

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: P644117

Luminaire Tested: ML5615LSWW9FS1E - 592W WW - 1500LM - 3000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644117
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 - 1500LM - 3000K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1004.9 lumens
Efficiency: N/A
Efficacy: 58.8 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

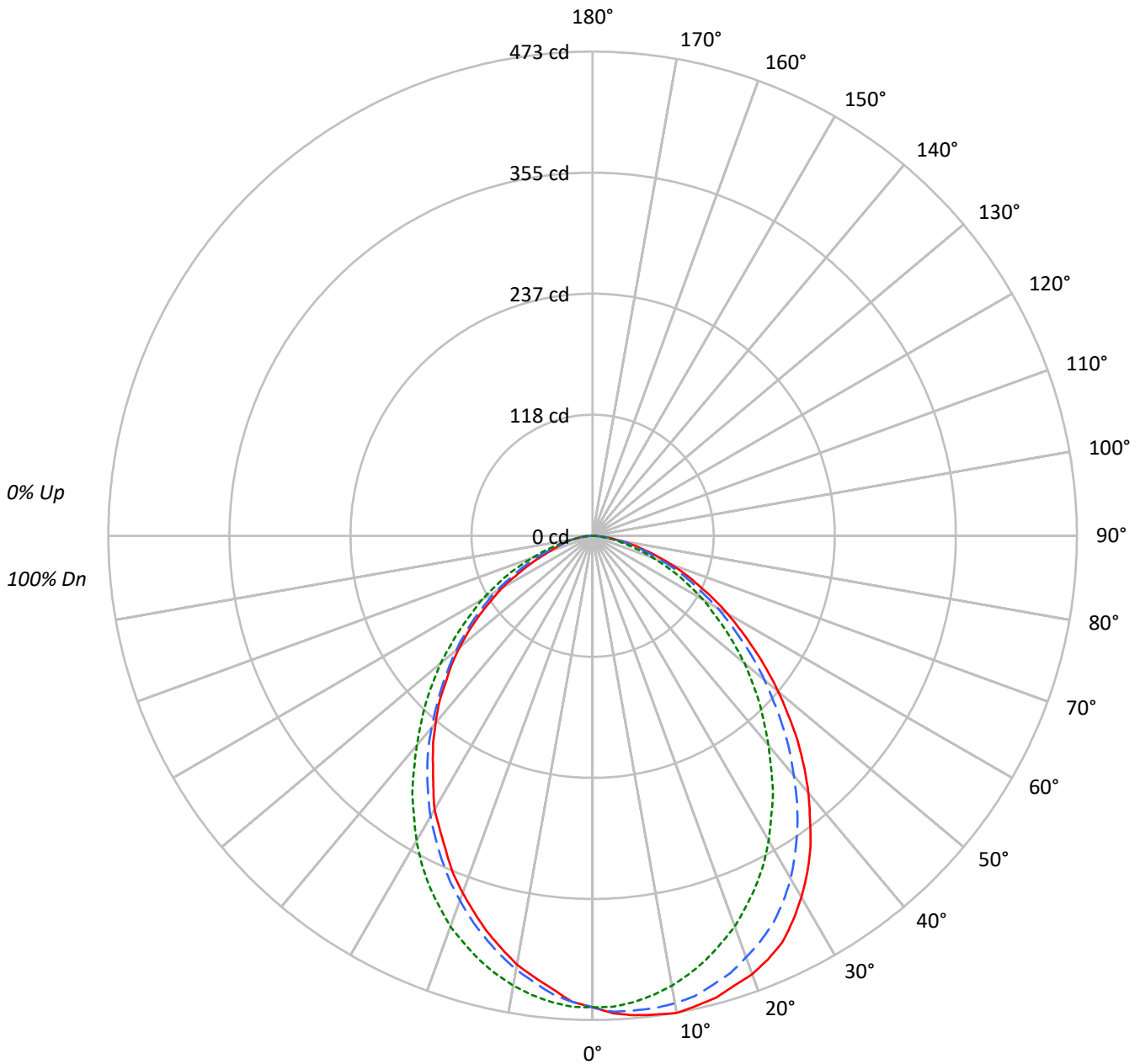
Input Watts (W): 17.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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								
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°	36360	36360	36360	36360	36360
5°	37260	36879	36246	35612	35231
10°	37947	37178	35767	34484	34100
15°	38166	37120	35028	33197	32674
20°	38290	36812	34124	31839	31175
25°	38168	36356	32872	30372	29536
30°	37172	35276	31348	28868	28139
35°	35763	33604	29595	27128	26203
40°	33790	31482	27525	25216	24557
45°	31605	29283	25711	23210	22674
50°	29069	26908	23764	21406	20816
55°	26411	24429	21567	19364	18484
60°	23982	22214	19704	17178	16167
65°	21219	19725	17334	14644	13150
70°	18834	16987	14402	11817	10340
75°	15616	14152	11224	9272	9272
80°	12365	10910	8728	8001	8001
85°	7246	7246	5797	7246	7246

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 31605 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.3	4.3
10°-20°	121.3	12.1
20°-30°	176.0	17.5
30°-40°	196.3	19.5
40°-50°	182.1	18.1
50°-60°	143.1	14.2
60°-70°	91.6	9.1
70°-80°	42.0	4.2
80°-90°	9.1	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°	340.6	33.9
0°-40°	537.0	53.4
0°-60°	862.2	85.8
0°-90°	1004.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1004.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	461	461	461	461	461	
5°	470	465	457	449	445	45
15°	467	454	429	406	400	132
25°	438	417	377	349	339	201
35°	371	349	307	282	272	231
45°	283	262	230	208	203	218
55°	192	178	157	141	134	172
65°	114	106	93	78	70	114
75°	51	46	37	30	30	55
85°	8	8	6	8	8	11
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°	460.6	460.6	460.6	460.6	460.6	460.6	460.6	460.6	460.6	460.6	460.6
2.5°	467.0	467.0	467.0	467.0	467.0	467.0	465.4	465.4	465.4	465.4	465.4
5°	470.2	470.2	470.2	470.2	468.6	468.6	468.6	468.6	467.0	467.0	465.4
7.5°	471.8	471.8	471.8	470.2	470.2	470.2	468.6	468.6	468.6	467.0	465.4
10°	473.4	471.8	471.8	470.2	470.2	470.2	468.6	468.6	467.0	465.4	463.8
12.5°	470.2	470.2	470.2	470.2	468.6	468.6	467.0	465.4	463.8	462.2	460.6
15°	467.0	467.0	467.0	465.4	463.8	463.8	462.2	460.6	459.0	457.4	454.2
17.5°	460.6	462.2	460.6	460.6	459.0	459.0	457.4	455.8	452.6	451.0	447.8
20°	455.8	454.2	454.2	454.2	452.6	451.0	449.4	447.8	444.6	443.0	438.2
22.5°	447.8	447.8	446.2	444.6	443.0	443.0	441.4	438.2	436.6	433.4	428.6
25°	438.2	436.6	436.6	435.0	433.4	433.4	430.2	428.6	425.4	420.6	417.4
27.5°	423.8	423.8	423.8	422.2	420.6	419.0	417.4	414.2	412.6	406.2	403.0
30°	407.8	407.8	406.2	406.2	403.0	403.0	401.4	398.2	395.0	390.2	387.0
32.5°	390.2	390.2	390.2	387.0	385.4	383.8	382.2	380.6	375.8	371.1	367.9
35°	371.1	371.1	369.5	367.9	366.3	364.7	363.1	359.9	356.7	353.5	348.7
37.5°	348.7	350.3	348.7	347.1	345.5	343.9	342.3	340.7	335.9	332.7	327.9
40°	327.9	327.9	326.3	324.7	323.1	323.1	321.5	318.3	315.1	310.3	305.5
42.5°	305.5	305.5	303.9	302.3	302.3	300.7	297.5	295.9	292.7	289.5	284.7
45°	283.1	281.5	279.9	279.9	278.3	276.7	276.7	273.5	270.3	265.5	262.3
47.5°	259.1	259.1	257.5	257.5	255.9	254.3	254.3	251.1	246.3	243.1	239.9
50°	236.7	236.7	235.1	235.1	233.5	231.9	230.3	228.7	225.5	222.3	219.1
52.5°	214.3	214.3	214.3	211.1	209.5	209.5	209.5	206.3	204.7	201.5	198.3
55°	191.9	191.9	191.9	190.3	188.7	188.7	188.7	185.5	183.9	180.7	177.5
57.5°	171.1	171.1	171.1	169.5	169.5	167.9	166.3	164.7	163.1	161.5	158.3
60°	151.9	151.9	150.3	148.7	150.3	148.7	147.1	145.5	143.9	142.3	140.7
62.5°	132.7	132.7	132.7	131.1	129.5	129.5	129.5	127.9	124.8	123.2	121.6
65°	113.6	113.6	113.6	113.6	112.0	112.0	110.4	108.8	108.8	107.2	105.6
67.5°	97.6	97.6	96.0	96.0	94.4	94.4	94.4	92.8	91.2	91.2	89.6
70°	81.6	80.0	80.0	80.0	78.4	78.4	78.4	76.8	76.8	75.2	73.6
72.5°	65.6	65.6	65.6	65.6	64.0	64.0	62.4	62.4	60.8	60.8	59.2
75°	51.2	51.2	51.2	51.2	49.6	49.6	49.6	49.6	48.0	48.0	46.4
77.5°	38.4	38.4	38.4	38.4	38.4	38.4	36.8	36.8	36.8	35.2	35.2
80°	27.2	27.2	27.2	27.2	25.6	25.6	25.6	25.6	25.6	24.0	24.0
82.5°	17.6	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	14.4
85°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	460.6	460.6	460.6	460.6	460.6	460.6	460.6	460.6	460.6	460.6	460.6
2.5°	463.8	463.8	463.8	463.8	462.2	462.2	462.2	460.6	460.6	460.6	460.6
5°	465.4	465.4	462.2	462.2	462.2	462.2	460.6	460.6	459.0	457.4	455.8
7.5°	463.8	463.8	462.2	460.6	459.0	459.0	457.4	455.8	454.2	452.6	451.0
10°	462.2	460.6	459.0	457.4	455.8	454.2	452.6	451.0	447.8	446.2	444.6
12.5°	459.0	455.8	454.2	451.0	451.0	449.4	446.2	444.6	441.4	438.2	436.6
15°	452.6	449.4	446.2	443.0	443.0	439.8	436.6	435.0	431.8	428.6	425.4
17.5°	444.6	441.4	438.2	435.0	433.4	430.2	427.0	423.8	420.6	417.4	414.2
20°	436.6	431.8	428.6	423.8	422.2	420.6	415.8	412.6	409.4	406.2	401.4
22.5°	425.4	422.2	415.8	412.6	411.0	407.8	404.6	399.8	395.0	391.8	388.6
25°	412.6	409.4	404.6	399.8	396.6	395.0	390.2	385.4	382.2	377.4	374.3
27.5°	398.2	393.4	390.2	383.8	382.2	379.0	374.3	369.5	366.3	361.5	356.7
30°	382.2	377.4	372.7	367.9	364.7	363.1	358.3	353.5	348.7	343.9	340.7
32.5°	363.1	358.3	353.5	350.3	345.5	342.3	339.1	334.3	329.5	324.7	321.5
35°	343.9	339.1	334.3	329.5	326.3	326.3	319.9	315.1	310.3	307.1	302.3
37.5°	323.1	318.3	313.5	308.7	307.1	303.9	299.1	294.3	291.1	286.3	283.1
40°	302.3	295.9	292.7	287.9	286.3	283.1	279.9	275.1	271.9	267.1	263.9
42.5°	279.9	276.7	271.9	268.7	265.5	263.9	259.1	254.3	251.1	247.9	246.3
45°	259.1	254.3	249.5	246.3	244.7	241.5	239.9	235.1	231.9	230.3	227.1
47.5°	236.7	233.5	230.3	225.5	223.9	222.3	219.1	217.5	214.3	211.1	207.9
50°	215.9	212.7	209.5	206.3	204.7	204.7	199.9	196.7	195.1	193.5	190.3
52.5°	195.1	191.9	188.7	185.5	185.5	183.9	180.7	179.1	177.5	174.3	171.1
55°	175.9	172.7	169.5	167.9	166.3	166.3	163.1	161.5	158.3	156.7	155.1
57.5°	156.7	153.5	151.9	150.3	148.7	148.7	145.5	143.9	142.3	139.1	139.1
60°	139.1	135.9	134.3	132.7	131.1	129.5	129.5	126.3	124.8	124.8	121.6
62.5°	120.0	118.4	116.8	115.2	113.6	113.6	112.0	110.4	108.8	107.2	105.6
65°	104.0	102.4	100.8	99.2	97.6	97.6	96.0	94.4	92.8	92.8	89.6
67.5°	88.0	86.4	84.8	83.2	83.2	81.6	80.0	80.0	78.4	76.8	75.2
70°	72.0	72.0	70.4	68.8	68.8	67.2	65.6	65.6	64.0	62.4	60.8
72.5°	59.2	57.6	56.0	56.0	54.4	54.4	52.8	52.8	51.2	49.6	48.0
75°	44.8	43.2	43.2	43.2	41.6	41.6	41.6	40.0	38.4	36.8	36.8
77.5°	33.6	33.6	32.0	30.4	30.4	30.4	28.8	28.8	28.8	27.2	27.2
80°	24.0	22.4	22.4	20.8	20.8	20.8	20.8	19.2	19.2	19.2	17.6
82.5°	14.4	14.4	14.4	12.8	12.8	12.8	12.8	12.8	11.2	11.2	11.2
85°	8.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	3.2	3.2
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°	460.6	460.6	460.6	460.6	460.6	460.6	460.6	460.6	460.6	460.6	460.6
2.5°	459.0	459.0	457.4	457.4	457.4	457.4	457.4	455.8	455.8	455.8	455.8
5°	455.8	454.2	452.6	452.6	452.6	451.0	451.0	449.4	449.4	447.8	447.8
7.5°	449.4	447.8	446.2	446.2	444.6	444.6	441.4	441.4	439.8	438.2	438.2
10°	441.4	439.8	438.2	436.6	436.6	433.4	433.4	431.8	430.2	428.6	428.6
12.5°	433.4	431.8	428.6	427.0	427.0	425.4	422.2	420.6	419.0	417.4	415.8
15°	422.2	420.6	417.4	415.8	414.2	412.6	411.0	409.4	406.2	404.6	404.6
17.5°	411.0	409.4	404.6	403.0	403.0	399.8	398.2	395.0	393.4	391.8	390.2
20°	398.2	395.0	391.8	390.2	388.6	385.4	383.8	382.2	379.0	377.4	375.8
22.5°	383.8	380.6	377.4	375.8	374.3	371.1	369.5	366.3	364.7	363.1	361.5
25°	369.5	366.3	363.1	361.5	358.3	356.7	353.5	350.3	348.7	347.1	345.5
27.5°	353.5	350.3	345.5	343.9	342.3	340.7	337.5	334.3	332.7	329.5	329.5
30°	335.9	332.7	329.5	327.9	326.3	323.1	321.5	318.3	316.7	313.5	313.5
32.5°	318.3	313.5	310.3	308.7	307.1	305.5	302.3	300.7	299.1	297.5	295.9
35°	299.1	295.9	292.7	291.1	289.5	286.3	284.7	283.1	281.5	278.3	278.3
37.5°	279.9	276.7	273.5	271.9	271.9	268.7	267.1	263.9	263.9	260.7	260.7
40°	260.7	257.5	254.3	254.3	252.7	249.5	247.9	246.3	244.7	243.1	243.1
42.5°	243.1	238.3	236.7	236.7	233.5	231.9	230.3	228.7	225.5	225.5	225.5
45°	223.9	220.7	219.1	217.5	215.9	214.3	212.7	209.5	207.9	206.3	206.3
47.5°	206.3	203.1	201.5	199.9	198.3	196.7	195.1	193.5	190.3	190.3	188.7
50°	188.7	185.5	183.9	182.3	180.7	179.1	177.5	175.9	174.3	172.7	171.1
52.5°	169.5	167.9	166.3	164.7	164.7	161.5	159.9	158.3	156.7	156.7	153.5
55°	153.5	151.9	150.3	148.7	147.1	145.5	143.9	142.3	140.7	139.1	137.5
57.5°	135.9	134.3	132.7	132.7	131.1	129.5	127.9	126.3	124.8	123.2	121.6
60°	120.0	118.4	116.8	116.8	115.2	113.6	112.0	112.0	108.8	107.2	105.6
62.5°	104.0	102.4	100.8	100.8	99.2	99.2	97.6	96.0	92.8	92.8	91.2
65°	89.6	88.0	86.4	84.8	84.8	83.2	81.6	80.0	78.4	78.4	76.8
67.5°	75.2	73.6	72.0	72.0	70.4	68.8	67.2	65.6	64.0	64.0	62.4
70°	60.8	59.2	57.6	57.6	56.0	54.4	54.4	52.8	51.2	49.6	49.6
72.5°	46.4	46.4	44.8	44.8	43.2	43.2	41.6	40.0	40.0	38.4	36.8
75°	35.2	35.2	33.6	33.6	32.0	32.0	30.4	30.4	30.4	28.8	30.4
77.5°	25.6	25.6	24.0	24.0	24.0	22.4	22.4	22.4	24.0	24.0	24.0
80°	17.6	17.6	17.6	17.6	16.0	16.0	17.6	17.6	17.6	17.6	17.6
82.5°	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	12.8	12.8	12.8
85°	6.4	6.4	6.4	6.4	6.4	6.4	6.4	8.0	8.0	8.0	8.0
87.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
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°	460.6	460.6	460.6	460.6	460.6	460.6	460.6	460.6
2.5°	454.2	454.2	454.2	454.2	454.2	454.2	454.2	455.8
5°	446.2	446.2	446.2	446.2	446.2	446.2	446.2	444.6
7.5°	438.2	436.6	436.6	436.6	436.6	435.0	435.0	435.0
10°	427.0	427.0	425.4	425.4	425.4	425.4	423.8	425.4
12.5°	415.8	414.2	414.2	414.2	412.6	412.6	412.6	412.6
15°	403.0	401.4	401.4	401.4	399.8	399.8	399.8	399.8
17.5°	388.6	388.6	387.0	387.0	385.4	385.4	385.4	385.4
20°	374.3	374.3	374.3	372.7	372.7	372.7	371.1	371.1
22.5°	359.9	358.3	356.7	358.3	356.7	355.1	356.7	356.7
25°	343.9	342.3	340.7	340.7	340.7	340.7	339.1	339.1
27.5°	327.9	324.7	324.7	324.7	324.7	323.1	323.1	323.1
30°	311.9	310.3	310.3	308.7	307.1	307.1	307.1	308.7
32.5°	294.3	292.7	291.1	291.1	291.1	291.1	289.5	289.5
35°	276.7	276.7	275.1	275.1	275.1	273.5	273.5	271.9
37.5°	259.1	259.1	257.5	257.5	257.5	255.9	255.9	255.9
40°	241.5	239.9	239.9	241.5	239.9	239.9	238.3	238.3
42.5°	223.9	223.9	222.3	222.3	222.3	222.3	220.7	222.3
45°	204.7	204.7	204.7	204.7	204.7	204.7	203.1	203.1
47.5°	188.7	187.1	187.1	187.1	187.1	187.1	187.1	187.1
50°	171.1	169.5	169.5	169.5	169.5	169.5	169.5	169.5
52.5°	153.5	151.9	151.9	151.9	151.9	151.9	151.9	151.9
55°	137.5	135.9	135.9	134.3	135.9	134.3	134.3	134.3
57.5°	121.6	120.0	118.4	120.0	118.4	118.4	118.4	116.8
60°	105.6	104.0	104.0	104.0	102.4	100.8	100.8	102.4
62.5°	89.6	89.6	88.0	88.0	86.4	84.8	84.8	84.8
65°	75.2	73.6	73.6	72.0	72.0	70.4	70.4	70.4
67.5°	60.8	60.8	59.2	59.2	57.6	57.6	57.6	56.0
70°	48.0	48.0	46.4	46.4	46.4	44.8	44.8	44.8
72.5°	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8
75°	30.4	30.4	30.4	30.4	30.4	30.4	30.4	30.4
77.5°	24.0	24.0	24.0	24.0	24.0	24.0	24.0	25.6
80°	17.6	17.6	19.2	17.6	19.2	17.6	17.6	17.6
82.5°	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8
85°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
87.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Signify Classified - Internal
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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)