

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: P642322

Luminaire Tested: ML5612LSWW97FS1E - 692H WW - 900LM - 3000K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P642322  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-132)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 2/17/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML5612LSWW97FS1E - 692H WW - 900LM - 3000K  
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH HAZE TRIM  
Light Source: (1) HCL SELECTABLE LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 727.0 lumens  
Efficiency: N/A  
Efficacy: 54.7 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.12 / 1.23  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

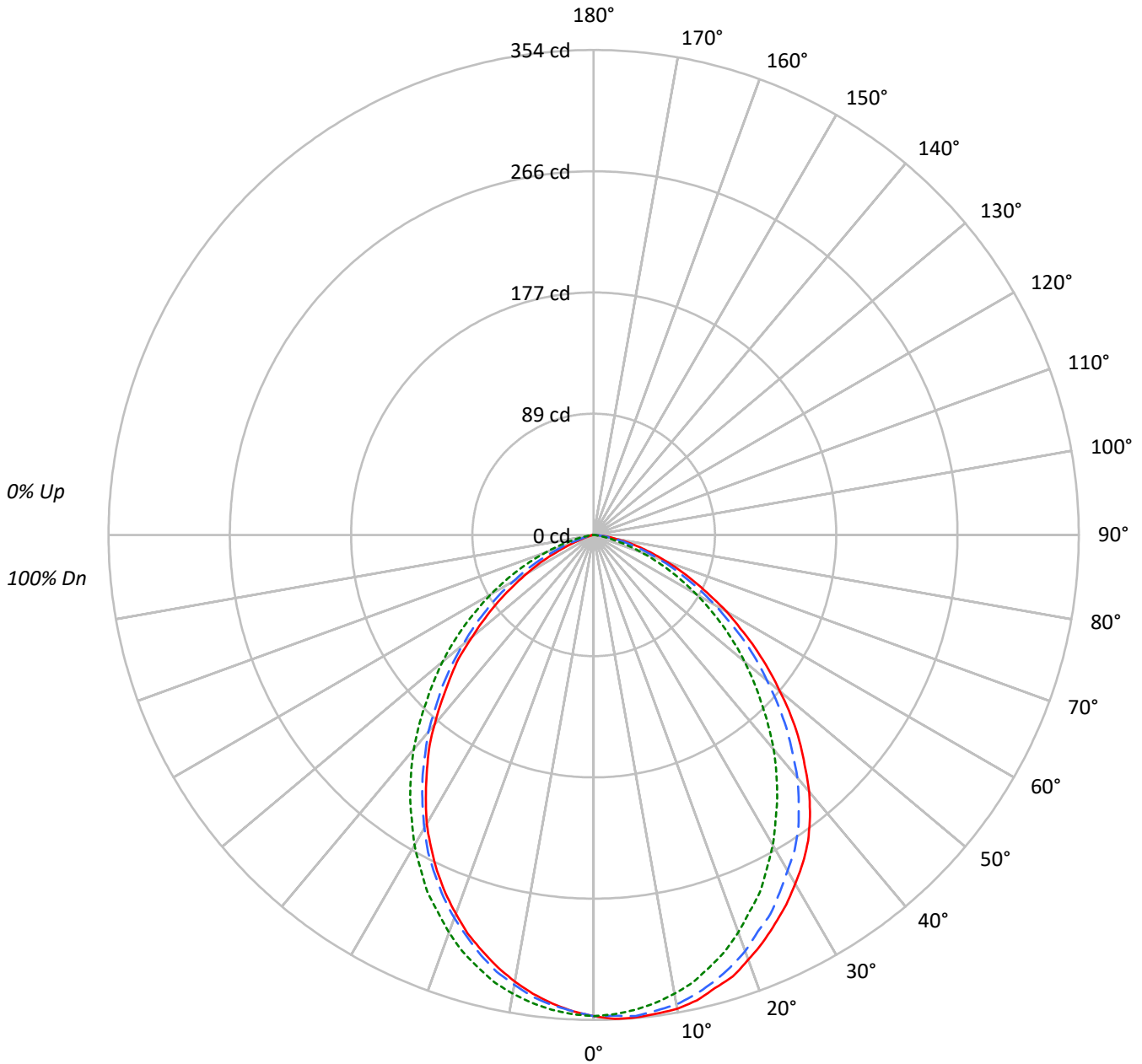
Input Watts (W): 13.3  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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	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	86	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	68	60	54	66	59	54	64	58	53	62	57	53	51					51			
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45					45			
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40					40			
8	65	52	44	39	63	52	44	39	50	43	38	49	43	38	48	42	38	36					36			
9	61	48	40	35	59	48	40	35	46	40	35	45	39	35	44	39	35	33					33			
10	57	45	37	32	56	44	37	32	43	37	32	42	36	32	41	36	32	30					30			

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

	0°	45°	90°	135°	180°
0°	19258	19258	19258	19258	19258
5°	19458	19398	19150	18963	18903
10°	19555	19372	18932	18559	18431
15°	19433	19177	18536	18031	17838
20°	19252	18861	18009	17356	17157
25°	18945	18467	17384	16567	16362
30°	18617	17908	16553	15635	15420
35°	18257	17427	15627	14576	14201
40°	17511	16545	14620	13418	12931
45°	16451	15405	13404	12094	11490
50°	15130	14072	12255	10627	9859
55°	13734	12769	10943	9118	8153
60°	12313	11194	9473	7390	6151
65°	10624	9612	7861	5539	3930
70°	8992	7918	5930	3414	1795
75°	7371	6185	3813	1186	720
80°	5304	4262	1768	347	347
85°	2830	2139	692	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 16451 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	33.0	4.5
10°-20°	92.2	12.7
20°-30°	133.0	18.3
30°-40°	148.6	20.4
40°-50°	136.3	18.7
50°-60°	102.4	14.1
60°-70°	58.4	8.0
70°-80°	20.4	2.8
80°-90°	2.6	0.4
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°	258.2	35.5
0°-40°	406.8	56.0
0°-60°	645.5	88.8
0°-90°	727.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	727.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	351	351	351	351	351	
5°	354	352	348	345	344	34
15°	342	338	327	318	314	97
25°	313	305	287	274	270	144
35°	273	260	234	218	212	170
45°	212	199	173	156	148	163
55°	144	134	114	95	85	129
65°	82	74	61	43	30	82
75°	35	29	18	6	3	37
85°	4	3	1	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°	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3
2.5°	353.6	352.5	352.5	352.5	352.5	352.5	352.5	352.5	352.5	352.5	351.3
5°	353.6	353.6	353.6	353.6	353.6	353.6	353.6	352.5	352.5	352.5	352.5
7.5°	352.5	352.5	352.5	352.5	352.5	352.5	352.5	351.3	351.3	350.2	350.2
10°	351.3	351.3	351.3	350.2	350.2	350.2	350.2	350.2	349.1	349.1	348.0
12.5°	348.0	348.0	348.0	348.0	346.9	346.9	346.9	345.7	344.6	344.6	343.5
15°	342.4	343.5	343.5	342.4	342.4	342.4	342.4	341.2	340.1	339.0	337.9
17.5°	337.9	337.9	337.9	336.8	335.6	336.8	335.6	334.5	333.4	332.3	331.1
20°	330.0	330.0	328.9	328.9	328.9	328.9	327.8	326.6	325.5	324.4	323.3
22.5°	322.2	322.2	322.2	319.9	319.9	319.9	318.8	318.8	316.5	315.4	313.2
25°	313.2	313.2	313.2	312.1	310.9	309.8	310.9	308.7	307.6	305.3	305.3
27.5°	304.2	304.2	303.1	303.1	302.0	302.0	300.8	298.6	297.5	296.3	294.1
30°	294.1	294.1	293.0	293.0	291.9	290.7	290.7	288.5	287.4	285.1	282.9
32.5°	284.0	284.0	282.9	282.9	281.7	280.6	280.6	278.4	276.1	273.9	272.8
35°	272.8	272.8	271.6	271.6	270.5	269.4	268.3	266.0	264.9	261.5	260.4
37.5°	259.3	260.4	258.2	258.2	257.1	255.9	254.8	253.7	251.4	249.2	245.8
40°	244.7	243.6	243.6	242.5	241.3	241.3	240.2	238.0	236.8	233.5	231.2
42.5°	227.9	227.9	227.9	226.7	225.6	225.6	223.4	222.3	220.0	217.8	214.4
45°	212.2	212.2	211.0	211.0	208.8	208.8	207.7	205.4	204.3	200.9	198.7
47.5°	195.3	194.2	194.2	193.1	191.9	191.9	190.8	189.7	187.5	184.1	181.8
50°	177.4	177.4	177.4	176.2	175.1	175.1	174.0	171.7	170.6	168.4	165.0
52.5°	160.5	160.5	160.5	159.4	158.3	158.3	157.2	156.0	153.8	151.5	149.3
55°	143.7	143.7	143.7	142.6	142.6	140.3	140.3	139.2	136.9	134.7	133.6
57.5°	126.8	126.8	126.8	126.8	125.7	125.7	124.6	123.5	121.2	120.1	116.7
60°	112.3	111.1	111.1	110.0	110.0	108.9	107.8	106.6	105.5	103.3	102.1
62.5°	95.4	96.5	95.4	95.4	94.3	94.3	94.3	92.0	90.9	88.7	87.6
65°	81.9	81.9	81.9	81.9	79.7	79.7	79.7	77.5	76.3	76.3	74.1
67.5°	68.5	68.5	68.5	67.4	67.4	67.4	66.2	65.1	64.0	62.9	61.7
70°	56.1	56.1	56.1	55.0	55.0	53.9	53.9	52.8	51.6	51.6	49.4
72.5°	44.9	44.9	44.9	44.9	43.8	43.8	42.7	42.7	41.5	40.4	39.3
75°	34.8	34.8	34.8	33.7	33.7	33.7	32.6	32.6	31.4	30.3	29.2
77.5°	25.8	24.7	24.7	24.7	24.7	23.6	23.6	23.6	22.5	21.3	21.3
80°	16.8	16.8	16.8	16.8	16.8	15.7	15.7	15.7	14.6	14.6	13.5
82.5°	10.1	10.1	10.1	10.1	10.1	9.0	9.0	9.0	7.9	7.9	7.9
85°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	3.4	3.4	3.4
87.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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°	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3
2.5°	352.5	352.5	351.3	351.3	351.3	351.3	351.3	350.2	350.2	350.2	350.2
5°	352.5	351.3	350.2	350.2	350.2	350.2	349.1	349.1	349.1	348.0	348.0
7.5°	349.1	349.1	349.1	348.0	348.0	346.9	346.9	345.7	345.7	344.6	344.6
10°	346.9	345.7	345.7	344.6	344.6	343.5	343.5	341.2	340.1	340.1	339.0
12.5°	342.4	341.2	341.2	339.0	339.0	339.0	337.9	335.6	334.5	334.5	333.4
15°	336.8	335.6	334.5	332.3	332.3	331.1	330.0	328.9	327.8	326.6	325.5
17.5°	330.0	327.8	326.6	325.5	324.4	323.3	322.2	321.0	318.8	318.8	316.5
20°	322.2	319.9	318.8	316.5	315.4	315.4	313.2	310.9	309.8	308.7	306.4
22.5°	312.1	310.9	308.7	306.4	305.3	305.3	303.1	300.8	299.7	297.5	296.3
25°	303.1	299.7	298.6	296.3	295.2	295.2	293.0	290.7	288.5	287.4	285.1
27.5°	291.9	289.6	288.5	285.1	284.0	282.9	280.6	278.4	276.1	273.9	271.6
30°	280.6	278.4	276.1	272.8	272.8	270.5	268.3	264.9	263.8	261.5	258.2
32.5°	269.4	267.2	263.8	261.5	259.3	258.2	254.8	252.6	250.3	247.0	245.8
35°	257.1	253.7	251.4	248.1	247.0	244.7	242.5	239.1	236.8	233.5	230.1
37.5°	243.6	239.1	236.8	233.5	232.4	230.1	227.9	225.6	222.3	218.9	216.6
40°	229.0	224.5	221.1	218.9	216.6	214.4	213.3	208.8	206.5	204.3	202.1
42.5°	212.2	208.8	205.4	203.2	200.9	199.8	196.4	194.2	190.8	188.6	186.3
45°	196.4	193.1	189.7	186.3	185.2	184.1	181.8	178.5	175.1	172.9	170.6
47.5°	179.6	177.4	172.9	171.7	169.5	168.4	165.0	162.8	161.6	158.3	156.0
50°	162.8	160.5	158.3	154.9	153.8	152.7	150.4	148.2	145.9	143.7	141.4
52.5°	145.9	144.8	142.6	139.2	139.2	138.1	135.8	133.6	131.3	129.1	126.8
55°	131.3	129.1	126.8	124.6	123.5	122.4	120.1	119.0	116.7	114.5	112.3
57.5°	115.6	113.4	112.3	110.0	108.9	107.8	105.5	104.4	102.1	99.9	97.7
60°	101.0	98.8	97.7	95.4	94.3	94.3	92.0	89.8	88.7	86.4	84.2
62.5°	86.4	84.2	83.1	80.8	80.8	79.7	78.6	76.3	75.2	73.0	71.8
65°	73.0	71.8	69.6	68.5	67.4	66.2	65.1	64.0	61.7	60.6	58.4
67.5°	60.6	58.4	57.2	56.1	55.0	53.9	52.8	51.6	49.4	48.3	46.0
70°	48.3	47.1	46.0	44.9	43.8	43.8	41.5	40.4	38.2	37.0	34.8
72.5°	38.2	37.0	35.9	33.7	33.7	32.6	31.4	30.3	28.1	26.9	24.7
75°	28.1	28.1	25.8	24.7	24.7	23.6	22.5	21.3	20.2	18.0	16.8
77.5°	20.2	19.1	18.0	16.8	15.7	15.7	14.6	13.5	12.3	11.2	9.0
80°	13.5	12.3	11.2	10.1	10.1	9.0	7.9	7.9	6.7	5.6	4.5
82.5°	6.7	6.7	5.6	5.6	4.5	4.5	4.5	3.4	3.4	2.2	2.2
85°	3.4	2.2	2.2	2.2	2.2	2.2	1.1	1.1	1.1	1.1	0.0
87.5°	1.1	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°	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3
2.5°	350.2	349.1	350.2	350.2	349.1	349.1	349.1	349.1	348.0	349.1	348.0
5°	348.0	346.9	346.9	346.9	346.9	345.7	345.7	344.6	344.6	344.6	344.6
7.5°	343.5	342.4	342.4	341.2	341.2	341.2	341.2	340.1	340.1	339.0	339.0
10°	339.0	337.9	336.8	336.8	335.6	335.6	335.6	334.5	333.4	333.4	332.3
12.5°	331.1	331.1	330.0	330.0	328.9	328.9	327.8	326.6	326.6	325.5	325.5
15°	324.4	323.3	322.2	322.2	321.0	319.9	318.8	318.8	317.7	317.7	316.5
17.5°	315.4	313.2	313.2	312.1	310.9	310.9	309.8	308.7	307.6	307.6	307.6
20°	305.3	304.2	303.1	302.0	300.8	300.8	299.7	298.6	297.5	296.3	296.3
22.5°	294.1	293.0	291.9	290.7	290.7	289.6	288.5	287.4	286.2	285.1	285.1
25°	282.9	281.7	280.6	279.5	278.4	277.3	276.1	275.0	273.9	272.8	272.8
27.5°	270.5	268.3	267.2	266.0	264.9	263.8	263.8	261.5	261.5	260.4	259.3
30°	257.1	254.8	252.6	252.6	251.4	250.3	248.1	248.1	247.0	245.8	244.7
32.5°	242.5	241.3	239.1	239.1	236.8	235.7	234.6	233.5	232.4	231.2	231.2
35°	229.0	225.6	224.5	224.5	222.3	221.1	220.0	217.8	217.8	215.5	215.5
37.5°	214.4	212.2	211.0	208.8	207.7	206.5	205.4	203.2	202.1	200.9	199.8
40°	199.8	197.6	195.3	194.2	193.1	190.8	189.7	187.5	187.5	185.2	184.1
42.5°	184.1	181.8	179.6	178.5	177.4	175.1	174.0	171.7	170.6	169.5	168.4
45°	168.4	166.1	165.0	163.9	162.8	161.6	158.3	157.2	156.0	153.8	152.7
47.5°	153.8	151.5	149.3	149.3	147.0	145.9	143.7	141.4	140.3	138.1	136.9
50°	139.2	136.9	134.7	133.6	133.6	130.2	129.1	126.8	124.6	122.4	121.2
52.5°	124.6	122.4	120.1	119.0	117.9	115.6	113.4	112.3	110.0	107.8	106.6
55°	110.0	107.8	105.5	104.4	103.3	101.0	99.9	96.5	95.4	93.2	90.9
57.5°	96.5	94.3	92.0	90.9	89.8	87.6	85.3	83.1	81.9	79.7	77.5
60°	81.9	80.8	78.6	77.5	76.3	75.2	71.8	69.6	67.4	66.2	64.0
62.5°	69.6	67.4	65.1	64.0	62.9	61.7	59.5	57.2	56.1	52.8	50.5
65°	57.2	55.0	52.8	51.6	50.5	49.4	47.1	44.9	42.7	40.4	39.3
67.5°	43.8	42.7	40.4	40.4	39.3	37.0	34.8	33.7	31.4	30.3	28.1
70°	33.7	32.6	30.3	29.2	28.1	25.8	24.7	22.5	21.3	20.2	18.0
72.5°	23.6	22.5	20.2	19.1	18.0	16.8	14.6	13.5	12.3	11.2	10.1
75°	15.7	13.5	12.3	11.2	11.2	9.0	7.9	6.7	5.6	4.5	4.5
77.5°	9.0	7.9	5.6	5.6	5.6	4.5	3.4	3.4	2.2	2.2	2.2
80°	4.5	3.4	2.2	2.2	2.2	2.2	1.1	1.1	1.1	1.1	1.1
82.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.0	1.1	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: P642322

CATALOG NUMBER: ML5612LSWW97FS1E - 692H WW - 900LM - 3000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3
2.5°	348.0	348.0	348.0	348.0	348.0	348.0	348.0	348.0
5°	344.6	343.5	343.5	343.5	343.5	343.5	343.5	343.5
7.5°	339.0	339.0	337.9	339.0	337.9	337.9	337.9	337.9
10°	332.3	332.3	332.3	332.3	331.1	331.1	331.1	331.1
12.5°	325.5	324.4	324.4	324.4	323.3	324.4	323.3	323.3
15°	316.5	315.4	315.4	315.4	315.4	314.3	315.4	314.3
17.5°	306.4	306.4	305.3	306.4	305.3	305.3	305.3	305.3
20°	295.2	295.2	295.2	294.1	295.2	294.1	294.1	294.1
22.5°	284.0	284.0	282.9	282.9	282.9	282.9	282.9	282.9
25°	271.6	271.6	271.6	271.6	270.5	270.5	270.5	270.5
27.5°	259.3	258.2	258.2	258.2	257.1	258.2	257.1	257.1
30°	244.7	244.7	243.6	243.6	243.6	242.5	242.5	243.6
32.5°	229.0	229.0	229.0	229.0	227.9	227.9	227.9	227.9
35°	214.4	214.4	213.3	213.3	213.3	212.2	212.2	212.2
37.5°	198.7	198.7	197.6	197.6	197.6	196.4	196.4	197.6
40°	183.0	183.0	181.8	181.8	181.8	180.7	180.7	180.7
42.5°	167.3	166.1	166.1	165.0	165.0	165.0	163.9	163.9
45°	151.5	150.4	150.4	150.4	149.3	148.2	148.2	148.2
47.5°	135.8	134.7	133.6	133.6	132.5	132.5	132.5	133.6
50°	120.1	119.0	119.0	117.9	116.7	116.7	116.7	115.6
52.5°	104.4	103.3	103.3	102.1	102.1	101.0	99.9	99.9
55°	89.8	88.7	87.6	86.4	86.4	85.3	85.3	85.3
57.5°	75.2	74.1	73.0	73.0	71.8	71.8	70.7	69.6
60°	61.7	60.6	59.5	59.5	58.4	57.2	56.1	56.1
62.5°	49.4	48.3	47.1	46.0	44.9	43.8	42.7	43.8
65°	38.2	35.9	34.8	33.7	33.7	32.6	31.4	30.3
67.5°	26.9	25.8	24.7	23.6	22.5	21.3	20.2	20.2
70°	16.8	14.6	14.6	14.6	13.5	12.3	11.2	11.2
72.5°	9.0	7.9	6.7	6.7	5.6	5.6	5.6	5.6
75°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
77.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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)