

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: P642278

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

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P642278  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-130)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 2/17/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML5612LSWW97FS1E - 592H WW - 900LM - 3500K  
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH HAZE TRIM  
Light Source: (1) HCL SELECTABLE LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 730.6 lumens  
Efficiency: N/A  
Efficacy: 54.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.25  
Luminous Opening: Circular (Dia: 0.42' x H: 0')  
CIE Type: Direct

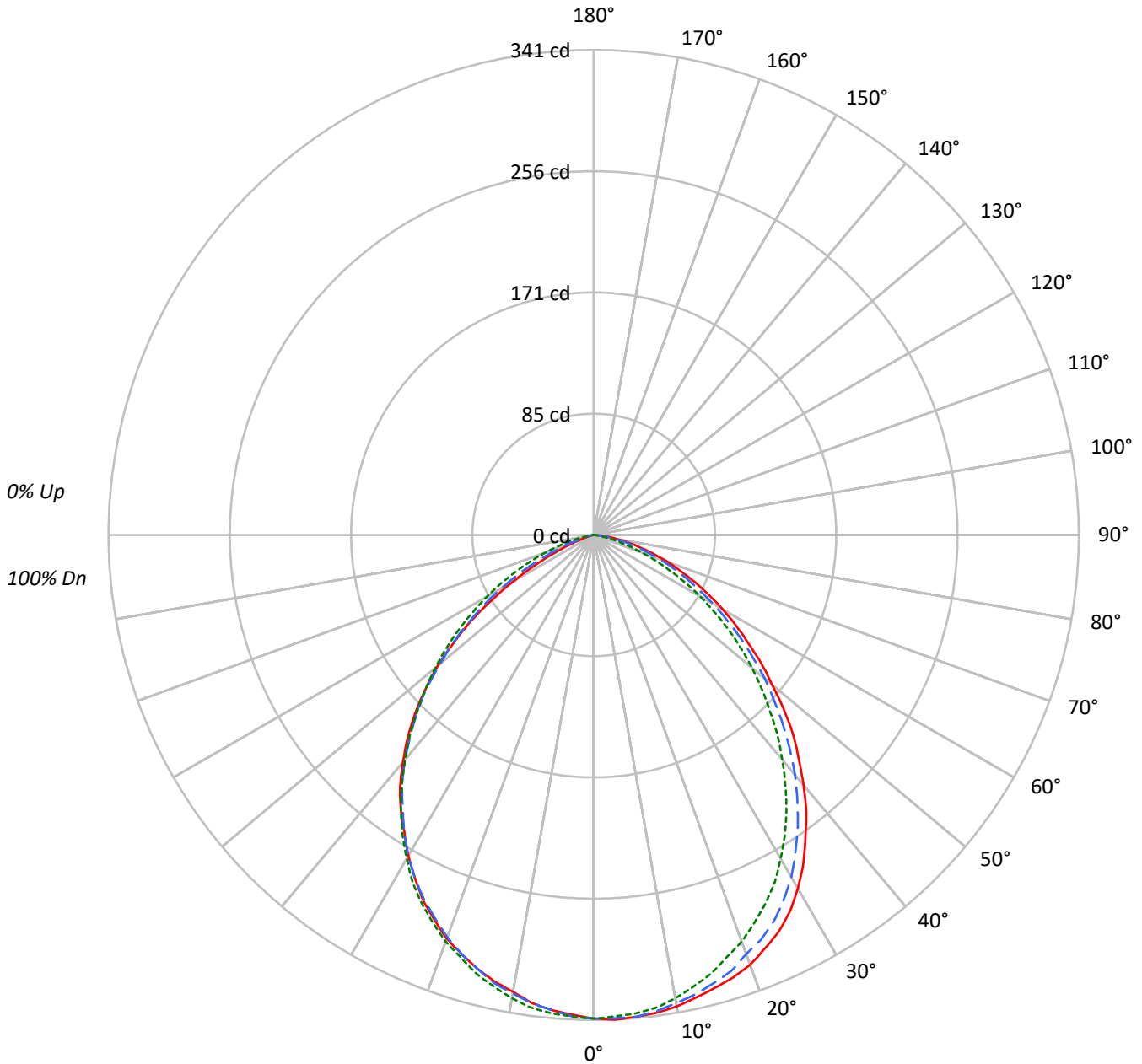
Input Watts (W): 13.3  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20					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	111	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90	88				88				
2	102	95	89	84	100	93	88	83	90	85	81	87	83	79	84	80	78	76				76				
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66				66				
4	87	76	68	62	85	75	67	62	72	66	61	70	65	60	68	63	59	57				57				
5	80	69	60	54	78	67	60	54	65	59	54	64	58	53	62	57	52	50				50				
6	74	62	54	48	73	61	54	48	60	53	47	58	52	47	56	51	47	45				45				
7	69	57	49	43	68	56	48	43	54	48	42	53	47	42	52	46	42	40				40				
8	65	52	44	39	63	51	44	39	50	43	38	49	43	38	48	42	38	36				36				
9	61	48	40	35	59	47	40	35	46	39	35	45	39	35	44	39	34	33				33				
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	31	30				30				

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

	0°	45°	90°	135°	180°
0°	26848	26848	26848	26848	26848
5°	26950	26950	26760	26578	26578
10°	26981	26797	26517	26244	26148
15°	26945	26659	26095	25809	25809
20°	27017	26336	25563	25278	25370
25°	26810	26104	24902	24598	24702
30°	26161	25322	23955	23745	23745
35°	24998	24102	22772	22550	22772
40°	23640	22692	21259	21259	21496
45°	22138	20977	19559	19559	19816
50°	20104	19257	17832	17267	17550
55°	18250	17286	15869	14754	14437
60°	16562	15283	13657	11825	10199
65°	14644	13355	10983	8181	6033
70°	12764	11171	8240	4524	2400
75°	10187	8784	5277	1403	702
80°	7865	5773	2091	546	546
85°	4166	3170	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 22138 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	32.0	4.4
10°-20°	90.5	12.4
20°-30°	133.5	18.3
30°-40°	151.2	20.7
40°-50°	139.6	19.1
50°-60°	104.3	14.3
60°-70°	57.6	7.9
70°-80°	19.4	2.7
80°-90°	2.5	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°	256.0	35.0
0°-40°	407.2	55.7
0°-60°	651.1	89.1
0°-90°	730.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	730.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	340	340	340	340	340	
5°	340	340	338	335	335	32
15°	330	326	319	316	316	93
25°	308	300	286	282	284	141
35°	259	250	236	234	236	162
45°	198	188	175	175	178	152
55°	133	126	115	107	105	119
65°	78	72	59	44	32	78
75°	33	29	17	5	2	37
85°	5	4	0	0	0	7
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°	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1
2.5°	341.2	341.2	341.2	341.2	340.1	340.1	341.2	340.1	340.1	340.1	340.1
5°	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1
7.5°	338.9	338.9	338.9	338.9	338.9	338.9	338.9	338.9	337.7	337.7	337.7
10°	336.6	336.6	336.6	336.6	336.6	336.6	336.6	335.4	335.4	335.4	334.3
12.5°	333.1	334.3	333.1	334.3	333.1	333.1	332.0	332.0	332.0	330.8	330.8
15°	329.7	329.7	329.7	329.7	329.7	328.5	328.5	327.4	327.4	327.4	326.2
17.5°	326.2	325.1	325.1	325.1	323.9	323.9	323.9	323.9	322.8	321.6	321.6
20°	321.6	320.5	320.5	320.5	319.3	319.3	318.2	318.2	315.8	315.8	313.5
22.5°	314.7	314.7	314.7	313.5	313.5	312.4	312.4	311.2	310.1	308.9	307.8
25°	307.8	307.8	306.6	306.6	305.5	305.5	305.5	303.2	302.0	300.9	299.7
27.5°	298.6	298.6	297.4	297.4	296.2	295.1	295.1	292.8	292.8	290.5	289.3
30°	287.0	287.0	287.0	284.7	284.7	284.7	283.6	282.4	280.1	279.0	277.8
32.5°	274.3	273.2	273.2	273.2	272.0	270.9	270.9	268.6	267.4	266.3	264.0
35°	259.4	259.4	259.4	259.4	258.2	257.1	257.1	254.8	253.6	251.3	250.1
37.5°	245.5	245.5	244.4	244.4	242.1	243.2	242.1	240.9	239.8	236.3	235.2
40°	229.4	229.4	229.4	228.2	227.1	227.1	225.9	224.8	222.5	221.3	220.2
42.5°	213.3	213.3	213.3	212.1	210.9	210.9	210.9	208.6	207.5	206.3	204.0
45°	198.3	197.1	197.1	196.0	196.0	194.8	193.7	192.5	191.4	190.2	187.9
47.5°	181.0	181.0	179.8	179.8	178.7	178.7	177.5	176.4	175.2	174.1	171.8
50°	163.7	164.8	164.8	163.7	163.7	162.5	161.4	161.4	160.2	159.1	156.8
52.5°	148.7	148.7	148.7	147.5	147.5	146.4	146.4	145.2	144.1	141.8	140.6
55°	132.6	133.7	132.6	132.6	132.6	131.4	131.4	130.3	129.1	126.8	125.6
57.5°	118.7	118.7	117.6	117.6	116.4	116.4	116.4	115.3	114.1	113.0	110.7
60°	104.9	103.7	103.7	103.7	102.6	102.6	102.6	100.3	99.1	98.0	96.8
62.5°	91.1	91.1	91.1	89.9	89.9	88.8	87.6	87.6	86.5	85.3	83.0
65°	78.4	78.4	77.2	77.2	77.2	76.1	76.1	74.9	73.8	72.6	71.5
67.5°	65.7	65.7	65.7	64.6	64.6	64.6	63.4	62.2	62.2	61.1	59.9
70°	55.3	54.2	54.2	54.2	53.0	53.0	53.0	51.9	50.7	49.6	48.4
72.5°	43.8	43.8	43.8	43.8	42.7	42.7	41.5	41.5	40.3	39.2	38.0
75°	33.4	33.4	33.4	33.4	32.3	32.3	32.3	31.1	31.1	30.0	28.8
77.5°	25.4	25.4	25.4	24.2	24.2	23.1	23.1	23.1	21.9	21.9	20.7
80°	17.3	17.3	16.1	16.1	16.1	16.1	16.1	15.0	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	6.9
85°	4.6	4.6	4.6	4.6	4.6	4.6	3.5	3.5	3.5	3.5	3.5
87.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1
2.5°	340.1	340.1	340.1	340.1	340.1	340.1	340.1	338.9	338.9	338.9	338.9
5°	338.9	338.9	338.9	338.9	338.9	337.7	338.9	337.7	337.7	337.7	337.7
7.5°	336.6	336.6	336.6	336.6	335.4	336.6	335.4	335.4	335.4	335.4	334.3
10°	334.3	333.1	333.1	333.1	333.1	332.0	332.0	330.8	330.8	330.8	329.7
12.5°	330.8	329.7	329.7	328.5	328.5	328.5	327.4	327.4	326.2	325.1	325.1
15°	325.1	325.1	323.9	322.8	322.8	321.6	321.6	320.5	320.5	319.3	318.2
17.5°	320.5	319.3	318.2	317.0	315.8	315.8	314.7	313.5	313.5	311.2	311.2
20°	312.4	311.2	310.1	308.9	308.9	308.9	306.6	306.6	305.5	304.3	303.2
22.5°	305.5	304.3	302.0	300.9	300.9	299.7	298.6	297.4	296.2	295.1	293.9
25°	297.4	296.2	293.9	292.8	291.6	290.5	289.3	288.2	287.0	285.9	284.7
27.5°	287.0	284.7	284.7	282.4	281.3	280.1	279.0	277.8	276.7	275.5	274.3
30°	275.5	274.3	272.0	269.7	268.6	268.6	266.3	265.1	265.1	262.8	261.7
32.5°	262.8	260.5	258.2	257.1	255.9	254.8	253.6	252.4	251.3	250.1	249.0
35°	249.0	245.5	244.4	242.1	242.1	240.9	239.8	237.5	237.5	236.3	234.0
37.5°	234.0	231.7	230.5	228.2	227.1	225.9	224.8	223.6	222.5	221.3	220.2
40°	217.9	215.6	214.4	213.3	212.1	210.9	209.8	208.6	207.5	206.3	205.2
42.5°	201.7	200.6	198.3	196.0	196.0	194.8	193.7	192.5	191.4	191.4	190.2
45°	185.6	184.4	182.1	181.0	179.8	179.8	177.5	177.5	176.4	175.2	175.2
47.5°	170.6	168.3	166.0	166.0	163.7	164.8	162.5	162.5	160.2	160.2	159.1
50°	154.5	153.3	151.0	149.9	149.9	148.7	147.5	147.5	146.4	145.2	144.1
52.5°	139.5	137.2	136.0	134.9	133.7	133.7	132.6	132.6	130.3	130.3	129.1
55°	124.5	123.3	121.0	119.9	119.9	119.9	117.6	116.4	116.4	115.3	114.1
57.5°	109.5	108.4	107.2	106.1	104.9	104.9	103.7	102.6	101.4	100.3	98.0
60°	95.7	94.5	93.4	92.2	91.1	91.1	89.9	88.8	87.6	86.5	85.3
62.5°	81.8	81.8	79.5	78.4	77.2	77.2	76.1	74.9	73.8	72.6	71.5
65°	70.3	69.2	66.9	65.7	65.7	65.7	63.4	62.2	61.1	58.8	57.6
67.5°	58.8	56.5	55.3	55.3	54.2	53.0	51.9	50.7	48.4	47.3	45.0
70°	47.3	46.1	45.0	43.8	42.7	41.5	40.3	39.2	36.9	35.7	34.6
72.5°	36.9	35.7	34.6	33.4	32.3	32.3	30.0	28.8	27.7	25.4	24.2
75°	27.7	26.5	25.4	24.2	23.1	21.9	21.9	19.6	18.4	17.3	15.0
77.5°	19.6	18.4	17.3	16.1	16.1	15.0	13.8	12.7	11.5	10.4	9.2
80°	12.7	11.5	10.4	10.4	9.2	9.2	8.1	6.9	5.8	4.6	4.6
82.5°	6.9	5.8	5.8	4.6	4.6	4.6	3.5	2.3	2.3	2.3	1.2
85°	2.3	2.3	2.3	1.2	1.2	1.2	1.2	1.2	1.2	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°	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1
2.5°	338.9	338.9	338.9	338.9	338.9	338.9	338.9	338.9	338.9	337.7	337.7
5°	336.6	336.6	336.6	336.6	336.6	336.6	335.4	335.4	335.4	335.4	335.4
7.5°	334.3	334.3	334.3	333.1	333.1	333.1	333.1	332.0	332.0	332.0	332.0
10°	329.7	329.7	329.7	328.5	328.5	328.5	328.5	328.5	327.4	327.4	327.4
12.5°	323.9	323.9	323.9	323.9	323.9	322.8	322.8	322.8	322.8	321.6	322.8
15°	318.2	318.2	317.0	317.0	317.0	315.8	315.8	315.8	315.8	315.8	315.8
17.5°	311.2	310.1	310.1	308.9	308.9	308.9	308.9	308.9	308.9	308.9	308.9
20°	303.2	302.0	302.0	302.0	302.0	300.9	300.9	299.7	300.9	300.9	300.9
22.5°	293.9	292.8	292.8	292.8	291.6	291.6	291.6	291.6	291.6	291.6	291.6
25°	284.7	283.6	282.4	282.4	282.4	281.3	281.3	282.4	282.4	282.4	282.4
27.5°	273.2	273.2	272.0	272.0	272.0	270.9	270.9	270.9	272.0	272.0	272.0
30°	260.5	260.5	260.5	260.5	259.4	259.4	260.5	259.4	260.5	259.4	260.5
32.5°	249.0	249.0	247.8	246.7	246.7	247.8	246.7	246.7	247.8	247.8	247.8
35°	234.0	234.0	234.0	234.0	234.0	234.0	234.0	234.0	234.0	235.2	236.3
37.5°	220.2	220.2	220.2	220.2	220.2	220.2	220.2	221.3	221.3	221.3	221.3
40°	205.2	205.2	205.2	205.2	205.2	205.2	205.2	205.2	206.3	206.3	207.5
42.5°	189.0	190.2	190.2	190.2	189.0	189.0	190.2	190.2	190.2	191.4	191.4
45°	174.1	174.1	174.1	174.1	175.2	174.1	174.1	174.1	175.2	175.2	175.2
47.5°	159.1	157.9	157.9	159.1	157.9	157.9	157.9	157.9	159.1	159.1	157.9
50°	144.1	142.9	142.9	142.9	141.8	141.8	142.9	140.6	140.6	140.6	141.8
52.5°	129.1	128.0	126.8	126.8	126.8	125.6	124.5	124.5	124.5	123.3	123.3
55°	113.0	111.8	110.7	110.7	110.7	109.5	109.5	107.2	107.2	106.1	106.1
57.5°	98.0	96.8	95.7	95.7	94.5	93.4	93.4	91.1	91.1	89.9	87.6
60°	83.0	81.8	80.7	80.7	80.7	78.4	77.2	74.9	74.9	72.6	71.5
62.5°	69.2	68.0	66.9	65.7	65.7	63.4	62.2	59.9	58.8	57.6	55.3
65°	56.5	54.2	53.0	51.9	51.9	49.6	48.4	46.1	43.8	42.7	40.3
67.5°	43.8	42.7	40.3	39.2	39.2	36.9	34.6	33.4	31.1	28.8	27.7
70°	32.3	31.1	28.8	27.7	26.5	25.4	23.1	21.9	19.6	18.4	16.1
72.5°	21.9	20.7	18.4	18.4	17.3	15.0	13.8	12.7	10.4	9.2	8.1
75°	13.8	12.7	11.5	10.4	9.2	8.1	6.9	5.8	4.6	3.5	3.5
77.5°	8.1	6.9	5.8	4.6	4.6	3.5	2.3	2.3	2.3	1.2	1.2
80°	3.5	2.3	2.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.0	0.0	1.2	1.2
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: P642278

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

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	340.1	340.1	340.1	340.1	340.1	340.1	340.1	340.1
2.5°	338.9	337.7	338.9	338.9	337.7	337.7	337.7	337.7
5°	335.4	335.4	335.4	335.4	335.4	335.4	335.4	335.4
7.5°	333.1	332.0	332.0	332.0	332.0	332.0	332.0	332.0
10°	327.4	327.4	327.4	327.4	327.4	327.4	327.4	326.2
12.5°	321.6	321.6	321.6	321.6	321.6	321.6	321.6	321.6
15°	315.8	315.8	315.8	315.8	315.8	315.8	315.8	315.8
17.5°	308.9	308.9	308.9	308.9	308.9	307.8	308.9	308.9
20°	300.9	300.9	300.9	300.9	300.9	300.9	300.9	302.0
22.5°	291.6	291.6	291.6	291.6	291.6	291.6	291.6	292.8
25°	282.4	282.4	282.4	282.4	282.4	282.4	282.4	283.6
27.5°	272.0	272.0	272.0	272.0	272.0	272.0	272.0	272.0
30°	260.5	260.5	261.7	260.5	260.5	260.5	261.7	260.5
32.5°	249.0	249.0	249.0	249.0	249.0	249.0	249.0	247.8
35°	236.3	235.2	236.3	236.3	236.3	236.3	236.3	236.3
37.5°	222.5	222.5	222.5	222.5	222.5	222.5	223.6	223.6
40°	208.6	207.5	207.5	208.6	208.6	208.6	207.5	208.6
42.5°	191.4	192.5	192.5	192.5	193.7	192.5	193.7	193.7
45°	175.2	176.4	176.4	176.4	176.4	176.4	177.5	177.5
47.5°	159.1	159.1	159.1	159.1	160.2	160.2	160.2	160.2
50°	141.8	141.8	141.8	141.8	142.9	141.8	142.9	142.9
52.5°	123.3	123.3	123.3	123.3	123.3	123.3	124.5	123.3
55°	104.9	104.9	104.9	104.9	103.7	103.7	103.7	104.9
57.5°	87.6	86.5	85.3	86.5	84.1	84.1	84.1	84.1
60°	69.2	68.0	68.0	66.9	65.7	64.6	65.7	64.6
62.5°	53.0	51.9	51.9	49.6	48.4	48.4	47.3	47.3
65°	39.2	36.9	35.7	35.7	34.6	33.4	32.3	32.3
67.5°	25.4	24.2	23.1	23.1	21.9	20.7	20.7	19.6
70°	15.0	13.8	12.7	13.8	11.5	10.4	10.4	10.4
72.5°	6.9	5.8	5.8	5.8	4.6	4.6	4.6	4.6
75°	3.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3
77.5°	1.2	1.2	2.3	1.2	1.2	1.2	1.2	1.2
80°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	1.2	0.0	0.0	0.0	1.2	1.2	0.0	1.2
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)