

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: P644159

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

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644159
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-117)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 692W WW - 1200LM - 4000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 942.6 lumens
Efficiency: N/A
Efficacy: 70.3 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.13 / 1.25
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

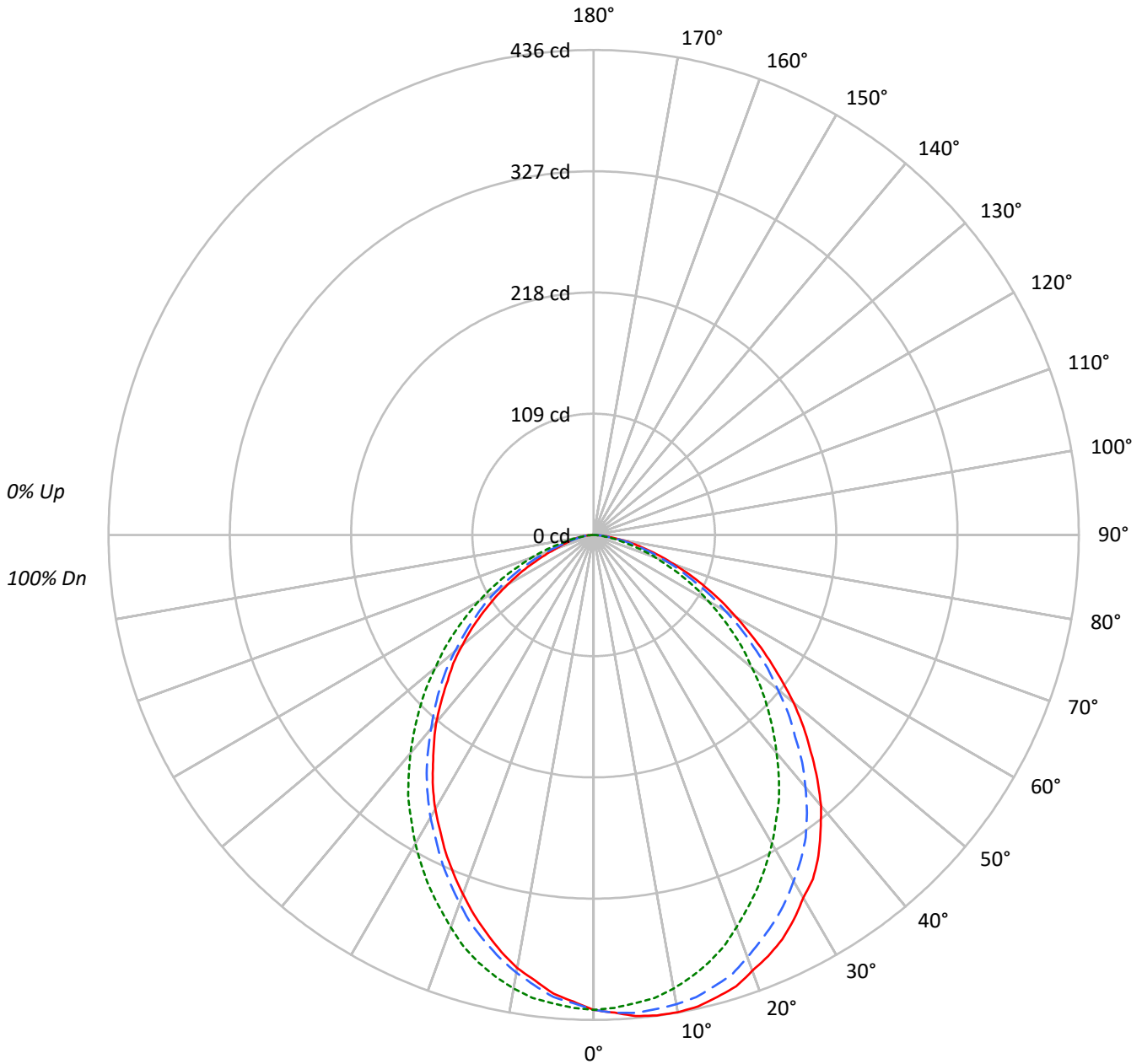
Input Watts (W): 13.4
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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				100				
1	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89	87				87				
2	101	94	88	82	99	92	86	81	88	84	80	85	81	78	82	79	76	74				74				
3	93	83	76	70	91	82	75	69	79	73	68	76	71	67	74	69	66	64				64				
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	57	55				55				
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49				49				
6	73	61	52	46	72	60	52	46	58	51	46	56	50	45	55	49	45	43				43				
7	68	55	47	41	67	55	47	41	53	46	41	52	45	41	50	45	40	38				38				
8	64	51	43	37	62	50	42	37	49	42	37	48	41	37	46	41	36	35				35				
9	60	47	39	34	58	46	39	34	45	38	33	44	38	33	43	37	33	31				31				
10	56	43	36	31	55	43	36	31	42	35	30	41	35	30	40	34	30	29				29				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	23408	23408	23408	23408	23408
5°	23894	23740	23261	22947	22788
10°	24254	23853	23051	22250	22010
15°	24399	23831	22605	21464	21056
20°	24327	23569	21894	20553	20045
25°	24268	23221	21134	19568	19047
30°	23845	22757	20294	18566	18022
35°	23577	22225	19434	17514	16838
40°	22743	21197	18313	16259	15744
45°	21405	19839	17165	15157	14381
50°	19991	18396	15820	13859	13117
55°	18140	16764	14566	12501	11546
60°	16238	14977	13080	11030	9769
65°	14360	13049	11376	9327	7835
70°	12214	11300	9457	7149	5754
75°	10040	9129	7011	4872	4872
80°	7703	6819	4988	4072	4546
85°	5409	4529	3648	3648	3648

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 21405 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	40.1	4.3
10°-20°	112.4	11.9
20°-30°	162.6	17.3
30°-40°	184.7	19.6
40°-50°	174.4	18.5
50°-60°	137.5	14.6
60°-70°	86.1	9.1
70°-80°	37.2	3.9
80°-90°	7.7	0.8
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°	315.1	33.4
0°-40°	499.8	53.0
0°-60°	811.7	86.1
0°-90°	942.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	942.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	427	427	427	427	427	
5°	434	431	423	417	414	41
15°	430	420	398	378	371	121
25°	401	384	349	324	315	184
35°	352	332	290	262	252	219
45°	276	256	221	196	186	213
55°	190	175	152	131	121	170
65°	111	101	88	72	60	110
75°	47	43	33	23	23	51
85°	9	7	6	6	6	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°	427.0	427.0	427.0	427.0	427.0	427.0	427.0	427.0	427.0	427.0	427.0
2.5°	429.9	429.9	431.4	431.4	429.9	429.9	429.9	429.9	429.9	429.9	429.9
5°	434.2	434.2	434.2	434.2	432.8	432.8	432.8	432.8	432.8	431.4	431.4
7.5°	435.7	435.7	435.7	435.7	434.2	434.2	432.8	432.8	432.8	431.4	429.9
10°	435.7	435.7	435.7	434.2	434.2	432.8	434.2	432.8	431.4	429.9	428.5
12.5°	434.2	432.8	432.8	432.8	431.4	431.4	431.4	429.9	428.5	427.0	425.6
15°	429.9	429.9	429.9	428.5	428.5	427.0	427.0	425.6	424.2	421.3	419.9
17.5°	425.6	425.6	424.2	424.2	422.7	421.3	421.3	419.9	418.4	415.5	414.1
20°	417.0	417.0	417.0	415.5	414.1	414.1	412.7	411.2	408.3	405.5	404.0
22.5°	409.8	408.3	408.3	406.9	405.5	405.5	404.0	401.2	399.7	396.8	394.0
25°	401.2	399.7	399.7	398.3	396.8	395.4	395.4	392.5	389.7	386.8	383.9
27.5°	389.7	389.7	388.2	386.8	385.3	385.3	383.9	382.5	378.2	375.3	372.4
30°	376.7	378.2	376.7	375.3	373.8	373.8	372.4	369.5	366.7	362.3	359.5
32.5°	366.7	366.7	365.2	363.8	360.9	360.9	360.9	356.6	353.7	350.8	346.5
35°	352.3	352.3	352.3	349.4	348.0	346.5	345.1	342.2	339.3	336.5	332.1
37.5°	335.0	336.5	335.0	333.6	332.1	330.7	329.3	326.4	322.1	319.2	314.9
40°	317.8	317.8	316.3	314.9	313.5	312.0	310.6	307.7	304.8	300.5	296.2
42.5°	297.6	297.6	296.2	294.8	293.3	291.9	291.9	289.0	284.7	281.8	277.5
45°	276.1	276.1	276.1	274.6	273.2	271.8	270.3	268.9	266.0	261.7	255.9
47.5°	255.9	255.9	255.9	253.1	253.1	250.2	248.7	245.9	244.4	240.1	237.2
50°	234.4	232.9	232.9	231.5	230.1	228.6	228.6	224.3	222.9	220.0	215.7
52.5°	211.4	211.4	211.4	209.9	208.5	207.0	207.0	204.2	201.3	198.4	197.0
55°	189.8	189.8	189.8	188.4	186.9	186.9	185.5	182.6	181.2	178.3	175.4
57.5°	168.2	169.7	168.2	166.8	166.8	165.4	165.4	163.9	161.0	158.2	156.7
60°	148.1	148.1	148.1	146.7	145.2	145.2	145.2	143.8	140.9	139.5	136.6
62.5°	129.4	129.4	128.0	128.0	126.5	126.5	125.1	123.7	122.2	120.8	119.3
65°	110.7	109.3	109.3	109.3	107.8	107.8	107.8	106.4	103.5	102.1	100.6
67.5°	93.5	93.5	92.0	92.0	90.6	90.6	90.6	89.1	87.7	86.3	84.8
70°	76.2	76.2	76.2	76.2	74.8	74.8	74.8	73.3	71.9	71.9	70.5
72.5°	61.8	61.8	61.8	61.8	60.4	60.4	60.4	59.0	57.5	56.1	56.1
75°	47.4	48.9	47.4	47.4	47.4	47.4	46.0	46.0	44.6	43.1	43.1
77.5°	35.9	35.9	35.9	35.9	34.5	34.5	34.5	34.5	33.1	31.6	31.6
80°	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	23.0	23.0	21.6
82.5°	14.4	15.8	15.8	15.8	14.4	14.4	14.4	14.4	14.4	14.4	12.9
85°	8.6	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
87.5°	2.9	2.9	2.9	2.9	2.9	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°	427.0	427.0	427.0	427.0	427.0	427.0	427.0	427.0	427.0	427.0	427.0
2.5°	428.5	428.5	428.5	428.5	427.0	427.0	427.0	425.6	425.6	425.6	425.6
5°	429.9	428.5	428.5	427.0	427.0	427.0	425.6	425.6	424.2	422.7	422.7
7.5°	428.5	428.5	427.0	425.6	425.6	424.2	422.7	421.3	419.9	419.9	417.0
10°	427.0	425.6	424.2	422.7	421.3	421.3	418.4	417.0	415.5	414.1	412.7
12.5°	422.7	421.3	419.9	417.0	417.0	415.5	412.7	411.2	408.3	406.9	404.0
15°	417.0	415.5	414.1	411.2	409.8	408.3	405.5	402.6	399.7	398.3	395.4
17.5°	411.2	408.3	405.5	402.6	401.2	399.7	396.8	394.0	391.1	388.2	385.3
20°	401.2	398.3	395.4	391.1	389.7	388.2	383.9	381.0	378.2	375.3	372.4
22.5°	391.1	388.2	383.9	381.0	379.6	376.7	373.8	369.5	366.7	362.3	359.5
25°	381.0	376.7	372.4	369.5	366.7	365.2	360.9	358.0	352.3	349.4	346.5
27.5°	368.1	365.2	360.9	356.6	353.7	350.8	348.0	343.6	339.3	335.0	332.1
30°	355.1	350.8	346.5	343.6	339.3	337.9	333.6	329.3	325.0	320.6	317.8
32.5°	342.2	337.9	333.6	329.3	326.4	323.5	319.2	314.9	309.1	304.8	301.9
35°	327.8	323.5	317.8	313.5	310.6	307.7	303.4	299.1	294.8	290.4	286.1
37.5°	310.6	304.8	301.9	297.6	293.3	290.4	286.1	280.4	277.5	273.2	268.9
40°	291.9	287.6	283.3	278.9	274.6	273.2	267.4	263.1	260.2	255.9	251.6
42.5°	273.2	268.9	263.1	258.8	255.9	254.5	250.2	245.9	241.6	238.7	234.4
45°	253.1	248.7	244.4	240.1	237.2	235.8	231.5	228.6	224.3	221.4	217.1
47.5°	232.9	228.6	225.7	221.4	218.6	217.1	214.2	209.9	205.6	204.2	201.3
50°	212.8	208.5	205.6	201.3	199.9	198.4	195.5	192.7	189.8	185.5	184.0
52.5°	192.7	188.4	185.5	182.6	182.6	179.7	176.9	175.4	172.5	169.7	166.8
55°	172.5	171.1	168.2	163.9	163.9	162.5	159.6	156.7	153.8	152.4	149.5
57.5°	152.4	151.0	148.1	146.7	145.2	143.8	142.3	139.5	138.0	135.2	133.7
60°	135.2	133.7	130.8	129.4	128.0	126.5	125.1	122.2	120.8	119.3	117.9
62.5°	116.5	115.0	113.6	112.2	110.7	109.3	109.3	106.4	105.0	103.5	102.1
65°	100.6	97.8	96.3	94.9	94.9	93.5	92.0	90.6	89.1	87.7	86.3
67.5°	83.4	82.0	82.0	79.1	79.1	77.6	76.2	76.2	73.3	71.9	70.5
70°	69.0	67.6	66.1	64.7	64.7	63.3	61.8	60.4	59.0	59.0	57.5
72.5°	54.6	53.2	53.2	51.8	50.3	50.3	48.9	47.4	46.0	46.0	44.6
75°	41.7	40.3	40.3	38.8	38.8	37.4	35.9	35.9	34.5	33.1	31.6
77.5°	30.2	30.2	28.8	28.8	27.3	27.3	25.9	25.9	24.4	23.0	23.0
80°	21.6	20.1	20.1	18.7	18.7	18.7	17.3	17.3	15.8	15.8	14.4
82.5°	12.9	12.9	11.5	11.5	11.5	11.5	10.1	10.1	10.1	8.6	8.6
85°	7.2	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	427.0	427.0	427.0	427.0	427.0	427.0	427.0	427.0	427.0	427.0	427.0
2.5°	424.2	424.2	422.7	424.2	422.7	422.7	422.7	422.7	421.3	421.3	421.3
5°	421.3	419.9	419.9	418.4	419.9	418.4	417.0	417.0	417.0	417.0	415.5
7.5°	415.5	415.5	414.1	412.7	412.7	411.2	409.8	409.8	408.3	408.3	406.9
10°	411.2	408.3	406.9	405.5	405.5	404.0	402.6	401.2	399.7	398.3	398.3
12.5°	401.2	399.7	398.3	396.8	396.8	394.0	392.5	391.1	389.7	388.2	386.8
15°	394.0	391.1	388.2	386.8	386.8	383.9	382.5	381.0	378.2	378.2	375.3
17.5°	382.5	379.6	376.7	375.3	373.8	372.4	371.0	368.1	366.7	363.8	363.8
20°	368.1	366.7	362.3	360.9	359.5	358.0	355.1	353.7	352.3	349.4	348.0
22.5°	356.6	352.3	349.4	348.0	348.0	343.6	342.2	339.3	337.9	336.5	333.6
25°	342.2	339.3	336.5	333.6	333.6	330.7	329.3	326.4	323.5	322.1	320.6
27.5°	327.8	325.0	320.6	319.2	317.8	316.3	313.5	310.6	307.7	306.3	304.8
30°	312.0	309.1	306.3	304.8	301.9	299.1	296.2	294.8	293.3	290.4	289.0
32.5°	297.6	293.3	290.4	287.6	287.6	283.3	281.8	278.9	277.5	276.1	273.2
35°	281.8	277.5	274.6	273.2	271.8	267.4	264.6	261.7	261.7	258.8	257.4
37.5°	264.6	260.2	258.8	255.9	254.5	251.6	248.7	247.3	244.4	241.6	241.6
40°	248.7	244.4	240.1	240.1	237.2	235.8	231.5	230.1	227.2	225.7	224.3
42.5°	231.5	227.2	224.3	222.9	221.4	218.6	215.7	212.8	211.4	209.9	208.5
45°	212.8	209.9	208.5	205.6	204.2	201.3	199.9	197.0	195.5	192.7	191.2
47.5°	197.0	194.1	191.2	189.8	188.4	185.5	184.0	181.2	179.7	176.9	175.4
50°	181.2	178.3	175.4	174.0	172.5	169.7	166.8	165.4	162.5	161.0	158.2
52.5°	163.9	161.0	158.2	158.2	156.7	153.8	152.4	149.5	146.7	143.8	142.3
55°	148.1	145.2	142.3	140.9	140.9	138.0	135.2	133.7	130.8	129.4	126.5
57.5°	130.8	128.0	126.5	125.1	125.1	122.2	120.8	117.9	116.5	113.6	112.2
60°	115.0	113.6	110.7	110.7	109.3	106.4	105.0	102.1	100.6	99.2	97.8
62.5°	99.2	97.8	94.9	94.9	93.5	92.0	90.6	87.7	86.3	83.4	82.0
65°	83.4	82.0	80.5	79.1	79.1	76.2	74.8	73.3	71.9	70.5	69.0
67.5°	69.0	67.6	66.1	66.1	64.7	63.3	60.4	59.0	57.5	56.1	54.6
70°	56.1	53.2	51.8	51.8	50.3	48.9	47.4	46.0	44.6	43.1	41.7
72.5°	43.1	40.3	40.3	38.8	37.4	35.9	35.9	34.5	33.1	33.1	30.2
75°	31.6	30.2	28.8	28.8	27.3	25.9	24.4	24.4	23.0	23.0	23.0
77.5°	21.6	20.1	20.1	18.7	18.7	18.7	17.3	17.3	17.3	17.3	18.7
80°	14.4	14.4	12.9	12.9	12.9	12.9	12.9	12.9	12.9	14.4	14.4
82.5°	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	10.1
85°	4.3	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
87.5°	1.4	1.4	2.9	1.4	2.9	1.4	2.9	2.9	2.9	2.9	2.9
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: P644159

CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 1200LM - 4000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	427.0	427.0	427.0	427.0	427.0	427.0	427.0	427.0
2.5°	419.9	421.3	421.3	419.9	421.3	419.9	419.9	419.9
5°	415.5	414.1	414.1	414.1	412.7	414.1	414.1	414.1
7.5°	406.9	406.9	405.5	405.5	404.0	404.0	405.5	404.0
10°	396.8	395.4	396.8	395.4	395.4	395.4	394.0	395.4
12.5°	386.8	385.3	385.3	383.9	383.9	383.9	383.9	383.9
15°	375.3	373.8	373.8	372.4	372.4	371.0	372.4	371.0
17.5°	362.3	362.3	359.5	359.5	359.5	359.5	359.5	358.0
20°	346.5	346.5	345.1	346.5	343.6	343.6	343.6	343.6
22.5°	333.6	332.1	330.7	330.7	330.7	329.3	329.3	329.3
25°	317.8	317.8	316.3	316.3	314.9	314.9	314.9	314.9
27.5°	303.4	301.9	301.9	301.9	300.5	299.1	299.1	299.1
30°	287.6	287.6	286.1	286.1	284.7	284.7	284.7	284.7
32.5°	271.8	271.8	270.3	268.9	268.9	268.9	267.4	268.9
35°	255.9	254.5	254.5	253.1	253.1	253.1	251.6	251.6
37.5°	240.1	238.7	237.2	238.7	237.2	235.8	235.8	235.8
40°	222.9	221.4	221.4	220.0	220.0	220.0	218.6	220.0
42.5°	207.0	207.0	205.6	204.2	204.2	204.2	202.7	202.7
45°	191.2	188.4	189.8	188.4	188.4	186.9	186.9	185.5
47.5°	174.0	172.5	172.5	172.5	171.1	171.1	171.1	171.1
50°	156.7	155.3	156.7	155.3	155.3	153.8	153.8	153.8
52.5°	140.9	139.5	139.5	139.5	139.5	138.0	138.0	138.0
55°	125.1	123.7	123.7	123.7	122.2	122.2	120.8	120.8
57.5°	110.7	109.3	107.8	106.4	106.4	106.4	105.0	105.0
60°	94.9	93.5	92.0	92.0	90.6	90.6	90.6	89.1
62.5°	80.5	79.1	77.6	77.6	76.2	74.8	74.8	74.8
65°	66.1	64.7	64.7	63.3	61.8	61.8	60.4	60.4
67.5°	53.2	51.8	51.8	50.3	48.9	47.4	47.4	47.4
70°	41.7	40.3	38.8	38.8	38.8	37.4	35.9	35.9
72.5°	30.2	28.8	28.8	28.8	28.8	28.8	28.8	28.8
75°	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
77.5°	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7
80°	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
82.5°	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1
85°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
87.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	1.4
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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