

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: P644111

Luminaire Tested: ML5615LSWW9FS1E - 592W WW - 1200LM - 2700K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P644111  
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 - 2700K  
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH WHITE TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 794.6 lumens  
Efficiency: N/A  
Efficacy: 59.3 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

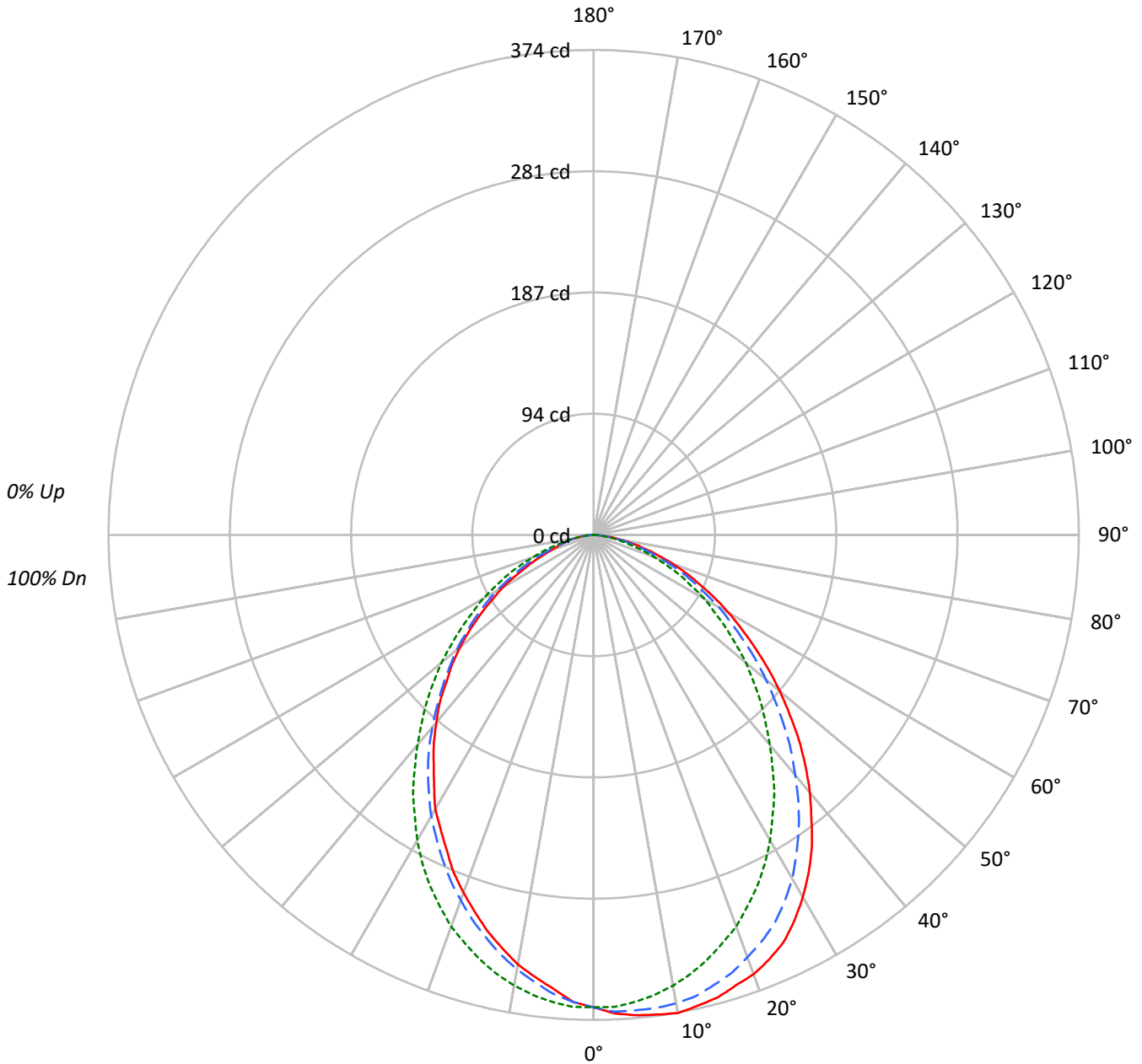
Input Watts (W): 13.4  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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					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°	28758	28758	28758	28758	28758
5°	29462	29161	28662	28163	27862
10°	30011	29402	28288	27270	26965
15°	30181	29356	27705	26258	25842
20°	30285	29108	26992	25177	24648
25°	30181	28752	26000	24014	23352
30°	29397	27902	24785	22825	22250
35°	28275	26569	23398	21452	20719
40°	26721	24897	21764	19940	19425
45°	24996	23154	20330	18354	17929
50°	22990	21283	18790	16936	16469
55°	20892	19323	17052	15318	14616
60°	18977	17572	15583	13578	12773
65°	16774	15597	13710	11581	10386
70°	14887	13433	11379	9348	8171
75°	12353	11194	8876	7320	7320
80°	9774	8637	6910	6319	6319
85°	5706	5706	4619	5706	5706

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 24996 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	34.3	4.3
10°-20°	95.9	12.1
20°-30°	139.2	17.5
30°-40°	155.3	19.5
40°-50°	144.0	18.1
50°-60°	113.2	14.2
60°-70°	72.4	9.1
70°-80°	33.2	4.2
80°-90°	7.2	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°	269.4	33.9
0°-40°	424.6	53.4
0°-60°	681.8	85.8
0°-90°	794.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	794.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	364	364	364	364	364	
5°	372	368	362	355	352	36
15°	369	359	339	321	316	104
25°	346	330	298	276	268	159
35°	293	276	243	223	215	183
45°	224	207	182	164	161	172
55°	152	140	124	111	106	136
65°	90	84	73	62	56	90
75°	40	37	29	24	24	44
85°	6	6	5	6	6	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°	364.3	364.3	364.3	364.3	364.3	364.3	364.3	364.3	364.3	364.3	364.3
2.5°	369.3	369.3	369.3	369.3	369.3	369.3	368.0	368.0	368.0	368.0	368.0
5°	371.8	371.8	371.8	371.8	370.6	370.6	370.6	370.6	369.3	369.3	368.0
7.5°	373.1	373.1	373.1	371.8	371.8	371.8	370.6	370.6	370.6	369.3	368.0
10°	374.4	373.1	373.1	371.8	371.8	371.8	370.6	370.6	369.3	368.0	366.8
12.5°	371.8	371.8	371.8	371.8	370.6	370.6	369.3	368.0	366.8	365.5	364.3
15°	369.3	369.3	369.3	368.0	366.8	366.8	365.5	364.3	363.0	361.7	359.2
17.5°	364.3	365.5	364.3	364.3	363.0	363.0	361.7	360.5	357.9	356.7	354.1
20°	360.5	359.2	359.2	359.2	357.9	356.7	355.4	354.1	351.6	350.3	346.5
22.5°	354.1	354.1	352.9	351.6	350.3	350.3	349.1	346.5	345.3	342.8	339.0
25°	346.5	345.3	345.3	344.0	342.8	342.8	340.2	339.0	336.4	332.6	330.1
27.5°	335.2	335.2	335.2	333.9	332.6	331.4	330.1	327.6	326.3	321.3	318.7
30°	322.5	322.5	321.3	321.3	318.7	318.7	317.5	314.9	312.4	308.6	306.1
32.5°	308.6	308.6	308.6	306.1	304.8	303.5	302.3	301.0	297.2	293.4	290.9
35°	293.4	293.4	292.2	290.9	289.6	288.4	287.1	284.6	282.0	279.5	275.7
37.5°	275.7	277.0	275.7	274.5	273.2	271.9	270.7	269.4	265.6	263.1	259.3
40°	259.3	259.3	258.0	256.7	255.5	255.5	254.2	251.7	249.2	245.4	241.6
42.5°	241.6	241.6	240.3	239.0	239.0	237.8	235.2	234.0	231.5	228.9	225.1
45°	223.9	222.6	221.3	221.3	220.1	218.8	218.8	216.3	213.7	210.0	207.4
47.5°	204.9	204.9	203.6	203.6	202.4	201.1	201.1	198.6	194.8	192.2	189.7
50°	187.2	187.2	185.9	185.9	184.7	183.4	182.1	180.9	178.3	175.8	173.3
52.5°	169.5	169.5	169.5	166.9	165.7	165.7	165.7	163.2	161.9	159.4	156.8
55°	151.8	151.8	151.8	150.5	149.2	149.2	149.2	146.7	145.4	142.9	140.4
57.5°	135.3	135.3	135.3	134.1	134.1	132.8	131.5	130.3	129.0	127.7	125.2
60°	120.2	120.2	118.9	117.6	118.9	117.6	116.4	115.1	113.8	112.6	111.3
62.5°	105.0	105.0	105.0	103.7	102.4	102.4	102.4	101.2	98.7	97.4	96.1
65°	89.8	89.8	89.8	89.8	88.5	88.5	87.3	86.0	86.0	84.7	83.5
67.5°	77.2	77.2	75.9	75.9	74.6	74.6	74.6	73.4	72.1	72.1	70.8
70°	64.5	63.2	63.2	63.2	62.0	62.0	62.0	60.7	60.7	59.4	58.2
72.5°	51.9	51.9	51.9	51.9	50.6	50.6	49.3	49.3	48.1	48.1	46.8
75°	40.5	40.5	40.5	40.5	39.2	39.2	39.2	39.2	37.9	37.9	36.7
77.5°	30.4	30.4	30.4	30.4	30.4	30.4	29.1	29.1	29.1	27.8	27.8
80°	21.5	21.5	21.5	21.5	20.2	20.2	20.2	20.2	20.2	19.0	19.0
82.5°	13.9	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	11.4
85°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
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°	364.3	364.3	364.3	364.3	364.3	364.3	364.3	364.3	364.3	364.3	364.3
2.5°	366.8	366.8	366.8	366.8	365.5	365.5	365.5	364.3	364.3	364.3	364.3
5°	368.0	368.0	365.5	365.5	365.5	365.5	364.3	364.3	363.0	361.7	360.5
7.5°	366.8	366.8	365.5	364.3	363.0	363.0	361.7	360.5	359.2	357.9	356.7
10°	365.5	364.3	363.0	361.7	360.5	359.2	357.9	356.7	354.1	352.9	351.6
12.5°	363.0	360.5	359.2	356.7	356.7	355.4	352.9	351.6	349.1	346.5	345.3
15°	357.9	355.4	352.9	350.3	350.3	347.8	345.3	344.0	341.5	339.0	336.4
17.5°	351.6	349.1	346.5	344.0	342.8	340.2	337.7	335.2	332.6	330.1	327.6
20°	345.3	341.5	339.0	335.2	333.9	332.6	328.8	326.3	323.8	321.3	317.5
22.5°	336.4	333.9	328.8	326.3	325.0	322.5	320.0	316.2	312.4	309.9	307.3
25°	326.3	323.8	320.0	316.2	313.7	312.4	308.6	304.8	302.3	298.5	296.0
27.5°	314.9	311.1	308.6	303.5	302.3	299.7	296.0	292.2	289.6	285.8	282.0
30°	302.3	298.5	294.7	290.9	288.4	287.1	283.3	279.5	275.7	271.9	269.4
32.5°	287.1	283.3	279.5	277.0	273.2	270.7	268.1	264.3	260.5	256.7	254.2
35°	271.9	268.1	264.3	260.5	258.0	258.0	253.0	249.2	245.4	242.8	239.0
37.5°	255.5	251.7	247.9	244.1	242.8	240.3	236.5	232.7	230.2	226.4	223.9
40°	239.0	234.0	231.5	227.7	226.4	223.9	221.3	217.5	215.0	211.2	208.7
42.5°	221.3	218.8	215.0	212.5	210.0	208.7	204.9	201.1	198.6	196.0	194.8
45°	204.9	201.1	197.3	194.8	193.5	191.0	189.7	185.9	183.4	182.1	179.6
47.5°	187.2	184.7	182.1	178.3	177.1	175.8	173.3	172.0	169.5	166.9	164.4
50°	170.7	168.2	165.7	163.2	161.9	161.9	158.1	155.6	154.3	153.0	150.5
52.5°	154.3	151.8	149.2	146.7	146.7	145.4	142.9	141.7	140.4	137.9	135.3
55°	139.1	136.6	134.1	132.8	131.5	131.5	129.0	127.7	125.2	123.9	122.7
57.5°	123.9	121.4	120.2	118.9	117.6	117.6	115.1	113.8	112.6	110.0	110.0
60°	110.0	107.5	106.2	105.0	103.7	102.4	102.4	99.9	98.7	98.7	96.1
62.5°	94.9	93.6	92.3	91.1	89.8	89.8	88.5	87.3	86.0	84.7	83.5
65°	82.2	80.9	79.7	78.4	77.2	77.2	75.9	74.6	73.4	73.4	70.8
67.5°	69.6	68.3	67.0	65.8	65.8	64.5	63.2	63.2	62.0	60.7	59.4
70°	56.9	56.9	55.6	54.4	54.4	53.1	51.9	51.9	50.6	49.3	48.1
72.5°	46.8	45.5	44.3	44.3	43.0	43.0	41.7	41.7	40.5	39.2	37.9
75°	35.4	34.1	34.1	34.1	32.9	32.9	32.9	31.6	30.4	29.1	29.1
77.5°	26.6	26.6	25.3	24.0	24.0	24.0	22.8	22.8	22.8	21.5	21.5
80°	19.0	17.7	17.7	16.4	16.4	16.4	16.4	15.2	15.2	15.2	13.9
82.5°	11.4	11.4	11.4	10.1	10.1	10.1	10.1	10.1	8.9	8.9	8.9
85°	6.3	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.5	2.5
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°	364.3	364.3	364.3	364.3	364.3	364.3	364.3	364.3	364.3	364.3	364.3
2.5°	363.0	363.0	361.7	361.7	361.7	361.7	361.7	360.5	360.5	360.5	360.5
5°	360.5	359.2	357.9	357.9	357.9	356.7	356.7	355.4	355.4	354.1	354.1
7.5°	355.4	354.1	352.9	352.9	351.6	351.6	349.1	349.1	347.8	346.5	346.5
10°	349.1	347.8	346.5	345.3	345.3	342.8	342.8	341.5	340.2	339.0	339.0
12.5°	342.8	341.5	339.0	337.7	337.7	336.4	333.9	332.6	331.4	330.1	328.8
15°	333.9	332.6	330.1	328.8	327.6	326.3	325.0	323.8	321.3	320.0	320.0
17.5°	325.0	323.8	320.0	318.7	318.7	316.2	314.9	312.4	311.1	309.9	308.6
20°	314.9	312.4	309.9	308.6	307.3	304.8	303.5	302.3	299.7	298.5	297.2
22.5°	303.5	301.0	298.5	297.2	296.0	293.4	292.2	289.6	288.4	287.1	285.8
25°	292.2	289.6	287.1	285.8	283.3	282.0	279.5	277.0	275.7	274.5	273.2
27.5°	279.5	277.0	273.2	271.9	270.7	269.4	266.9	264.3	263.1	260.5	260.5
30°	265.6	263.1	260.5	259.3	258.0	255.5	254.2	251.7	250.4	247.9	247.9
32.5°	251.7	247.9	245.4	244.1	242.8	241.6	239.0	237.8	236.5	235.2	234.0
35°	236.5	234.0	231.5	230.2	228.9	226.4	225.1	223.9	222.6	220.1	220.1
37.5°	221.3	218.8	216.3	215.0	215.0	212.5	211.2	208.7	208.7	206.2	206.2
40°	206.2	203.6	201.1	201.1	199.8	197.3	196.0	194.8	193.5	192.2	192.2
42.5°	192.2	188.5	187.2	187.2	184.7	183.4	182.1	180.9	178.3	178.3	178.3
45°	177.1	174.5	173.3	172.0	170.7	169.5	168.2	165.7	164.4	163.2	163.2
47.5°	163.2	160.6	159.4	158.1	156.8	155.6	154.3	153.0	150.5	150.5	149.2
50°	149.2	146.7	145.4	144.2	142.9	141.7	140.4	139.1	137.9	136.6	135.3
52.5°	134.1	132.8	131.5	130.3	130.3	127.7	126.5	125.2	123.9	123.9	121.4
55°	121.4	120.2	118.9	117.6	116.4	115.1	113.8	112.6	111.3	110.0	108.8
57.5°	107.5	106.2	105.0	105.0	103.7	102.4	101.2	99.9	98.7	97.4	96.1
60°	94.9	93.6	92.3	92.3	91.1	89.8	88.5	88.5	86.0	84.7	83.5
62.5°	82.2	80.9	79.7	79.7	78.4	78.4	77.2	75.9	73.4	73.4	72.1
65°	70.8	69.6	68.3	67.0	67.0	65.8	64.5	63.2	62.0	62.0	60.7
67.5°	59.4	58.2	56.9	56.9	55.6	54.4	53.1	51.9	50.6	50.6	49.3
70°	48.1	46.8	45.5	45.5	44.3	43.0	43.0	41.7	40.5	39.2	39.2
72.5°	36.7	36.7	35.4	35.4	34.1	34.1	32.9	31.6	31.6	30.4	29.1
75°	27.8	27.8	26.6	26.6	25.3	25.3	24.0	24.0	24.0	22.8	24.0
77.5°	20.2	20.2	19.0	19.0	19.0	17.7	17.7	17.7	19.0	19.0	19.0
80°	13.9	13.9	13.9	13.9	12.6	12.6	13.9	13.9	13.9	13.9	13.9
82.5°	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	10.1	10.1	10.1
85°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	6.3	6.3	6.3	6.3
87.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
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: P644111

CATALOG NUMBER: ML5615LSWW9FS1E - 592W WW - 1200LM - 2700K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	364.3	364.3	364.3	364.3	364.3	364.3	364.3	364.3
2.5°	359.2	359.2	359.2	359.2	359.2	359.2	359.2	360.5
5°	352.9	352.9	352.9	352.9	352.9	352.9	352.9	351.6
7.5°	346.5	345.3	345.3	345.3	345.3	344.0	344.0	344.0
10°	337.7	337.7	336.4	336.4	336.4	336.4	335.2	336.4
12.5°	328.8	327.6	327.6	327.6	326.3	326.3	326.3	326.3
15°	318.7	317.5	317.5	317.5	316.2	316.2	316.2	316.2
17.5°	307.3	307.3	306.1	306.1	304.8	304.8	304.8	304.8
20°	296.0	296.0	296.0	294.7	294.7	294.7	293.4	293.4
22.5°	284.6	283.3	282.0	283.3	282.0	280.8	282.0	282.0
25°	271.9	270.7	269.4	269.4	269.4	269.4	268.1	268.1
27.5°	259.3	256.7	256.7	256.7	256.7	255.5	255.5	255.5
30°	246.6	245.4	245.4	244.1	242.8	242.8	242.8	244.1
32.5°	232.7	231.5	230.2	230.2	230.2	230.2	228.9	228.9
35°	218.8	218.8	217.5	217.5	217.5	216.3	216.3	215.0
37.5°	204.9	204.9	203.6	203.6	203.6	202.4	202.4	202.4
40°	191.0	189.7	189.7	191.0	189.7	189.7	188.5	188.5
42.5°	177.1	177.1	175.8	175.8	175.8	175.8	174.5	175.8
45°	161.9	161.9	161.9	161.9	161.9	161.9	160.6	160.6
47.5°	149.2	148.0	148.0	148.0	148.0	148.0	148.0	148.0
50°	135.3	134.1	134.1	134.1	134.1	134.1	134.1	134.1
52.5°	121.4	120.2	120.2	120.2	120.2	120.2	120.2	120.2
55°	108.8	107.5	107.5	106.2	107.5	106.2	106.2	106.2
57.5°	96.1	94.9	93.6	94.9	93.6	93.6	93.6	92.3
60°	83.5	82.2	82.2	82.2	80.9	79.7	79.7	80.9
62.5°	70.8	70.8	69.6	69.6	68.3	67.0	67.0	67.0
65°	59.4	58.2	58.2	56.9	56.9	55.6	55.6	55.6
67.5°	48.1	48.1	46.8	46.8	45.5	45.5	45.5	44.3
70°	37.9	37.9	36.7	36.7	36.7	35.4	35.4	35.4
72.5°	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1
75°	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
77.5°	19.0	19.0	19.0	19.0	19.0	19.0	19.0	20.2
80°	13.9	13.9	15.2	13.9	15.2	13.9	13.9	13.9
82.5°	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1
85°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
87.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
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)