

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: P644101

Luminaire Tested: ML5615LSWW9FS1E - 592SC WW - 1500LM - 2700K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644101
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-129)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 592SC WW - 1500LM - 2700K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

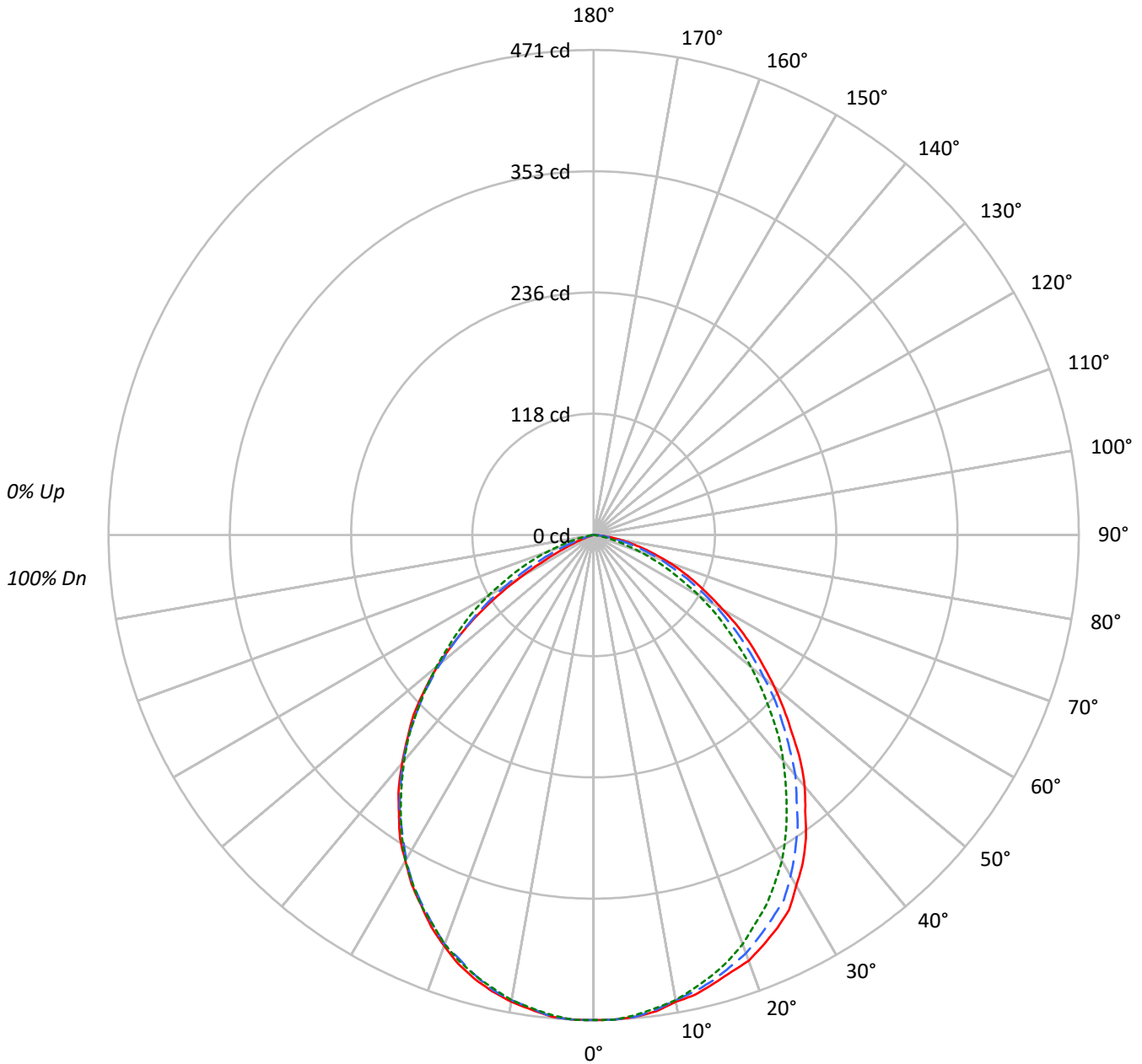
Lumens per Lamp: N/A
Luminaire Lumens: 1008.1 lumens
Efficiency: N/A
Efficacy: 59.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.26
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

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	103	100	108	105	101	98	100	98	95	97	94	93	93	91	90	88								
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76								
3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66								
4	87	76	68	62	85	75	68	62	72	66	61	70	65	60	68	63	60	58								
5	80	69	61	55	78	68	60	54	66	59	54	64	58	53	62	57	53	51								
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45								
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40								
8	65	52	44	39	63	52	44	39	50	43	38	49	43	38	48	42	38	36								
9	61	48	40	35	59	48	40	35	46	40	35	45	39	35	44	39	35	33								
10	57	45	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	37197	37197	37197	37197	37197
5°	37220	37220	37093	37220	37220
10°	36905	36777	36777	36777	36905
15°	36858	36605	36221	36221	36482
20°	36972	36325	35535	35535	35669
25°	36713	35764	34545	34405	34545
30°	35869	34875	33316	33171	33316
35°	34625	33276	31474	31628	31773
40°	32852	31410	29493	29647	29812
45°	30388	28993	27084	27084	27608
50°	28074	26552	24452	23874	24255
55°	25682	23975	21622	19901	19475
60°	22830	21361	18662	15472	12773
65°	20341	18586	15111	10161	6108
70°	17957	15787	11125	5032	1800
75°	14701	12322	6649	1434	488
80°	11320	8501	2819	0	0
85°	5616	4257	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 30556 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.4	4.4
10°-20°	125.7	12.5
20°-30°	185.3	18.4
30°-40°	209.8	20.8
40°-50°	193.7	19.2
50°-60°	143.1	14.2
60°-70°	77.0	7.6
70°-80°	25.8	2.6
80°-90°	3.3	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°	355.4	35.3
0°-40°	565.2	56.1
0°-60°	902.1	89.5
0°-90°	1008.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1008.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	471	471	471	471	471	
5°	470	470	468	470	470	45
15°	451	448	443	443	446	127
25°	422	411	397	395	397	194
35°	359	345	327	328	330	224
45°	272	260	243	243	247	211
55°	187	174	157	145	142	167
65°	109	100	81	54	33	109
75°	48	40	22	5	2	52
85°	6	5	0	0	0	9
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°	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2
2.5°	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2
5°	469.7	469.7	468.1	469.7	469.7	469.7	469.7	468.1	469.7	469.7	469.7
7.5°	466.6	465.0	465.0	465.0	465.0	465.0	465.0	465.0	465.0	465.0	465.0
10°	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4	460.4	458.8
12.5°	457.2	455.7	455.7	455.7	455.7	455.7	455.7	454.1	455.7	454.1	454.1
15°	451.0	451.0	451.0	451.0	451.0	451.0	449.5	449.5	449.5	449.5	447.9
17.5°	444.8	444.8	446.4	446.4	444.8	444.8	444.8	443.2	441.7	441.7	440.1
20°	440.1	440.1	438.6	438.6	437.0	438.6	437.0	435.5	435.5	433.9	432.4
22.5°	430.8	430.8	430.8	430.8	430.8	429.3	429.3	427.7	426.1	424.6	421.5
25°	421.5	421.5	421.5	421.5	419.9	419.9	419.9	416.8	415.3	413.7	410.6
27.5°	410.6	409.0	409.0	409.0	407.5	407.5	405.9	404.4	402.8	401.3	399.7
30°	393.5	393.5	393.5	393.5	391.9	390.4	390.4	388.8	387.3	384.1	382.6
32.5°	377.9	377.9	376.4	374.8	374.8	374.8	373.3	371.7	368.6	367.0	363.9
35°	359.3	357.7	357.7	356.2	356.2	356.2	354.6	351.5	349.9	348.4	345.3
37.5°	337.5	339.0	337.5	337.5	335.9	334.4	332.8	331.3	329.7	326.6	323.5
40°	318.8	318.8	317.3	315.7	314.2	314.2	312.6	311.1	309.5	307.9	304.8
42.5°	297.1	297.1	295.5	295.5	293.9	293.9	290.8	289.3	287.7	286.2	281.5
45°	272.2	272.2	273.7	272.2	270.6	269.1	269.1	267.5	264.4	262.8	259.7
47.5°	250.4	252.0	250.4	248.8	248.8	247.3	247.3	244.2	244.2	241.1	239.5
50°	228.6	228.6	228.6	228.6	227.1	225.5	225.5	224.0	220.8	219.3	216.2
52.5°	206.8	206.8	206.8	206.8	205.3	205.3	203.7	202.2	200.6	197.5	194.4
55°	186.6	185.1	185.1	185.1	183.5	183.5	182.0	180.4	178.9	177.3	174.2
57.5°	166.4	164.9	164.9	163.3	163.3	161.7	161.7	160.2	158.6	155.5	154.0
60°	144.6	146.2	144.6	144.6	143.1	143.1	143.1	141.5	138.4	136.9	135.3
62.5°	126.0	127.5	126.0	124.4	124.4	124.4	124.4	121.3	119.8	118.2	116.6
65°	108.9	108.9	108.9	107.3	107.3	107.3	104.2	104.2	102.6	101.1	99.5
67.5°	93.3	91.8	91.8	91.8	90.2	90.2	88.6	88.6	85.5	85.5	82.4
70°	77.8	76.2	76.2	76.2	74.7	73.1	74.7	71.5	70.0	68.4	68.4
72.5°	62.2	62.2	60.7	60.7	60.7	59.1	59.1	57.5	56.0	54.4	52.9
75°	48.2	48.2	48.2	46.7	46.7	45.1	45.1	43.5	43.5	40.4	40.4
77.5°	35.8	35.8	35.8	34.2	34.2	34.2	32.7	32.7	31.1	29.5	28.0
80°	24.9	23.3	23.3	23.3	23.3	21.8	21.8	21.8	20.2	20.2	18.7
82.5°	14.0	14.0	14.0	14.0	14.0	14.0	12.4	12.4	12.4	10.9	10.9
85°	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	4.7	4.7	4.7
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°	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2
2.5°	471.2	471.2	471.2	471.2	469.7	471.2	469.7	471.2	471.2	471.2	471.2
5°	469.7	468.1	468.1	468.1	469.7	469.7	468.1	468.1	468.1	468.1	468.1
7.5°	465.0	465.0	465.0	463.5	465.0	465.0	463.5	465.0	465.0	463.5	465.0
10°	460.4	460.4	458.8	458.8	458.8	458.8	458.8	458.8	457.2	458.8	458.8
12.5°	454.1	454.1	454.1	452.6	452.6	452.6	452.6	452.6	451.0	451.0	452.6
15°	447.9	447.9	446.4	446.4	446.4	444.8	444.8	444.8	444.8	443.2	443.2
17.5°	440.1	438.6	438.6	437.0	437.0	435.5	435.5	433.9	433.9	433.9	432.4
20°	430.8	429.3	427.7	427.7	426.1	426.1	424.6	424.6	423.0	423.0	421.5
22.5°	419.9	418.4	416.8	415.3	415.3	413.7	413.7	412.1	410.6	409.0	409.0
25°	410.6	407.5	405.9	404.4	401.3	401.3	399.7	399.7	398.1	396.6	395.0
27.5°	396.6	393.5	391.9	390.4	388.8	387.3	384.1	384.1	382.6	381.0	379.5
30°	379.5	377.9	374.8	373.3	371.7	371.7	368.6	365.5	365.5	365.5	363.9
32.5°	362.4	359.3	357.7	354.6	353.0	353.0	351.5	348.4	346.8	346.8	345.3
35°	343.7	340.6	337.5	335.9	334.4	332.8	331.3	329.7	328.2	326.6	325.0
37.5°	321.9	318.8	317.3	315.7	314.2	312.6	311.1	309.5	307.9	306.4	307.9
40°	301.7	298.6	295.5	293.9	292.4	292.4	290.8	289.3	287.7	286.2	286.2
42.5°	279.9	276.8	275.3	273.7	272.2	270.6	269.1	267.5	265.9	265.9	264.4
45°	256.6	255.1	252.0	250.4	248.8	248.8	245.7	244.2	244.2	242.6	242.6
47.5°	236.4	233.3	230.2	228.6	227.1	225.5	224.0	222.4	220.8	220.8	220.8
50°	213.1	211.5	208.4	206.8	205.3	205.3	203.7	202.2	200.6	199.1	199.1
52.5°	191.3	189.7	189.7	186.6	185.1	185.1	182.0	182.0	178.9	177.3	175.7
55°	172.6	169.5	168.0	164.9	164.9	163.3	161.7	160.2	158.6	157.1	155.5
57.5°	150.9	149.3	147.7	146.2	146.2	144.6	143.1	141.5	138.4	138.4	135.3
60°	133.8	130.6	129.1	127.5	126.0	126.0	124.4	122.9	119.8	118.2	116.6
62.5°	115.1	112.0	112.0	110.4	107.3	107.3	105.8	102.6	101.1	98.0	96.4
65°	98.0	96.4	93.3	91.8	91.8	90.2	87.1	85.5	84.0	80.9	77.8
67.5°	80.9	79.3	77.8	74.7	74.7	73.1	70.0	68.4	65.3	63.8	60.7
70°	65.3	63.8	62.2	59.1	59.1	57.5	56.0	52.9	49.8	48.2	45.1
72.5°	51.3	49.8	48.2	45.1	45.1	43.5	40.4	38.9	35.8	32.7	31.1
75°	38.9	37.3	34.2	32.7	31.1	31.1	28.0	26.4	24.9	21.8	20.2
77.5°	26.4	24.9	23.3	21.8	21.8	20.2	18.7	17.1	15.6	14.0	10.9
80°	17.1	15.6	14.0	14.0	12.4	12.4	10.9	9.3	7.8	6.2	4.7
82.5°	9.3	9.3	7.8	6.2	6.2	6.2	4.7	4.7	3.1	1.6	1.6
85°	3.1	3.1	3.1	3.1	1.6	1.6	1.6	1.6	1.6	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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2
2.5°	471.2	471.2	471.2	471.2	471.2	471.2	469.7	471.2	471.2	471.2	469.7
5°	469.7	468.1	468.1	469.7	468.1	468.1	469.7	469.7	469.7	468.1	468.1
7.5°	463.5	465.0	463.5	463.5	465.0	465.0	465.0	465.0	463.5	463.5	465.0
10°	458.8	458.8	457.2	458.8	457.2	458.8	458.8	458.8	458.8	458.8	458.8
12.5°	451.0	451.0	451.0	452.6	451.0	451.0	452.6	452.6	452.6	452.6	452.6
15°	441.7	441.7	443.2	441.7	443.2	443.2	443.2	443.2	443.2	443.2	444.8
17.5°	432.4	432.4	432.4	432.4	432.4	432.4	432.4	432.4	432.4	433.9	433.9
20°	421.5	421.5	421.5	421.5	421.5	419.9	421.5	421.5	423.0	423.0	423.0
22.5°	407.5	407.5	407.5	407.5	407.5	407.5	407.5	407.5	409.0	410.6	409.0
25°	393.5	393.5	393.5	393.5	393.5	393.5	393.5	395.0	395.0	395.0	396.6
27.5°	379.5	379.5	379.5	377.9	379.5	377.9	379.5	379.5	381.0	379.5	381.0
30°	363.9	362.4	362.4	362.4	362.4	363.9	362.4	362.4	363.9	365.5	363.9
32.5°	343.7	343.7	343.7	345.3	345.3	345.3	346.8	345.3	345.3	346.8	346.8
35°	325.0	325.0	325.0	326.6	326.6	326.6	326.6	328.2	328.2	328.2	329.7
37.5°	304.8	306.4	304.8	306.4	306.4	307.9	307.9	307.9	307.9	309.5	309.5
40°	286.2	284.6	286.2	286.2	286.2	286.2	286.2	286.2	287.7	289.3	289.3
42.5°	264.4	264.4	264.4	264.4	264.4	264.4	265.9	265.9	265.9	267.5	267.5
45°	242.6	241.1	241.1	241.1	241.1	242.6	241.1	242.6	242.6	244.2	244.2
47.5°	219.3	219.3	219.3	219.3	219.3	219.3	219.3	219.3	219.3	220.8	219.3
50°	199.1	197.5	196.0	196.0	194.4	196.0	194.4	194.4	194.4	196.0	194.4
52.5°	175.7	174.2	172.6	172.6	172.6	171.1	169.5	169.5	169.5	168.0	168.0
55°	155.5	154.0	150.9	152.4	149.3	147.7	147.7	146.2	144.6	144.6	143.1
57.5°	133.8	132.2	130.6	129.1	129.1	126.0	124.4	122.9	121.3	119.8	116.6
60°	115.1	112.0	108.9	108.9	107.3	105.8	102.6	99.5	98.0	94.9	93.3
62.5°	94.9	91.8	88.6	87.1	85.5	84.0	80.9	77.8	74.7	73.1	70.0
65°	76.2	73.1	70.0	68.4	66.9	63.8	60.7	57.5	54.4	51.3	49.8
67.5°	57.5	54.4	52.9	49.8	48.2	45.1	42.0	40.4	37.3	34.2	29.5
70°	42.0	38.9	35.8	34.2	32.7	29.5	28.0	24.9	21.8	20.2	17.1
72.5°	28.0	24.9	23.3	21.8	20.2	18.7	15.6	14.0	10.9	9.3	7.8
75°	17.1	15.6	14.0	12.4	10.9	9.3	7.8	6.2	4.7	3.1	1.6
77.5°	9.3	7.8	6.2	6.2	4.7	3.1	3.1	1.6	1.6	1.6	1.6
80°	4.7	3.1	1.6	1.6	1.6	1.6	0.0	0.0	0.0	0.0	1.6
82.5°	1.6	0.0	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: P644101

CATALOG NUMBER: ML5615LSWW9FS1E - 592SC WW - 1500LM - 2700K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2
2.5°	471.2	471.2	471.2	471.2	471.2	471.2	471.2	471.2
5°	469.7	469.7	468.1	469.7	468.1	468.1	468.1	469.7
7.5°	465.0	465.0	465.0	465.0	465.0	465.0	465.0	465.0
10°	458.8	458.8	458.8	460.4	460.4	460.4	458.8	460.4
12.5°	452.6	452.6	452.6	454.1	452.6	454.1	452.6	454.1
15°	444.8	444.8	446.4	446.4	444.8	444.8	446.4	446.4
17.5°	433.9	435.5	435.5	435.5	435.5	435.5	435.5	437.0
20°	424.6	424.6	423.0	424.6	424.6	426.1	426.1	424.6
22.5°	409.0	412.1	412.1	412.1	412.1	412.1	412.1	412.1
25°	396.6	396.6	396.6	398.1	396.6	396.6	398.1	396.6
27.5°	381.0	382.6	381.0	382.6	382.6	382.6	382.6	382.6
30°	365.5	365.5	365.5	365.5	365.5	367.0	365.5	365.5
32.5°	346.8	348.4	348.4	348.4	349.9	348.4	348.4	349.9
35°	329.7	329.7	329.7	331.3	329.7	331.3	331.3	329.7
37.5°	309.5	311.1	309.5	311.1	311.1	311.1	311.1	311.1
40°	290.8	289.3	290.8	289.3	290.8	290.8	290.8	289.3
42.5°	267.5	269.1	269.1	269.1	269.1	269.1	269.1	267.5
45°	244.2	245.7	245.7	245.7	245.7	245.7	247.3	247.3
47.5°	219.3	222.4	222.4	222.4	220.8	224.0	222.4	222.4
50°	194.4	194.4	196.0	196.0	197.5	197.5	197.5	197.5
52.5°	169.5	168.0	169.5	169.5	171.1	169.5	171.1	169.5
55°	141.5	141.5	141.5	140.0	141.5	141.5	141.5	141.5
57.5°	116.6	115.1	113.5	112.0	112.0	112.0	110.4	112.0
60°	90.2	87.1	88.6	85.5	84.0	82.4	82.4	80.9
62.5°	66.9	63.8	62.2	60.7	57.5	54.4	54.4	52.9
65°	45.1	42.0	40.4	37.3	35.8	34.2	32.7	32.7
67.5°	28.0	24.9	24.9	23.3	21.8	20.2	18.7	18.7
70°	15.6	14.0	12.4	10.9	10.9	9.3	7.8	7.8
72.5°	6.2	4.7	4.7	3.1	3.1	3.1	3.1	1.6
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
77.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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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