

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: P642355

Luminaire Tested: ML5612LSWW97FS1E - 692W WW - 900LM - 5000K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P642355  
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 - 900LM - 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: 813.5 lumens  
Efficiency: N/A  
Efficacy: 61.2 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

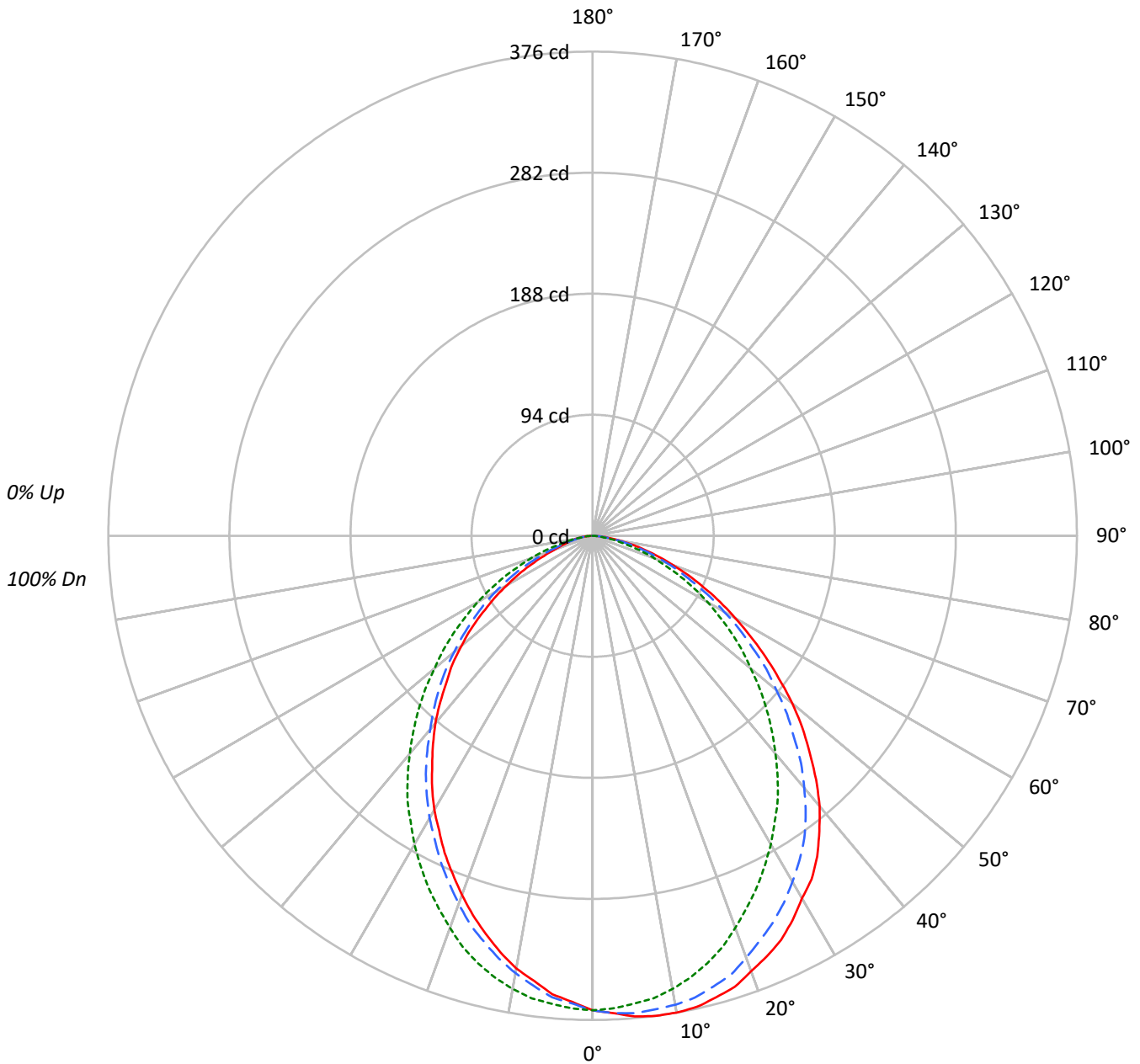
Input Watts (W): 13.3  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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								
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°	20201	20201	20201	20201	20201
5°	20620	20482	20075	19800	19668
10°	20930	20585	19895	19199	18993
15°	21056	20562	19506	18519	18167
20°	20990	20343	18896	17735	17303
25°	20941	20039	18237	16888	16434
30°	20579	19636	17515	16021	15553
35°	20345	19180	16771	15111	14529
40°	19622	18291	15808	14026	13583
45°	18467	17126	14815	13087	12412
50°	17253	15872	13654	11957	11326
55°	15655	14470	12568	10791	9959
60°	14012	12927	11293	9528	8431
65°	12388	11272	9819	8042	6758
70°	10547	9745	8158	6171	4969
75°	8663	7879	6037	4215	4215
80°	6661	5872	4293	3536	3915
85°	4655	3900	3145	3145	3145

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 18467 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	34.6	4.3
10°-20°	97.0	11.9
20°-30°	140.3	17.3
30°-40°	159.4	19.6
40°-50°	150.5	18.5
50°-60°	118.7	14.6
60°-70°	74.3	9.1
70°-80°	32.1	3.9
80°-90°	6.6	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°	271.9	33.4
0°-40°	431.3	53.0
0°-60°	700.5	86.1
0°-90°	813.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	813.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	368	368	368	368	368	
5°	375	372	365	360	357	36
15°	371	362	344	326	320	105
25°	346	331	302	279	272	159
35°	304	287	251	226	217	189
45°	238	221	191	169	160	184
55°	164	151	132	113	104	147
65°	96	87	76	62	52	95
75°	41	37	28	20	20	44
85°	7	6	5	5	5	9
90°	0	0	0	0	0	



TEST NUMBER: P642355

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	368.5	368.5	368.5	368.5	368.5	368.5	368.5	368.5	368.5	368.5	368.5
2.5°	371.0	371.0	372.2	372.2	371.0	371.0	371.0	371.0	371.0	371.0	371.0
5°	374.7	374.7	374.7	374.7	373.5	373.5	373.5	373.5	373.5	372.2	372.2
7.5°	376.0	376.0	376.0	376.0	374.7	374.7	373.5	373.5	373.5	372.2	371.0
10°	376.0	376.0	376.0	374.7	374.7	373.5	374.7	373.5	372.2	371.0	369.8
12.5°	374.7	373.5	373.5	373.5	372.2	372.2	372.2	371.0	369.8	368.5	367.3
15°	371.0	371.0	371.0	369.8	369.8	368.5	368.5	367.3	366.0	363.6	362.3
17.5°	367.3	367.3	366.0	366.0	364.8	363.6	363.6	362.3	361.1	358.6	357.4
20°	359.8	359.8	359.8	358.6	357.4	357.4	356.1	354.9	352.4	349.9	348.7
22.5°	353.6	352.4	352.4	351.2	349.9	349.9	348.7	346.2	344.9	342.5	340.0
25°	346.2	344.9	344.9	343.7	342.5	341.2	341.2	338.7	336.3	333.8	331.3
27.5°	336.3	336.3	335.0	333.8	332.5	332.5	331.3	330.1	326.3	323.9	321.4
30°	325.1	326.3	325.1	323.9	322.6	322.6	321.4	318.9	316.4	312.7	310.2
32.5°	316.4	316.4	315.2	313.9	311.4	311.4	311.4	307.7	305.2	302.8	299.0
35°	304.0	304.0	304.0	301.5	300.3	299.0	297.8	295.3	292.8	290.4	286.6
37.5°	289.1	290.4	289.1	287.9	286.6	285.4	284.1	281.7	277.9	275.5	271.7
40°	274.2	274.2	273.0	271.7	270.5	269.3	268.0	265.5	263.1	259.3	255.6
42.5°	256.8	256.8	255.6	254.4	253.1	251.9	251.9	249.4	245.7	243.2	239.5
45°	238.2	238.2	238.2	237.0	235.8	234.5	233.3	232.0	229.6	225.8	220.9
47.5°	220.9	220.9	220.9	218.4	218.4	215.9	214.7	212.2	210.9	207.2	204.7
50°	202.3	201.0	201.0	199.8	198.5	197.3	197.3	193.6	192.3	189.8	186.1
52.5°	182.4	182.4	182.4	181.2	179.9	178.7	178.7	176.2	173.7	171.2	170.0
55°	163.8	163.8	163.8	162.5	161.3	161.3	160.1	157.6	156.3	153.9	151.4
57.5°	145.2	146.4	145.2	143.9	143.9	142.7	142.7	141.5	139.0	136.5	135.2
60°	127.8	127.8	127.8	126.6	125.3	125.3	125.3	124.1	121.6	120.4	117.9
62.5°	111.7	111.7	110.4	110.4	109.2	109.2	108.0	106.7	105.5	104.2	103.0
65°	95.5	94.3	94.3	94.3	93.1	93.1	93.1	91.8	89.3	88.1	86.9
67.5°	80.7	80.7	79.4	79.4	78.2	78.2	78.2	76.9	75.7	74.4	73.2
70°	65.8	65.8	65.8	65.8	64.5	64.5	64.5	63.3	62.0	62.0	60.8
72.5°	53.4	53.4	53.4	53.4	52.1	52.1	52.1	50.9	49.6	48.4	48.4
75°	40.9	42.2	40.9	40.9	40.9	40.9	39.7	39.7	38.5	37.2	37.2
77.5°	31.0	31.0	31.0	31.0	29.8	29.8	29.8	29.8	28.5	27.3	27.3
80°	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	19.9	19.9	18.6
82.5°	12.4	13.6	13.6	13.6	12.4	12.4	12.4	12.4	12.4	12.4	11.2
85°	7.4	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
87.5°	2.5	2.5	2.5	2.5	2.5	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°	368.5	368.5	368.5	368.5	368.5	368.5	368.5	368.5	368.5	368.5	368.5
2.5°	369.8	369.8	369.8	369.8	368.5	368.5	368.5	367.3	367.3	367.3	367.3
5°	371.0	369.8	369.8	368.5	368.5	368.5	367.3	367.3	366.0	364.8	364.8
7.5°	369.8	369.8	368.5	367.3	367.3	366.0	364.8	363.6	362.3	362.3	359.8
10°	368.5	367.3	366.0	364.8	363.6	363.6	361.1	359.8	358.6	357.4	356.1
12.5°	364.8	363.6	362.3	359.8	359.8	358.6	356.1	354.9	352.4	351.2	348.7
15°	359.8	358.6	357.4	354.9	353.6	352.4	349.9	347.4	344.9	343.7	341.2
17.5°	354.9	352.4	349.9	347.4	346.2	344.9	342.5	340.0	337.5	335.0	332.5
20°	346.2	343.7	341.2	337.5	336.3	335.0	331.3	328.8	326.3	323.9	321.4
22.5°	337.5	335.0	331.3	328.8	327.6	325.1	322.6	318.9	316.4	312.7	310.2
25°	328.8	325.1	321.4	318.9	316.4	315.2	311.4	309.0	304.0	301.5	299.0
27.5°	317.6	315.2	311.4	307.7	305.2	302.8	300.3	296.6	292.8	289.1	286.6
30°	306.5	302.8	299.0	296.6	292.8	291.6	287.9	284.1	280.4	276.7	274.2
32.5°	295.3	291.6	287.9	284.1	281.7	279.2	275.5	271.7	266.8	263.1	260.6
35°	282.9	279.2	274.2	270.5	268.0	265.5	261.8	258.1	254.4	250.6	246.9
37.5°	268.0	263.1	260.6	256.8	253.1	250.6	246.9	242.0	239.5	235.8	232.0
40°	251.9	248.2	244.4	240.7	237.0	235.8	230.8	227.1	224.6	220.9	217.1
42.5°	235.8	232.0	227.1	223.3	220.9	219.6	215.9	212.2	208.5	206.0	202.3
45°	218.4	214.7	210.9	207.2	204.7	203.5	199.8	197.3	193.6	191.1	187.4
47.5°	201.0	197.3	194.8	191.1	188.6	187.4	184.9	181.2	177.4	176.2	173.7
50°	183.6	179.9	177.4	173.7	172.5	171.2	168.8	166.3	163.8	160.1	158.8
52.5°	166.3	162.5	160.1	157.6	157.6	155.1	152.6	151.4	148.9	146.4	143.9
55°	148.9	147.7	145.2	141.5	141.5	140.2	137.7	135.2	132.8	131.5	129.0
57.5°	131.5	130.3	127.8	126.6	125.3	124.1	122.8	120.4	119.1	116.6	115.4
60°	116.6	115.4	112.9	111.7	110.4	109.2	108.0	105.5	104.2	103.0	101.7
62.5°	100.5	99.3	98.0	96.8	95.5	94.3	94.3	91.8	90.6	89.3	88.1
65°	86.9	84.4	83.1	81.9	81.9	80.7	79.4	78.2	76.9	75.7	74.4
67.5°	72.0	70.7	70.7	68.2	68.2	67.0	65.8	65.8	63.3	62.0	60.8
70°	59.6	58.3	57.1	55.8	55.8	54.6	53.4	52.1	50.9	50.9	49.6
72.5°	47.2	45.9	45.9	44.7	43.4	43.4	42.2	40.9	39.7	39.7	38.5
75°	36.0	34.7	34.7	33.5	33.5	32.3	31.0	31.0	29.8	28.5	27.3
77.5°	26.1	26.1	24.8	24.8	23.6	23.6	22.3	22.3	21.1	19.9	19.9
80°	18.6	17.4	17.4	16.1	16.1	16.1	14.9	14.9	13.6	13.6	12.4
82.5°	11.2	11.2	9.9	9.9	9.9	9.9	8.7	8.7	8.7	7.4	7.4
85°	6.2	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.7
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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	368.5	368.5	368.5	368.5	368.5	368.5	368.5	368.5	368.5	368.5	368.5
2.5°	366.0	366.0	364.8	366.0	364.8	364.8	364.8	364.8	363.6	363.6	363.6
5°	363.6	362.3	362.3	361.1	362.3	361.1	359.8	359.8	359.8	359.8	358.6
7.5°	358.6	358.6	357.4	356.1	356.1	354.9	353.6	353.6	352.4	352.4	351.2
10°	354.9	352.4	351.2	349.9	349.9	348.7	347.4	346.2	344.9	343.7	343.7
12.5°	346.2	344.9	343.7	342.5	342.5	340.0	338.7	337.5	336.3	335.0	333.8
15°	340.0	337.5	335.0	333.8	333.8	331.3	330.1	328.8	326.3	326.3	323.9
17.5°	330.1	327.6	325.1	323.9	322.6	321.4	320.1	317.6	316.4	313.9	313.9
20°	317.6	316.4	312.7	311.4	310.2	309.0	306.5	305.2	304.0	301.5	300.3
22.5°	307.7	304.0	301.5	300.3	300.3	296.6	295.3	292.8	291.6	290.4	287.9
25°	295.3	292.8	290.4	287.9	287.9	285.4	284.1	281.7	279.2	277.9	276.7
27.5°	282.9	280.4	276.7	275.5	274.2	273.0	270.5	268.0	265.5	264.3	263.1
30°	269.3	266.8	264.3	263.1	260.6	258.1	255.6	254.4	253.1	250.6	249.4
32.5°	256.8	253.1	250.6	248.2	248.2	244.4	243.2	240.7	239.5	238.2	235.8
35°	243.2	239.5	237.0	235.8	234.5	230.8	228.3	225.8	225.8	223.3	222.1
37.5°	228.3	224.6	223.3	220.9	219.6	217.1	214.7	213.4	210.9	208.5	208.5
40°	214.7	210.9	207.2	207.2	204.7	203.5	199.8	198.5	196.0	194.8	193.6
42.5°	199.8	196.0	193.6	192.3	191.1	188.6	186.1	183.6	182.4	181.2	179.9
45°	183.6	181.2	179.9	177.4	176.2	173.7	172.5	170.0	168.8	166.3	165.0
47.5°	170.0	167.5	165.0	163.8	162.5	160.1	158.8	156.3	155.1	152.6	151.4
50°	156.3	153.9	151.4	150.1	148.9	146.4	143.9	142.7	140.2	139.0	136.5
52.5°	141.5	139.0	136.5	136.5	135.2	132.8	131.5	129.0	126.6	124.1	122.8
55°	127.8	125.3	122.8	121.6	121.6	119.1	116.6	115.4	112.9	111.7	109.2
57.5°	112.9	110.4	109.2	108.0	108.0	105.5	104.2	101.7	100.5	98.0	96.8
60°	99.3	98.0	95.5	95.5	94.3	91.8	90.6	88.1	86.9	85.6	84.4
62.5°	85.6	84.4	81.9	81.9	80.7	79.4	78.2	75.7	74.4	72.0	70.7
65°	72.0	70.7	69.5	68.2	68.2	65.8	64.5	63.3	62.0	60.8	59.6
67.5°	59.6	58.3	57.1	57.1	55.8	54.6	52.1	50.9	49.6	48.4	47.2
70°	48.4	45.9	44.7	44.7	43.4	42.2	40.9	39.7	38.5	37.2	36.0
72.5°	37.2	34.7	34.7	33.5	32.3	31.0	31.0	29.8	28.5	28.5	26.1
75°	27.3	26.1	24.8	24.8	23.6	22.3	21.1	21.1	19.9	19.9	19.9
77.5°	18.6	17.4	17.4	16.1	16.1	16.1	14.9	14.9	14.9	14.9	16.1
80°	12.4	12.4	11.2	11.2	11.2	11.2	11.2	11.2	11.2	12.4	12.4
82.5°	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	8.7
85°	3.7	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
87.5°	1.2	1.2	2.5	1.2	2.5	1.2	2.5	2.5	2.5	2.5	2.5
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: P642355

CATALOG NUMBER: ML5612LSWW97FS1E - 692W WW - 900LM - 5000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	368.5	368.5	368.5	368.5	368.5	368.5	368.5	368.5
2.5°	362.3	363.6	363.6	362.3	363.6	362.3	362.3	362.3
5°	358.6	357.4	357.4	357.4	356.1	357.4	357.4	357.4
7.5°	351.2	351.2	349.9	349.9	348.7	348.7	349.9	348.7
10°	342.5	341.2	342.5	341.2	341.2	341.2	340.0	341.2
12.5°	333.8	332.5	332.5	331.3	331.3	331.3	331.3	331.3
15°	323.9	322.6	322.6	321.4	321.4	320.1	321.4	320.1
17.5°	312.7	312.7	310.2	310.2	310.2	310.2	310.2	309.0
20°	299.0	299.0	297.8	299.0	296.6	296.6	296.6	296.6
22.5°	287.9	286.6	285.4	285.4	285.4	284.1	284.1	284.1
25°	274.2	274.2	273.0	273.0	271.7	271.7	271.7	271.7
27.5°	261.8	260.6	260.6	260.6	259.3	258.1	258.1	258.1
30°	248.2	248.2	246.9	246.9	245.7	245.7	245.7	245.7
32.5°	234.5	234.5	233.3	232.0	232.0	232.0	230.8	232.0
35°	220.9	219.6	219.6	218.4	218.4	218.4	217.1	217.1
37.5°	207.2	206.0	204.7	206.0	204.7	203.5	203.5	203.5
40°	192.3	191.1	191.1	189.8	189.8	189.8	188.6	189.8
42.5°	178.7	178.7	177.4	176.2	176.2	176.2	175.0	175.0
45°	165.0	162.5	163.8	162.5	162.5	161.3	161.3	160.1
47.5°	150.1	148.9	148.9	148.9	147.7	147.7	147.7	147.7
50°	135.2	134.0	135.2	134.0	134.0	132.8	132.8	132.8
52.5°	121.6	120.4	120.4	120.4	120.4	119.1	119.1	119.1
55°	108.0	106.7	106.7	106.7	105.5	105.5	104.2	104.2
57.5°	95.5	94.3	93.1	91.8	91.8	91.8	90.6	90.6
60°	81.9	80.7	79.4	79.4	78.2	78.2	78.2	76.9
62.5°	69.5	68.2	67.0	67.0	65.8	64.5	64.5	64.5
65°	57.1	55.8	55.8	54.6	53.4	53.4	52.1	52.1
67.5°	45.9	44.7	44.7	43.4	42.2	40.9	40.9	40.9
70°	36.0	34.7	33.5	33.5	33.5	32.3	31.0	31.0
72.5°	26.1	24.8	24.8	24.8	24.8	24.8	24.8	24.8
75°	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9
77.5°	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1
80°	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4
82.5°	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
85°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
87.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.2
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)