

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: P644148

Luminaire Tested: ML5615LSWW9FS1E - 692SC WW - 1500LM - 3500K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644148
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 - 3500K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1089.4 lumens
Efficiency: N/A
Efficacy: 63.7 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

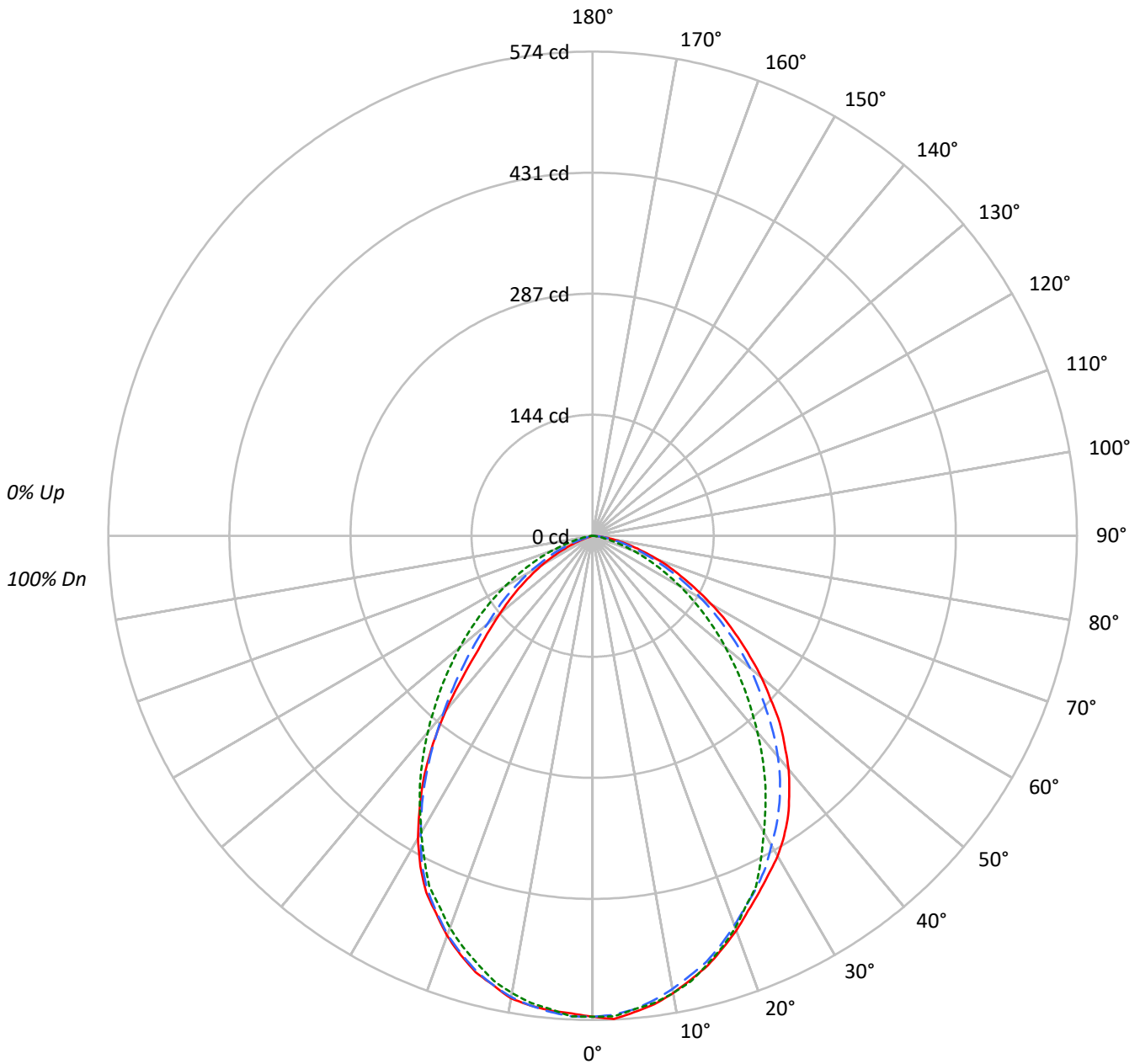
Input Watts (W): 17.1
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					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	111	107	104	100	108	105	102	99	101	98	96	97	95	93	93	92	90	88								
2	103	96	90	85	100	94	89	84	90	86	82	87	84	80	84	81	79	77								
3	95	86	79	73	92	84	78	72	81	76	71	79	74	70	76	72	69	67								
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61	59								
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52								
6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	53	48	46								
7	70	58	50	45	69	57	50	44	56	49	44	55	48	44	53	48	44	42								
8	66	53	46	40	64	53	45	40	52	45	40	50	44	40	49	44	40	38								
9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34								
10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	32								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	31258	31258	31258	31258	31258
5°	31196	31015	31015	31196	31103
10°	30638	30366	30638	30917	31006
15°	29932	29654	29841	30307	30403
20°	29047	28662	28854	29333	29426
25°	28223	27830	27727	28030	28223
30°	27770	26833	25694	25795	26213
35°	27050	25839	23865	22981	23309
40°	25870	24460	21755	19751	19401
45°	24328	22545	19614	16684	14901
50°	22285	20741	17518	13876	12196
55°	20100	18532	15388	11775	9892
60°	17838	16216	13146	9550	7565
65°	15345	13854	10663	7031	4683
70°	13175	11332	7902	3943	1843
75°	10442	8705	5210	1038	0
80°	7766	6219	2589	0	0
85°	4151	3082	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 24328 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	53.5	4.9
10°-20°	148.4	13.6
20°-30°	211.4	19.4
30°-40°	227.4	20.9
40°-50°	196.0	18.0
50°-60°	142.0	13.0
60°-70°	80.1	7.4
70°-80°	27.2	2.5
80°-90°	3.5	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°	413.2	37.9
0°-40°	640.6	58.8
0°-60°	978.6	89.8
0°-90°	1089.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1089.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	570	570	570	570	570	
5°	567	564	564	567	565	54
15°	527	522	526	534	536	148
25°	467	460	458	463	467	215
35°	404	386	357	343	348	252
45°	314	291	253	215	192	241
55°	210	194	161	123	104	189
65°	118	107	82	54	36	119
75°	49	41	25	5	0	53
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°	570.2	570.2	570.2	570.2	570.2	570.2	570.2	570.2	570.2	570.2	570.2
2.5°	573.5	568.5	566.9	568.5	568.5	568.5	568.5	568.5	568.5	566.9	568.5
5°	566.9	561.9	561.9	561.9	561.9	561.9	560.3	561.9	561.9	561.9	563.6
7.5°	560.3	553.7	555.4	553.7	555.4	553.7	553.7	555.4	553.7	555.4	555.4
10°	550.4	545.5	545.5	545.5	545.5	545.5	545.5	545.5	545.5	545.5	545.5
12.5°	538.9	534.0	534.0	534.0	534.0	534.0	534.0	534.0	535.7	534.0	534.0
15°	527.4	520.9	522.5	520.9	520.9	520.9	520.9	520.9	520.9	520.9	522.5
17.5°	512.7	507.7	507.7	507.7	507.7	507.7	507.7	506.1	507.7	507.7	507.7
20°	497.9	492.9	492.9	491.3	492.9	491.3	491.3	491.3	492.9	491.3	491.3
22.5°	481.4	476.5	478.2	476.5	476.5	476.5	476.5	476.5	474.9	476.5	474.9
25°	466.6	465.0	463.4	465.0	463.4	463.4	463.4	461.7	461.7	461.7	460.1
27.5°	451.9	448.6	448.6	448.6	448.6	446.9	446.9	446.9	445.3	443.6	443.6
30°	438.7	433.8	433.8	433.8	432.1	432.1	430.5	430.5	427.2	425.6	423.9
32.5°	422.3	419.0	417.4	417.4	415.7	415.7	414.1	414.1	410.8	409.1	405.9
35°	404.2	402.6	402.6	400.9	399.3	397.6	396.0	394.4	392.7	389.4	386.1
37.5°	382.8	381.2	379.6	379.6	377.9	376.3	376.3	373.0	371.3	368.1	364.8
40°	361.5	358.2	358.2	356.6	354.9	353.3	353.3	350.0	348.3	345.1	341.8
42.5°	336.8	333.6	333.6	331.9	331.9	331.9	330.3	327.0	323.7	320.4	317.1
45°	313.8	310.6	310.6	307.3	307.3	305.6	304.0	302.3	299.0	295.8	290.8
47.5°	285.9	284.3	284.3	282.6	281.0	279.3	279.3	277.7	274.4	269.5	266.2
50°	261.3	259.6	259.6	258.0	256.3	254.7	253.0	251.4	249.8	246.5	243.2
52.5°	235.0	235.0	233.3	231.7	231.7	230.0	228.4	226.8	223.5	220.2	218.5
55°	210.3	208.7	208.7	207.0	207.0	205.4	203.7	202.1	200.5	197.2	193.9
57.5°	187.3	184.0	184.0	182.4	182.4	182.4	180.7	177.5	175.8	172.5	170.9
60°	162.7	161.0	161.0	161.0	159.4	157.7	157.7	154.5	152.8	151.2	147.9
62.5°	139.7	138.0	138.0	138.0	136.4	136.4	134.7	133.1	131.5	129.8	126.5
65°	118.3	118.3	118.3	116.7	116.7	115.0	113.4	113.4	111.7	110.1	106.8
67.5°	100.2	98.6	98.6	98.6	96.9	96.9	95.3	93.7	92.0	90.4	87.1
70°	82.2	80.5	80.5	78.9	78.9	78.9	78.9	77.2	73.9	73.9	70.7
72.5°	64.1	64.1	64.1	62.4	62.4	62.4	60.8	60.8	59.2	57.5	55.9
75°	49.3	49.3	49.3	47.7	47.7	47.7	46.0	46.0	44.4	42.7	41.1
77.5°	36.1	36.1	36.1	34.5	34.5	34.5	32.9	32.9	31.2	31.2	29.6
80°	24.6	24.6	24.6	23.0	23.0	23.0	23.0	21.4	21.4	19.7	19.7
82.5°	14.8	14.8	14.8	14.8	13.1	13.1	13.1	13.1	13.1	11.5	11.5
85°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	4.9	4.9
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°	570.2	570.2	570.2	570.2	570.2	570.2	570.2	570.2	570.2	570.2	570.2
2.5°	568.5	568.5	568.5	568.5	568.5	568.5	568.5	568.5	568.5	570.2	568.5
5°	563.6	563.6	563.6	563.6	563.6	563.6	565.2	563.6	565.2	563.6	565.2
7.5°	555.4	555.4	557.0	557.0	555.4	557.0	557.0	557.0	557.0	558.7	558.7
10°	545.5	547.2	547.2	548.8	548.8	548.8	548.8	550.4	550.4	550.4	550.4
12.5°	535.7	535.7	535.7	535.7	537.3	535.7	537.3	537.3	538.9	540.6	538.9
15°	520.9	522.5	522.5	522.5	522.5	522.5	524.2	525.8	525.8	525.8	527.4
17.5°	507.7	507.7	507.7	509.4	507.7	509.4	509.4	509.4	511.0	511.0	512.7
20°	491.3	489.7	492.9	491.3	491.3	492.9	492.9	492.9	494.6	494.6	494.6
22.5°	473.2	474.9	473.2	473.2	474.9	474.9	474.9	473.2	474.9	474.9	476.5
25°	458.4	458.4	458.4	458.4	458.4	458.4	458.4	456.8	458.4	458.4	458.4
27.5°	442.0	438.7	438.7	437.1	437.1	435.4	433.8	433.8	433.8	432.1	433.8
30°	422.3	419.0	417.4	415.7	414.1	414.1	410.8	409.1	407.5	405.9	404.2
32.5°	402.6	399.3	397.6	396.0	392.7	391.1	387.8	386.1	384.5	381.2	377.9
35°	384.5	379.6	376.3	373.0	371.3	369.7	366.4	363.1	359.8	356.6	353.3
37.5°	359.8	356.6	353.3	350.0	348.3	346.7	343.4	336.8	333.6	330.3	327.0
40°	338.5	333.6	330.3	325.3	323.7	320.4	317.1	312.2	307.3	304.0	300.7
42.5°	312.2	308.9	305.6	300.7	299.0	295.8	290.8	287.5	284.3	277.7	274.4
45°	287.5	284.3	281.0	276.0	272.8	271.1	267.8	262.9	258.0	253.0	249.8
47.5°	262.9	259.6	254.7	251.4	248.1	246.5	243.2	238.3	233.3	228.4	225.1
50°	238.3	235.0	231.7	225.1	225.1	221.8	218.5	213.6	210.3	205.4	200.5
52.5°	215.2	210.3	207.0	202.1	202.1	200.5	195.5	190.6	187.3	182.4	179.1
55°	190.6	187.3	184.0	180.7	177.5	175.8	174.2	169.2	164.3	161.0	156.1
57.5°	167.6	162.7	161.0	157.7	156.1	154.5	151.2	146.2	143.0	139.7	136.4
60°	146.2	143.0	138.0	136.4	134.7	133.1	129.8	126.5	123.2	119.9	116.7
62.5°	124.9	121.6	118.3	115.0	113.4	111.7	110.1	106.8	103.5	100.2	96.9
65°	103.5	101.9	98.6	96.9	95.3	93.7	90.4	87.1	85.4	82.2	78.9
67.5°	85.4	83.8	80.5	78.9	77.2	77.2	72.3	70.7	67.4	65.7	62.4
70°	69.0	67.4	64.1	62.4	60.8	59.2	57.5	55.9	52.6	49.3	47.7
72.5°	54.2	50.9	49.3	47.7	46.0	46.0	42.7	41.1	37.8	36.1	32.9
75°	39.4	37.8	36.1	34.5	34.5	32.9	31.2	29.6	26.3	24.6	23.0
77.5°	27.9	26.3	24.6	23.0	23.0	21.4	19.7	18.1	16.4	14.8	13.1
80°	18.1	16.4	16.4	14.8	13.1	13.1	11.5	9.9	8.2	8.2	6.6
82.5°	9.9	9.9	8.2	8.2	6.6	6.6	4.9	4.9	3.3	3.3	1.6
85°	4.9	3.3	3.3	3.3	3.3	1.6	1.6	1.6	0.0	0.0	0.0
87.5°	1.6	1.6	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°	570.2	570.2	570.2	570.2	570.2	570.2	570.2	570.2	570.2	570.2	570.2
2.5°	568.5	568.5	568.5	568.5	568.5	568.5	568.5	568.5	570.2	568.5	568.5
5°	565.2	565.2	566.9	565.2	566.9	566.9	565.2	565.2	566.9	568.5	566.9
7.5°	558.7	558.7	560.3	560.3	560.3	560.3	560.3	561.9	561.9	563.6	563.6
10°	552.1	552.1	552.1	552.1	553.7	553.7	555.4	555.4	555.4	555.4	555.4
12.5°	540.6	542.2	542.2	542.2	542.2	543.9	543.9	545.5	545.5	545.5	547.2
15°	527.4	529.1	530.7	530.7	529.1	530.7	532.4	532.4	534.0	534.0	534.0
17.5°	512.7	514.3	514.3	515.9	514.3	517.6	517.6	519.2	519.2	520.9	520.9
20°	496.2	497.9	497.9	497.9	499.5	499.5	501.2	501.2	502.8	502.8	502.8
22.5°	476.5	478.2	478.2	478.2	478.2	479.8	479.8	481.4	483.1	484.7	483.1
25°	458.4	460.1	461.7	460.1	461.7	461.7	461.7	463.4	463.4	465.0	463.4
27.5°	433.8	433.8	433.8	435.4	437.1	437.1	437.1	438.7	438.7	438.7	440.4
30°	404.2	402.6	404.2	404.2	404.2	404.2	407.5	407.5	407.5	409.1	410.8
32.5°	376.3	376.3	376.3	374.6	374.6	374.6	374.6	376.3	376.3	377.9	379.6
35°	350.0	348.3	345.1	345.1	345.1	343.4	341.8	341.8	343.4	343.4	343.4
37.5°	322.1	320.4	318.8	315.5	315.5	312.2	310.6	308.9	308.9	307.3	307.3
40°	295.8	292.5	289.2	289.2	285.9	284.3	281.0	279.3	276.0	272.8	272.8
42.5°	269.5	266.2	262.9	261.3	258.0	256.3	251.4	248.1	244.8	243.2	239.9
45°	244.8	241.5	236.6	235.0	231.7	228.4	225.1	220.2	215.2	212.0	210.3
47.5°	220.2	216.9	212.0	208.7	207.0	202.1	198.8	193.9	189.0	184.0	179.1
50°	197.2	192.2	187.3	184.0	182.4	177.5	174.2	169.2	162.7	161.0	156.1
52.5°	174.2	169.2	164.3	162.7	161.0	156.1	151.2	146.2	143.0	138.0	134.7
55°	151.2	147.9	143.0	141.3	139.7	134.7	129.8	126.5	123.2	118.3	115.0
57.5°	131.5	128.2	123.2	121.6	119.9	115.0	111.7	106.8	103.5	100.2	96.9
60°	113.4	108.4	105.2	103.5	101.9	96.9	93.7	90.4	87.1	83.8	78.9
62.5°	93.7	90.4	87.1	85.4	82.2	80.5	75.6	73.9	69.0	67.4	64.1
65°	75.6	72.3	69.0	69.0	67.4	62.4	60.8	57.5	54.2	50.9	49.3
67.5°	60.8	57.5	54.2	52.6	50.9	47.7	46.0	42.7	39.4	37.8	34.5
70°	46.0	42.7	39.4	37.8	36.1	34.5	31.2	27.9	24.6	23.0	19.7
72.5°	31.2	27.9	26.3	26.3	24.6	21.4	18.1	16.4	13.1	11.5	9.9
75°	19.7	16.4	14.8	13.1	13.1	11.5	8.2	6.6	4.9	3.3	1.6
77.5°	11.5	9.9	8.2	6.6	6.6	4.9	3.3	1.6	1.6	0.0	0.0
80°	4.9	3.3	1.6	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	1.6	1.6	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°	570.2	570.2	570.2	570.2	570.2	570.2	570.2	570.2
2.5°	568.5	568.5	568.5	568.5	566.9	566.9	566.9	566.9
5°	566.9	566.9	566.9	566.9	565.2	565.2	566.9	565.2
7.5°	563.6	563.6	561.9	561.9	561.9	561.9	561.9	561.9
10°	557.0	557.0	557.0	555.4	557.0	557.0	555.4	557.0
12.5°	547.2	547.2	547.2	547.2	545.5	545.5	547.2	545.5
15°	535.7	535.7	535.7	535.7	535.7	534.0	535.7	535.7
17.5°	522.5	522.5	520.9	520.9	520.9	522.5	522.5	520.9
20°	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4
22.5°	484.7	484.7	484.7	484.7	484.7	484.7	484.7	484.7
25°	465.0	465.0	465.0	465.0	465.0	465.0	465.0	466.6
27.5°	440.4	440.4	440.4	440.4	440.4	438.7	438.7	442.0
30°	410.8	412.4	412.4	412.4	412.4	412.4	412.4	414.1
32.5°	381.2	381.2	381.2	382.8	381.2	382.8	381.2	381.2
35°	346.7	346.7	346.7	346.7	346.7	348.3	348.3	348.3
37.5°	307.3	308.9	308.9	310.6	310.6	310.6	312.2	310.6
40°	271.1	271.1	271.1	269.5	271.1	269.5	271.1	271.1
42.5°	236.6	233.3	233.3	231.7	231.7	230.0	228.4	228.4
45°	205.4	200.5	200.5	198.8	197.2	193.9	192.2	192.2
47.5°	175.8	174.2	172.5	170.9	169.2	166.0	164.3	166.0
50°	151.2	149.5	147.9	147.9	146.2	144.6	143.0	143.0
52.5°	131.5	128.2	126.5	126.5	124.9	123.2	123.2	123.2
55°	111.7	108.4	108.4	108.4	106.8	105.2	105.2	103.5
57.5°	93.7	90.4	90.4	88.7	87.1	87.1	87.1	85.4
60°	77.2	73.9	72.3	72.3	70.7	69.0	69.0	69.0
62.5°	60.8	59.2	55.9	55.9	54.2	52.6	50.9	52.6
65°	46.0	42.7	41.1	41.1	39.4	37.8	36.1	36.1
67.5°	31.2	29.6	27.9	27.9	24.6	24.6	23.0	23.0
70°	18.1	16.4	16.4	14.8	13.1	13.1	11.5	11.5
72.5°	8.2	6.6	6.6	4.9	4.9	3.3	3.3	3.3
75°	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	1.6	1.6	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

Signify Classified - Internal
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1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



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

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