

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: P642334

Luminaire Tested: ML5612LSWW97FS1E - 692SC WW - 600LM - 4000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P642334
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-131)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5612LSWW97FS1E - 692SC WW - 600LM - 4000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 641.0 lumens
Efficiency: N/A
Efficacy: 62.2 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 1.09 / 1.17
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

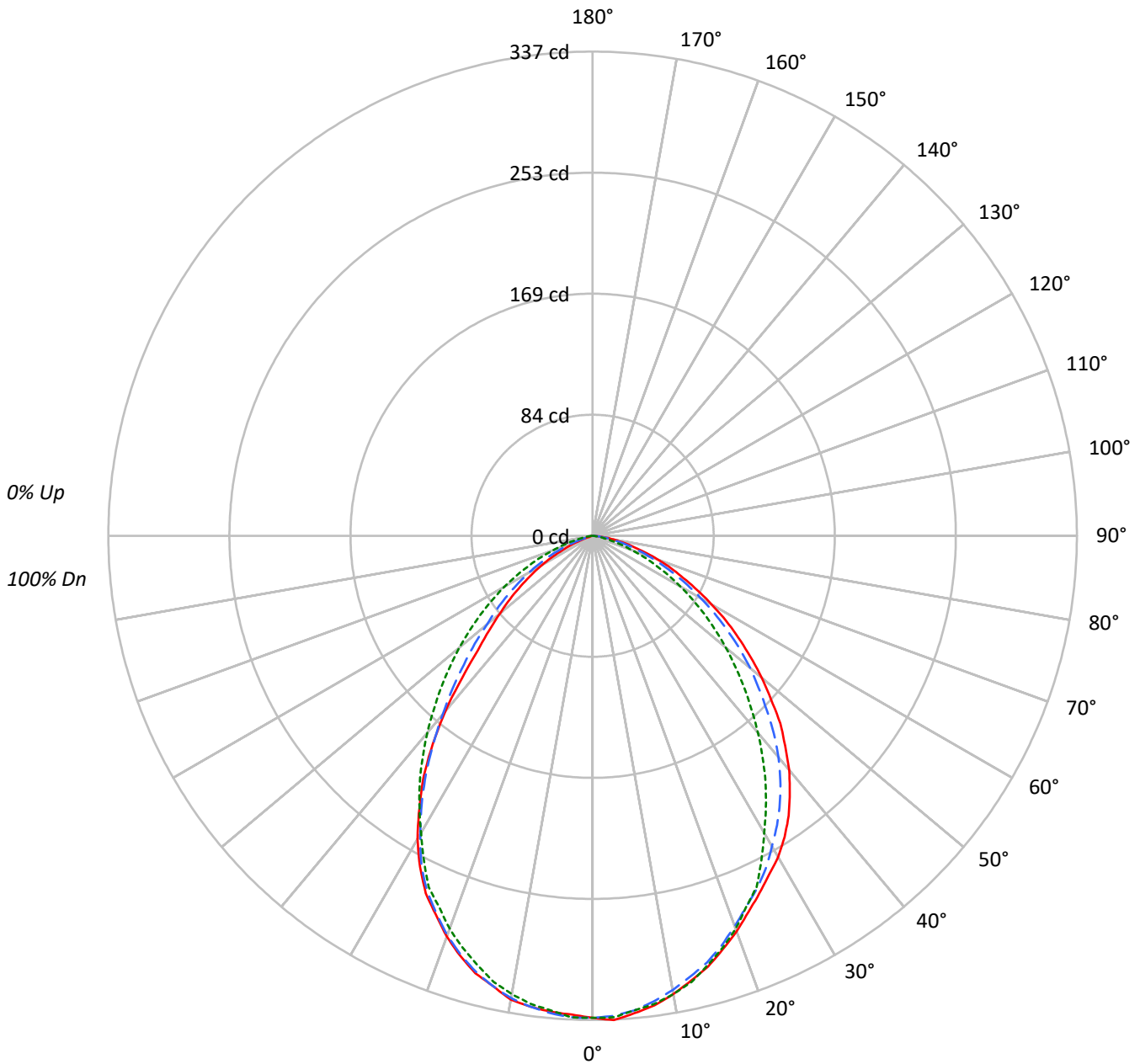
Input Watts (W): 10.3
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20										
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	100	100	100	100		
	1	111	107	104	100	108	105	102	99	101	98	96	97	95	93	93	92	90	88	88	88	88	88	88		
	2	103	96	90	85	100	94	89	84	90	86	82	87	84	80	84	81	79	77	77	77	77	77	77		
	3	95	86	79	73	92	84	78	72	81	76	71	79	74	70	76	72	69	67	67	67	67	67	67		
	4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61	59	59	59	59	59	59		
	5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52	52	52	52	52	52		
	6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	53	48	46	46	46	46	46	46		
	7	70	58	50	45	69	57	50	44	56	49	44	55	48	44	53	48	44	42	42	42	42	42	42		
	8	66	53	46	40	64	53	45	40	52	45	40	50	44	40	49	44	40	38	38	38	38	38	38		
	9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34	34	34	34	34	34		
	10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	32	32	32	32	32	32		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	18392	18392	18392	18392	18392
5°	18358	18248	18248	18358	18303
10°	18030	17869	18030	18192	18247
15°	17616	17452	17560	17832	17889
20°	17093	16866	16976	17262	17315
25°	16610	16374	16319	16495	16610
30°	16344	15794	15116	15180	15426
35°	15921	15205	14040	13525	13719
40°	15221	14391	12803	11622	11414
45°	14319	13265	11544	9823	8768
50°	13108	12204	10311	8162	7172
55°	11832	10905	9061	6929	5821
60°	10493	9539	7741	5614	4451
65°	9028	8146	6265	4138	2763
70°	7742	6668	4648	2324	1090
75°	6142	5126	3071	614	0
80°	4578	3662	1515	0	0
85°	2453	1824	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 14319 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	31.5	4.9
10°-20°	87.3	13.6
20°-30°	124.4	19.4
30°-40°	133.8	20.9
40°-50°	115.3	18.0
50°-60°	83.6	13.0
60°-70°	47.1	7.4
70°-80°	16.0	2.5
80°-90°	2.1	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°	243.2	37.9
0°-40°	377.0	58.8
0°-60°	575.8	89.8
0°-90°	641.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	641.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	336	336	336	336	336	
5°	334	332	332	334	333	32
15°	310	308	309	314	315	87
25°	275	271	270	273	275	127
35°	238	227	210	202	205	148
45°	185	171	149	127	113	142
55°	124	114	95	72	61	111
65°	70	63	48	32	21	70
75°	29	24	14	3	0	31
85°	4	3	0	0	0	6
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°	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5
2.5°	337.4	334.5	333.6	334.5	334.5	334.5	334.5	334.5	334.5	333.6	334.5
5°	333.6	330.7	330.7	330.7	330.7	330.7	329.7	330.7	330.7	330.7	331.6
7.5°	329.7	325.8	326.8	325.8	326.8	325.8	325.8	326.8	325.8	326.8	326.8
10°	323.9	321.0	321.0	321.0	321.0	321.0	321.0	321.0	321.0	321.0	321.0
12.5°	317.1	314.2	314.2	314.2	314.2	314.2	314.2	314.2	315.2	314.2	314.2
15°	310.4	306.5	307.5	306.5	306.5	306.5	306.5	306.5	306.5	306.5	307.5
17.5°	301.7	298.8	298.8	298.8	298.8	298.8	298.8	297.8	298.8	298.8	298.8
20°	293.0	290.1	290.1	289.1	290.1	289.1	289.1	289.1	290.1	289.1	289.1
22.5°	283.3	280.4	281.4	280.4	280.4	280.4	280.4	280.4	279.4	280.4	279.4
25°	274.6	273.6	272.7	273.6	272.7	272.7	272.7	271.7	271.7	271.7	270.7
27.5°	265.9	264.0	264.0	264.0	264.0	263.0	263.0	263.0	262.0	261.1	261.1
30°	258.2	255.3	255.3	255.3	254.3	254.3	253.3	253.3	251.4	250.4	249.5
32.5°	248.5	246.6	245.6	245.6	244.6	244.6	243.7	243.7	241.7	240.8	238.8
35°	237.9	236.9	236.9	235.9	235.0	234.0	233.0	232.1	231.1	229.2	227.2
37.5°	225.3	224.3	223.4	223.4	222.4	221.4	221.4	219.5	218.5	216.6	214.7
40°	212.7	210.8	210.8	209.8	208.9	207.9	207.9	205.9	205.0	203.0	201.1
42.5°	198.2	196.3	196.3	195.3	195.3	195.3	194.3	192.4	190.5	188.5	186.6
45°	184.7	182.7	182.7	180.8	180.8	179.8	178.9	177.9	176.0	174.0	171.1
47.5°	168.2	167.3	167.3	166.3	165.3	164.4	164.4	163.4	161.5	158.6	156.6
50°	153.7	152.8	152.8	151.8	150.8	149.9	148.9	147.9	147.0	145.0	143.1
52.5°	138.3	138.3	137.3	136.3	136.3	135.4	134.4	133.4	131.5	129.6	128.6
55°	123.8	122.8	122.8	121.8	121.8	120.9	119.9	118.9	118.0	116.0	114.1
57.5°	110.2	108.3	108.3	107.3	107.3	107.3	106.4	104.4	103.5	101.5	100.6
60°	95.7	94.8	94.8	94.8	93.8	92.8	92.8	90.9	89.9	89.0	87.0
62.5°	82.2	81.2	81.2	81.2	80.3	80.3	79.3	78.3	77.4	76.4	74.5
65°	69.6	69.6	69.6	68.6	68.6	67.7	66.7	66.7	65.7	64.8	62.8
67.5°	59.0	58.0	58.0	58.0	57.0	57.0	56.1	55.1	54.1	53.2	51.2
70°	48.3	47.4	47.4	46.4	46.4	46.4	46.4	45.4	43.5	43.5	41.6
72.5°	37.7	37.7	37.7	36.7	36.7	36.7	35.8	35.8	34.8	33.8	32.9
75°	29.0	29.0	29.0	28.0	28.0	28.0	27.1	27.1	26.1	25.1	24.2
77.5°	21.3	21.3	21.3	20.3	20.3	20.3	19.3	19.3	18.4	18.4	17.4
80°	14.5	14.5	14.5	13.5	13.5	13.5	13.5	12.6	12.6	11.6	11.6
82.5°	8.7	8.7	8.7	8.7	7.7	7.7	7.7	7.7	7.7	6.8	6.8
85°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	2.9	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



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5
2.5°	334.5	334.5	334.5	334.5	334.5	334.5	334.5	334.5	334.5	335.5	334.5
5°	331.6	331.6	331.6	331.6	331.6	331.6	332.6	331.6	332.6	331.6	332.6
7.5°	326.8	326.8	327.8	327.8	326.8	327.8	327.8	327.8	327.8	328.7	328.7
10°	321.0	322.0	322.0	322.9	322.9	322.9	322.9	323.9	323.9	323.9	323.9
12.5°	315.2	315.2	315.2	315.2	316.2	315.2	316.2	316.2	317.1	318.1	317.1
15°	306.5	307.5	307.5	307.5	307.5	307.5	308.4	309.4	309.4	309.4	310.4
17.5°	298.8	298.8	298.8	299.7	298.8	299.7	299.7	299.7	300.7	300.7	301.7
20°	289.1	288.1	290.1	289.1	289.1	290.1	290.1	290.1	291.0	291.0	291.0
22.5°	278.5	279.4	278.5	278.5	279.4	279.4	279.4	278.5	279.4	279.4	280.4
25°	269.8	269.8	269.8	269.8	269.8	269.8	269.8	268.8	269.8	269.8	269.8
27.5°	260.1	258.2	258.2	257.2	257.2	256.2	255.3	255.3	255.3	254.3	255.3
30°	248.5	246.6	245.6	244.6	243.7	243.7	241.7	240.8	239.8	238.8	237.9
32.5°	236.9	235.0	234.0	233.0	231.1	230.1	228.2	227.2	226.3	224.3	222.4
35°	226.3	223.4	221.4	219.5	218.5	217.6	215.6	213.7	211.8	209.8	207.9
37.5°	211.8	209.8	207.9	205.9	205.0	204.0	202.1	198.2	196.3	194.3	192.4
40°	199.2	196.3	194.3	191.4	190.5	188.5	186.6	183.7	180.8	178.9	176.9
42.5°	183.7	181.8	179.8	176.9	176.0	174.0	171.1	169.2	167.3	163.4	161.5
45°	169.2	167.3	165.3	162.4	160.5	159.5	157.6	154.7	151.8	148.9	147.0
47.5°	154.7	152.8	149.9	147.9	146.0	145.0	143.1	140.2	137.3	134.4	132.5
50°	140.2	138.3	136.3	132.5	132.5	130.5	128.6	125.7	123.8	120.9	118.0
52.5°	126.7	123.8	121.8	118.9	118.9	118.0	115.1	112.2	110.2	107.3	105.4
55°	112.2	110.2	108.3	106.4	104.4	103.5	102.5	99.6	96.7	94.8	91.9
57.5°	98.6	95.7	94.8	92.8	91.9	90.9	89.0	86.1	84.1	82.2	80.3
60°	86.1	84.1	81.2	80.3	79.3	78.3	76.4	74.5	72.5	70.6	68.6
62.5°	73.5	71.6	69.6	67.7	66.7	65.7	64.8	62.8	60.9	59.0	57.0
65°	60.9	59.9	58.0	57.0	56.1	55.1	53.2	51.2	50.3	48.3	46.4
67.5°	50.3	49.3	47.4	46.4	45.4	45.4	42.5	41.6	39.6	38.7	36.7
70°	40.6	39.6	37.7	36.7	35.8	34.8	33.8	32.9	30.9	29.0	28.0
72.5°	31.9	30.0	29.0	28.0	27.1	27.1	25.1	24.2	22.2	21.3	19.3
75°	23.2	22.2	21.3	20.3	20.3	19.3	18.4	17.4	15.5	14.5	13.5
77.5°	16.4	15.5	14.5	13.5	13.5	12.6	11.6	10.6	9.7	8.7	7.7
80°	10.6	9.7	9.7	8.7	7.7	7.7	6.8	5.8	4.8	4.8	3.9
82.5°	5.8	5.8	4.8	4.8	3.9	3.9	2.9	2.9	1.9	1.9	1.0
85°	2.9	1.9	1.9	1.9	1.9	1.0	1.0	1.0	0.0	0.0	0.0
87.5°	1.0	1.0	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°	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5
2.5°	334.5	334.5	334.5	334.5	334.5	334.5	334.5	334.5	335.5	334.5	334.5
5°	332.6	332.6	333.6	332.6	333.6	333.6	332.6	332.6	333.6	334.5	333.6
7.5°	328.7	328.7	329.7	329.7	329.7	329.7	329.7	330.7	330.7	331.6	331.6
10°	324.9	324.9	324.9	324.9	325.8	325.8	326.8	326.8	326.8	326.8	326.8
12.5°	318.1	319.1	319.1	319.1	319.1	320.0	320.0	321.0	321.0	321.0	322.0
15°	310.4	311.3	312.3	312.3	311.3	312.3	313.3	313.3	314.2	314.2	314.2
17.5°	301.7	302.6	302.6	303.6	302.6	304.6	304.6	305.5	305.5	306.5	306.5
20°	292.0	293.0	293.0	293.0	293.9	293.9	294.9	294.9	295.9	295.9	295.9
22.5°	280.4	281.4	281.4	281.4	281.4	282.3	282.3	283.3	284.3	285.2	284.3
25°	269.8	270.7	271.7	270.7	271.7	271.7	271.7	272.7	272.7	273.6	272.7
27.5°	255.3	255.3	255.3	256.2	257.2	257.2	257.2	258.2	258.2	258.2	259.1
30°	237.9	236.9	237.9	237.9	237.9	237.9	239.8	239.8	239.8	240.8	241.7
32.5°	221.4	221.4	221.4	220.5	220.5	220.5	220.5	221.4	221.4	222.4	223.4
35°	205.9	205.0	203.0	203.0	203.0	202.1	201.1	201.1	202.1	202.1	202.1
37.5°	189.5	188.5	187.6	185.6	185.6	183.7	182.7	181.8	181.8	180.8	180.8
40°	174.0	172.1	170.2	170.2	168.2	167.3	165.3	164.4	162.4	160.5	160.5
42.5°	158.6	156.6	154.7	153.7	151.8	150.8	147.9	146.0	144.1	143.1	141.2
45°	144.1	142.1	139.2	138.3	136.3	134.4	132.5	129.6	126.7	124.7	123.8
47.5°	129.6	127.6	124.7	122.8	121.8	118.9	117.0	114.1	111.2	108.3	105.4
50°	116.0	113.1	110.2	108.3	107.3	104.4	102.5	99.6	95.7	94.8	91.9
52.5°	102.5	99.6	96.7	95.7	94.8	91.9	89.0	86.1	84.1	81.2	79.3
55°	89.0	87.0	84.1	83.2	82.2	79.3	76.4	74.5	72.5	69.6	67.7
57.5°	77.4	75.4	72.5	71.6	70.6	67.7	65.7	62.8	60.9	59.0	57.0
60°	66.7	63.8	61.9	60.9	59.9	57.0	55.1	53.2	51.2	49.3	46.4
62.5°	55.1	53.2	51.2	50.3	48.3	47.4	44.5	43.5	40.6	39.6	37.7
65°	44.5	42.5	40.6	40.6	39.6	36.7	35.8	33.8	31.9	30.0	29.0
67.5°	35.8	33.8	31.9	30.9	30.0	28.0	27.1	25.1	23.2	22.2	20.3
70°	27.1	25.1	23.2	22.2	21.3	20.3	18.4	16.4	14.5	13.5	11.6
72.5°	18.4	16.4	15.5	15.5	14.5	12.6	10.6	9.7	7.7	6.8	5.8
75°	11.6	9.7	8.7	7.7	7.7	6.8	4.8	3.9	2.9	1.9	1.0
77.5°	6.8	5.8	4.8	3.9	3.9	2.9	1.9	1.0	1.0	0.0	0.0
80°	2.9	1.9	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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: P642334

CATALOG NUMBER: ML5612LSWW97FS1E - 692SC WW - 600LM - 4000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5
2.5°	334.5	334.5	334.5	334.5	333.6	333.6	333.6	333.6
5°	333.6	333.6	333.6	333.6	332.6	332.6	333.6	332.6
7.5°	331.6	331.6	330.7	330.7	330.7	330.7	330.7	330.7
10°	327.8	327.8	327.8	326.8	327.8	327.8	326.8	327.8
12.5°	322.0	322.0	322.0	322.0	321.0	321.0	322.0	321.0
15°	315.2	315.2	315.2	315.2	315.2	314.2	315.2	315.2
17.5°	307.5	307.5	306.5	306.5	306.5	307.5	307.5	306.5
20°	296.8	296.8	296.8	296.8	296.8	296.8	296.8	296.8
22.5°	285.2	285.2	285.2	285.2	285.2	285.2	285.2	285.2
25°	273.6	273.6	273.6	273.6	273.6	273.6	273.6	274.6
27.5°	259.1	259.1	259.1	259.1	259.1	258.2	258.2	260.1
30°	241.7	242.7	242.7	242.7	242.7	242.7	242.7	243.7
32.5°	224.3	224.3	224.3	225.3	224.3	225.3	224.3	224.3
35°	204.0	204.0	204.0	204.0	204.0	205.0	205.0	205.0
37.5°	180.8	181.8	181.8	182.7	182.7	182.7	183.7	182.7
40°	159.5	159.5	159.5	158.6	159.5	158.6	159.5	159.5
42.5°	139.2	137.3	137.3	136.3	136.3	135.4	134.4	134.4
45°	120.9	118.0	118.0	117.0	116.0	114.1	113.1	113.1
47.5°	103.5	102.5	101.5	100.6	99.6	97.7	96.7	97.7
50°	89.0	88.0	87.0	87.0	86.1	85.1	84.1	84.1
52.5°	77.4	75.4	74.5	74.5	73.5	72.5	72.5	72.5
55°	65.7	63.8	63.8	63.8	62.8	61.9	61.9	60.9
57.5°	55.1	53.2	53.2	52.2	51.2	51.2	51.2	50.3
60°	45.4	43.5	42.5	42.5	41.6	40.6	40.6	40.6
62.5°	35.8	34.8	32.9	32.9	31.9	30.9	30.0	30.9
65°	27.1	25.1	24.2	24.2	23.2	22.2	21.3	21.3
67.5°	18.4	17.4	16.4	16.4	14.5	14.5	13.5	13.5
70°	10.6	9.7	9.7	8.7	7.7	7.7	6.8	6.8
72.5°	4.8	3.9	3.9	2.9	2.9	1.9	1.9	1.9
75°	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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)