

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: P642340

Luminaire Tested: ML5612LSWW97FS1E - 692SC WW - 900LM - 5000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P642340
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: ML5612LSWW97FS1E - 692SC WW - 900LM - 5000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 822.8 lumens
Efficiency: N/A
Efficacy: 61.9 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

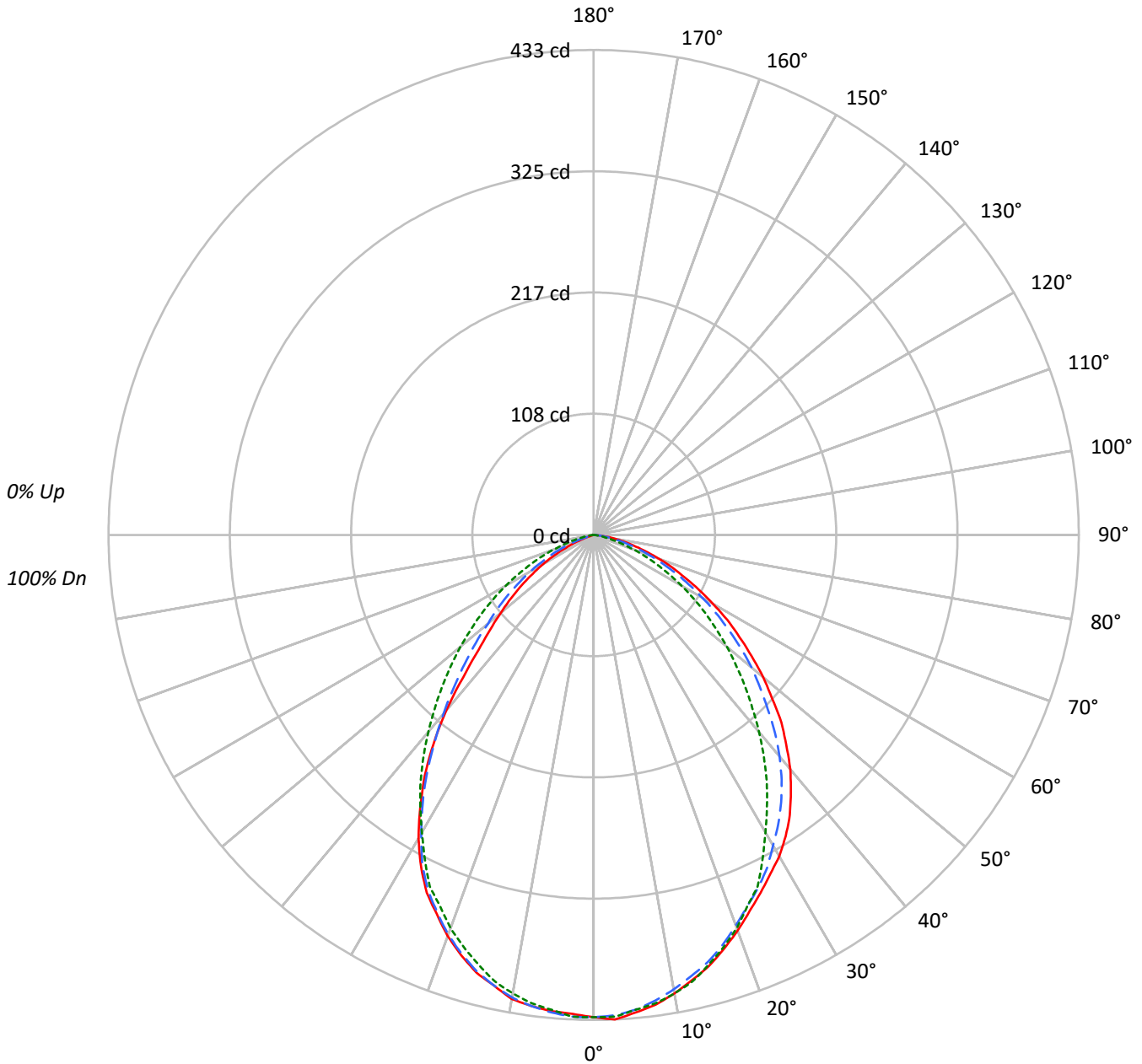
Input Watts (W): 13.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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								
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°	23606	23606	23606	23606	23606
5°	23558	23426	23426	23558	23492
10°	23140	22934	23140	23346	23419
15°	22611	22395	22537	22889	22963
20°	21935	21644	21789	22151	22227
25°	21316	21019	20941	21171	21316
30°	20972	20269	19402	19484	19794
35°	20432	19515	18022	17360	17607
40°	19537	18470	16431	14921	14656
45°	18374	17033	14815	12606	11257
50°	16827	15667	13228	10482	9211
55°	15177	13992	11622	8898	7474
60°	13475	12247	9933	7214	5712
65°	11584	10468	8042	5318	3541
70°	9938	8559	5963	2981	1394
75°	7879	6566	3940	784	0
80°	5872	4704	1957	0	0
85°	3145	2327	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 18374 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	40.4	4.9
10°-20°	112.1	13.6
20°-30°	159.7	19.4
30°-40°	171.7	20.9
40°-50°	148.0	18.0
50°-60°	107.2	13.0
60°-70°	60.5	7.4
70°-80°	20.6	2.5
80°-90°	2.6	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°	312.1	37.9
0°-40°	483.8	58.8
0°-60°	739.1	89.8
0°-90°	822.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	822.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	431	431	431	431	431	
5°	428	426	426	428	427	40
15°	398	395	397	403	405	112
25°	352	348	346	350	352	163
35°	305	292	269	259	263	190
45°	237	220	191	163	145	182
55°	159	146	122	93	78	142
65°	89	81	62	41	27	90
75°	37	31	19	4	0	40
85°	5	4	0	0	0	7
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°	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6
2.5°	433.1	429.4	428.1	429.4	429.4	429.4	429.4	429.4	429.4	428.1	429.4
5°	428.1	424.4	424.4	424.4	424.4	424.4	423.2	424.4	424.4	424.4	425.7
7.5°	423.2	418.2	419.4	418.2	419.4	418.2	418.2	419.4	418.2	419.4	419.4
10°	415.7	412.0	412.0	412.0	412.0	412.0	412.0	412.0	412.0	412.0	412.0
12.5°	407.0	403.3	403.3	403.3	403.3	403.3	403.3	403.3	404.6	403.3	403.3
15°	398.4	393.4	394.6	393.4	393.4	393.4	393.4	393.4	393.4	393.4	394.6
17.5°	387.2	383.5	383.5	383.5	383.5	383.5	383.5	382.2	383.5	383.5	383.5
20°	376.0	372.3	372.3	371.0	372.3	371.0	371.0	371.0	372.3	371.0	371.0
22.5°	363.6	359.9	361.1	359.9	359.9	359.9	359.9	359.9	358.6	359.9	358.6
25°	352.4	351.2	350.0	351.2	350.0	350.0	350.0	348.7	348.7	348.7	347.5
27.5°	341.3	338.8	338.8	338.8	338.8	337.5	337.5	337.5	336.3	335.1	335.1
30°	331.3	327.6	327.6	327.6	326.4	326.4	325.1	325.1	322.7	321.4	320.2
32.5°	318.9	316.4	315.2	315.2	314.0	314.0	312.7	312.7	310.2	309.0	306.5
35°	305.3	304.0	304.0	302.8	301.6	300.3	299.1	297.8	296.6	294.1	291.6
37.5°	289.1	287.9	286.7	286.7	285.4	284.2	284.2	281.7	280.5	278.0	275.5
40°	273.0	270.5	270.5	269.3	268.0	266.8	266.8	264.3	263.1	260.6	258.1
42.5°	254.4	251.9	251.9	250.7	250.7	250.7	249.4	247.0	244.5	242.0	239.5
45°	237.0	234.5	234.5	232.1	232.1	230.8	229.6	228.3	225.9	223.4	219.7
47.5°	215.9	214.7	214.7	213.4	212.2	211.0	211.0	209.7	207.2	203.5	201.0
50°	197.3	196.1	196.1	194.8	193.6	192.4	191.1	189.9	188.6	186.1	183.7
52.5°	177.5	177.5	176.2	175.0	175.0	173.7	172.5	171.3	168.8	166.3	165.0
55°	158.8	157.6	157.6	156.4	156.4	155.1	153.9	152.6	151.4	148.9	146.4
57.5°	141.5	139.0	139.0	137.7	137.7	137.7	136.5	134.0	132.8	130.3	129.1
60°	122.9	121.6	121.6	121.6	120.4	119.1	119.1	116.7	115.4	114.2	111.7
62.5°	105.5	104.2	104.2	104.2	103.0	103.0	101.8	100.5	99.3	98.0	95.6
65°	89.3	89.3	89.3	88.1	88.1	86.9	85.6	85.6	84.4	83.1	80.7
67.5°	75.7	74.5	74.5	74.5	73.2	73.2	72.0	70.7	69.5	68.3	65.8
70°	62.0	60.8	60.8	59.6	59.6	59.6	59.6	58.3	55.8	55.8	53.4
72.5°	48.4	48.4	48.4	47.2	47.2	47.2	45.9	45.9	44.7	43.4	42.2
75°	37.2	37.2	37.2	36.0	36.0	36.0	34.7	34.7	33.5	32.3	31.0
77.5°	27.3	27.3	27.3	26.1	26.1	26.1	24.8	24.8	23.6	23.6	22.3
80°	18.6	18.6	18.6	17.4	17.4	17.4	17.4	16.1	16.1	14.9	14.9
82.5°	11.2	11.2	11.2	11.2	9.9	9.9	9.9	9.9	9.9	8.7	8.7
85°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.7	3.7
87.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6
2.5°	429.4	429.4	429.4	429.4	429.4	429.4	429.4	429.4	429.4	430.6	429.4
5°	425.7	425.7	425.7	425.7	425.7	425.7	426.9	425.7	426.9	425.7	426.9
7.5°	419.4	419.4	420.7	420.7	419.4	420.7	420.7	420.7	420.7	421.9	421.9
10°	412.0	413.2	413.2	414.5	414.5	414.5	414.5	415.7	415.7	415.7	415.7
12.5°	404.6	404.6	404.6	404.6	405.8	404.6	405.8	405.8	407.0	408.3	407.0
15°	393.4	394.6	394.6	394.6	394.6	394.6	395.9	397.1	397.1	397.1	398.4
17.5°	383.5	383.5	383.5	384.7	383.5	384.7	384.7	384.7	385.9	385.9	387.2
20°	371.0	369.8	372.3	371.0	371.0	372.3	372.3	372.3	373.5	373.5	373.5
22.5°	357.4	358.6	357.4	357.4	358.6	358.6	358.6	357.4	358.6	358.6	359.9
25°	346.2	346.2	346.2	346.2	346.2	346.2	346.2	345.0	346.2	346.2	346.2
27.5°	333.8	331.3	331.3	330.1	330.1	328.9	327.6	327.6	327.6	326.4	327.6
30°	318.9	316.4	315.2	314.0	312.7	312.7	310.2	309.0	307.8	306.5	305.3
32.5°	304.0	301.6	300.3	299.1	296.6	295.4	292.9	291.6	290.4	287.9	285.4
35°	290.4	286.7	284.2	281.7	280.5	279.2	276.7	274.3	271.8	269.3	266.8
37.5°	271.8	269.3	266.8	264.3	263.1	261.8	259.4	254.4	251.9	249.4	247.0
40°	255.6	251.9	249.4	245.7	244.5	242.0	239.5	235.8	232.1	229.6	227.1
42.5°	235.8	233.3	230.8	227.1	225.9	223.4	219.7	217.2	214.7	209.7	207.2
45°	217.2	214.7	212.2	208.5	206.0	204.8	202.3	198.6	194.8	191.1	188.6
47.5°	198.6	196.1	192.4	189.9	187.4	186.1	183.7	179.9	176.2	172.5	170.0
50°	179.9	177.5	175.0	170.0	170.0	167.5	165.0	161.3	158.8	155.1	151.4
52.5°	162.6	158.8	156.4	152.6	152.6	151.4	147.7	144.0	141.5	137.7	135.3
55°	144.0	141.5	139.0	136.5	134.0	132.8	131.5	127.8	124.1	121.6	117.9
57.5°	126.6	122.9	121.6	119.1	117.9	116.7	114.2	110.4	108.0	105.5	103.0
60°	110.4	108.0	104.2	103.0	101.8	100.5	98.0	95.6	93.1	90.6	88.1
62.5°	94.3	91.8	89.3	86.9	85.6	84.4	83.1	80.7	78.2	75.7	73.2
65°	78.2	76.9	74.5	73.2	72.0	70.7	68.3	65.8	64.5	62.0	59.6
67.5°	64.5	63.3	60.8	59.6	58.3	58.3	54.6	53.4	50.9	49.6	47.2
70°	52.1	50.9	48.4	47.2	45.9	44.7	43.4	42.2	39.7	37.2	36.0
72.5°	41.0	38.5	37.2	36.0	34.7	34.7	32.3	31.0	28.5	27.3	24.8
75°	29.8	28.5	27.3	26.1	26.1	24.8	23.6	22.3	19.9	18.6	17.4
77.5°	21.1	19.9	18.6	17.4	17.4	16.1	14.9	13.7	12.4	11.2	9.9
80°	13.7	12.4	12.4	11.2	9.9	9.9	8.7	7.4	6.2	6.2	5.0
82.5°	7.4	7.4	6.2	6.2	5.0	5.0	3.7	3.7	2.5	2.5	1.2
85°	3.7	2.5	2.5	2.5	2.5	1.2	1.2	1.2	0.0	0.0	0.0
87.5°	1.2	1.2	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°	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6
2.5°	429.4	429.4	429.4	429.4	429.4	429.4	429.4	429.4	430.6	429.4	429.4
5°	426.9	426.9	428.1	426.9	428.1	428.1	426.9	426.9	428.1	429.4	428.1
7.5°	421.9	421.9	423.2	423.2	423.2	423.2	423.2	424.4	424.4	425.7	425.7
10°	417.0	417.0	417.0	417.0	418.2	418.2	419.4	419.4	419.4	419.4	419.4
12.5°	408.3	409.5	409.5	409.5	409.5	410.8	410.8	412.0	412.0	412.0	413.2
15°	398.4	399.6	400.8	400.8	399.6	400.8	402.1	402.1	403.3	403.3	403.3
17.5°	387.2	388.4	388.4	389.7	388.4	390.9	390.9	392.1	392.1	393.4	393.4
20°	374.8	376.0	376.0	376.0	377.3	377.3	378.5	378.5	379.7	379.7	379.7
22.5°	359.9	361.1	361.1	361.1	361.1	362.4	362.4	363.6	364.8	366.1	364.8
25°	346.2	347.5	348.7	347.5	348.7	348.7	348.7	350.0	350.0	351.2	350.0
27.5°	327.6	327.6	327.6	328.9	330.1	330.1	330.1	331.3	331.3	331.3	332.6
30°	305.3	304.0	305.3	305.3	305.3	305.3	307.8	307.8	307.8	309.0	310.2
32.5°	284.2	284.2	284.2	282.9	282.9	282.9	282.9	284.2	284.2	285.4	286.7
35°	264.3	263.1	260.6	260.6	260.6	259.4	258.1	258.1	259.4	259.4	259.4
37.5°	243.2	242.0	240.7	238.3	238.3	235.8	234.5	233.3	233.3	232.1	232.1
40°	223.4	220.9	218.4	218.4	215.9	214.7	212.2	211.0	208.5	206.0	206.0
42.5°	203.5	201.0	198.6	197.3	194.8	193.6	189.9	187.4	184.9	183.7	181.2
45°	184.9	182.4	178.7	177.5	175.0	172.5	170.0	166.3	162.6	160.1	158.8
47.5°	166.3	163.8	160.1	157.6	156.4	152.6	150.2	146.4	142.7	139.0	135.3
50°	148.9	145.2	141.5	139.0	137.7	134.0	131.5	127.8	122.9	121.6	117.9
52.5°	131.5	127.8	124.1	122.9	121.6	117.9	114.2	110.4	108.0	104.2	101.8
55°	114.2	111.7	108.0	106.7	105.5	101.8	98.0	95.6	93.1	89.3	86.9
57.5°	99.3	96.8	93.1	91.8	90.6	86.9	84.4	80.7	78.2	75.7	73.2
60°	85.6	81.9	79.4	78.2	76.9	73.2	70.7	68.3	65.8	63.3	59.6
62.5°	70.7	68.3	65.8	64.5	62.0	60.8	57.1	55.8	52.1	50.9	48.4
65°	57.1	54.6	52.1	52.1	50.9	47.2	45.9	43.4	41.0	38.5	37.2
67.5°	45.9	43.4	41.0	39.7	38.5	36.0	34.7	32.3	29.8	28.5	26.1
70°	34.7	32.3	29.8	28.5	27.3	26.1	23.6	21.1	18.6	17.4	14.9
72.5°	23.6	21.1	19.9	19.9	18.6	16.1	13.7	12.4	9.9	8.7	7.4
75°	14.9	12.4	11.2	9.9	9.9	8.7	6.2	5.0	3.7	2.5	1.2
77.5°	8.7	7.4	6.2	5.0	5.0	3.7	2.5	1.2	1.2	0.0	0.0
80°	3.7	2.5	1.2	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	1.2	1.2	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



TEST NUMBER: P642340

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CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6
2.5°	429.4	429.4	429.4	429.4	428.1	428.1	428.1	428.1
5°	428.1	428.1	428.1	428.1	426.9	426.9	428.1	426.9
7.5°	425.7	425.7	424.4	424.4	424.4	424.4	424.4	424.4
10°	420.7	420.7	420.7	419.4	420.7	420.7	419.4	420.7
12.5°	413.2	413.2	413.2	413.2	412.0	412.0	413.2	412.0
15°	404.6	404.6	404.6	404.6	404.6	403.3	404.6	404.6
17.5°	394.6	394.6	393.4	393.4	393.4	394.6	394.6	393.4
20°	381.0	381.0	381.0	381.0	381.0	381.0	381.0	381.0
22.5°	366.1	366.1	366.1	366.1	366.1	366.1	366.1	366.1
25°	351.2	351.2	351.2	351.2	351.2	351.2	351.2	352.4
27.5°	332.6	332.6	332.6	332.6	332.6	331.3	331.3	333.8
30°	310.2	311.5	311.5	311.5	311.5	311.5	311.5	312.7
32.5°	287.9	287.9	287.9	289.1	287.9	289.1	287.9	287.9
35°	261.8	261.8	261.8	261.8	261.8	263.1	263.1	263.1
37.5°	232.1	233.3	233.3	234.5	234.5	234.5	235.8	234.5
40°	204.8	204.8	204.8	203.5	204.8	203.5	204.8	204.8
42.5°	178.7	176.2	176.2	175.0	175.0	173.7	172.5	172.5
45°	155.1	151.4	151.4	150.2	148.9	146.4	145.2	145.2
47.5°	132.8	131.5	130.3	129.1	127.8	125.3	124.1	125.3
50°	114.2	112.9	111.7	111.7	110.4	109.2	108.0	108.0
52.5°	99.3	96.8	95.6	95.6	94.3	93.1	93.1	93.1
55°	84.4	81.9	81.9	81.9	80.7	79.4	79.4	78.2
57.5°	70.7	68.3	68.3	67.0	65.8	65.8	65.8	64.5
60°	58.3	55.8	54.6	54.6	53.4	52.1	52.1	52.1
62.5°	45.9	44.7	42.2	42.2	41.0	39.7	38.5	39.7
65°	34.7	32.3	31.0	31.0	29.8	28.5	27.3	27.3
67.5°	23.6	22.3	21.1	21.1	18.6	18.6	17.4	17.4
70°	13.7	12.4	12.4	11.2	9.9	9.9	8.7	8.7
72.5°	6.2	5.0	5.0	3.7	3.7	2.5	2.5	2.5
75°	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	1.2	1.2	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)