

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: P642279

Luminaire Tested: ML5612LSWW97FS1E - 592H WW - 900LM - 4000K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P642279  
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 - 4000K  
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH HAZE TRIM  
Light Source: (1) HCL SELECTABLE LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 786.1 lumens  
Efficiency: N/A  
Efficacy: 59.1 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

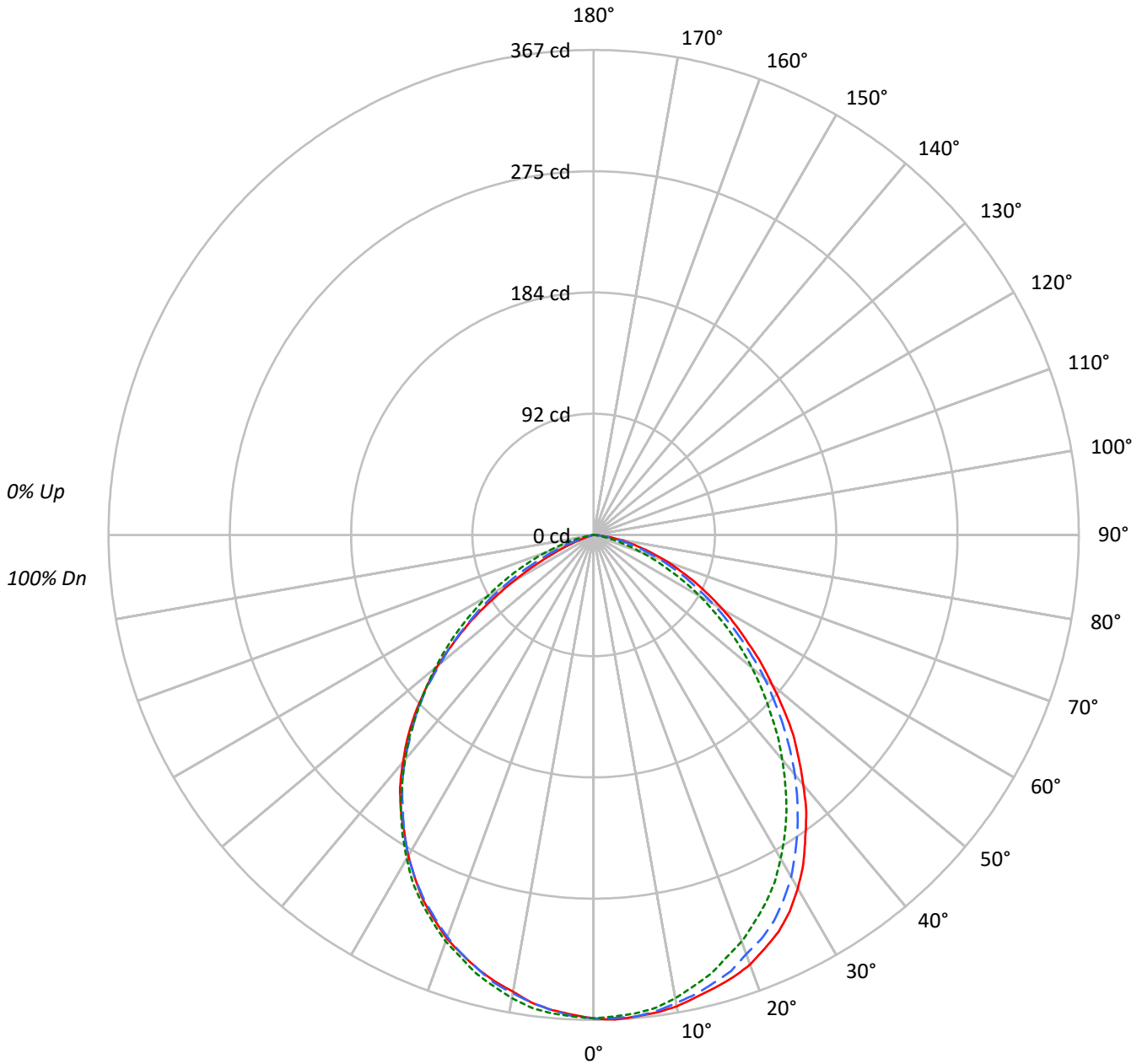
Input Watts (W): 13.3  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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	105	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	81	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°	28884	28884	28884	28884	28884
5°	28995	28995	28797	28599	28599
10°	29033	28833	28537	28232	28136
15°	28988	28686	28081	27770	27770
20°	29066	28344	27504	27193	27302
25°	28848	28090	26792	26470	26575
30°	28148	27246	25778	25550	25550
35°	26897	25933	24507	24266	24507
40°	25433	24413	22877	22877	23135
45°	23813	22573	21044	21044	21323
50°	21627	20718	19195	18581	18888
55°	19626	18607	17066	15869	15538
60°	17825	16451	14683	12725	10973
65°	15746	14364	11824	8798	6482
70°	13733	12025	8863	4870	2585
75°	10980	9455	5673	1525	763
80°	8456	6183	2273	546	546
85°	4529	3351	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 23813 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	34.5	4.4
10°-20°	97.4	12.4
20°-30°	143.6	18.3
30°-40°	162.6	20.7
40°-50°	150.2	19.1
50°-60°	112.2	14.3
60°-70°	62.0	7.9
70°-80°	20.9	2.7
80°-90°	2.6	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°	275.5	35.0
0°-40°	438.1	55.7
0°-60°	700.6	89.1
0°-90°	786.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	786.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	366	366	366	366	366	
5°	366	366	363	361	361	35
15°	355	351	344	340	340	100
25°	331	322	308	304	305	152
35°	279	269	254	252	254	175
45°	213	202	188	188	191	164
55°	143	135	124	115	113	128
65°	84	77	63	47	35	84
75°	36	31	19	5	2	39
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°	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9
2.5°	367.1	367.1	367.1	367.1	365.9	365.9	367.1	365.9	365.9	365.9	365.9
5°	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9
7.5°	364.6	364.6	364.6	364.6	364.6	364.6	364.6	364.6	363.4	363.4	363.4
10°	362.2	362.2	362.2	362.2	362.2	362.2	362.2	360.9	360.9	360.9	359.7
12.5°	358.4	359.7	358.4	359.7	358.4	358.4	357.2	357.2	357.2	356.0	356.0
15°	354.7	354.7	354.7	354.7	354.7	353.5	353.5	352.2	352.2	352.2	351.0
17.5°	351.0	349.8	349.8	349.8	348.5	348.5	348.5	348.5	347.3	346.0	346.0
20°	346.0	344.8	344.8	344.8	343.6	343.6	342.3	342.3	339.8	339.8	337.4
22.5°	338.6	338.6	338.6	337.4	337.4	336.1	336.1	334.9	333.6	332.4	331.2
25°	331.2	331.2	329.9	329.9	328.7	328.7	328.7	326.2	325.0	323.7	322.5
27.5°	321.2	321.2	320.0	320.0	318.8	317.5	317.5	315.0	315.0	312.6	311.3
30°	308.8	308.8	308.8	306.4	306.4	306.4	305.1	303.9	301.4	300.1	298.9
32.5°	295.2	293.9	293.9	293.9	292.7	291.5	291.5	289.0	287.7	286.5	284.0
35°	279.1	279.1	279.1	279.1	277.8	276.6	276.6	274.1	272.9	270.4	269.1
37.5°	264.2	264.2	262.9	262.9	260.5	261.7	260.5	259.2	258.0	254.3	253.0
40°	246.8	246.8	246.8	245.6	244.3	244.3	243.1	241.9	239.4	238.1	236.9
42.5°	229.5	229.5	229.5	228.2	227.0	227.0	227.0	224.5	223.3	222.0	219.5
45°	213.3	212.1	212.1	210.8	210.8	209.6	208.4	207.1	205.9	204.6	202.2
47.5°	194.7	194.7	193.5	193.5	192.2	192.2	191.0	189.8	188.5	187.3	184.8
50°	176.1	177.4	177.4	176.1	176.1	174.9	173.6	173.6	172.4	171.2	168.7
52.5°	160.0	160.0	160.0	158.8	158.8	157.5	157.5	156.3	155.0	152.6	151.3
55°	142.6	143.9	142.6	142.6	142.6	141.4	141.4	140.2	138.9	136.4	135.2
57.5°	127.7	127.7	126.5	126.5	125.3	125.3	125.3	124.0	122.8	121.5	119.1
60°	112.9	111.6	111.6	111.6	110.4	110.4	110.4	107.9	106.7	105.4	104.2
62.5°	98.0	98.0	98.0	96.7	96.7	95.5	94.3	94.3	93.0	91.8	89.3
65°	84.3	84.3	83.1	83.1	83.1	81.9	81.9	80.6	79.4	78.1	76.9
67.5°	70.7	70.7	70.7	69.5	69.5	69.5	68.2	67.0	67.0	65.7	64.5
70°	59.5	58.3	58.3	58.3	57.1	57.1	57.1	55.8	54.6	53.3	52.1
72.5°	47.1	47.1	47.1	47.1	45.9	45.9	44.7	44.7	43.4	42.2	40.9
75°	36.0	36.0	36.0	36.0	34.7	34.7	34.7	33.5	33.5	32.2	31.0
77.5°	27.3	27.3	27.3	26.0	26.0	24.8	24.8	24.8	23.6	23.6	22.3
80°	18.6	18.6	17.4	17.4	17.4	17.4	17.4	16.1	14.9	14.9	13.6
82.5°	11.2	11.2	11.2	9.9	9.9	9.9	9.9	9.9	8.7	8.7	7.4
85°	5.0	5.0	5.0	5.0	5.0	5.0	3.7	3.7	3.7	3.7	3.7
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°	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9
2.5°	365.9	365.9	365.9	365.9	365.9	365.9	365.9	364.6	364.6	364.6	364.6
5°	364.6	364.6	364.6	364.6	364.6	363.4	364.6	363.4	363.4	363.4	363.4
7.5°	362.2	362.2	362.2	362.2	360.9	362.2	360.9	360.9	360.9	360.9	359.7
10°	359.7	358.4	358.4	358.4	358.4	357.2	357.2	356.0	356.0	356.0	354.7
12.5°	356.0	354.7	354.7	353.5	353.5	353.5	352.2	352.2	351.0	349.8	349.8
15°	349.8	349.8	348.5	347.3	347.3	346.0	346.0	344.8	344.8	343.6	342.3
17.5°	344.8	343.6	342.3	341.1	339.8	339.8	338.6	337.4	337.4	334.9	334.9
20°	336.1	334.9	333.6	332.4	332.4	332.4	329.9	329.9	328.7	327.4	326.2
22.5°	328.7	327.4	325.0	323.7	323.7	322.5	321.2	320.0	318.8	317.5	316.3
25°	320.0	318.8	316.3	315.0	313.8	312.6	311.3	310.1	308.8	307.6	306.4
27.5°	308.8	306.4	306.4	303.9	302.6	301.4	300.1	298.9	297.7	296.4	295.2
30°	296.4	295.2	292.7	290.2	289.0	289.0	286.5	285.3	285.3	282.8	281.5
32.5°	282.8	280.3	277.8	276.6	275.3	274.1	272.9	271.6	270.4	269.1	267.9
35°	267.9	264.2	262.9	260.5	260.5	259.2	258.0	255.5	255.5	254.3	251.8
37.5°	251.8	249.3	248.1	245.6	244.3	243.1	241.9	240.6	239.4	238.1	236.9
40°	234.4	231.9	230.7	229.5	228.2	227.0	225.7	224.5	223.3	222.0	220.8
42.5°	217.0	215.8	213.3	210.8	210.8	209.6	208.4	207.1	205.9	205.9	204.6
45°	199.7	198.4	196.0	194.7	193.5	193.5	191.0	191.0	189.8	188.5	188.5
47.5°	183.6	181.1	178.6	178.6	176.1	177.4	174.9	174.9	172.4	172.4	171.2
50°	166.2	165.0	162.5	161.2	161.2	160.0	158.8	158.8	157.5	156.3	155.0
52.5°	150.1	147.6	146.4	145.1	143.9	143.9	142.6	142.6	140.2	140.2	138.9
55°	134.0	132.7	130.2	129.0	129.0	129.0	126.5	125.3	125.3	124.0	122.8
57.5°	117.8	116.6	115.3	114.1	112.9	112.9	111.6	110.4	109.1	107.9	105.4
60°	102.9	101.7	100.5	99.2	98.0	98.0	96.7	95.5	94.3	93.0	91.8
62.5°	88.1	88.1	85.6	84.3	83.1	83.1	81.9	80.6	79.4	78.1	76.9
65°	75.7	74.4	71.9	70.7	70.7	70.7	68.2	67.0	65.7	63.3	62.0
67.5°	63.3	60.8	59.5	59.5	58.3	57.1	55.8	54.6	52.1	50.9	48.4
70°	50.9	49.6	48.4	47.1	45.9	44.7	43.4	42.2	39.7	38.4	37.2
72.5°	39.7	38.4	37.2	36.0	34.7	34.7	32.2	31.0	29.8	27.3	26.0
75°	29.8	28.5	27.3	26.0	24.8	23.6	23.6	21.1	19.8	18.6	16.1
77.5°	21.1	19.8	18.6	17.4	17.4	16.1	14.9	13.6	12.4	11.2	9.9
80°	13.6	12.4	11.2	11.2	9.9	9.9	8.7	7.4	6.2	5.0	5.0
82.5°	7.4	6.2	6.2	5.0	5.0	5.0	3.7	2.5	2.5	2.5	1.2
85°	2.5	2.5	2.5	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°	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9
2.5°	364.6	364.6	364.6	364.6	364.6	364.6	364.6	364.6	364.6	363.4	363.4
5°	362.2	362.2	362.2	362.2	362.2	362.2	360.9	360.9	360.9	360.9	360.9
7.5°	359.7	359.7	359.7	358.4	358.4	358.4	358.4	357.2	357.2	357.2	357.2
10°	354.7	354.7	354.7	353.5	353.5	353.5	353.5	353.5	352.2	352.2	352.2
12.5°	348.5	348.5	348.5	348.5	348.5	347.3	347.3	347.3	347.3	346.0	347.3
15°	342.3	342.3	341.1	341.1	341.1	339.8	339.8	339.8	339.8	339.8	339.8
17.5°	334.9	333.6	333.6	332.4	332.4	332.4	332.4	332.4	332.4	332.4	332.4
20°	326.2	325.0	325.0	325.0	325.0	323.7	323.7	322.5	323.7	323.7	323.7
22.5°	316.3	315.0	315.0	315.0	313.8	313.8	313.8	313.8	313.8	313.8	313.8
25°	306.4	305.1	303.9	303.9	303.9	302.6	302.6	303.9	303.9	303.9	303.9
27.5°	293.9	293.9	292.7	292.7	292.7	291.5	291.5	291.5	292.7	292.7	292.7
30°	280.3	280.3	280.3	280.3	279.1	279.1	280.3	279.1	280.3	279.1	280.3
32.5°	267.9	267.9	266.7	265.4	265.4	266.7	265.4	265.4	266.7	266.7	266.7
35°	251.8	251.8	251.8	251.8	251.8	251.8	251.8	251.8	251.8	253.0	254.3
37.5°	236.9	236.9	236.9	236.9	236.9	236.9	236.9	238.1	238.1	238.1	238.1
40°	220.8	220.8	220.8	220.8	220.8	220.8	220.8	220.8	222.0	222.0	223.3
42.5°	203.4	204.6	204.6	204.6	203.4	203.4	204.6	204.6	204.6	205.9	205.9
45°	187.3	187.3	187.3	187.3	188.5	187.3	187.3	187.3	188.5	188.5	188.5
47.5°	171.2	169.9	169.9	171.2	169.9	169.9	169.9	169.9	171.2	171.2	169.9
50°	155.0	153.8	153.8	153.8	152.6	152.6	153.8	151.3	151.3	151.3	152.6
52.5°	138.9	137.7	136.4	136.4	136.4	135.2	134.0	134.0	134.0	132.7	132.7
55°	121.5	120.3	119.1	119.1	119.1	117.8	117.8	115.3	115.3	114.1	114.1
57.5°	105.4	104.2	102.9	102.9	101.7	100.5	100.5	98.0	98.0	96.7	94.3
60°	89.3	88.1	86.8	86.8	86.8	84.3	83.1	80.6	80.6	78.1	76.9
62.5°	74.4	73.2	71.9	70.7	70.7	68.2	67.0	64.5	63.3	62.0	59.5
65°	60.8	58.3	57.1	55.8	55.8	53.3	52.1	49.6	47.1	45.9	43.4
67.5°	47.1	45.9	43.4	42.2	42.2	39.7	37.2	36.0	33.5	31.0	29.8
70°	34.7	33.5	31.0	29.8	28.5	27.3	24.8	23.6	21.1	19.8	17.4
72.5°	23.6	22.3	19.8	19.8	18.6	16.1	14.9	13.6	11.2	9.9	8.7
75°	14.9	13.6	12.4	11.2	9.9	8.7	7.4	6.2	5.0	3.7	3.7
77.5°	8.7	7.4	6.2	5.0	5.0	3.7	2.5	2.5	2.5	1.2	1.2
80°	3.7	2.5	2.5	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: P642279

CATALOG NUMBER: ML5612LSWW97FS1E - 592H WW - 900LM - 4000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	365.9	365.9	365.9	365.9	365.9	365.9	365.9	365.9
2.5°	364.6	363.4	364.6	364.6	363.4	363.4	363.4	363.4
5°	360.9	360.9	360.9	360.9	360.9	360.9	360.9	360.9
7.5°	358.4	357.2	357.2	357.2	357.2	357.2	357.2	357.2
10°	352.2	352.2	352.2	352.2	352.2	352.2	352.2	351.0
12.5°	346.0	346.0	346.0	346.0	346.0	346.0	346.0	346.0
15°	339.8	339.8	339.8	339.8	339.8	339.8	339.8	339.8
17.5°	332.4	332.4	332.4	332.4	332.4	331.2	332.4	332.4
20°	323.7	323.7	323.7	323.7	323.7	323.7	323.7	325.0
22.5°	313.8	313.8	313.8	313.8	313.8	313.8	313.8	315.0
25°	303.9	303.9	303.9	303.9	303.9	303.9	303.9	305.1
27.5°	292.7	292.7	292.7	292.7	292.7	292.7	292.7	292.7
30°	280.3	280.3	281.5	280.3	280.3	280.3	281.5	280.3
32.5°	267.9	267.9	267.9	267.9	267.9	267.9	267.9	266.7
35°	254.3	253.0	254.3	254.3	254.3	254.3	254.3	254.3
37.5°	239.4	239.4	239.4	239.4	239.4	239.4	240.6	240.6
40°	224.5	223.3	223.3	224.5	224.5	224.5	223.3	224.5
42.5°	205.9	207.1	207.1	207.1	208.4	207.1	208.4	208.4
45°	188.5	189.8	189.8	189.8	189.8	189.8	191.0	191.0
47.5°	171.2	171.2	171.2	171.2	172.4	172.4	172.4	172.4
50°	152.6	152.6	152.6	152.6	153.8	152.6	153.8	153.8
52.5°	132.7	132.7	132.7	132.7	132.7	132.7	134.0	132.7
55°	112.9	112.9	112.9	112.9	111.6	111.6	111.6	112.9
57.5°	94.3	93.0	91.8	93.0	90.5	90.5	90.5	90.5
60°	74.4	73.2	73.2	71.9	70.7	69.5	70.7	69.5
62.5°	57.1	55.8	55.8	53.3	52.1	52.1	50.9	50.9
65°	42.2	39.7	38.4	38.4	37.2	36.0	34.7	34.7
67.5°	27.3	26.0	24.8	24.8	23.6	22.3	22.3	21.1
70°	16.1	14.9	13.6	14.9	12.4	11.2	11.2	11.2
72.5°	7.4	6.2	6.2	6.2	5.0	5.0	5.0	5.0
75°	3.7	2.5	2.5	2.5	2.5	2.5	2.5	2.5
77.5°	1.2	1.2	2.5	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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— 0°-180°    - - 45°-225°    - - - - 90°-270°

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(END OF REPORT)