

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: P644098

Luminaire Tested: ML5615LSWW9FS1E - 592SC WW - 1200LM - 3500K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P644098  
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 - 1200LM - 3500K  
Description: ML56 RR, WW OPTIC, 5" 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: 866.3 lumens  
Efficiency: N/A  
Efficacy: 64.6 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

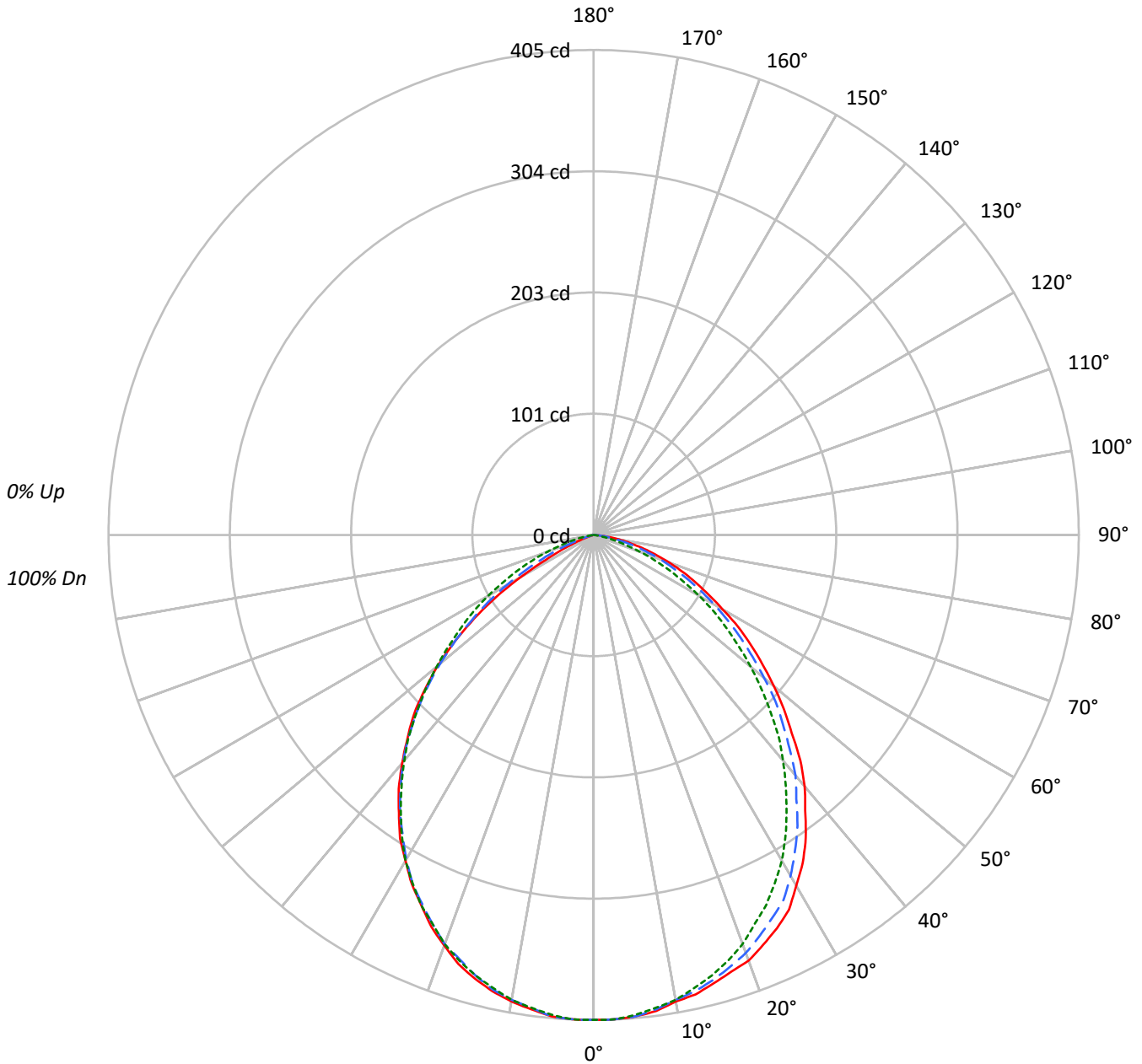
Input Watts (W): 13.4  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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				
RW	70	50	30	10	70	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°	31971	31971	31971	31971	31971
5°	31982	31982	31879	31982	31982
10°	31711	31607	31607	31607	31711
15°	31677	31456	31129	31129	31350
20°	31780	31217	30545	30545	30654
25°	31548	30738	29684	29571	29684
30°	30828	29971	28631	28513	28631
35°	29759	28593	27051	27176	27311
40°	28236	26999	25340	25484	25618
45°	26112	24918	23277	23277	23723
50°	24132	22818	21013	20522	20841
55°	22076	20603	18580	17107	16736
60°	19625	18362	16041	13294	10973
65°	17484	15971	12982	8742	5249
70°	15418	13571	9555	4316	1546
75°	12627	10614	5704	1220	397
80°	9728	7274	2409	0	0
85°	4800	3623	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 10°  
 Vertical Angle: 45°  
 Luminance: 26258 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	38.2	4.4
10°-20°	108.0	12.5
20°-30°	159.3	18.4
30°-40°	180.3	20.8
40°-50°	166.5	19.2
50°-60°	123.0	14.2
60°-70°	66.1	7.6
70°-80°	22.1	2.6
80°-90°	2.8	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°	305.4	35.3
0°-40°	485.7	56.1
0°-60°	775.2	89.5
0°-90°	866.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	866.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	405	405	405	405	405	
5°	404	404	402	404	404	38
15°	388	385	381	381	384	110
25°	362	353	341	340	341	167
35°	309	297	281	282	283	192
45°	234	223	208	208	212	181
55°	160	150	135	124	122	143
65°	94	86	70	47	28	93
75°	41	35	19	4	1	45
85°	5	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°	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0
2.5°	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0
5°	403.6	403.6	402.3	403.6	403.6	403.6	403.6	402.3	403.6	403.6	403.6
7.5°	401.0	399.6	399.6	399.6	399.6	399.6	399.6	399.6	399.6	399.6	399.6
10°	395.6	395.6	395.6	395.6	395.6	395.6	395.6	395.6	395.6	395.6	394.3
12.5°	393.0	391.6	391.6	391.6	391.6	391.6	391.6	390.3	391.6	390.3	390.3
15°	387.6	387.6	387.6	387.6	387.6	387.6	386.3	386.3	386.3	386.3	384.9
17.5°	382.3	382.3	383.6	383.6	382.3	382.3	382.3	380.9	379.6	379.6	378.3
20°	378.3	378.3	376.9	376.9	375.6	376.9	375.6	374.2	374.2	372.9	371.6
22.5°	370.2	370.2	370.2	370.2	370.2	368.9	368.9	367.6	366.2	364.9	362.2
25°	362.2	362.2	362.2	362.2	360.9	360.9	360.9	358.2	356.9	355.5	352.9
27.5°	352.9	351.5	351.5	351.5	350.2	350.2	348.8	347.5	346.2	344.8	343.5
30°	338.2	338.2	338.2	338.2	336.8	335.5	335.5	334.1	332.8	330.1	328.8
32.5°	324.8	324.8	323.5	322.1	322.1	322.1	320.8	319.4	316.8	315.4	312.8
35°	308.8	307.4	307.4	306.1	306.1	306.1	304.7	302.1	300.7	299.4	296.7
37.5°	290.0	291.4	290.0	290.0	288.7	287.4	286.0	284.7	283.4	280.7	278.0
40°	274.0	274.0	272.7	271.3	270.0	270.0	268.7	267.3	266.0	264.6	262.0
42.5°	255.3	255.3	254.0	254.0	252.6	252.6	249.9	248.6	247.3	245.9	241.9
45°	233.9	233.9	235.2	233.9	232.6	231.2	231.2	229.9	227.2	225.9	223.2
47.5°	215.2	216.5	215.2	213.9	213.9	212.5	212.5	209.8	209.8	207.2	205.8
50°	196.5	196.5	196.5	196.5	195.1	193.8	193.8	192.5	189.8	188.5	185.8
52.5°	177.8	177.8	177.8	177.8	176.4	176.4	175.1	173.8	172.4	169.7	167.1
55°	160.4	159.1	159.1	159.1	157.7	157.7	156.4	155.0	153.7	152.4	149.7
57.5°	143.0	141.7	141.7	140.3	140.3	139.0	139.0	137.7	136.3	133.7	132.3
60°	124.3	125.6	124.3	124.3	123.0	123.0	123.0	121.6	119.0	117.6	116.3
62.5°	108.3	109.6	108.3	106.9	106.9	106.9	106.9	104.3	102.9	101.6	100.2
65°	93.6	93.6	93.6	92.2	92.2	92.2	89.6	89.6	88.2	86.9	85.5
67.5°	80.2	78.9	78.9	78.9	77.5	77.5	76.2	76.2	73.5	73.5	70.8
70°	66.8	65.5	65.5	65.5	64.2	62.8	64.2	61.5	60.1	58.8	58.8
72.5°	53.5	53.5	52.1	52.1	52.1	50.8	50.8	49.5	48.1	46.8	45.4
75°	41.4	41.4	41.4	40.1	40.1	38.8	38.8	37.4	37.4	34.8	34.8
77.5°	30.7	30.7	30.7	29.4	29.4	29.4	28.1	28.1	26.7	25.4	24.1
80°	21.4	20.0	20.0	20.0	20.0	18.7	18.7	18.7	17.4	17.4	16.0
82.5°	12.0	12.0	12.0	12.0	12.0	12.0	10.7	10.7	10.7	9.4	9.4
85°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	4.0	4.0	4.0
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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°	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0
2.5°	405.0	405.0	405.0	405.0	403.6	405.0	403.6	405.0	405.0	405.0	405.0
5°	403.6	402.3	402.3	402.3	403.6	403.6	402.3	402.3	402.3	402.3	402.3
7.5°	399.6	399.6	399.6	398.3	399.6	399.6	398.3	399.6	399.6	398.3	399.6
10°	395.6	395.6	394.3	394.3	394.3	394.3	394.3	394.3	393.0	394.3	394.3
12.5°	390.3	390.3	390.3	388.9	388.9	388.9	388.9	388.9	387.6	387.6	388.9
15°	384.9	384.9	383.6	383.6	383.6	382.3	382.3	382.3	382.3	380.9	380.9
17.5°	378.3	376.9	376.9	375.6	375.6	374.2	374.2	372.9	372.9	372.9	371.6
20°	370.2	368.9	367.6	367.6	366.2	366.2	364.9	364.9	363.6	363.6	362.2
22.5°	360.9	359.5	358.2	356.9	356.9	355.5	355.5	354.2	352.9	351.5	351.5
25°	352.9	350.2	348.8	347.5	344.8	344.8	343.5	343.5	342.2	340.8	339.5
27.5°	340.8	338.2	336.8	335.5	334.1	332.8	330.1	330.1	328.8	327.5	326.1
30°	326.1	324.8	322.1	320.8	319.4	319.4	316.8	314.1	314.1	314.1	312.8
32.5°	311.4	308.8	307.4	304.7	303.4	303.4	302.1	299.4	298.1	298.1	296.7
35°	295.4	292.7	290.0	288.7	287.4	286.0	284.7	283.4	282.0	280.7	279.3
37.5°	276.7	274.0	272.7	271.3	270.0	268.7	267.3	266.0	264.6	263.3	264.6
40°	259.3	256.6	254.0	252.6	251.3	251.3	249.9	248.6	247.3	245.9	245.9
42.5°	240.6	237.9	236.6	235.2	233.9	232.6	231.2	229.9	228.6	228.6	227.2
45°	220.5	219.2	216.5	215.2	213.9	213.9	211.2	209.8	209.8	208.5	208.5
47.5°	203.2	200.5	197.8	196.5	195.1	193.8	192.5	191.1	189.8	189.8	189.8
50°	183.1	181.8	179.1	177.8	176.4	176.4	175.1	173.8	172.4	171.1	171.1
52.5°	164.4	163.1	163.1	160.4	159.1	159.1	156.4	156.4	153.7	152.4	151.0
55°	148.4	145.7	144.4	141.7	141.7	140.3	139.0	137.7	136.3	135.0	133.7
57.5°	129.6	128.3	127.0	125.6	125.6	124.3	123.0	121.6	119.0	119.0	116.3
60°	114.9	112.3	110.9	109.6	108.3	108.3	106.9	105.6	102.9	101.6	100.2
62.5°	98.9	96.2	96.2	94.9	92.2	92.2	90.9	88.2	86.9	84.2	82.9
65°	84.2	82.9	80.2	78.9	78.9	77.5	74.8	73.5	72.2	69.5	66.8
67.5°	69.5	68.2	66.8	64.2	64.2	62.8	60.1	58.8	56.1	54.8	52.1
70°	56.1	54.8	53.5	50.8	50.8	49.5	48.1	45.4	42.8	41.4	38.8
72.5°	44.1	42.8	41.4	38.8	38.8	37.4	34.8	33.4	30.7	28.1	26.7
75°	33.4	32.1	29.4	28.1	26.7	26.7	24.1	22.7	21.4	18.7	17.4
77.5°	22.7	21.4	20.0	18.7	18.7	17.4	16.0	14.7	13.4	12.0	9.4
80°	14.7	13.4	12.0	12.0	10.7	10.7	9.4	8.0	6.7	5.3	4.0
82.5°	8.0	8.0	6.7	5.3	5.3	5.3	4.0	4.0	2.7	1.3	1.3
85°	2.7	2.7	2.7	2.7	1.3	1.3	1.3	1.3	1.3	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°	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0
2.5°	405.0	405.0	405.0	405.0	405.0	405.0	403.6	405.0	405.0	405.0	403.6
5°	403.6	402.3	402.3	403.6	402.3	402.3	403.6	403.6	403.6	402.3	402.3
7.5°	398.3	399.6	398.3	398.3	399.6	399.6	399.6	399.6	398.3	398.3	399.6
10°	394.3	394.3	393.0	394.3	393.0	394.3	394.3	394.3	394.3	394.3	394.3
12.5°	387.6	387.6	387.6	388.9	387.6	387.6	388.9	388.9	388.9	388.9	388.9
15°	379.6	379.6	380.9	379.6	380.9	380.9	380.9	380.9	380.9	380.9	382.3
17.5°	371.6	371.6	371.6	371.6	371.6	371.6	371.6	371.6	371.6	372.9	372.9
20°	362.2	362.2	362.2	362.2	362.2	360.9	362.2	362.2	363.6	363.6	363.6
22.5°	350.2	350.2	350.2	350.2	350.2	350.2	350.2	350.2	351.5	352.9	351.5
25°	338.2	338.2	338.2	338.2	338.2	338.2	338.2	339.5	339.5	339.5	340.8
27.5°	326.1	326.1	326.1	324.8	326.1	324.8	326.1	326.1	327.5	326.1	327.5
30°	312.8	311.4	311.4	311.4	311.4	312.8	311.4	311.4	312.8	314.1	312.8
32.5°	295.4	295.4	295.4	296.7	296.7	296.7	298.1	296.7	296.7	298.1	298.1
35°	279.3	279.3	279.3	280.7	280.7	280.7	280.7	282.0	282.0	282.0	283.4
37.5°	262.0	263.3	262.0	263.3	263.3	264.6	264.6	264.6	264.6	266.0	266.0
40°	245.9	244.6	245.9	245.9	245.9	245.9	245.9	245.9	247.3	248.6	248.6
42.5°	227.2	227.2	227.2	227.2	227.2	227.2	228.6	228.6	228.6	229.9	229.9
45°	208.5	207.2	207.2	207.2	207.2	208.5	207.2	208.5	208.5	209.8	209.8
47.5°	188.5	188.5	188.5	188.5	188.5	188.5	188.5	188.5	188.5	189.8	188.5
50°	171.1	169.7	168.4	168.4	167.1	168.4	167.1	167.1	167.1	168.4	167.1
52.5°	151.0	149.7	148.4	148.4	148.4	147.0	145.7	145.7	145.7	144.4	144.4
55°	133.7	132.3	129.6	131.0	128.3	127.0	127.0	125.6	124.3	124.3	123.0
57.5°	114.9	113.6	112.3	110.9	110.9	108.3	106.9	105.6	104.3	102.9	100.2
60°	98.9	96.2	93.6	93.6	92.2	90.9	88.2	85.5	84.2	81.5	80.2
62.5°	81.5	78.9	76.2	74.8	73.5	72.2	69.5	66.8	64.2	62.8	60.1
65°	65.5	62.8	60.1	58.8	57.5	54.8	52.1	49.5	46.8	44.1	42.8
67.5°	49.5	46.8	45.4	42.8	41.4	38.8	36.1	34.8	32.1	29.4	25.4
70°	36.1	33.4	30.7	29.4	28.1	25.4	24.1	21.4	18.7	17.4	14.7
72.5°	24.1	21.4	20.0	18.7	17.4	16.0	13.4	12.0	9.4	8.0	6.7
75°	14.7	13.4	12.0	10.7	9.4	8.0	6.7	5.3	4.0	2.7	1.3
77.5°	8.0	6.7	5.3	5.3	4.0	2.7	2.7	1.3	1.3	1.3	1.3
80°	4.0	2.7	1.3	1.3	1.3	1.3	0.0	0.0	0.0	0.0	1.3
82.5°	1.3	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: P644098

CATALOG NUMBER: ML5615LSWW9FS1E - 592SC WW - 1200LM - 3500K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0
2.5°	405.0	405.0	405.0	405.0	405.0	405.0	405.0	405.0
5°	403.6	403.6	402.3	403.6	402.3	402.3	402.3	403.6
7.5°	399.6	399.6	399.6	399.6	399.6	399.6	399.6	399.6
10°	394.3	394.3	394.3	395.6	395.6	395.6	394.3	395.6
12.5°	388.9	388.9	388.9	390.3	388.9	390.3	388.9	390.3
15°	382.3	382.3	383.6	383.6	382.3	382.3	383.6	383.6
17.5°	372.9	374.2	374.2	374.2	374.2	374.2	374.2	375.6
20°	364.9	364.9	363.6	364.9	364.9	366.2	366.2	364.9
22.5°	351.5	354.2	354.2	354.2	354.2	354.2	354.2	354.2
25°	340.8	340.8	340.8	342.2	340.8	340.8	342.2	340.8
27.5°	327.5	328.8	327.5	328.8	328.8	328.8	328.8	328.8
30°	314.1	314.1	314.1	314.1	314.1	315.4	314.1	314.1
32.5°	298.1	299.4	299.4	299.4	300.7	299.4	299.4	300.7
35°	283.4	283.4	283.4	284.7	283.4	284.7	284.7	283.4
37.5°	266.0	267.3	266.0	267.3	267.3	267.3	267.3	267.3
40°	249.9	248.6	249.9	248.6	249.9	249.9	249.9	248.6
42.5°	229.9	231.2	231.2	231.2	231.2	231.2	231.2	229.9
45°	209.8	211.2	211.2	211.2	211.2	211.2	212.5	212.5
47.5°	188.5	191.1	191.1	191.1	189.8	192.5	191.1	191.1
50°	167.1	167.1	168.4	168.4	169.7	169.7	169.7	169.7
52.5°	145.7	144.4	145.7	145.7	147.0	145.7	147.0	145.7
55°	121.6	121.6	121.6	120.3	121.6	121.6	121.6	121.6
57.5°	100.2	98.9	97.6	96.2	96.2	96.2	94.9	96.2
60°	77.5	74.8	76.2	73.5	72.2	70.8	70.8	69.5
62.5°	57.5	54.8	53.5	52.1	49.5	46.8	46.8	45.4
65°	38.8	36.1	34.8	32.1	30.7	29.4	28.1	28.1
67.5°	24.1	21.4	21.4	20.0	18.7	17.4	16.0	16.0
70°	13.4	12.0	10.7	9.4	9.4	8.0	6.7	6.7
72.5°	5.3	4.0	4.0	2.7	2.7	2.7	2.7	1.3
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report



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Scaled Data Report





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

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(END OF REPORT)