

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: P642350

Luminaire Tested: ML5612LSWW97FS1E - 692W WW - 600LM - 5000K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P642350  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-117)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 2/17/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML5612LSWW97FS1E - 692W WW - 600LM - 5000K  
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH WHITE TRIM  
Light Source: (1) HCL SELECTABLE LUMEN LED 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 634.1 lumens  
Efficiency: N/A  
Efficacy: 61.6 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.13 / 1.25  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

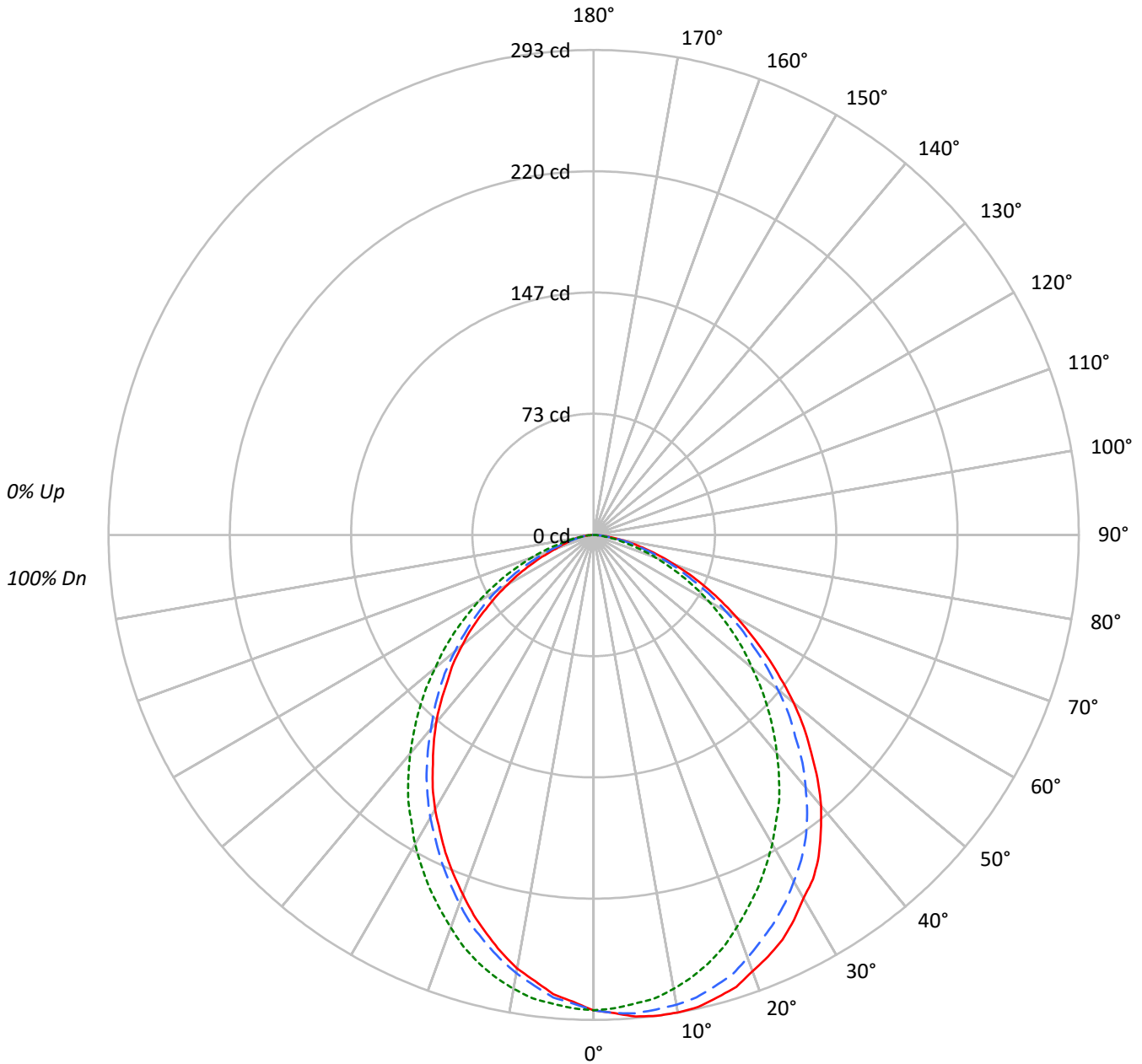
Input Watts (W): 10.3  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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								
1	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89	87								
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	52	46	72	60	52	46	58	51	46	56	50	45	55	49	45	43								
7	68	55	47	41	67	55	47	41	53	46	41	52	45	41	50	45	40	38								
8	64	51	43	37	62	50	42	37	49	42	37	48	41	37	46	41	36	35								
9	60	47	39	34	58	46	39	34	45	38	33	44	38	33	43	37	33	31								
10	56	43	36	31	55	43	36	31	42	35	30	41	35	30	40	34	30	29								

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

	0°	45°	90°	135°	180°
0°	15744	15744	15744	15744	15744
5°	16074	15964	15645	15436	15326
10°	16310	16043	15503	14969	14807
15°	16413	16027	15204	14438	14160
20°	16364	15856	14725	13826	13482
25°	16319	15618	14215	13162	12811
30°	16040	15306	13654	12489	12122
35°	15861	14951	13077	11778	11330
40°	15293	14255	12323	10935	10591
45°	14397	13350	11544	10195	9675
50°	13441	12375	10644	9322	8827
55°	12205	11278	9797	8411	7761
60°	10920	10076	8804	7423	6578
65°	9664	8782	7653	6278	5266
70°	8223	7597	6363	4809	3879
75°	6757	6142	4702	3283	3283
80°	5177	4578	3346	2747	3062
85°	3648	3019	2453	2453	2453

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 14397 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	27.0	4.3
10°-20°	75.6	11.9
20°-30°	109.4	17.3
30°-40°	124.3	19.6
40°-50°	117.3	18.5
50°-60°	92.5	14.6
60°-70°	57.9	9.1
70°-80°	25.0	3.9
80°-90°	5.2	0.8
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°	212.0	33.4
0°-40°	336.2	53.0
0°-60°	546.0	86.1
0°-90°	634.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	634.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	287	287	287	287	287	
5°	292	290	284	280	278	28
15°	289	282	268	254	250	82
25°	270	258	235	218	212	124
35°	237	223	195	176	169	148
45°	186	172	149	132	125	143
55°	128	118	102	88	81	114
65°	74	68	59	48	41	74
75°	32	29	22	16	16	35
85°	6	5	4	4	4	7
90°	0	0	0	0	0	



TEST NUMBER: P642350

CATALOG NUMBER: ML5612LSWW97FS1E - 692W WW - 600LM - 5000K

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2
2.5°	289.2	289.2	290.1	290.1	289.2	289.2	289.2	289.2	289.2	289.2	289.2
5°	292.1	292.1	292.1	292.1	291.1	291.1	291.1	291.1	291.1	290.1	290.1
7.5°	293.0	293.0	293.0	293.0	292.1	292.1	291.1	291.1	291.1	290.1	289.2
10°	293.0	293.0	293.0	292.1	292.1	291.1	292.1	291.1	290.1	289.2	288.2
12.5°	292.1	291.1	291.1	291.1	290.1	290.1	290.1	289.2	288.2	287.2	286.3
15°	289.2	289.2	289.2	288.2	288.2	287.2	287.2	286.3	285.3	283.4	282.4
17.5°	286.3	286.3	285.3	285.3	284.3	283.4	283.4	282.4	281.4	279.5	278.5
20°	280.5	280.5	280.5	279.5	278.5	278.5	277.6	276.6	274.7	272.7	271.8
22.5°	275.6	274.7	274.7	273.7	272.7	272.7	271.8	269.8	268.9	266.9	265.0
25°	269.8	268.9	268.9	267.9	266.9	266.0	266.0	264.0	262.1	260.2	258.2
27.5°	262.1	262.1	261.1	260.2	259.2	259.2	258.2	257.3	254.4	252.4	250.5
30°	253.4	254.4	253.4	252.4	251.5	251.5	250.5	248.6	246.6	243.7	241.8
32.5°	246.6	246.6	245.7	244.7	242.8	242.8	242.8	239.9	237.9	236.0	233.1
35°	237.0	237.0	237.0	235.0	234.0	233.1	232.1	230.2	228.2	226.3	223.4
37.5°	225.3	226.3	225.3	224.4	223.4	222.4	221.5	219.5	216.6	214.7	211.8
40°	213.7	213.7	212.8	211.8	210.8	209.9	208.9	207.0	205.0	202.1	199.2
42.5°	200.2	200.2	199.2	198.3	197.3	196.3	196.3	194.4	191.5	189.6	186.7
45°	185.7	185.7	185.7	184.7	183.8	182.8	181.8	180.9	178.9	176.0	172.2
47.5°	172.2	172.2	172.2	170.2	170.2	168.3	167.3	165.4	164.4	161.5	159.6
50°	157.6	156.7	156.7	155.7	154.7	153.8	153.8	150.9	149.9	148.0	145.1
52.5°	142.2	142.2	142.2	141.2	140.2	139.3	139.3	137.3	135.4	133.5	132.5
55°	127.7	127.7	127.7	126.7	125.7	125.7	124.8	122.8	121.9	119.9	118.0
57.5°	113.2	114.1	113.2	112.2	112.2	111.2	111.2	110.3	108.3	106.4	105.4
60°	99.6	99.6	99.6	98.6	97.7	97.7	97.7	96.7	94.8	93.8	91.9
62.5°	87.0	87.0	86.1	86.1	85.1	85.1	84.1	83.2	82.2	81.2	80.3
65°	74.5	73.5	73.5	73.5	72.5	72.5	72.5	71.6	69.6	68.7	67.7
67.5°	62.9	62.9	61.9	61.9	60.9	60.9	60.9	60.0	59.0	58.0	57.1
70°	51.3	51.3	51.3	51.3	50.3	50.3	50.3	49.3	48.4	48.4	47.4
72.5°	41.6	41.6	41.6	41.6	40.6	40.6	40.6	39.7	38.7	37.7	37.7
75°	31.9	32.9	31.9	31.9	31.9	31.9	30.9	30.9	30.0	29.0	29.0
77.5°	24.2	24.2	24.2	24.2	23.2	23.2	23.2	23.2	22.2	21.3	21.3
80°	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4	15.5	15.5	14.5
82.5°	9.7	10.6	10.6	10.6	9.7	9.7	9.7	9.7	9.7	9.7	8.7
85°	5.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
87.5°	1.9	1.9	1.9	1.9	1.9	1.0	1.0	1.0	1.0	1.0	1.0
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°	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2
2.5°	288.2	288.2	288.2	288.2	287.2	287.2	287.2	286.3	286.3	286.3	286.3
5°	289.2	288.2	288.2	287.2	287.2	287.2	286.3	286.3	285.3	284.3	284.3
7.5°	288.2	288.2	287.2	286.3	286.3	285.3	284.3	283.4	282.4	282.4	280.5
10°	287.2	286.3	285.3	284.3	283.4	283.4	281.4	280.5	279.5	278.5	277.6
12.5°	284.3	283.4	282.4	280.5	280.5	279.5	277.6	276.6	274.7	273.7	271.8
15°	280.5	279.5	278.5	276.6	275.6	274.7	272.7	270.8	268.9	267.9	266.0
17.5°	276.6	274.7	272.7	270.8	269.8	268.9	266.9	265.0	263.1	261.1	259.2
20°	269.8	267.9	266.0	263.1	262.1	261.1	258.2	256.3	254.4	252.4	250.5
22.5°	263.1	261.1	258.2	256.3	255.3	253.4	251.5	248.6	246.6	243.7	241.8
25°	256.3	253.4	250.5	248.6	246.6	245.7	242.8	240.8	237.0	235.0	233.1
27.5°	247.6	245.7	242.8	239.9	237.9	236.0	234.0	231.1	228.2	225.3	223.4
30°	238.9	236.0	233.1	231.1	228.2	227.3	224.4	221.5	218.6	215.7	213.7
32.5°	230.2	227.3	224.4	221.5	219.5	217.6	214.7	211.8	207.9	205.0	203.1
35°	220.5	217.6	213.7	210.8	208.9	207.0	204.1	201.2	198.3	195.4	192.5
37.5°	208.9	205.0	203.1	200.2	197.3	195.4	192.5	188.6	186.7	183.8	180.9
40°	196.3	193.4	190.5	187.6	184.7	183.8	179.9	177.0	175.1	172.2	169.3
42.5°	183.8	180.9	177.0	174.1	172.2	171.2	168.3	165.4	162.5	160.5	157.6
45°	170.2	167.3	164.4	161.5	159.6	158.6	155.7	153.8	150.9	148.9	146.0
47.5°	156.7	153.8	151.8	148.9	147.0	146.0	144.1	141.2	138.3	137.3	135.4
50°	143.1	140.2	138.3	135.4	134.4	133.5	131.5	129.6	127.7	124.8	123.8
52.5°	129.6	126.7	124.8	122.8	122.8	120.9	119.0	118.0	116.1	114.1	112.2
55°	116.1	115.1	113.2	110.3	110.3	109.3	107.4	105.4	103.5	102.5	100.6
57.5°	102.5	101.6	99.6	98.6	97.7	96.7	95.7	93.8	92.8	90.9	89.9
60°	90.9	89.9	88.0	87.0	86.1	85.1	84.1	82.2	81.2	80.3	79.3
62.5°	78.3	77.4	76.4	75.4	74.5	73.5	73.5	71.6	70.6	69.6	68.7
65°	67.7	65.8	64.8	63.8	63.8	62.9	61.9	60.9	60.0	59.0	58.0
67.5°	56.1	55.1	55.1	53.2	53.2	52.2	51.3	51.3	49.3	48.4	47.4
70°	46.4	45.5	44.5	43.5	43.5	42.6	41.6	40.6	39.7	39.7	38.7
72.5°	36.8	35.8	35.8	34.8	33.9	33.9	32.9	31.9	30.9	30.9	30.0
75°	28.0	27.1	27.1	26.1	26.1	25.1	24.2	24.2	23.2	22.2	21.3
77.5°	20.3	20.3	19.3	19.3	18.4	18.4	17.4	17.4	16.4	15.5	15.5
80°	14.5	13.5	13.5	12.6	12.6	12.6	11.6	11.6	10.6	10.6	9.7
82.5°	8.7	8.7	7.7	7.7	7.7	7.7	6.8	6.8	6.8	5.8	5.8
85°	4.8	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	2.9
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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: P642350

CATALOG NUMBER: ML5612LSWW97FS1E - 692W WW - 600LM - 5000K

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2
2.5°	285.3	285.3	284.3	285.3	284.3	284.3	284.3	284.3	283.4	283.4	283.4
5°	283.4	282.4	282.4	281.4	282.4	281.4	280.5	280.5	280.5	280.5	279.5
7.5°	279.5	279.5	278.5	277.6	277.6	276.6	275.6	275.6	274.7	274.7	273.7
10°	276.6	274.7	273.7	272.7	272.7	271.8	270.8	269.8	268.9	267.9	267.9
12.5°	269.8	268.9	267.9	266.9	266.9	265.0	264.0	263.1	262.1	261.1	260.2
15°	265.0	263.1	261.1	260.2	260.2	258.2	257.3	256.3	254.4	254.4	252.4
17.5°	257.3	255.3	253.4	252.4	251.5	250.5	249.5	247.6	246.6	244.7	244.7
20°	247.6	246.6	243.7	242.8	241.8	240.8	238.9	237.9	237.0	235.0	234.0
22.5°	239.9	237.0	235.0	234.0	234.0	231.1	230.2	228.2	227.3	226.3	224.4
25°	230.2	228.2	226.3	224.4	224.4	222.4	221.5	219.5	217.6	216.6	215.7
27.5°	220.5	218.6	215.7	214.7	213.7	212.8	210.8	208.9	207.0	206.0	205.0
30°	209.9	207.9	206.0	205.0	203.1	201.2	199.2	198.3	197.3	195.4	194.4
32.5°	200.2	197.3	195.4	193.4	193.4	190.5	189.6	187.6	186.7	185.7	183.8
35°	189.6	186.7	184.7	183.8	182.8	179.9	178.0	176.0	176.0	174.1	173.1
37.5°	178.0	175.1	174.1	172.2	171.2	169.3	167.3	166.3	164.4	162.5	162.5
40°	167.3	164.4	161.5	161.5	159.6	158.6	155.7	154.7	152.8	151.8	150.9
42.5°	155.7	152.8	150.9	149.9	148.9	147.0	145.1	143.1	142.2	141.2	140.2
45°	143.1	141.2	140.2	138.3	137.3	135.4	134.4	132.5	131.5	129.6	128.6
47.5°	132.5	130.6	128.6	127.7	126.7	124.8	123.8	121.9	120.9	119.0	118.0
50°	121.9	119.9	118.0	117.0	116.1	114.1	112.2	111.2	109.3	108.3	106.4
52.5°	110.3	108.3	106.4	106.4	105.4	103.5	102.5	100.6	98.6	96.7	95.7
55°	99.6	97.7	95.7	94.8	94.8	92.8	90.9	89.9	88.0	87.0	85.1
57.5°	88.0	86.1	85.1	84.1	84.1	82.2	81.2	79.3	78.3	76.4	75.4
60°	77.4	76.4	74.5	74.5	73.5	71.6	70.6	68.7	67.7	66.7	65.8
62.5°	66.7	65.8	63.8	63.8	62.9	61.9	60.9	59.0	58.0	56.1	55.1
65°	56.1	55.1	54.2	53.2	53.2	51.3	50.3	49.3	48.4	47.4	46.4
67.5°	46.4	45.5	44.5	44.5	43.5	42.6	40.6	39.7	38.7	37.7	36.8
70°	37.7	35.8	34.8	34.8	33.9	32.9	31.9	30.9	30.0	29.0	28.0
72.5°	29.0	27.1	27.1	26.1	25.1	24.2	24.2	23.2	22.2	22.2	20.3
75°	21.3	20.3	19.3	19.3	18.4	17.4	16.4	16.4	15.5	15.5	15.5
77.5°	14.5	13.5	13.5	12.6	12.6	12.6	11.6	11.6	11.6	11.6	12.6
80°	9.7	9.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	9.7	9.7
82.5°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	6.8
85°	2.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
87.5°	1.0	1.0	1.9	1.0	1.9	1.0	1.9	1.9	1.9	1.9	1.9
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: P642350

CATALOG NUMBER: ML5612LSWW97FS1E - 692W WW - 600LM - 5000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2
2.5°	282.4	283.4	283.4	282.4	283.4	282.4	282.4	282.4
5°	279.5	278.5	278.5	278.5	277.6	278.5	278.5	278.5
7.5°	273.7	273.7	272.7	272.7	271.8	271.8	272.7	271.8
10°	266.9	266.0	266.9	266.0	266.0	266.0	265.0	266.0
12.5°	260.2	259.2	259.2	258.2	258.2	258.2	258.2	258.2
15°	252.4	251.5	251.5	250.5	250.5	249.5	250.5	249.5
17.5°	243.7	243.7	241.8	241.8	241.8	241.8	241.8	240.8
20°	233.1	233.1	232.1	233.1	231.1	231.1	231.1	231.1
22.5°	224.4	223.4	222.4	222.4	222.4	221.5	221.5	221.5
25°	213.7	213.7	212.8	212.8	211.8	211.8	211.8	211.8
27.5°	204.1	203.1	203.1	203.1	202.1	201.2	201.2	201.2
30°	193.4	193.4	192.5	192.5	191.5	191.5	191.5	191.5
32.5°	182.8	182.8	181.8	180.9	180.9	180.9	179.9	180.9
35°	172.2	171.2	171.2	170.2	170.2	170.2	169.3	169.3
37.5°	161.5	160.5	159.6	160.5	159.6	158.6	158.6	158.6
40°	149.9	148.9	148.9	148.0	148.0	148.0	147.0	148.0
42.5°	139.3	139.3	138.3	137.3	137.3	137.3	136.4	136.4
45°	128.6	126.7	127.7	126.7	126.7	125.7	125.7	124.8
47.5°	117.0	116.1	116.1	116.1	115.1	115.1	115.1	115.1
50°	105.4	104.5	105.4	104.5	104.5	103.5	103.5	103.5
52.5°	94.8	93.8	93.8	93.8	93.8	92.8	92.8	92.8
55°	84.1	83.2	83.2	83.2	82.2	82.2	81.2	81.2
57.5°	74.5	73.5	72.5	71.6	71.6	71.6	70.6	70.6
60°	63.8	62.9	61.9	61.9	60.9	60.9	60.9	60.0
62.5°	54.2	53.2	52.2	52.2	51.3	50.3	50.3	50.3
65°	44.5	43.5	43.5	42.6	41.6	41.6	40.6	40.6
67.5°	35.8	34.8	34.8	33.9	32.9	31.9	31.9	31.9
70°	28.0	27.1	26.1	26.1	26.1	25.1	24.2	24.2
72.5°	20.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
75°	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
77.5°	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
80°	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
82.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
85°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
87.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.0
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)