

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: P644115

Luminaire Tested: ML5615LSWW9FS1E - 592W WW - 1200LM - 5000K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P644115  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-116)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 2/17/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML5615LSWW9FS1E - 592W WW - 1200LM - 5000K  
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH WHITE TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 903.7 lumens  
Efficiency: N/A  
Efficacy: 67.4 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.13 / 1.23  
Luminous Opening: Circular (Dia: 0.42' x H: 0')  
CIE Type: Direct

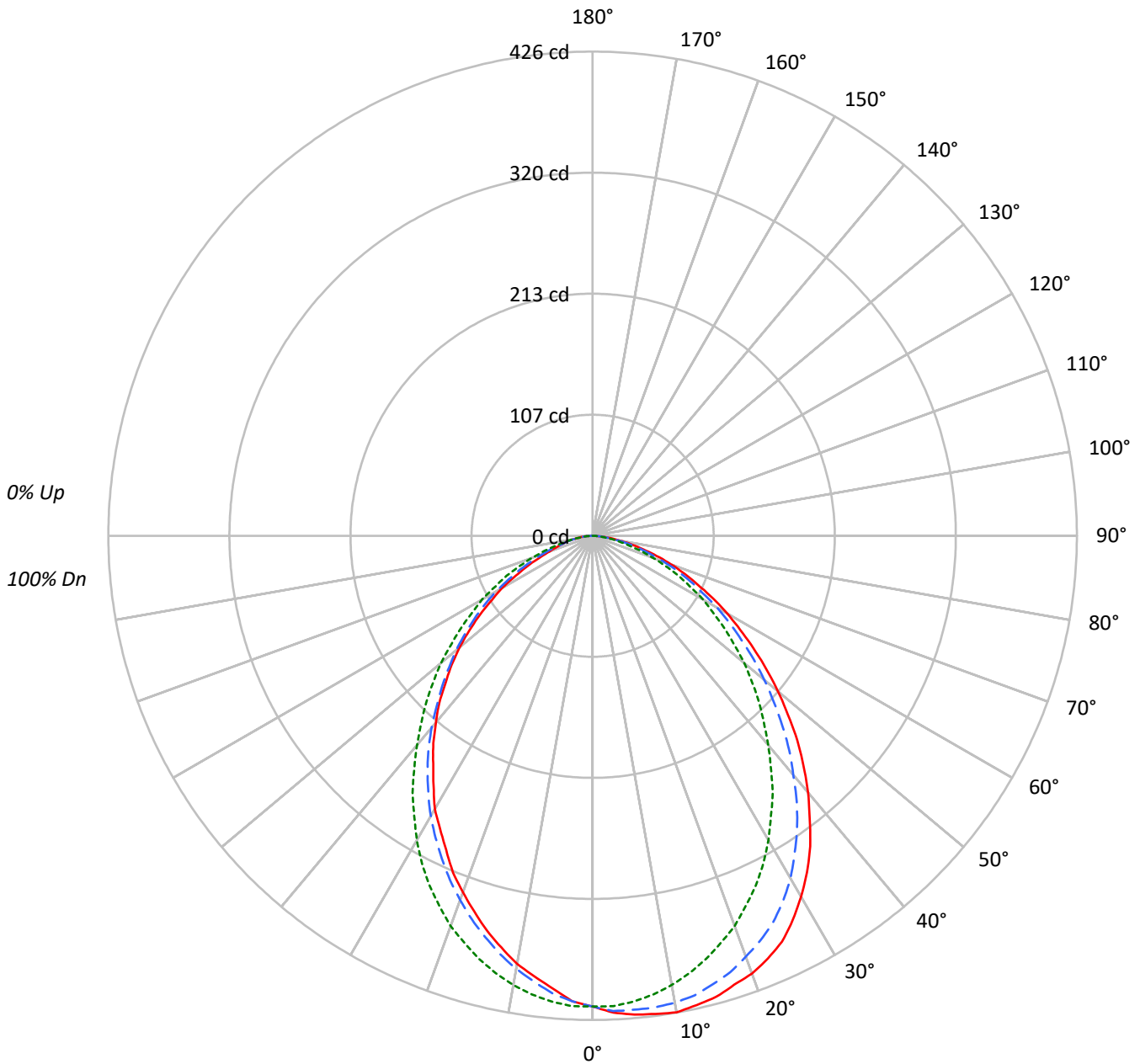
Input Watts (W): 13.4  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



TEST NUMBER: P644115

CATALOG NUMBER: ML5615LSWW9FS1E - 592W WW - 1200LM - 5000K

### 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				
1	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	88	86				
2	101	94	88	82	99	92	86	81	88	84	80	85	81	78	82	79	76	74				
3	93	83	76	70	91	82	75	69	79	73	68	76	71	67	74	69	66	64				
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	57	55				
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49				
6	73	61	53	46	72	60	52	46	58	51	46	57	50	45	55	49	45	43				
7	68	56	47	41	67	55	47	41	53	46	41	52	45	41	51	45	40	39				
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37	35				
9	60	47	39	34	58	46	39	34	45	38	34	44	38	33	43	37	33	32				
10	56	43	36	31	55	43	36	31	42	35	31	41	35	31	40	35	30	29				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	32697	32697	32697	32697	32697
5°	33512	33171	32600	32030	31689
10°	34132	33434	32168	31013	30669
15°	34325	33385	31505	29854	29389
20°	34435	33107	30688	28638	28033
25°	34327	32698	29571	27315	26557
30°	33435	31730	28185	25960	25304
35°	32158	30221	26617	24401	23562
40°	30389	28308	24753	22681	22084
45°	28423	26336	23121	20877	20397
50°	26146	24206	21369	19257	18729
55°	23755	21979	19406	17424	16626
60°	21567	19988	17714	15441	14541
65°	19071	17726	15578	13169	11824
70°	16941	15279	12948	10617	9302
75°	14030	12719	10096	8327	8327
80°	11138	9819	7865	7183	7183
85°	6521	6521	5253	6521	6521

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 28423 cd/sqm



TEST NUMBER: P644115

CATALOG NUMBER: ML5615LSWW9FS1E - 592W WW - 1200LM - 5000K

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	39.0	4.3
10°-20°	109.1	12.1
20°-30°	158.3	17.5
30°-40°	176.6	19.5
40°-50°	163.7	18.1
50°-60°	128.7	14.2
60°-70°	82.4	9.1
70°-80°	37.8	4.2
80°-90°	8.2	0.9
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°	306.4	33.9
0°-40°	482.9	53.4
0°-60°	775.4	85.8
0°-90°	903.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	903.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	414	414	414	414	414	
5°	423	419	411	404	400	40
15°	420	408	386	365	360	118
25°	394	375	340	314	305	181
35°	334	314	276	253	244	208
45°	255	236	207	187	183	196
55°	173	160	141	127	121	155
65°	102	95	83	70	63	102
75°	46	42	33	27	27	50
85°	7	7	6	7	7	10
90°	0	0	0	0	0	



TEST NUMBER: P644115

CATALOG NUMBER: ML5615LSWW9FS1E - 592W WW - 1200LM - 5000K

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	414.2	414.2	414.2	414.2	414.2	414.2	414.2	414.2	414.2	414.2	414.2
2.5°	420.0	420.0	420.0	420.0	420.0	420.0	418.6	418.6	418.6	418.6	418.6
5°	422.9	422.9	422.9	422.9	421.4	421.4	421.4	421.4	420.0	420.0	418.6
7.5°	424.3	424.3	424.3	422.9	422.9	422.9	421.4	421.4	421.4	420.0	418.6
10°	425.8	424.3	424.3	422.9	422.9	422.9	421.4	421.4	420.0	418.6	417.1
12.5°	422.9	422.9	422.9	422.9	421.4	421.4	420.0	418.6	417.1	415.7	414.2
15°	420.0	420.0	420.0	418.6	417.1	417.1	415.7	414.2	412.8	411.4	408.5
17.5°	414.2	415.7	414.2	414.2	412.8	412.8	411.4	409.9	407.1	405.6	402.7
20°	409.9	408.5	408.5	408.5	407.1	405.6	404.2	402.7	399.9	398.4	394.1
22.5°	402.7	402.7	401.3	399.9	398.4	398.4	397.0	394.1	392.7	389.8	385.5
25°	394.1	392.7	392.7	391.2	389.8	389.8	386.9	385.5	382.6	378.3	375.4
27.5°	381.2	381.2	381.2	379.7	378.3	376.9	375.4	372.5	371.1	365.3	362.5
30°	366.8	366.8	365.3	365.3	362.5	362.5	361.0	358.2	355.3	351.0	348.1
32.5°	351.0	351.0	351.0	348.1	346.6	345.2	343.8	342.3	338.0	333.7	330.8
35°	333.7	333.7	332.3	330.8	329.4	327.9	326.5	323.6	320.8	317.9	313.6
37.5°	313.6	315.0	313.6	312.1	310.7	309.2	307.8	306.4	302.1	299.2	294.9
40°	294.9	294.9	293.4	292.0	290.5	290.5	289.1	286.2	283.4	279.0	274.7
42.5°	274.7	274.7	273.3	271.9	271.9	270.4	267.5	266.1	263.2	260.3	256.0
45°	254.6	253.2	251.7	251.7	250.3	248.8	248.8	246.0	243.1	238.8	235.9
47.5°	233.0	233.0	231.6	231.6	230.1	228.7	228.7	225.8	221.5	218.6	215.8
50°	212.9	212.9	211.4	211.4	210.0	208.6	207.1	205.7	202.8	199.9	197.1
52.5°	192.7	192.7	192.7	189.9	188.4	188.4	188.4	185.5	184.1	181.2	178.4
55°	172.6	172.6	172.6	171.2	169.7	169.7	169.7	166.9	165.4	162.5	159.7
57.5°	153.9	153.9	153.9	152.5	152.5	151.0	149.6	148.2	146.7	145.3	142.4
60°	136.6	136.6	135.2	133.8	135.2	133.8	132.3	130.9	129.5	128.0	126.6
62.5°	119.4	119.4	119.4	117.9	116.5	116.5	116.5	115.1	112.2	110.8	109.3
65°	102.1	102.1	102.1	102.1	100.7	100.7	99.2	97.8	97.8	96.4	94.9
67.5°	87.7	87.7	86.3	86.3	84.9	84.9	84.9	83.4	82.0	82.0	80.5
70°	73.4	71.9	71.9	71.9	70.5	70.5	70.5	69.0	69.0	67.6	66.2
72.5°	59.0	59.0	59.0	59.0	57.5	57.5	56.1	56.1	54.7	54.7	53.2
75°	46.0	46.0	46.0	46.0	44.6	44.6	44.6	44.6	43.2	43.2	41.7
77.5°	34.5	34.5	34.5	34.5	34.5	34.5	33.1	33.1	33.1	31.6	31.6
80°	24.5	24.5	24.5	24.5	23.0	23.0	23.0	23.0	23.0	21.6	21.6
82.5°	15.8	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	12.9
85°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
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



TEST NUMBER: P644115

CATALOG NUMBER: ML5615LSWW9FS1E - 592W WW - 1200LM - 5000K

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	414.2	414.2	414.2	414.2	414.2	414.2	414.2	414.2	414.2	414.2	414.2
2.5°	417.1	417.1	417.1	417.1	415.7	415.7	415.7	414.2	414.2	414.2	414.2
5°	418.6	418.6	415.7	415.7	415.7	415.7	414.2	414.2	412.8	411.4	409.9
7.5°	417.1	417.1	415.7	414.2	412.8	412.8	411.4	409.9	408.5	407.1	405.6
10°	415.7	414.2	412.8	411.4	409.9	408.5	407.1	405.6	402.7	401.3	399.9
12.5°	412.8	409.9	408.5	405.6	405.6	404.2	401.3	399.9	397.0	394.1	392.7
15°	407.1	404.2	401.3	398.4	398.4	395.6	392.7	391.2	388.4	385.5	382.6
17.5°	399.9	397.0	394.1	391.2	389.8	386.9	384.0	381.2	378.3	375.4	372.5
20°	392.7	388.4	385.5	381.2	379.7	378.3	374.0	371.1	368.2	365.3	361.0
22.5°	382.6	379.7	374.0	371.1	369.7	366.8	363.9	359.6	355.3	352.4	349.5
25°	371.1	368.2	363.9	359.6	356.7	355.3	351.0	346.6	343.8	339.5	336.6
27.5°	358.2	353.8	351.0	345.2	343.8	340.9	336.6	332.3	329.4	325.1	320.8
30°	343.8	339.5	335.1	330.8	327.9	326.5	322.2	317.9	313.6	309.2	306.4
32.5°	326.5	322.2	317.9	315.0	310.7	307.8	304.9	300.6	296.3	292.0	289.1
35°	309.2	304.9	300.6	296.3	293.4	293.4	287.7	283.4	279.0	276.2	271.9
37.5°	290.5	286.2	281.9	277.6	276.2	273.3	269.0	264.7	261.8	257.5	254.6
40°	271.9	266.1	263.2	258.9	257.5	254.6	251.7	247.4	244.5	240.2	237.3
42.5°	251.7	248.8	244.5	241.6	238.8	237.3	233.0	228.7	225.8	222.9	221.5
45°	233.0	228.7	224.4	221.5	220.1	217.2	215.8	211.4	208.6	207.1	204.2
47.5°	212.9	210.0	207.1	202.8	201.4	199.9	197.1	195.6	192.7	189.9	187.0
50°	194.2	191.3	188.4	185.5	184.1	184.1	179.8	176.9	175.5	174.0	171.2
52.5°	175.5	172.6	169.7	166.9	166.9	165.4	162.5	161.1	159.7	156.8	153.9
55°	158.2	155.3	152.5	151.0	149.6	149.6	146.7	145.3	142.4	141.0	139.5
57.5°	141.0	138.1	136.6	135.2	133.8	133.8	130.9	129.5	128.0	125.1	125.1
60°	125.1	122.3	120.8	119.4	117.9	116.5	116.5	113.6	112.2	112.2	109.3
62.5°	107.9	106.4	105.0	103.6	102.1	102.1	100.7	99.2	97.8	96.4	94.9
65°	93.5	92.1	90.6	89.2	87.7	87.7	86.3	84.9	83.4	83.4	80.5
67.5°	79.1	77.7	76.2	74.8	74.8	73.4	71.9	71.9	70.5	69.0	67.6
70°	64.7	64.7	63.3	61.8	61.8	60.4	59.0	59.0	57.5	56.1	54.7
72.5°	53.2	51.8	50.3	50.3	48.9	48.9	47.5	47.5	46.0	44.6	43.2
75°	40.3	38.8	38.8	38.8	37.4	37.4	37.4	36.0	34.5	33.1	33.1
77.5°	30.2	30.2	28.8	27.3	27.3	27.3	25.9	25.9	25.9	24.5	24.5
80°	21.6	20.1	20.1	18.7	18.7	18.7	18.7	17.3	17.3	17.3	15.8
82.5°	12.9	12.9	12.9	11.5	11.5	11.5	11.5	11.5	10.1	10.1	10.1
85°	7.2	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	1.4	1.4	1.4	1.4	1.4	1.4	1.4	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: P644115

CATALOG NUMBER: ML5615LSWW9FS1E - 592W WW - 1200LM - 5000K

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	414.2	414.2	414.2	414.2	414.2	414.2	414.2	414.2	414.2	414.2	414.2
2.5°	412.8	412.8	411.4	411.4	411.4	411.4	411.4	409.9	409.9	409.9	409.9
5°	409.9	408.5	407.1	407.1	407.1	405.6	405.6	404.2	404.2	402.7	402.7
7.5°	404.2	402.7	401.3	401.3	399.9	399.9	397.0	397.0	395.6	394.1	394.1
10°	397.0	395.6	394.1	392.7	392.7	389.8	389.8	388.4	386.9	385.5	385.5
12.5°	389.8	388.4	385.5	384.0	384.0	382.6	379.7	378.3	376.9	375.4	374.0
15°	379.7	378.3	375.4	374.0	372.5	371.1	369.7	368.2	365.3	363.9	363.9
17.5°	369.7	368.2	363.9	362.5	362.5	359.6	358.2	355.3	353.8	352.4	351.0
20°	358.2	355.3	352.4	351.0	349.5	346.6	345.2	343.8	340.9	339.5	338.0
22.5°	345.2	342.3	339.5	338.0	336.6	333.7	332.3	329.4	327.9	326.5	325.1
25°	332.3	329.4	326.5	325.1	322.2	320.8	317.9	315.0	313.6	312.1	310.7
27.5°	317.9	315.0	310.7	309.2	307.8	306.4	303.5	300.6	299.2	296.3	296.3
30°	302.1	299.2	296.3	294.9	293.4	290.5	289.1	286.2	284.8	281.9	281.9
32.5°	286.2	281.9	279.0	277.6	276.2	274.7	271.9	270.4	269.0	267.5	266.1
35°	269.0	266.1	263.2	261.8	260.3	257.5	256.0	254.6	253.2	250.3	250.3
37.5°	251.7	248.8	246.0	244.5	244.5	241.6	240.2	237.3	237.3	234.5	234.5
40°	234.5	231.6	228.7	228.7	227.3	224.4	222.9	221.5	220.1	218.6	218.6
42.5°	218.6	214.3	212.9	212.9	210.0	208.6	207.1	205.7	202.8	202.8	202.8
45°	201.4	198.5	197.1	195.6	194.2	192.7	191.3	188.4	187.0	185.5	185.5
47.5°	185.5	182.7	181.2	179.8	178.4	176.9	175.5	174.0	171.2	171.2	169.7
50°	169.7	166.9	165.4	164.0	162.5	161.1	159.7	158.2	156.8	155.3	153.9
52.5°	152.5	151.0	149.6	148.2	148.2	145.3	143.8	142.4	141.0	141.0	138.1
55°	138.1	136.6	135.2	133.8	132.3	130.9	129.5	128.0	126.6	125.1	123.7
57.5°	122.3	120.8	119.4	119.4	117.9	116.5	115.1	113.6	112.2	110.8	109.3
60°	107.9	106.4	105.0	105.0	103.6	102.1	100.7	100.7	97.8	96.4	94.9
62.5°	93.5	92.1	90.6	90.6	89.2	89.2	87.7	86.3	83.4	83.4	82.0
65°	80.5	79.1	77.7	76.2	76.2	74.8	73.4	71.9	70.5	70.5	69.0
67.5°	67.6	66.2	64.7	64.7	63.3	61.8	60.4	59.0	57.5	57.5	56.1
70°	54.7	53.2	51.8	51.8	50.3	48.9	48.9	47.5	46.0	44.6	44.6
72.5°	41.7	41.7	40.3	40.3	38.8	38.8	37.4	36.0	36.0	34.5	33.1
75°	31.6	31.6	30.2	30.2	28.8	28.8	27.3	27.3	27.3	25.9	27.3
77.5°	23.0	23.0	21.6	21.6	21.6	20.1	20.1	20.1	21.6	21.6	21.6
80°	15.8	15.8	15.8	15.8	14.4	14.4	15.8	15.8	15.8	15.8	15.8
82.5°	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	11.5	11.5	11.5
85°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	7.2	7.2	7.2	7.2
87.5°	2.9	2.9	2.9	2.9	2.9	2.9	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: P644115

CATALOG NUMBER: ML5615LSWW9FS1E - 592W WW - 1200LM - 5000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	414.2	414.2	414.2	414.2	414.2	414.2	414.2	414.2
2.5°	408.5	408.5	408.5	408.5	408.5	408.5	408.5	409.9
5°	401.3	401.3	401.3	401.3	401.3	401.3	401.3	399.9
7.5°	394.1	392.7	392.7	392.7	392.7	391.2	391.2	391.2
10°	384.0	384.0	382.6	382.6	382.6	382.6	381.2	382.6
12.5°	374.0	372.5	372.5	372.5	371.1	371.1	371.1	371.1
15°	362.5	361.0	361.0	361.0	359.6	359.6	359.6	359.6
17.5°	349.5	349.5	348.1	348.1	346.6	346.6	346.6	346.6
20°	336.6	336.6	336.6	335.1	335.1	335.1	333.7	333.7
22.5°	323.6	322.2	320.8	322.2	320.8	319.3	320.8	320.8
25°	309.2	307.8	306.4	306.4	306.4	306.4	304.9	304.9
27.5°	294.9	292.0	292.0	292.0	292.0	290.5	290.5	290.5
30°	280.5	279.0	279.0	277.6	276.2	276.2	276.2	277.6
32.5°	264.7	263.2	261.8	261.8	261.8	261.8	260.3	260.3
35°	248.8	248.8	247.4	247.4	247.4	246.0	246.0	244.5
37.5°	233.0	233.0	231.6	231.6	231.6	230.1	230.1	230.1
40°	217.2	215.8	215.8	217.2	215.8	215.8	214.3	214.3
42.5°	201.4	201.4	199.9	199.9	199.9	199.9	198.5	199.9
45°	184.1	184.1	184.1	184.1	184.1	184.1	182.7	182.7
47.5°	169.7	168.3	168.3	168.3	168.3	168.3	168.3	168.3
50°	153.9	152.5	152.5	152.5	152.5	152.5	152.5	152.5
52.5°	138.1	136.6	136.6	136.6	136.6	136.6	136.6	136.6
55°	123.7	122.3	122.3	120.8	122.3	120.8	120.8	120.8
57.5°	109.3	107.9	106.4	107.9	106.4	106.4	106.4	105.0
60°	94.9	93.5	93.5	93.5	92.1	90.6	90.6	92.1
62.5°	80.5	80.5	79.1	79.1	77.7	76.2	76.2	76.2
65°	67.6	66.2	66.2	64.7	64.7	63.3	63.3	63.3
67.5°	54.7	54.7	53.2	53.2	51.8	51.8	51.8	50.3
70°	43.2	43.2	41.7	41.7	41.7	40.3	40.3	40.3
72.5°	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1
75°	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3
77.5°	21.6	21.6	21.6	21.6	21.6	21.6	21.6	23.0
80°	15.8	15.8	17.3	15.8	17.3	15.8	15.8	15.8
82.5°	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
85°	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	2.9	2.9	2.9
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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— 0°-180°    - - 45°-225°    - - - - 90°-270°

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(END OF REPORT)