

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: P644144

Luminaire Tested: ML5615LSWW9FS1E - 692SC WW - 1200LM - 4000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644144
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 - 1200LM - 4000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 953.4 lumens
Efficiency: N/A
Efficacy: 71.1 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

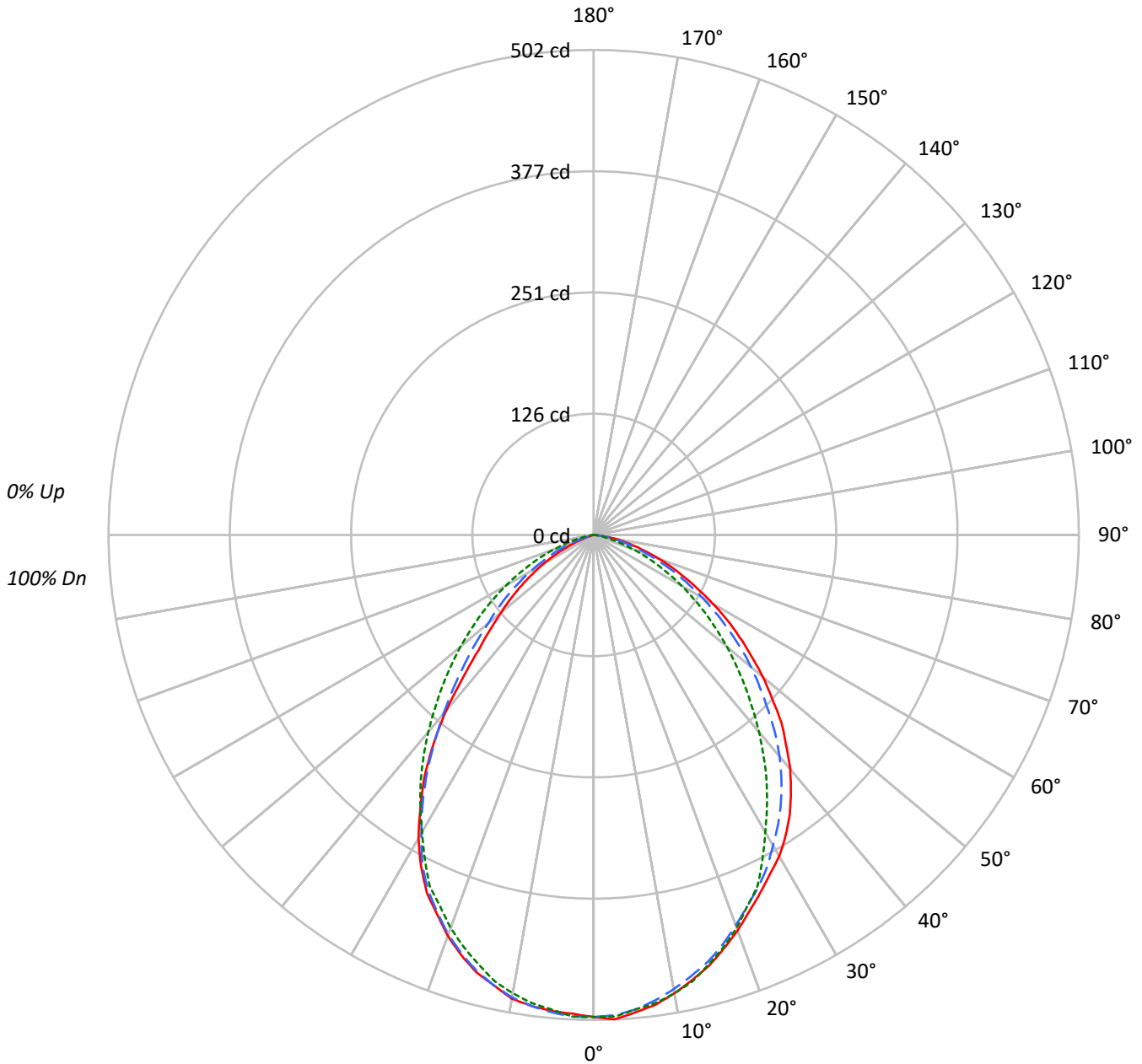
Input Watts (W): 13.4
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					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	100	100	100	100		
	1	111	107	104	100	108	105	102	99	101	98	96	97	95	93	93	92	90	88	88	88	88	88	88		
	2	103	96	90	85	100	94	89	84	90	86	82	87	84	80	84	81	79	77	77	77	77	77	77		
	3	95	86	79	73	92	84	78	72	81	76	71	79	74	70	76	72	69	67	67	67	67	67	67		
	4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61	59	59	59	59	59	59		
	5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52	52	52	52	52	52		
	6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	53	48	46	46	46	46	46	46		
	7	70	58	50	45	69	57	50	44	56	49	44	55	48	44	53	48	44	42	42	42	42	42	42		
	8	66	53	46	40	64	53	45	40	52	45	40	50	44	40	49	44	40	38	38	38	38	38	38		
	9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34	34	34	34	34	34		
	10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	32	32	32	32	32	32		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	27355	27355	27355	27355	27355
5°	27300	27141	27141	27300	27223
10°	26814	26575	26814	27059	27137
15°	26198	25954	26118	26527	26606
20°	25418	25086	25249	25669	25756
25°	24703	24352	24268	24528	24703
30°	24308	23485	22484	22573	22940
35°	23677	22613	20887	20110	20405
40°	22642	21404	19036	17290	16982
45°	21297	19731	17172	14606	13040
50°	19496	18149	15334	12145	10669
55°	17596	16219	13467	10313	8659
60°	15613	14187	11512	8355	6622
65°	13426	12128	9327	6161	4099
70°	11524	9906	6908	3462	1619
75°	9129	7625	4575	911	0
80°	6819	5462	2273	0	0
85°	3648	2705	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 21297 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	46.8	4.9
10°-20°	129.9	13.6
20°-30°	185.0	19.4
30°-40°	199.0	20.9
40°-50°	171.5	18.0
50°-60°	124.3	13.0
60°-70°	70.1	7.4
70°-80°	23.8	2.5
80°-90°	3.1	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°	361.7	37.9
0°-40°	560.7	58.8
0°-60°	856.4	89.8
0°-90°	953.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	953.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	499	499	499	499	499	
5°	496	493	493	496	495	47
15°	462	457	460	467	469	130
25°	408	403	401	406	408	189
35°	354	338	312	300	305	220
45°	275	254	222	188	168	211
55°	184	170	141	108	91	165
65°	104	94	72	48	32	104
75°	43	36	22	4	0	47
85°	6	4	0	0	0	8
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°	499.0	499.0	499.0	499.0	499.0	499.0	499.0	499.0	499.0	499.0	499.0
2.5°	501.9	497.6	496.1	497.6	497.6	497.6	497.6	497.6	497.6	496.1	497.6
5°	496.1	491.8	491.8	491.8	491.8	491.8	490.4	491.8	491.8	491.8	493.2
7.5°	490.4	484.6	486.1	484.6	486.1	484.6	484.6	486.1	484.6	486.1	486.1
10°	481.7	477.4	477.4	477.4	477.4	477.4	477.4	477.4	477.4	477.4	477.4
12.5°	471.7	467.4	467.4	467.4	467.4	467.4	467.4	467.4	468.8	467.4	467.4
15°	461.6	455.9	457.3	455.9	455.9	455.9	455.9	455.9	455.9	455.9	457.3
17.5°	448.7	444.3	444.3	444.3	444.3	444.3	444.3	442.9	444.3	444.3	444.3
20°	435.7	431.4	431.4	430.0	431.4	430.0	430.0	430.0	431.4	430.0	430.0
22.5°	421.3	417.0	418.5	417.0	417.0	417.0	417.0	417.0	415.6	417.0	415.6
25°	408.4	407.0	405.5	407.0	405.5	405.5	405.5	404.1	404.1	404.1	402.6
27.5°	395.5	392.6	392.6	392.6	392.6	391.1	391.1	391.1	389.7	388.3	388.3
30°	384.0	379.6	379.6	379.6	378.2	378.2	376.8	376.8	373.9	372.4	371.0
32.5°	369.6	366.7	365.3	365.3	363.8	363.8	362.4	362.4	359.5	358.1	355.2
35°	353.8	352.3	352.3	350.9	349.4	348.0	346.6	345.1	343.7	340.8	337.9
37.5°	335.1	333.6	332.2	332.2	330.7	329.3	329.3	326.4	325.0	322.1	319.2
40°	316.4	313.5	313.5	312.1	310.6	309.2	309.2	306.3	304.9	302.0	299.1
42.5°	294.8	291.9	291.9	290.5	290.5	290.5	289.0	286.2	283.3	280.4	277.5
45°	274.7	271.8	271.8	268.9	268.9	267.5	266.0	264.6	261.7	258.8	254.5
47.5°	250.2	248.8	248.8	247.3	245.9	244.5	244.5	243.0	240.2	235.8	233.0
50°	228.6	227.2	227.2	225.8	224.3	222.9	221.5	220.0	218.6	215.7	212.8
52.5°	205.6	205.6	204.2	202.8	202.8	201.3	199.9	198.4	195.6	192.7	191.3
55°	184.1	182.6	182.6	181.2	181.2	179.8	178.3	176.9	175.4	172.6	169.7
57.5°	163.9	161.1	161.1	159.6	159.6	159.6	158.2	155.3	153.9	151.0	149.6
60°	142.4	140.9	140.9	140.9	139.5	138.1	138.1	135.2	133.7	132.3	129.4
62.5°	122.2	120.8	120.8	120.8	119.4	119.4	117.9	116.5	115.0	113.6	110.7
65°	103.5	103.5	103.5	102.1	102.1	100.7	99.2	99.2	97.8	96.3	93.5
67.5°	87.7	86.3	86.3	86.3	84.8	84.8	83.4	82.0	80.5	79.1	76.2
70°	71.9	70.5	70.5	69.0	69.0	69.0	69.0	67.6	64.7	64.7	61.8
72.5°	56.1	56.1	56.1	54.6	54.6	54.6	53.2	53.2	51.8	50.3	48.9
75°	43.1	43.1	43.1	41.7	41.7	41.7	40.3	40.3	38.8	37.4	36.0
77.5°	31.6	31.6	31.6	30.2	30.2	30.2	28.8	28.8	27.3	27.3	25.9
80°	21.6	21.6	21.6	20.1	20.1	20.1	20.1	18.7	18.7	17.3	17.3
82.5°	12.9	12.9	12.9	12.9	11.5	11.5	11.5	11.5	11.5	10.1	10.1
85°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	4.3	4.3
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°	499.0	499.0	499.0	499.0	499.0	499.0	499.0	499.0	499.0	499.0	499.0
2.5°	497.6	497.6	497.6	497.6	497.6	497.6	497.6	497.6	497.6	499.0	497.6
5°	493.2	493.2	493.2	493.2	493.2	493.2	494.7	493.2	494.7	493.2	494.7
7.5°	486.1	486.1	487.5	487.5	486.1	487.5	487.5	487.5	487.5	488.9	488.9
10°	477.4	478.9	478.9	480.3	480.3	480.3	480.3	481.7	481.7	481.7	481.7
12.5°	468.8	468.8	468.8	468.8	470.2	468.8	470.2	470.2	471.7	473.1	471.7
15°	455.9	457.3	457.3	457.3	457.3	457.3	458.7	460.2	460.2	460.2	461.6
17.5°	444.3	444.3	444.3	445.8	444.3	445.8	445.8	445.8	447.2	447.2	448.7
20°	430.0	428.5	431.4	430.0	430.0	431.4	431.4	431.4	432.8	432.8	432.8
22.5°	414.2	415.6	414.2	414.2	415.6	415.6	415.6	414.2	415.6	415.6	417.0
25°	401.2	401.2	401.2	401.2	401.2	401.2	401.2	399.8	401.2	401.2	401.2
27.5°	386.8	384.0	384.0	382.5	382.5	381.1	379.6	379.6	379.6	378.2	379.6
30°	369.6	366.7	365.3	363.8	362.4	362.4	359.5	358.1	356.6	355.2	353.8
32.5°	352.3	349.4	348.0	346.6	343.7	342.2	339.4	337.9	336.5	333.6	330.7
35°	336.5	332.2	329.3	326.4	325.0	323.6	320.7	317.8	314.9	312.1	309.2
37.5°	314.9	312.1	309.2	306.3	304.9	303.4	300.5	294.8	291.9	289.0	286.2
40°	296.2	291.9	289.0	284.7	283.3	280.4	277.5	273.2	268.9	266.0	263.2
42.5°	273.2	270.3	267.5	263.2	261.7	258.8	254.5	251.7	248.8	243.0	240.2
45°	251.7	248.8	245.9	241.6	238.7	237.3	234.4	230.1	225.8	221.5	218.6
47.5°	230.1	227.2	222.9	220.0	217.1	215.7	212.8	208.5	204.2	199.9	197.0
50°	208.5	205.6	202.8	197.0	197.0	194.1	191.3	186.9	184.1	179.8	175.4
52.5°	188.4	184.1	181.2	176.9	176.9	175.4	171.1	166.8	163.9	159.6	156.7
55°	166.8	163.9	161.1	158.2	155.3	153.9	152.4	148.1	143.8	140.9	136.6
57.5°	146.7	142.4	140.9	138.1	136.6	135.2	132.3	128.0	125.1	122.2	119.4
60°	128.0	125.1	120.8	119.4	117.9	116.5	113.6	110.7	107.9	105.0	102.1
62.5°	109.3	106.4	103.5	100.7	99.2	97.8	96.3	93.5	90.6	87.7	84.8
65°	90.6	89.2	86.3	84.8	83.4	82.0	79.1	76.2	74.8	71.9	69.0
67.5°	74.8	73.3	70.5	69.0	67.6	67.6	63.3	61.8	59.0	57.5	54.6
70°	60.4	59.0	56.1	54.6	53.2	51.8	50.3	48.9	46.0	43.1	41.7
72.5°	47.5	44.6	43.1	41.7	40.3	40.3	37.4	36.0	33.1	31.6	28.8
75°	34.5	33.1	31.6	30.2	30.2	28.8	27.3	25.9	23.0	21.6	20.1
77.5°	24.4	23.0	21.6	20.1	20.1	18.7	17.3	15.8	14.4	12.9	11.5
80°	15.8	14.4	14.4	12.9	11.5	11.5	10.1	8.6	7.2	7.2	5.8
82.5°	8.6	8.6	7.2	7.2	5.8	5.8	4.3	4.3	2.9	2.9	1.4
85°	4.3	2.9	2.9	2.9	2.9	1.4	1.4	1.4	0.0	0.0	0.0
87.5°	1.4	1.4	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°	499.0	499.0	499.0	499.0	499.0	499.0	499.0	499.0	499.0	499.0	499.0
2.5°	497.6	497.6	497.6	497.6	497.6	497.6	497.6	497.6	499.0	497.6	497.6
5°	494.7	494.7	496.1	494.7	496.1	496.1	494.7	494.7	496.1	497.6	496.1
7.5°	488.9	488.9	490.4	490.4	490.4	490.4	490.4	491.8	491.8	493.2	493.2
10°	483.2	483.2	483.2	483.2	484.6	484.6	486.1	486.1	486.1	486.1	486.1
12.5°	473.1	474.5	474.5	474.5	474.5	476.0	476.0	477.4	477.4	477.4	478.9
15°	461.6	463.0	464.5	464.5	463.0	464.5	465.9	465.9	467.4	467.4	467.4
17.5°	448.7	450.1	450.1	451.5	450.1	453.0	453.0	454.4	454.4	455.9	455.9
20°	434.3	435.7	435.7	435.7	437.2	437.2	438.6	438.6	440.0	440.0	440.0
22.5°	417.0	418.5	418.5	418.5	418.5	419.9	419.9	421.3	422.8	424.2	422.8
25°	401.2	402.6	404.1	402.6	404.1	404.1	404.1	405.5	405.5	407.0	405.5
27.5°	379.6	379.6	379.6	381.1	382.5	382.5	382.5	384.0	384.0	384.0	385.4
30°	353.8	352.3	353.8	353.8	353.8	353.8	356.6	356.6	356.6	358.1	359.5
32.5°	329.3	329.3	329.3	327.9	327.9	327.9	327.9	329.3	329.3	330.7	332.2
35°	306.3	304.9	302.0	302.0	302.0	300.5	299.1	299.1	300.5	300.5	300.5
37.5°	281.9	280.4	279.0	276.1	276.1	273.2	271.8	270.3	270.3	268.9	268.9
40°	258.8	256.0	253.1	253.1	250.2	248.8	245.9	244.5	241.6	238.7	238.7
42.5°	235.8	233.0	230.1	228.6	225.8	224.3	220.0	217.1	214.3	212.8	210.0
45°	214.3	211.4	207.1	205.6	202.8	199.9	197.0	192.7	188.4	185.5	184.1
47.5°	192.7	189.8	185.5	182.6	181.2	176.9	174.0	169.7	165.4	161.1	156.7
50°	172.6	168.2	163.9	161.1	159.6	155.3	152.4	148.1	142.4	140.9	136.6
52.5°	152.4	148.1	143.8	142.4	140.9	136.6	132.3	128.0	125.1	120.8	117.9
55°	132.3	129.4	125.1	123.7	122.2	117.9	113.6	110.7	107.9	103.5	100.7
57.5°	115.0	112.2	107.9	106.4	105.0	100.7	97.8	93.5	90.6	87.7	84.8
60°	99.2	94.9	92.0	90.6	89.2	84.8	82.0	79.1	76.2	73.3	69.0
62.5°	82.0	79.1	76.2	74.8	71.9	70.5	66.1	64.7	60.4	59.0	56.1
65°	66.1	63.3	60.4	60.4	59.0	54.6	53.2	50.3	47.5	44.6	43.1
67.5°	53.2	50.3	47.5	46.0	44.6	41.7	40.3	37.4	34.5	33.1	30.2
70°	40.3	37.4	34.5	33.1	31.6	30.2	27.3	24.4	21.6	20.1	17.3
72.5°	27.3	24.4	23.0	23.0	21.6	18.7	15.8	14.4	11.5	10.1	8.6
75°	17.3	14.4	12.9	11.5	11.5	10.1	7.2	5.8	4.3	2.9	1.4
77.5°	10.1	8.6	7.2	5.8	5.8	4.3	2.9	1.4	1.4	0.0	0.0
80°	4.3	2.9	1.4	1.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	1.4	1.4	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°	499.0	499.0	499.0	499.0	499.0	499.0	499.0	499.0
2.5°	497.6	497.6	497.6	497.6	496.1	496.1	496.1	496.1
5°	496.1	496.1	496.1	496.1	494.7	494.7	496.1	494.7
7.5°	493.2	493.2	491.8	491.8	491.8	491.8	491.8	491.8
10°	487.5	487.5	487.5	486.1	487.5	487.5	486.1	487.5
12.5°	478.9	478.9	478.9	478.9	477.4	477.4	478.9	477.4
15°	468.8	468.8	468.8	468.8	468.8	467.4	468.8	468.8
17.5°	457.3	457.3	455.9	455.9	455.9	457.3	457.3	455.9
20°	441.5	441.5	441.5	441.5	441.5	441.5	441.5	441.5
22.5°	424.2	424.2	424.2	424.2	424.2	424.2	424.2	424.2
25°	407.0	407.0	407.0	407.0	407.0	407.0	407.0	408.4
27.5°	385.4	385.4	385.4	385.4	385.4	384.0	384.0	386.8
30°	359.5	360.9	360.9	360.9	360.9	360.9	360.9	362.4
32.5°	333.6	333.6	333.6	335.1	333.6	335.1	333.6	333.6
35°	303.4	303.4	303.4	303.4	303.4	304.9	304.9	304.9
37.5°	268.9	270.3	270.3	271.8	271.8	271.8	273.2	271.8
40°	237.3	237.3	237.3	235.8	237.3	235.8	237.3	237.3
42.5°	207.1	204.2	204.2	202.8	202.8	201.3	199.9	199.9
45°	179.8	175.4	175.4	174.0	172.6	169.7	168.2	168.2
47.5°	153.9	152.4	151.0	149.6	148.1	145.2	143.8	145.2
50°	132.3	130.9	129.4	129.4	128.0	126.5	125.1	125.1
52.5°	115.0	112.2	110.7	110.7	109.3	107.9	107.9	107.9
55°	97.8	94.9	94.9	94.9	93.5	92.0	92.0	90.6
57.5°	82.0	79.1	79.1	77.7	76.2	76.2	76.2	74.8
60°	67.6	64.7	63.3	63.3	61.8	60.4	60.4	60.4
62.5°	53.2	51.8	48.9	48.9	47.5	46.0	44.6	46.0
65°	40.3	37.4	36.0	36.0	34.5	33.1	31.6	31.6
67.5°	27.3	25.9	24.4	24.4	21.6	21.6	20.1	20.1
70°	15.8	14.4	14.4	12.9	11.5	11.5	10.1	10.1
72.5°	7.2	5.8	5.8	4.3	4.3	2.9	2.9	2.9
75°	1.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	1.4	1.4	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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Peachtree City, GA 30269

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— 0°-180° - - 45°-225° - - - 90°-270°

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