

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: P642308

Luminaire Tested: ML5612LSWW97FS1E - 592W WW - 900LM - 3500K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P642308  
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: ML5612LSWW97FS1E - 592W WW - 900LM - 3500K  
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH WHITE TRIM  
Light Source: (1) HCL SELECTABLE LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 724.3 lumens  
Efficiency: N/A  
Efficacy: 54.5 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

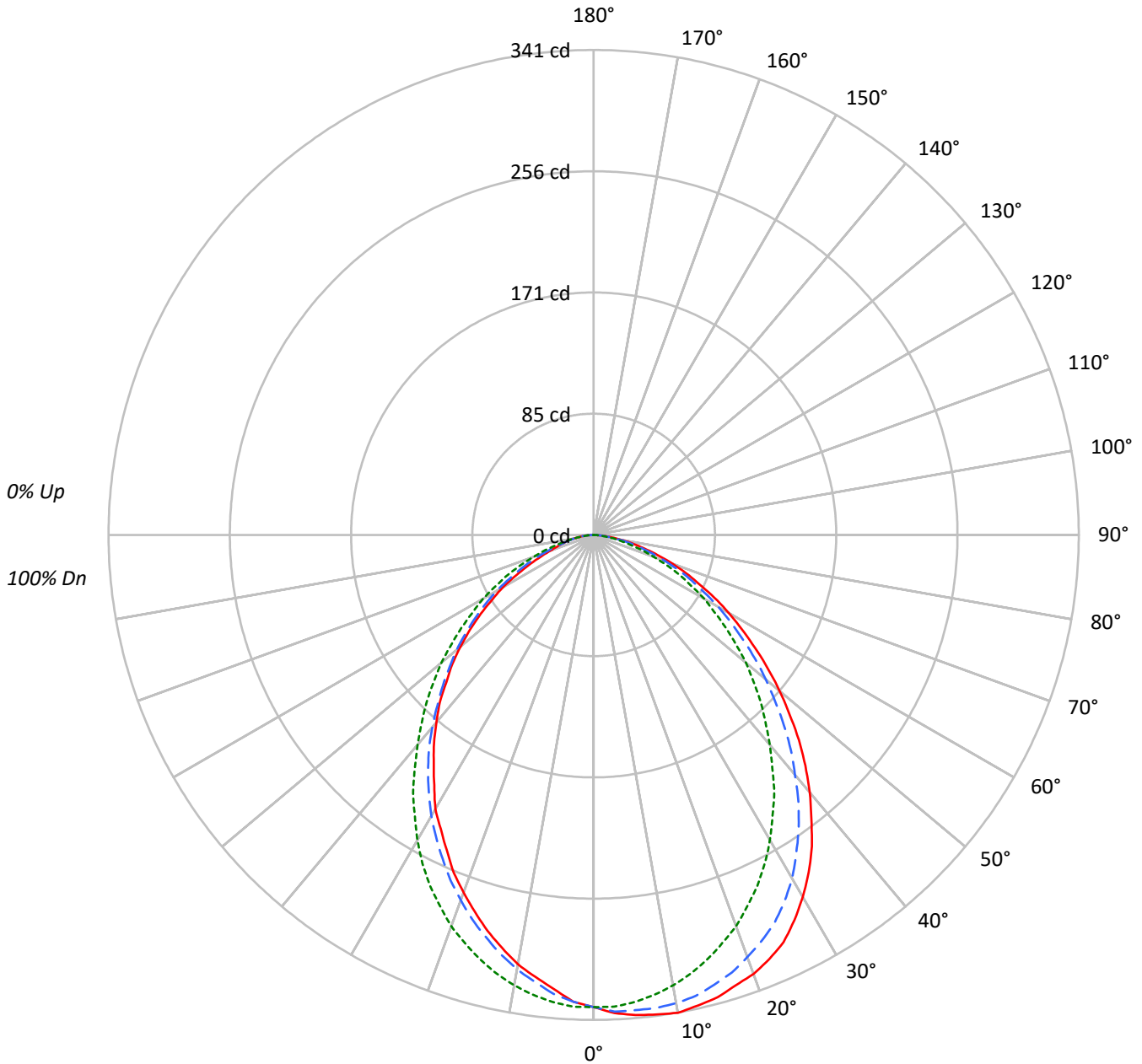
Input Watts (W): 13.3  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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								
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°	26208	26208	26208	26208	26208
5°	26855	26586	26126	25667	25397
10°	27350	26797	25779	24857	24577
15°	27509	26757	25245	23929	23553
20°	27596	26538	24597	22951	22464
25°	27515	26209	23700	21889	21288
30°	26799	25432	22588	20801	20282
35°	25769	24218	21326	19553	18888
40°	24351	22692	19837	18178	17704
45°	22774	21111	18532	16735	16344
50°	20951	19392	17132	15437	15007
55°	19034	17617	15552	13956	13323
60°	17288	16009	14194	12378	11652
65°	15279	14215	12496	10554	9470
70°	13571	12233	10386	8517	7455
75°	11255	10187	8083	6680	6680
80°	8910	7865	6274	5773	5773
85°	5253	5253	4166	5253	5253

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 22774 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	31.2	4.3
10°-20°	87.4	12.1
20°-30°	126.8	17.5
30°-40°	141.5	19.5
40°-50°	131.2	18.1
50°-60°	103.2	14.2
60°-70°	66.0	9.1
70°-80°	30.3	4.2
80°-90°	6.5	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°	245.5	33.9
0°-40°	387.0	53.4
0°-60°	621.4	85.8
0°-90°	724.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	724.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	332	332	332	332	332	
5°	339	336	330	324	320	32
15°	337	327	309	293	288	95
25°	316	301	272	251	244	145
35°	267	251	221	203	196	167
45°	204	189	166	150	146	157
55°	138	128	113	101	97	124
65°	82	76	67	56	51	82
75°	37	33	26	22	22	40
85°	6	6	5	6	6	8
90°	0	0	0	0	0	



TEST NUMBER: P642308

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	332.0	332.0	332.0	332.0	332.0	332.0	332.0	332.0	332.0	332.0	332.0
2.5°	336.6	336.6	336.6	336.6	336.6	336.6	335.5	335.5	335.5	335.5	335.5
5°	338.9	338.9	338.9	338.9	337.8	337.8	337.8	337.8	336.6	336.6	335.5
7.5°	340.1	340.1	340.1	338.9	338.9	338.9	337.8	337.8	337.8	336.6	335.5
10°	341.2	340.1	340.1	338.9	338.9	338.9	337.8	337.8	336.6	335.5	334.3
12.5°	338.9	338.9	338.9	338.9	337.8	337.8	336.6	335.5	334.3	333.1	332.0
15°	336.6	336.6	336.6	335.5	334.3	334.3	333.1	332.0	330.8	329.7	327.4
17.5°	332.0	333.1	332.0	332.0	330.8	330.8	329.7	328.5	326.2	325.1	322.8
20°	328.5	327.4	327.4	327.4	326.2	325.1	323.9	322.8	320.5	319.3	315.9
22.5°	322.8	322.8	321.6	320.5	319.3	319.3	318.2	315.9	314.7	312.4	308.9
25°	315.9	314.7	314.7	313.5	312.4	312.4	310.1	308.9	306.6	303.2	300.9
27.5°	305.5	305.5	305.5	304.3	303.2	302.0	300.9	298.6	297.4	292.8	290.5
30°	294.0	294.0	292.8	292.8	290.5	290.5	289.3	287.0	284.7	281.3	279.0
32.5°	281.3	281.3	281.3	279.0	277.8	276.7	275.5	274.4	270.9	267.4	265.1
35°	267.4	267.4	266.3	265.1	264.0	262.8	261.7	259.4	257.1	254.8	251.3
37.5°	251.3	252.5	251.3	250.1	249.0	247.8	246.7	245.5	242.1	239.8	236.3
40°	236.3	236.3	235.2	234.0	232.9	232.9	231.7	229.4	227.1	223.6	220.2
42.5°	220.2	220.2	219.0	217.9	217.9	216.7	214.4	213.3	211.0	208.6	205.2
45°	204.0	202.9	201.7	201.7	200.6	199.4	199.4	197.1	194.8	191.4	189.1
47.5°	186.7	186.7	185.6	185.6	184.4	183.3	183.3	181.0	177.5	175.2	172.9
50°	170.6	170.6	169.5	169.5	168.3	167.1	166.0	164.8	162.5	160.2	157.9
52.5°	154.5	154.5	154.5	152.2	151.0	151.0	151.0	148.7	147.6	145.2	142.9
55°	138.3	138.3	138.3	137.2	136.0	136.0	136.0	133.7	132.6	130.3	128.0
57.5°	123.3	123.3	123.3	122.2	122.2	121.0	119.9	118.7	117.6	116.4	114.1
60°	109.5	109.5	108.4	107.2	108.4	107.2	106.1	104.9	103.7	102.6	101.4
62.5°	95.7	95.7	95.7	94.5	93.4	93.4	93.4	92.2	89.9	88.8	87.6
65°	81.8	81.8	81.8	81.8	80.7	80.7	79.5	78.4	78.4	77.2	76.1
67.5°	70.3	70.3	69.2	69.2	68.0	68.0	68.0	66.9	65.7	65.7	64.6
70°	58.8	57.6	57.6	57.6	56.5	56.5	56.5	55.3	55.3	54.2	53.0
72.5°	47.3	47.3	47.3	47.3	46.1	46.1	45.0	45.0	43.8	43.8	42.7
75°	36.9	36.9	36.9	36.9	35.7	35.7	35.7	35.7	34.6	34.6	33.4
77.5°	27.7	27.7	27.7	27.7	27.7	27.7	26.5	26.5	26.5	25.4	25.4
80°	19.6	19.6	19.6	19.6	18.4	18.4	18.4	18.4	18.4	17.3	17.3
82.5°	12.7	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	10.4
85°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
87.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
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°	332.0	332.0	332.0	332.0	332.0	332.0	332.0	332.0	332.0	332.0	332.0
2.5°	334.3	334.3	334.3	334.3	333.1	333.1	333.1	332.0	332.0	332.0	332.0
5°	335.5	335.5	333.1	333.1	333.1	333.1	332.0	332.0	330.8	329.7	328.5
7.5°	334.3	334.3	333.1	332.0	330.8	330.8	329.7	328.5	327.4	326.2	325.1
10°	333.1	332.0	330.8	329.7	328.5	327.4	326.2	325.1	322.8	321.6	320.5
12.5°	330.8	328.5	327.4	325.1	325.1	323.9	321.6	320.5	318.2	315.9	314.7
15°	326.2	323.9	321.6	319.3	319.3	317.0	314.7	313.5	311.2	308.9	306.6
17.5°	320.5	318.2	315.9	313.5	312.4	310.1	307.8	305.5	303.2	300.9	298.6
20°	314.7	311.2	308.9	305.5	304.3	303.2	299.7	297.4	295.1	292.8	289.3
22.5°	306.6	304.3	299.7	297.4	296.3	294.0	291.6	288.2	284.7	282.4	280.1
25°	297.4	295.1	291.6	288.2	285.9	284.7	281.3	277.8	275.5	272.1	269.7
27.5°	287.0	283.6	281.3	276.7	275.5	273.2	269.7	266.3	264.0	260.5	257.1
30°	275.5	272.1	268.6	265.1	262.8	261.7	258.2	254.8	251.3	247.8	245.5
32.5°	261.7	258.2	254.8	252.5	249.0	246.7	244.4	240.9	237.5	234.0	231.7
35°	247.8	244.4	240.9	237.5	235.2	235.2	230.6	227.1	223.6	221.3	217.9
37.5°	232.9	229.4	225.9	222.5	221.3	219.0	215.6	212.1	209.8	206.3	204.0
40°	217.9	213.3	211.0	207.5	206.3	204.0	201.7	198.3	196.0	192.5	190.2
42.5°	201.7	199.4	196.0	193.7	191.4	190.2	186.7	183.3	181.0	178.7	177.5
45°	186.7	183.3	179.8	177.5	176.4	174.1	172.9	169.5	167.1	166.0	163.7
47.5°	170.6	168.3	166.0	162.5	161.4	160.2	157.9	156.8	154.5	152.2	149.9
50°	155.6	153.3	151.0	148.7	147.6	147.6	144.1	141.8	140.6	139.5	137.2
52.5°	140.6	138.3	136.0	133.7	133.7	132.6	130.3	129.1	128.0	125.7	123.3
55°	126.8	124.5	122.2	121.0	119.9	119.9	117.6	116.4	114.1	113.0	111.8
57.5°	113.0	110.7	109.5	108.4	107.2	107.2	104.9	103.7	102.6	100.3	100.3
60°	100.3	98.0	96.8	95.7	94.5	93.4	93.4	91.1	89.9	89.9	87.6
62.5°	86.5	85.3	84.2	83.0	81.8	81.8	80.7	79.5	78.4	77.2	76.1
65°	74.9	73.8	72.6	71.5	70.3	70.3	69.2	68.0	66.9	66.9	64.6
67.5°	63.4	62.2	61.1	59.9	59.9	58.8	57.6	57.6	56.5	55.3	54.2
70°	51.9	51.9	50.7	49.6	49.6	48.4	47.3	47.3	46.1	45.0	43.8
72.5°	42.7	41.5	40.3	40.3	39.2	39.2	38.0	38.0	36.9	35.7	34.6
75°	32.3	31.1	31.1	31.1	30.0	30.0	30.0	28.8	27.7	26.5	26.5
77.5°	24.2	24.2	23.1	21.9	21.9	21.9	20.7	20.7	20.7	19.6	19.6
80°	17.3	16.1	16.1	15.0	15.0	15.0	15.0	13.8	13.8	13.8	12.7
82.5°	10.4	10.4	10.4	9.2	9.2	9.2	9.2	9.2	8.1	8.1	8.1
85°	5.8	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
87.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	2.3	2.3
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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	332.0	332.0	332.0	332.0	332.0	332.0	332.0	332.0	332.0	332.0	332.0
2.5°	330.8	330.8	329.7	329.7	329.7	329.7	329.7	328.5	328.5	328.5	328.5
5°	328.5	327.4	326.2	326.2	326.2	325.1	325.1	323.9	323.9	322.8	322.8
7.5°	323.9	322.8	321.6	321.6	320.5	320.5	318.2	318.2	317.0	315.9	315.9
10°	318.2	317.0	315.9	314.7	314.7	312.4	312.4	311.2	310.1	308.9	308.9
12.5°	312.4	311.2	308.9	307.8	307.8	306.6	304.3	303.2	302.0	300.9	299.7
15°	304.3	303.2	300.9	299.7	298.6	297.4	296.3	295.1	292.8	291.6	291.6
17.5°	296.3	295.1	291.6	290.5	290.5	288.2	287.0	284.7	283.6	282.4	281.3
20°	287.0	284.7	282.4	281.3	280.1	277.8	276.7	275.5	273.2	272.1	270.9
22.5°	276.7	274.4	272.1	270.9	269.7	267.4	266.3	264.0	262.8	261.7	260.5
25°	266.3	264.0	261.7	260.5	258.2	257.1	254.8	252.5	251.3	250.1	249.0
27.5°	254.8	252.5	249.0	247.8	246.7	245.5	243.2	240.9	239.8	237.5	237.5
30°	242.1	239.8	237.5	236.3	235.2	232.9	231.7	229.4	228.2	225.9	225.9
32.5°	229.4	225.9	223.6	222.5	221.3	220.2	217.9	216.7	215.6	214.4	213.3
35°	215.6	213.3	211.0	209.8	208.6	206.3	205.2	204.0	202.9	200.6	200.6
37.5°	201.7	199.4	197.1	196.0	196.0	193.7	192.5	190.2	190.2	187.9	187.9
40°	187.9	185.6	183.3	183.3	182.1	179.8	178.7	177.5	176.4	175.2	175.2
42.5°	175.2	171.8	170.6	170.6	168.3	167.1	166.0	164.8	162.5	162.5	162.5
45°	161.4	159.1	157.9	156.8	155.6	154.5	153.3	151.0	149.9	148.7	148.7
47.5°	148.7	146.4	145.2	144.1	142.9	141.8	140.6	139.5	137.2	137.2	136.0
50°	136.0	133.7	132.6	131.4	130.3	129.1	128.0	126.8	125.7	124.5	123.3
52.5°	122.2	121.0	119.9	118.7	118.7	116.4	115.3	114.1	113.0	113.0	110.7
55°	110.7	109.5	108.4	107.2	106.1	104.9	103.7	102.6	101.4	100.3	99.1
57.5°	98.0	96.8	95.7	95.7	94.5	93.4	92.2	91.1	89.9	88.8	87.6
60°	86.5	85.3	84.2	84.2	83.0	81.8	80.7	80.7	78.4	77.2	76.1
62.5°	74.9	73.8	72.6	72.6	71.5	71.5	70.3	69.2	66.9	66.9	65.7
65°	64.6	63.4	62.2	61.1	61.1	59.9	58.8	57.6	56.5	56.5	55.3
67.5°	54.2	53.0	51.9	51.9	50.7	49.6	48.4	47.3	46.1	46.1	45.0
70°	43.8	42.7	41.5	41.5	40.3	39.2	39.2	38.0	36.9	35.7	35.7
72.5°	33.4	33.4	32.3	32.3	31.1	31.1	30.0	28.8	28.8	27.7	26.5
75°	25.4	25.4	24.2	24.2	23.1	23.1	21.9	21.9	21.9	20.7	21.9
77.5°	18.4	18.4	17.3	17.3	17.3	16.1	16.1	16.1	17.3	17.3	17.3
80°	12.7	12.7	12.7	12.7	11.5	11.5	12.7	12.7	12.7	12.7	12.7
82.5°	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	9.2	9.2	9.2
85°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.8	5.8	5.8	5.8
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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: P642308

CATALOG NUMBER: ML5612LSWW97FS1E - 592W WW - 900LM - 3500K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	332.0	332.0	332.0	332.0	332.0	332.0	332.0	332.0
2.5°	327.4	327.4	327.4	327.4	327.4	327.4	327.4	328.5
5°	321.6	321.6	321.6	321.6	321.6	321.6	321.6	320.5
7.5°	315.9	314.7	314.7	314.7	314.7	313.5	313.5	313.5
10°	307.8	307.8	306.6	306.6	306.6	306.6	305.5	306.6
12.5°	299.7	298.6	298.6	298.6	297.4	297.4	297.4	297.4
15°	290.5	289.3	289.3	289.3	288.2	288.2	288.2	288.2
17.5°	280.1	280.1	279.0	279.0	277.8	277.8	277.8	277.8
20°	269.7	269.7	269.7	268.6	268.6	268.6	267.4	267.4
22.5°	259.4	258.2	257.1	258.2	257.1	255.9	257.1	257.1
25°	247.8	246.7	245.5	245.5	245.5	245.5	244.4	244.4
27.5°	236.3	234.0	234.0	234.0	234.0	232.9	232.9	232.9
30°	224.8	223.6	223.6	222.5	221.3	221.3	221.3	222.5
32.5°	212.1	211.0	209.8	209.8	209.8	209.8	208.6	208.6
35°	199.4	199.4	198.3	198.3	198.3	197.1	197.1	196.0
37.5°	186.7	186.7	185.6	185.6	185.6	184.4	184.4	184.4
40°	174.1	172.9	172.9	174.1	172.9	172.9	171.8	171.8
42.5°	161.4	161.4	160.2	160.2	160.2	160.2	159.1	160.2
45°	147.6	147.6	147.6	147.6	147.6	147.6	146.4	146.4
47.5°	136.0	134.9	134.9	134.9	134.9	134.9	134.9	134.9
50°	123.3	122.2	122.2	122.2	122.2	122.2	122.2	122.2
52.5°	110.7	109.5	109.5	109.5	109.5	109.5	109.5	109.5
55°	99.1	98.0	98.0	96.8	98.0	96.8	96.8	96.8
57.5°	87.6	86.5	85.3	86.5	85.3	85.3	85.3	84.2
60°	76.1	74.9	74.9	74.9	73.8	72.6	72.6	73.8
62.5°	64.6	64.6	63.4	63.4	62.2	61.1	61.1	61.1
65°	54.2	53.0	53.0	51.9	51.9	50.7	50.7	50.7
67.5°	43.8	43.8	42.7	42.7	41.5	41.5	41.5	40.3
70°	34.6	34.6	33.4	33.4	33.4	32.3	32.3	32.3
72.5°	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5
75°	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9
77.5°	17.3	17.3	17.3	17.3	17.3	17.3	17.3	18.4
80°	12.7	12.7	13.8	12.7	13.8	12.7	12.7	12.7
82.5°	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2
85°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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)