70	50	30	10	70	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	102	99	107	104	100	97	99	97	94	96	93	91	92	90	88	86		
2	101	94	88	82	99	92	86	81	88	84	80	85	81	78	82	79	76	74		
3	93	83	76	70	91	82	75	69	79	73	68	76	71	67	74	69	66	64		
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	57	55		
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49		
6	73	61	53	46	72	60	52	46	58	51	46	57	50	45	55	49	45	43		
7	68	56	47	41	67	55	47	41	53	46	41	52	45	41	51	45	40	39		
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37	35		
9	60	47	39	34	58	46	39	34	45	38	34	44	38	33	43	37	33	32		
10	56	43	36	31	55	43	36	31	42	35	31	41	35	31	40	35	30	29		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	32689	32689	32689	32689	32689
5°	33496	33155	32584	32014	31673
10°	34116	33426	32160	31005	30661
15°	34308	33369	31489	29846	29380
20°	34426	33099	30679	28630	28025
25°	34318	32689	29554	27298	26549
30°	33417	31721	28175	25951	25295
35°	32149	30202	26607	24391	23553
40°	30379	28298	24742	22671	22073
45°	28412	26325	23109	20865	20385
50°	26134	24194	21369	19244	18716
55°	23741	21966	19392	17410	16626
60°	21567	19972	17714	15441	14525
65°	19071	17726	15578	13169	11824
70°	16918	15256	12948	10617	9302
75°	14030	12719	10096	8327	8327
80°	11092	9819	7865	7183	7183
85°	6521	6521	5253	6521	6521

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 28412 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	39.0	4.3
10°-20°	109.1	12.1
20°-30°	158.2	17.5
30°-40°	176.5	19.5
40°-50°	163.7	18.1
50°-60°	128.7	14.2
60°-70°	82.4	9.1
70°-80°	37.8	4.2
80°-90°	8.2	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°	306.2	33.9
0°-40°	482.7	53.4
0°-60°	775.1	85.8
0°-90°	903.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	903.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	414	414	414	414	414	
5°	423	418	411	404	400	40
15°	420	408	385	365	360	118
25°	394	375	339	313	305	181
35°	334	313	276	253	244	208
45°	254	236	207	187	183	196
55°	172	160	141	126	121	155
65°	102	95	83	70	63	102
75°	46	42	33	27	27	50
85°	7	7	6	7	7	10
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°	414.1	414.1	414.1	414.1	414.1	414.1	414.1	414.1	414.1	414.1	414.1
2.5°	419.8	419.8	419.8	419.8	419.8	419.8	418.4	418.4	418.4	418.4	418.4
5°	422.7	422.7	422.7	422.7	421.3	421.3	421.3	421.3	419.8	419.8	418.4
7.5°	424.2	424.2	424.2	422.7	422.7	422.7	421.3	421.3	421.3	419.8	418.4
10°	425.6	424.2	424.2	422.7	422.7	422.7	421.3	421.3	419.8	418.4	417.0
12.5°	422.7	422.7	422.7	422.7	421.3	421.3	419.8	418.4	417.0	415.5	414.1
15°	419.8	419.8	419.8	418.4	417.0	417.0	415.5	414.1	412.7	411.2	408.3
17.5°	414.1	415.5	414.1	414.1	412.7	412.7	411.2	409.8	406.9	405.5	402.6
20°	409.8	408.3	408.3	408.3	406.9	405.5	404.0	402.6	399.7	398.3	394.0
22.5°	402.6	402.6	401.2	399.7	398.3	398.3	396.8	394.0	392.5	389.6	385.3
25°	394.0	392.5	392.5	391.1	389.6	389.6	386.8	385.3	382.5	378.1	375.3
27.5°	381.0	381.0	381.0	379.6	378.1	376.7	375.3	372.4	371.0	365.2	362.3
30°	366.6	366.6	365.2	365.2	362.3	362.3	360.9	358.0	355.1	350.8	348.0
32.5°	350.8	350.8	350.8	348.0	346.5	345.1	343.6	342.2	337.9	333.6	330.7
35°	333.6	333.6	332.1	330.7	329.3	327.8	326.4	323.5	320.6	317.8	313.4
37.5°	313.4	314.9	313.4	312.0	310.6	309.1	307.7	306.3	301.9	299.1	294.8
40°	294.8	294.8	293.3	291.9	290.4	290.4	289.0	286.1	283.3	278.9	274.6
42.5°	274.6	274.6	273.2	271.7	271.7	270.3	267.4	266.0	263.1	260.2	255.9
45°	254.5	253.1	251.6	251.6	250.2	248.7	248.7	245.9	243.0	238.7	235.8
47.5°	232.9	232.9	231.5	231.5	230.1	228.6	228.6	225.7	221.4	218.5	215.7
50°	212.8	212.8	211.4	211.4	209.9	208.5	207.0	205.6	202.7	199.9	197.0
52.5°	192.7	192.7	192.7	189.8	188.4	188.4	188.4	185.5	184.0	181.2	178.3
55°	172.5	172.5	172.5	171.1	169.7	169.7	169.7	166.8	165.3	162.5	159.6
57.5°	153.8	153.8	153.8	152.4	152.4	151.0	149.5	148.1	146.7	145.2	142.3
60°	136.6	136.6	135.2	133.7	135.2	133.7	132.3	130.8	129.4	128.0	126.5
62.5°	119.3	119.3	119.3	117.9	116.5	116.5	116.5	115.0	112.2	110.7	109.3
65°	102.1	102.1	102.1	102.1	100.6	100.6	99.2	97.8	97.8	96.3	94.9
67.5°	87.7	87.7	86.3	86.3	84.8	84.8	84.8	83.4	82.0	82.0	80.5
70°	73.3	71.9	71.9	71.9	70.5	70.5	70.5	69.0	69.0	67.6	66.1
72.5°	59.0	59.0	59.0	59.0	57.5	57.5	56.1	56.1	54.6	54.6	53.2
75°	46.0	46.0	46.0	46.0	44.6	44.6	44.6	44.6	43.1	43.1	41.7
77.5°	34.5	34.5	34.5	34.5	34.5	34.5	33.1	33.1	33.1	31.6	31.6
80°	24.4	24.4	24.4	24.4	23.0	23.0	23.0	23.0	23.0	21.6	21.6
82.5°	15.8	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	12.9
85°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
87.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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°	414.1	414.1	414.1	414.1	414.1	414.1	414.1	414.1	414.1	414.1	414.1
2.5°	417.0	417.0	417.0	417.0	415.5	415.5	415.5	414.1	414.1	414.1	414.1
5°	418.4	418.4	415.5	415.5	415.5	415.5	414.1	414.1	412.7	411.2	409.8
7.5°	417.0	417.0	415.5	414.1	412.7	412.7	411.2	409.8	408.3	406.9	405.5
10°	415.5	414.1	412.7	411.2	409.8	408.3	406.9	405.5	402.6	401.2	399.7
12.5°	412.7	409.8	408.3	405.5	405.5	404.0	401.2	399.7	396.8	394.0	392.5
15°	406.9	404.0	401.2	398.3	398.3	395.4	392.5	391.1	388.2	385.3	382.5
17.5°	399.7	396.8	394.0	391.1	389.6	386.8	383.9	381.0	378.1	375.3	372.4
20°	392.5	388.2	385.3	381.0	379.6	378.1	373.8	371.0	368.1	365.2	360.9
22.5°	382.5	379.6	373.8	371.0	369.5	366.6	363.8	359.5	355.1	352.3	349.4
25°	371.0	368.1	363.8	359.5	356.6	355.1	350.8	346.5	343.6	339.3	336.5
27.5°	358.0	353.7	350.8	345.1	343.6	340.8	336.5	332.1	329.3	324.9	320.6
30°	343.6	339.3	335.0	330.7	327.8	326.4	322.1	317.8	313.4	309.1	306.3
32.5°	326.4	322.1	317.8	314.9	310.6	307.7	304.8	300.5	296.2	291.9	289.0
35°	309.1	304.8	300.5	296.2	293.3	293.3	287.6	283.3	278.9	276.1	271.7
37.5°	290.4	286.1	281.8	277.5	276.1	273.2	268.9	264.6	261.7	257.4	254.5
40°	271.7	266.0	263.1	258.8	257.4	254.5	251.6	247.3	244.4	240.1	237.2
42.5°	251.6	248.7	244.4	241.6	238.7	237.2	232.9	228.6	225.7	222.9	221.4
45°	232.9	228.6	224.3	221.4	220.0	217.1	215.7	211.4	208.5	207.0	204.2
47.5°	212.8	209.9	207.0	202.7	201.3	199.9	197.0	195.5	192.7	189.8	186.9
50°	194.1	191.2	188.4	185.5	184.0	184.0	179.7	176.9	175.4	174.0	171.1
52.5°	175.4	172.5	169.7	166.8	166.8	165.3	162.5	161.0	159.6	156.7	153.8
55°	158.2	155.3	152.4	151.0	149.5	149.5	146.7	145.2	142.3	140.9	139.5
57.5°	140.9	138.0	136.6	135.2	133.7	133.7	130.8	129.4	128.0	125.1	125.1
60°	125.1	122.2	120.8	119.3	117.9	116.5	116.5	113.6	112.2	112.2	109.3
62.5°	107.8	106.4	105.0	103.5	102.1	102.1	100.6	99.2	97.8	96.3	94.9
65°	93.5	92.0	90.6	89.1	87.7	87.7	86.3	84.8	83.4	83.4	80.5
67.5°	79.1	77.6	76.2	74.8	74.8	73.3	71.9	71.9	70.5	69.0	67.6
70°	64.7	64.7	63.3	61.8	61.8	60.4	59.0	59.0	57.5	56.1	54.6
72.5°	53.2	51.8	50.3	50.3	48.9	48.9	47.4	47.4	46.0	44.6	43.1
75°	40.3	38.8	38.8	38.8	37.4	37.4	37.4	35.9	34.5	33.1	33.1
77.5°	30.2	30.2	28.8	27.3	27.3	27.3	25.9	25.9	25.9	24.4	24.4
80°	21.6	20.1	20.1	18.7	18.7	18.7	18.7	17.3	17.3	17.3	15.8
82.5°	12.9	12.9	12.9	11.5	11.5	11.5	11.5	11.5	10.1	10.1	10.1
85°	7.2	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
87.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.9	2.9
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	414.1	414.1	414.1	414.1	414.1	414.1	414.1	414.1	414.1	414.1	414.1
2.5°	412.7	412.7	411.2	411.2	411.2	411.2	411.2	409.8	409.8	409.8	409.8
5°	409.8	408.3	406.9	406.9	406.9	405.5	405.5	404.0	404.0	402.6	402.6
7.5°	404.0	402.6	401.2	401.2	399.7	399.7	396.8	396.8	395.4	394.0	394.0
10°	396.8	395.4	394.0	392.5	392.5	389.6	389.6	388.2	386.8	385.3	385.3
12.5°	389.6	388.2	385.3	383.9	383.9	382.5	379.6	378.1	376.7	375.3	373.8
15°	379.6	378.1	375.3	373.8	372.4	371.0	369.5	368.1	365.2	363.8	363.8
17.5°	369.5	368.1	363.8	362.3	362.3	359.5	358.0	355.1	353.7	352.3	350.8
20°	358.0	355.1	352.3	350.8	349.4	346.5	345.1	343.6	340.8	339.3	337.9
22.5°	345.1	342.2	339.3	337.9	336.5	333.6	332.1	329.3	327.8	326.4	324.9
25°	332.1	329.3	326.4	324.9	322.1	320.6	317.8	314.9	313.4	312.0	310.6
27.5°	317.8	314.9	310.6	309.1	307.7	306.3	303.4	300.5	299.1	296.2	296.2
30°	301.9	299.1	296.2	294.8	293.3	290.4	289.0	286.1	284.7	281.8	281.8
32.5°	286.1	281.8	278.9	277.5	276.1	274.6	271.7	270.3	268.9	267.4	266.0
35°	268.9	266.0	263.1	261.7	260.2	257.4	255.9	254.5	253.1	250.2	250.2
37.5°	251.6	248.7	245.9	244.4	244.4	241.6	240.1	237.2	237.2	234.4	234.4
40°	234.4	231.5	228.6	228.6	227.2	224.3	222.9	221.4	220.0	218.5	218.5
42.5°	218.5	214.2	212.8	212.8	209.9	208.5	207.0	205.6	202.7	202.7	202.7
45°	201.3	198.4	197.0	195.5	194.1	192.7	191.2	188.4	186.9	185.5	185.5
47.5°	185.5	182.6	181.2	179.7	178.3	176.9	175.4	174.0	171.1	171.1	169.7
50°	169.7	166.8	165.3	163.9	162.5	161.0	159.6	158.2	156.7	155.3	153.8
52.5°	152.4	151.0	149.5	148.1	148.1	145.2	143.8	142.3	140.9	140.9	138.0
55°	138.0	136.6	135.2	133.7	132.3	130.8	129.4	128.0	126.5	125.1	123.7
57.5°	122.2	120.8	119.3	119.3	117.9	116.5	115.0	113.6	112.2	110.7	109.3
60°	107.8	106.4	105.0	105.0	103.5	102.1	100.6	100.6	97.8	96.3	94.9
62.5°	93.5	92.0	90.6	90.6	89.1	89.1	87.7	86.3	83.4	83.4	82.0
65°	80.5	79.1	77.6	76.2	76.2	74.8	73.3	71.9	70.5	70.5	69.0
67.5°	67.6	66.1	64.7	64.7	63.3	61.8	60.4	59.0	57.5	57.5	56.1
70°	54.6	53.2	51.8	51.8	50.3	48.9	48.9	47.4	46.0	44.6	44.6
72.5°	41.7	41.7	40.3	40.3	38.8	38.8	37.4	35.9	35.9	34.5	33.1
75°	31.6	31.6	30.2	30.2	28.8	28.8	27.3	27.3	27.3	25.9	27.3
77.5°	23.0	23.0	21.6	21.6	21.6	20.1	20.1	20.1	21.6	21.6	21.6
80°	15.8	15.8	15.8	15.8	14.4	14.4	15.8	15.8	15.8	15.8	15.8
82.5°	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	11.5	11.5	11.5
85°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	7.2	7.2	7.2	7.2
87.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
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):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	414.1	414.1	414.1	414.1	414.1	414.1	414.1	414.1
2.5°	408.3	408.3	408.3	408.3	408.3	408.3	408.3	409.8
5°	401.2	401.2	401.2	401.2	401.2	401.2	401.2	399.7
7.5°	394.0	392.5	392.5	392.5	392.5	391.1	391.1	391.1
10°	383.9	383.9	382.5	382.5	382.5	382.5	381.0	382.5
12.5°	373.8	372.4	372.4	372.4	371.0	371.0	371.0	371.0
15°	362.3	360.9	360.9	360.9	359.5	359.5	359.5	359.5
17.5°	349.4	349.4	348.0	348.0	346.5	346.5	346.5	346.5
20°	336.5	336.5	336.5	335.0	335.0	335.0	333.6	333.6
22.5°	323.5	322.1	320.6	322.1	320.6	319.2	320.6	320.6
25°	309.1	307.7	306.3	306.3	306.3	306.3	304.8	304.8
27.5°	294.8	291.9	291.9	291.9	291.9	290.4	290.4	290.4
30°	280.4	278.9	278.9	277.5	276.1	276.1	276.1	277.5
32.5°	264.6	263.1	261.7	261.7	261.7	261.7	260.2	260.2
35°	248.7	248.7	247.3	247.3	247.3	245.9	245.9	244.4
37.5°	232.9	232.9	231.5	231.5	231.5	230.1	230.1	230.1
40°	217.1	215.7	215.7	217.1	215.7	215.7	214.2	214.2
42.5°	201.3	201.3	199.9	199.9	199.9	199.9	198.4	199.9
45°	184.0	184.0	184.0	184.0	184.0	184.0	182.6	182.6
47.5°	169.7	168.2	168.2	168.2	168.2	168.2	168.2	168.2
50°	153.8	152.4	152.4	152.4	152.4	152.4	152.4	152.4
52.5°	138.0	136.6	136.6	136.6	136.6	136.6	136.6	136.6
55°	123.7	122.2	122.2	120.8	122.2	120.8	120.8	120.8
57.5°	109.3	107.8	106.4	107.8	106.4	106.4	106.4	105.0
60°	94.9	93.5	93.5	93.5	92.0	90.6	90.6	92.0
62.5°	80.5	80.5	79.1	79.1	77.6	76.2	76.2	76.2
65°	67.6	66.1	66.1	64.7	64.7	63.3	63.3	63.3
67.5°	54.6	54.6	53.2	53.2	51.8	51.8	51.8	50.3
70°	43.1	43.1	41.7	41.7	41.7	40.3	40.3	40.3
72.5°	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1
75°	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3
77.5°	21.6	21.6	21.6	21.6	21.6	21.6	21.6	23.0
80°	15.8	15.8	17.3	15.8	17.3	15.8	15.8	15.8
82.5°	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
85°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
87.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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Peachtree City, GA 30269

Scaled Data Report



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— 0°-180° - - 45°-225° - - - 90°-270°

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(END OF REPORT)