

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: P644150

Luminaire Tested: ML5615LSWW9FS1E - 692SC WW - 1500LM - 5000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644150
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-131)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 692SC WW - 1500LM - 5000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: -

Summary

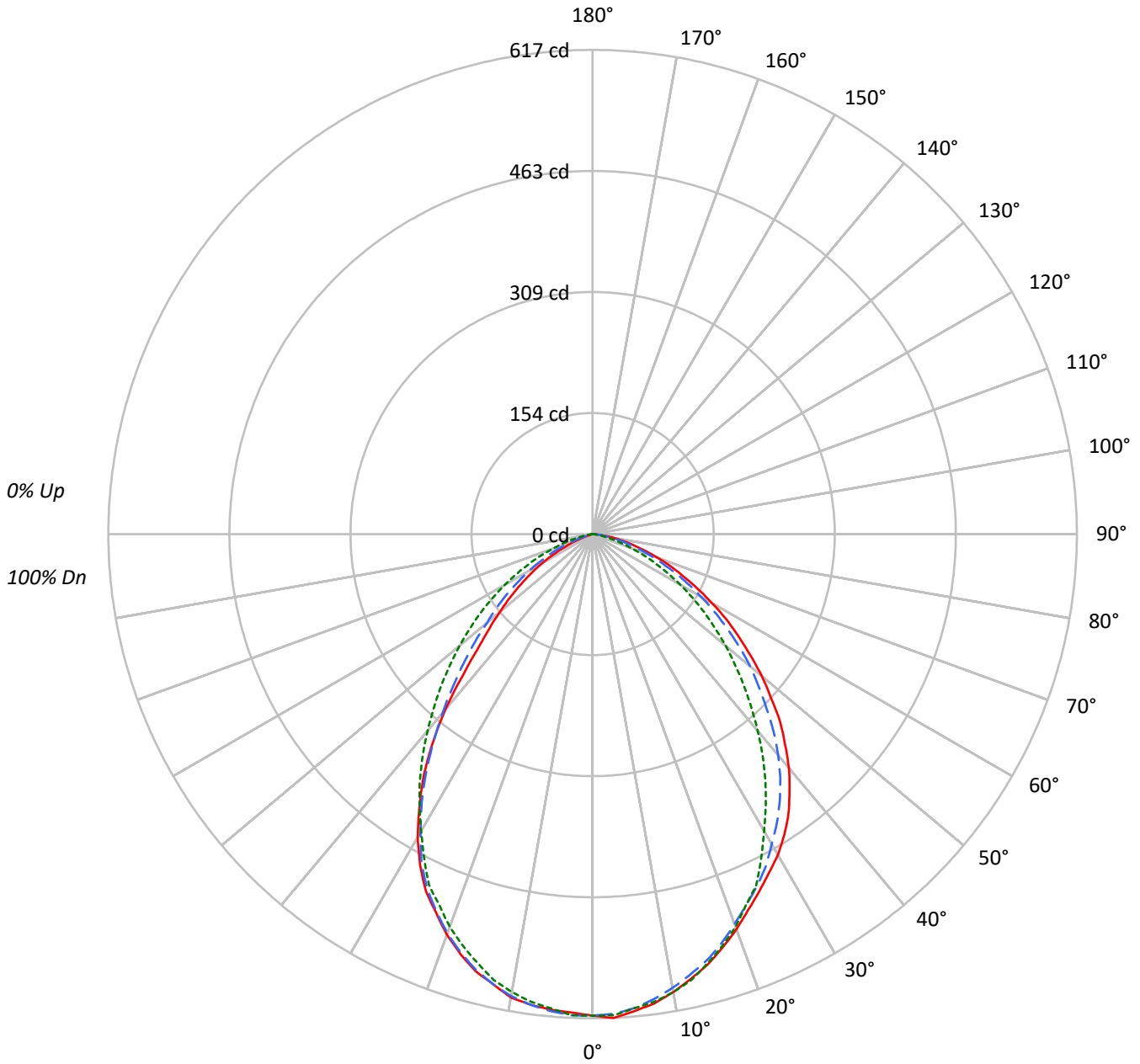
Lumens per Lamp: N/A
Luminaire Lumens: 1172.6 lumens
Efficiency: N/A
Efficacy: 68.6 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 1.09 / 1.17
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

Input Watts (W): 17.1
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: 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					10					0
RW	70	50	30	10	70	50	30	10	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	100	108	105	102	99	101	98	96	97	95	93	93	92	90	88					88			
2	103	96	90	85	100	94	89	84	90	86	82	87	84	80	84	81	79	77					77			
3	95	86	79	73	92	84	78	72	81	76	71	79	74	70	76	72	69	67					67			
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61	59					59			
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52					52			
6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	53	48	46					46			
7	70	58	50	45	69	57	50	44	56	49	44	55	48	44	53	48	44	42					42			
8	66	53	46	40	64	53	45	40	52	45	40	50	44	40	49	44	40	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°	45°	90°	135°	180°
0°	33643	33643	33643	33643	33643
5°	33579	33381	33381	33579	33480
10°	32982	32687	32982	33277	33377
15°	32219	31918	32123	32622	32724
20°	31264	30849	31059	31573	31678
25°	30383	29953	29844	30165	30383
30°	29891	28884	27650	27764	28213
35°	29118	27813	25685	24735	25089
40°	27845	26328	23415	21261	20882
45°	26189	24266	21118	17963	16040
50°	23982	22328	18857	14933	13125
55°	21638	19947	16563	12673	10647
60°	19198	17455	14155	10273	8146
65°	16513	14917	11467	7575	5046
70°	14169	12198	8511	4248	1988
75°	11247	9362	5613	1123	0
80°	8366	6693	2778	0	0
85°	4466	3334	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 26189 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	57.5	4.9
10°-20°	159.7	13.6
20°-30°	227.6	19.4
30°-40°	244.7	20.9
40°-50°	210.9	18.0
50°-60°	152.8	13.0
60°-70°	86.2	7.4
70°-80°	29.3	2.5
80°-90°	3.8	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°	444.8	37.9
0°-40°	689.5	58.8
0°-60°	1053.3	89.8
0°-90°	1172.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1172.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	614	614	614	614	614	
5°	610	607	607	610	608	58
15°	568	562	566	575	577	160
25°	502	495	493	499	502	232
35°	435	416	384	370	375	271
45°	338	313	272	232	207	259
55°	226	209	173	133	111	203
65°	127	115	88	58	39	128
75°	53	44	26	5	0	58
85°	7	5	0	0	0	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°	613.7	613.7	613.7	613.7	613.7	613.7	613.7	613.7	613.7	613.7	613.7
2.5°	617.2	611.9	610.2	611.9	611.9	611.9	611.9	611.9	611.9	610.2	611.9
5°	610.2	604.9	604.9	604.9	604.9	604.9	603.1	604.9	604.9	604.9	606.6
7.5°	603.1	596.0	597.8	596.0	597.8	596.0	596.0	597.8	596.0	597.8	597.8
10°	592.5	587.2	587.2	587.2	587.2	587.2	587.2	587.2	587.2	587.2	587.2
12.5°	580.1	574.8	574.8	574.8	574.8	574.8	574.8	574.8	576.6	574.8	574.8
15°	567.7	560.7	562.4	560.7	560.7	560.7	560.7	560.7	560.7	560.7	562.4
17.5°	551.8	546.5	546.5	546.5	546.5	546.5	546.5	544.7	546.5	546.5	546.5
20°	535.9	530.6	530.6	528.8	530.6	528.8	528.8	528.8	530.6	528.8	528.8
22.5°	518.2	512.9	514.7	512.9	512.9	512.9	512.9	512.9	511.1	512.9	511.1
25°	502.3	500.5	498.7	500.5	498.7	498.7	498.7	497.0	497.0	497.0	495.2
27.5°	486.4	482.8	482.8	482.8	482.8	481.1	481.1	481.1	479.3	477.5	477.5
30°	472.2	466.9	466.9	466.9	465.1	465.1	463.4	463.4	459.8	458.1	456.3
32.5°	454.5	451.0	449.2	449.2	447.5	447.5	445.7	445.7	442.2	440.4	436.8
35°	435.1	433.3	433.3	431.5	429.8	428.0	426.2	424.5	422.7	419.2	415.6
37.5°	412.1	410.3	408.5	408.5	406.8	405.0	405.0	401.5	399.7	396.2	392.6
40°	389.1	385.6	385.6	383.8	382.0	380.3	380.3	376.7	374.9	371.4	367.9
42.5°	362.6	359.0	359.0	357.3	357.3	357.3	355.5	352.0	348.4	344.9	341.3
45°	337.8	334.3	334.3	330.7	330.7	329.0	327.2	325.4	321.9	318.4	313.0
47.5°	307.7	306.0	306.0	304.2	302.4	300.7	300.7	298.9	295.4	290.1	286.5
50°	281.2	279.4	279.4	277.7	275.9	274.1	272.4	270.6	268.8	265.3	261.8
52.5°	252.9	252.9	251.1	249.4	249.4	247.6	245.8	244.1	240.5	237.0	235.2
55°	226.4	224.6	224.6	222.8	222.8	221.1	219.3	217.5	215.8	212.2	208.7
57.5°	201.6	198.1	198.1	196.3	196.3	196.3	194.5	191.0	189.2	185.7	183.9
60°	175.1	173.3	173.3	173.3	171.6	169.8	169.8	166.2	164.5	162.7	159.2
62.5°	150.3	148.6	148.6	148.6	146.8	146.8	145.0	143.3	141.5	139.7	136.2
65°	127.3	127.3	127.3	125.6	125.6	123.8	122.0	122.0	120.3	118.5	115.0
67.5°	107.9	106.1	106.1	106.1	104.3	104.3	102.6	100.8	99.0	97.3	93.7
70°	88.4	86.7	86.7	84.9	84.9	84.9	84.9	83.1	79.6	79.6	76.1
72.5°	69.0	69.0	69.0	67.2	67.2	67.2	65.4	65.4	63.7	61.9	60.1
75°	53.1	53.1	53.1	51.3	51.3	51.3	49.5	49.5	47.8	46.0	44.2
77.5°	38.9	38.9	38.9	37.1	37.1	37.1	35.4	35.4	33.6	33.6	31.8
80°	26.5	26.5	26.5	24.8	24.8	24.8	24.8	23.0	23.0	21.2	21.2
82.5°	15.9	15.9	15.9	15.9	14.1	14.1	14.1	14.1	14.1	12.4	12.4
85°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	5.3	5.3
87.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
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°	613.7	613.7	613.7	613.7	613.7	613.7	613.7	613.7	613.7	613.7	613.7
2.5°	611.9	611.9	611.9	611.9	611.9	611.9	611.9	611.9	611.9	613.7	611.9
5°	606.6	606.6	606.6	606.6	606.6	606.6	608.4	606.6	608.4	606.6	608.4
7.5°	597.8	597.8	599.6	599.6	597.8	599.6	599.6	599.6	599.6	601.3	601.3
10°	587.2	588.9	588.9	590.7	590.7	590.7	590.7	592.5	592.5	592.5	592.5
12.5°	576.6	576.6	576.6	576.6	578.3	576.6	578.3	578.3	580.1	581.9	580.1
15°	560.7	562.4	562.4	562.4	562.4	562.4	564.2	566.0	566.0	566.0	567.7
17.5°	546.5	546.5	546.5	548.3	546.5	548.3	548.3	548.3	550.0	550.0	551.8
20°	528.8	527.0	530.6	528.8	528.8	530.6	530.6	530.6	532.4	532.4	532.4
22.5°	509.4	511.1	509.4	509.4	511.1	511.1	511.1	509.4	511.1	511.1	512.9
25°	493.4	493.4	493.4	493.4	493.4	493.4	493.4	491.7	493.4	493.4	493.4
27.5°	475.8	472.2	472.2	470.5	470.5	468.7	466.9	466.9	466.9	465.1	466.9
30°	454.5	451.0	449.2	447.5	445.7	445.7	442.2	440.4	438.6	436.8	435.1
32.5°	433.3	429.8	428.0	426.2	422.7	420.9	417.4	415.6	413.9	410.3	406.8
35°	413.9	408.5	405.0	401.5	399.7	397.9	394.4	390.9	387.3	383.8	380.3
37.5°	387.3	383.8	380.3	376.7	374.9	373.2	369.6	362.6	359.0	355.5	352.0
40°	364.3	359.0	355.5	350.2	348.4	344.9	341.3	336.0	330.7	327.2	323.7
42.5°	336.0	332.5	329.0	323.7	321.9	318.4	313.0	309.5	306.0	298.9	295.4
45°	309.5	306.0	302.4	297.1	293.6	291.8	288.3	283.0	277.7	272.4	268.8
47.5°	283.0	279.4	274.1	270.6	267.1	265.3	261.8	256.4	251.1	245.8	242.3
50°	256.4	252.9	249.4	242.3	242.3	238.8	235.2	229.9	226.4	221.1	215.8
52.5°	231.7	226.4	222.8	217.5	217.5	215.8	210.5	205.2	201.6	196.3	192.8
55°	205.2	201.6	198.1	194.5	191.0	189.2	187.5	182.2	176.9	173.3	168.0
57.5°	180.4	175.1	173.3	169.8	168.0	166.2	162.7	157.4	153.9	150.3	146.8
60°	157.4	153.9	148.6	146.8	145.0	143.3	139.7	136.2	132.6	129.1	125.6
62.5°	134.4	130.9	127.3	123.8	122.0	120.3	118.5	115.0	111.4	107.9	104.3
65°	111.4	109.7	106.1	104.3	102.6	100.8	97.3	93.7	92.0	88.4	84.9
67.5°	92.0	90.2	86.7	84.9	83.1	83.1	77.8	76.1	72.5	70.7	67.2
70°	74.3	72.5	69.0	67.2	65.4	63.7	61.9	60.1	56.6	53.1	51.3
72.5°	58.4	54.8	53.1	51.3	49.5	49.5	46.0	44.2	40.7	38.9	35.4
75°	42.4	40.7	38.9	37.1	37.1	35.4	33.6	31.8	28.3	26.5	24.8
77.5°	30.1	28.3	26.5	24.8	24.8	23.0	21.2	19.5	17.7	15.9	14.1
80°	19.5	17.7	17.7	15.9	14.1	14.1	12.4	10.6	8.8	8.8	7.1
82.5°	10.6	10.6	8.8	8.8	7.1	7.1	5.3	5.3	3.5	3.5	1.8
85°	5.3	3.5	3.5	3.5	3.5	1.8	1.8	1.8	0.0	0.0	0.0
87.5°	1.8	1.8	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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	613.7	613.7	613.7	613.7	613.7	613.7	613.7	613.7	613.7	613.7	613.7
2.5°	611.9	611.9	611.9	611.9	611.9	611.9	611.9	611.9	613.7	611.9	611.9
5°	608.4	608.4	610.2	608.4	610.2	610.2	608.4	608.4	610.2	611.9	610.2
7.5°	601.3	601.3	603.1	603.1	603.1	603.1	603.1	604.9	604.9	606.6	606.6
10°	594.3	594.3	594.3	594.3	596.0	596.0	597.8	597.8	597.8	597.8	597.8
12.5°	581.9	583.6	583.6	583.6	583.6	585.4	585.4	587.2	587.2	587.2	588.9
15°	567.7	569.5	571.3	571.3	569.5	571.3	573.0	573.0	574.8	574.8	574.8
17.5°	551.8	553.6	553.6	555.3	553.6	557.1	557.1	558.9	558.9	560.7	560.7
20°	534.1	535.9	535.9	535.9	537.7	537.7	539.4	539.4	541.2	541.2	541.2
22.5°	512.9	514.7	514.7	514.7	514.7	516.4	516.4	518.2	520.0	521.7	520.0
25°	493.4	495.2	497.0	495.2	497.0	497.0	497.0	498.7	498.7	500.5	498.7
27.5°	466.9	466.9	466.9	468.7	470.5	470.5	470.5	472.2	472.2	472.2	474.0
30°	435.1	433.3	435.1	435.1	435.1	435.1	438.6	438.6	438.6	440.4	442.2
32.5°	405.0	405.0	405.0	403.2	403.2	403.2	403.2	405.0	405.0	406.8	408.5
35°	376.7	374.9	371.4	371.4	371.4	369.6	367.9	367.9	369.6	369.6	369.6
37.5°	346.6	344.9	343.1	339.6	339.6	336.0	334.3	332.5	332.5	330.7	330.7
40°	318.4	314.8	311.3	311.3	307.7	306.0	302.4	300.7	297.1	293.6	293.6
42.5°	290.1	286.5	283.0	281.2	277.7	275.9	270.6	267.1	263.5	261.8	258.2
45°	263.5	260.0	254.7	252.9	249.4	245.8	242.3	237.0	231.7	228.2	226.4
47.5°	237.0	233.5	228.2	224.6	222.8	217.5	214.0	208.7	203.4	198.1	192.8
50°	212.2	206.9	201.6	198.1	196.3	191.0	187.5	182.2	175.1	173.3	168.0
52.5°	187.5	182.2	176.9	175.1	173.3	168.0	162.7	157.4	153.9	148.6	145.0
55°	162.7	159.2	153.9	152.1	150.3	145.0	139.7	136.2	132.6	127.3	123.8
57.5°	141.5	138.0	132.6	130.9	129.1	123.8	120.3	115.0	111.4	107.9	104.3
60°	122.0	116.7	113.2	111.4	109.7	104.3	100.8	97.3	93.7	90.2	84.9
62.5°	100.8	97.3	93.7	92.0	88.4	86.7	81.4	79.6	74.3	72.5	69.0
65°	81.4	77.8	74.3	74.3	72.5	67.2	65.4	61.9	58.4	54.8	53.1
67.5°	65.4	61.9	58.4	56.6	54.8	51.3	49.5	46.0	42.4	40.7	37.1
70°	49.5	46.0	42.4	40.7	38.9	37.1	33.6	30.1	26.5	24.8	21.2
72.5°	33.6	30.1	28.3	28.3	26.5	23.0	19.5	17.7	14.1	12.4	10.6
75°	21.2	17.7	15.9	14.1	14.1	12.4	8.8	7.1	5.3	3.5	1.8
77.5°	12.4	10.6	8.8	7.1	7.1	5.3	3.5	1.8	1.8	0.0	0.0
80°	5.3	3.5	1.8	1.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	1.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	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	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°	613.7	613.7	613.7	613.7	613.7	613.7	613.7	613.7
2.5°	611.9	611.9	611.9	611.9	610.2	610.2	610.2	610.2
5°	610.2	610.2	610.2	610.2	608.4	608.4	610.2	608.4
7.5°	606.6	606.6	604.9	604.9	604.9	604.9	604.9	604.9
10°	599.6	599.6	599.6	597.8	599.6	599.6	597.8	599.6
12.5°	588.9	588.9	588.9	588.9	587.2	587.2	588.9	587.2
15°	576.6	576.6	576.6	576.6	576.6	574.8	576.6	576.6
17.5°	562.4	562.4	560.7	560.7	560.7	562.4	562.4	560.7
20°	543.0	543.0	543.0	543.0	543.0	543.0	543.0	543.0
22.5°	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7
25°	500.5	500.5	500.5	500.5	500.5	500.5	500.5	502.3
27.5°	474.0	474.0	474.0	474.0	474.0	472.2	472.2	475.8
30°	442.2	443.9	443.9	443.9	443.9	443.9	443.9	445.7
32.5°	410.3	410.3	410.3	412.1	410.3	412.1	410.3	410.3
35°	373.2	373.2	373.2	373.2	373.2	374.9	374.9	374.9
37.5°	330.7	332.5	332.5	334.3	334.3	334.3	336.0	334.3
40°	291.8	291.8	291.8	290.1	291.8	290.1	291.8	291.8
42.5°	254.7	251.1	251.1	249.4	249.4	247.6	245.8	245.8
45°	221.1	215.8	215.8	214.0	212.2	208.7	206.9	206.9
47.5°	189.2	187.5	185.7	183.9	182.2	178.6	176.9	178.6
50°	162.7	160.9	159.2	159.2	157.4	155.6	153.9	153.9
52.5°	141.5	138.0	136.2	136.2	134.4	132.6	132.6	132.6
55°	120.3	116.7	116.7	116.7	115.0	113.2	113.2	111.4
57.5°	100.8	97.3	97.3	95.5	93.7	93.7	93.7	92.0
60°	83.1	79.6	77.8	77.8	76.1	74.3	74.3	74.3
62.5°	65.4	63.7	60.1	60.1	58.4	56.6	54.8	56.6
65°	49.5	46.0	44.2	44.2	42.4	40.7	38.9	38.9
67.5°	33.6	31.8	30.1	30.1	26.5	26.5	24.8	24.8
70°	19.5	17.7	17.7	15.9	14.1	14.1	12.4	12.4
72.5°	8.8	7.1	7.1	5.3	5.3	3.5	3.5	3.5
75°	1.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	1.8	1.8	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	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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Peachtree City, GA 30269

Scaled Data Report



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— 0°-180° - - 45°-225° - - - - 90°-270°

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(END OF REPORT)