

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: P642312

Luminaire Tested: ML5612LSWW97FS1E - 692H WW - 1200LM - 3000K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P642312  
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 - 1200LM - 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**

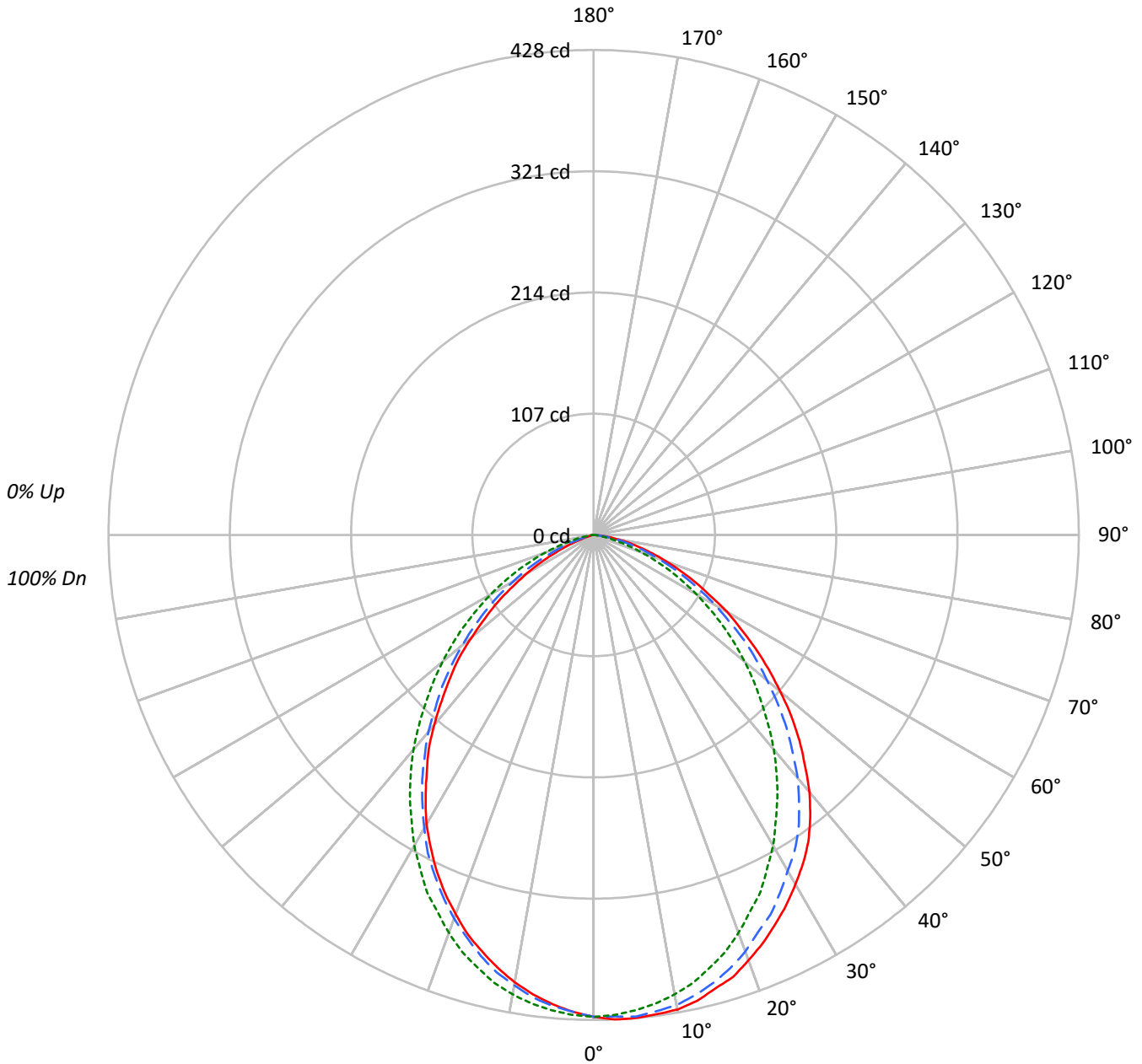
Lumens per Lamp: N/A  
Luminaire Lumens: 880.0 lumens  
Efficiency: N/A  
Efficacy: 53.3 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.12 / 1.23  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

Input Watts (W): 16.5  
Input Voltage (V): NR  
Input Current (Ain): 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°	23315	23315	23315	23315	23315
5°	23553	23481	23178	22958	22881
10°	23675	23446	22918	22467	22316
15°	23519	23212	22441	21828	21595
20°	23306	22828	21801	21008	20768
25°	22931	22356	21044	20058	19810
30°	22535	21674	20041	18921	18667
35°	22098	21101	18912	17641	17186
40°	21197	20030	17697	16238	15658
45°	19909	18645	16226	14645	13908
50°	18311	17040	14831	12861	11940
55°	16621	15455	13247	11039	9873
60°	14900	13563	11468	8936	7445
65°	12868	11635	9521	6693	4761
70°	10883	9585	7181	4135	2180
75°	8917	7477	4596	1440	868
80°	6440	5146	2147	442	442
85°	3397	2579	881	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 19909 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	40.0	4.5
10°-20°	111.7	12.7
20°-30°	160.9	18.3
30°-40°	179.9	20.4
40°-50°	165.0	18.7
50°-60°	123.9	14.1
60°-70°	70.8	8.0
70°-80°	24.7	2.8
80°-90°	3.2	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°	312.6	35.5
0°-40°	492.5	56.0
0°-60°	781.4	88.8
0°-90°	880.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	880.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	425	425	425	425	425	
5°	428	427	421	417	416	41
15°	414	409	395	385	380	117
25°	379	370	348	332	328	175
35°	330	315	283	264	257	206
45°	257	240	209	189	179	197
55°	174	162	139	116	103	156
65°	99	90	73	52	37	99
75°	42	35	22	7	4	45
85°	5	4	1	0	0	8
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°	425.3	425.3	425.3	425.3	425.3	425.3	425.3	425.3	425.3	425.3	425.3
2.5°	428.0	426.7	426.7	426.7	426.7	426.7	426.7	426.7	426.7	426.7	425.3
5°	428.0	428.0	428.0	428.0	428.0	428.0	428.0	426.7	426.7	426.7	426.7
7.5°	426.7	426.7	426.7	426.7	426.7	426.7	426.7	425.3	425.3	424.0	424.0
10°	425.3	425.3	425.3	424.0	424.0	424.0	424.0	424.0	422.6	422.6	421.2
12.5°	421.2	421.2	421.2	421.2	419.9	419.9	419.9	418.5	417.2	417.2	415.8
15°	414.4	415.8	415.8	414.4	414.4	414.4	414.4	413.1	411.7	410.4	409.0
17.5°	409.0	409.0	409.0	407.7	406.3	407.7	406.3	404.9	403.6	402.2	400.9
20°	399.5	399.5	398.1	398.1	398.1	398.1	396.8	395.4	394.1	392.7	391.3
22.5°	390.0	390.0	390.0	387.3	387.3	387.3	385.9	385.9	383.2	381.8	379.1
25°	379.1	379.1	379.1	377.8	376.4	375.0	376.4	373.7	372.3	369.6	369.6
27.5°	368.2	368.2	366.9	366.9	365.5	365.5	364.2	361.5	360.1	358.7	356.0
30°	356.0	356.0	354.7	354.7	353.3	351.9	351.9	349.2	347.9	345.1	342.4
32.5°	343.8	343.8	342.4	342.4	341.1	339.7	339.7	337.0	334.3	331.6	330.2
35°	330.2	330.2	328.8	328.8	327.5	326.1	324.8	322.0	320.7	316.6	315.3
37.5°	313.9	315.3	312.5	312.5	311.2	309.8	308.5	307.1	304.4	301.7	297.6
40°	296.2	294.9	294.9	293.5	292.2	292.2	290.8	288.1	286.7	282.6	279.9
42.5°	275.8	275.8	275.8	274.5	273.1	273.1	270.4	269.1	266.3	263.6	259.5
45°	256.8	256.8	255.5	255.5	252.7	252.7	251.4	248.7	247.3	243.2	240.5
47.5°	236.4	235.1	235.1	233.7	232.4	232.4	231.0	229.6	226.9	222.9	220.1
50°	214.7	214.7	214.7	213.3	212.0	212.0	210.6	207.9	206.5	203.8	199.8
52.5°	194.3	194.3	194.3	193.0	191.6	191.6	190.2	188.9	186.2	183.4	180.7
55°	173.9	173.9	173.9	172.6	172.6	169.9	169.9	168.5	165.8	163.1	161.7
57.5°	153.5	153.5	153.5	153.5	152.2	152.2	150.8	149.5	146.8	145.4	141.3
60°	135.9	134.5	134.5	133.2	133.2	131.8	130.4	129.1	127.7	125.0	123.7
62.5°	115.5	116.9	115.5	115.5	114.1	114.1	114.1	111.4	110.1	107.3	106.0
65°	99.2	99.2	99.2	99.2	96.5	96.5	96.5	93.8	92.4	92.4	89.7
67.5°	82.9	82.9	82.9	81.5	81.5	81.5	80.2	78.8	77.5	76.1	74.7
70°	67.9	67.9	67.9	66.6	66.6	65.2	65.2	63.9	62.5	62.5	59.8
72.5°	54.4	54.4	54.4	54.4	53.0	53.0	51.6	51.6	50.3	48.9	47.6
75°	42.1	42.1	42.1	40.8	40.8	40.8	39.4	39.4	38.0	36.7	35.3
77.5°	31.3	29.9	29.9	29.9	29.9	28.5	28.5	28.5	27.2	25.8	25.8
80°	20.4	20.4	20.4	20.4	20.4	19.0	19.0	19.0	17.7	17.7	16.3
82.5°	12.2	12.2	12.2	12.2	12.2	10.9	10.9	10.9	9.5	9.5	9.5
85°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	4.1	4.1	4.1
87.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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°	425.3	425.3	425.3	425.3	425.3	425.3	425.3	425.3	425.3	425.3	425.3
2.5°	426.7	426.7	425.3	425.3	425.3	425.3	425.3	424.0	424.0	424.0	424.0
5°	426.7	425.3	424.0	424.0	424.0	424.0	422.6	422.6	422.6	421.2	421.2
7.5°	422.6	422.6	422.6	421.2	421.2	419.9	419.9	418.5	418.5	417.2	417.2
10°	419.9	418.5	418.5	417.2	417.2	415.8	415.8	413.1	411.7	411.7	410.4
12.5°	414.4	413.1	413.1	410.4	410.4	410.4	409.0	406.3	404.9	404.9	403.6
15°	407.7	406.3	404.9	402.2	402.2	400.9	399.5	398.1	396.8	395.4	394.1
17.5°	399.5	396.8	395.4	394.1	392.7	391.3	390.0	388.6	385.9	385.9	383.2
20°	390.0	387.3	385.9	383.2	381.8	381.8	379.1	376.4	375.0	373.7	371.0
22.5°	377.8	376.4	373.7	371.0	369.6	369.6	366.9	364.2	362.8	360.1	358.7
25°	366.9	362.8	361.5	358.7	357.4	357.4	354.7	351.9	349.2	347.9	345.1
27.5°	353.3	350.6	349.2	345.1	343.8	342.4	339.7	337.0	334.3	331.6	328.8
30°	339.7	337.0	334.3	330.2	330.2	327.5	324.8	320.7	319.3	316.6	312.5
32.5°	326.1	323.4	319.3	316.6	313.9	312.5	308.5	305.7	303.0	298.9	297.6
35°	311.2	307.1	304.4	300.3	298.9	296.2	293.5	289.4	286.7	282.6	278.6
37.5°	294.9	289.4	286.7	282.6	281.3	278.6	275.8	273.1	269.1	265.0	262.3
40°	277.2	271.8	267.7	265.0	262.3	259.5	258.2	252.7	250.0	247.3	244.6
42.5°	256.8	252.7	248.7	246.0	243.2	241.9	237.8	235.1	231.0	228.3	225.6
45°	237.8	233.7	229.6	225.6	224.2	222.9	220.1	216.1	212.0	209.3	206.5
47.5°	217.4	214.7	209.3	207.9	205.2	203.8	199.8	197.0	195.7	191.6	188.9
50°	197.0	194.3	191.6	187.5	186.2	184.8	182.1	179.4	176.7	173.9	171.2
52.5°	176.7	175.3	172.6	168.5	168.5	167.1	164.4	161.7	159.0	156.3	153.5
55°	159.0	156.3	153.5	150.8	149.5	148.1	145.4	144.0	141.3	138.6	135.9
57.5°	140.0	137.2	135.9	133.2	131.8	130.4	127.7	126.4	123.7	120.9	118.2
60°	122.3	119.6	118.2	115.5	114.1	114.1	111.4	108.7	107.3	104.6	101.9
62.5°	104.6	101.9	100.6	97.8	97.8	96.5	95.1	92.4	91.0	88.3	87.0
65°	88.3	87.0	84.2	82.9	81.5	80.2	78.8	77.5	74.7	73.4	70.7
67.5°	73.4	70.7	69.3	67.9	66.6	65.2	63.9	62.5	59.8	58.4	55.7
70°	58.4	57.1	55.7	54.4	53.0	53.0	50.3	48.9	46.2	44.8	42.1
72.5°	46.2	44.8	43.5	40.8	40.8	39.4	38.0	36.7	34.0	32.6	29.9
75°	34.0	34.0	31.3	29.9	29.9	28.5	27.2	25.8	24.5	21.7	20.4
77.5°	24.5	23.1	21.7	20.4	19.0	19.0	17.7	16.3	14.9	13.6	10.9
80°	16.3	14.9	13.6	12.2	12.2	10.9	9.5	9.5	8.2	6.8	5.4
82.5°	8.2	8.2	6.8	6.8	5.4	5.4	5.4	4.1	4.1	2.7	2.7
85°	4.1	2.7	2.7	2.7	2.7	2.7	1.4	1.4	1.4	1.4	0.0
87.5°	1.4	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°	425.3	425.3	425.3	425.3	425.3	425.3	425.3	425.3	425.3	425.3	425.3
2.5°	424.0	422.6	424.0	424.0	422.6	422.6	422.6	422.6	421.2	422.6	421.2
5°	421.2	419.9	419.9	419.9	419.9	418.5	418.5	417.2	417.2	417.2	417.2
7.5°	415.8	414.4	414.4	413.1	413.1	413.1	413.1	411.7	411.7	410.4	410.4
10°	410.4	409.0	407.7	407.7	406.3	406.3	406.3	404.9	403.6	403.6	402.2
12.5°	400.9	400.9	399.5	399.5	398.1	398.1	396.8	395.4	395.4	394.1	394.1
15°	392.7	391.3	390.0	390.0	388.6	387.3	385.9	385.9	384.6	384.6	383.2
17.5°	381.8	379.1	379.1	377.8	376.4	376.4	375.0	373.7	372.3	372.3	372.3
20°	369.6	368.2	366.9	365.5	364.2	364.2	362.8	361.5	360.1	358.7	358.7
22.5°	356.0	354.7	353.3	351.9	351.9	350.6	349.2	347.9	346.5	345.1	345.1
25°	342.4	341.1	339.7	338.4	337.0	335.6	334.3	332.9	331.6	330.2	330.2
27.5°	327.5	324.8	323.4	322.0	320.7	319.3	319.3	316.6	316.6	315.3	313.9
30°	311.2	308.5	305.7	305.7	304.4	303.0	300.3	300.3	298.9	297.6	296.2
32.5°	293.5	292.2	289.4	289.4	286.7	285.4	284.0	282.6	281.3	279.9	279.9
35°	277.2	273.1	271.8	271.8	269.1	267.7	266.3	263.6	263.6	260.9	260.9
37.5°	259.5	256.8	255.5	252.7	251.4	250.0	248.7	246.0	244.6	243.2	241.9
40°	241.9	239.2	236.4	235.1	233.7	231.0	229.6	226.9	226.9	224.2	222.9
42.5°	222.9	220.1	217.4	216.1	214.7	212.0	210.6	207.9	206.5	205.2	203.8
45°	203.8	201.1	199.8	198.4	197.0	195.7	191.6	190.2	188.9	186.2	184.8
47.5°	186.2	183.4	180.7	180.7	178.0	176.7	173.9	171.2	169.9	167.1	165.8
50°	168.5	165.8	163.1	161.7	161.7	157.6	156.3	153.5	150.8	148.1	146.8
52.5°	150.8	148.1	145.4	144.0	142.7	140.0	137.2	135.9	133.2	130.4	129.1
55°	133.2	130.4	127.7	126.4	125.0	122.3	120.9	116.9	115.5	112.8	110.1
57.5°	116.9	114.1	111.4	110.1	108.7	106.0	103.3	100.6	99.2	96.5	93.8
60°	99.2	97.8	95.1	93.8	92.4	91.0	87.0	84.2	81.5	80.2	77.5
62.5°	84.2	81.5	78.8	77.5	76.1	74.7	72.0	69.3	67.9	63.9	61.1
65°	69.3	66.6	63.9	62.5	61.1	59.8	57.1	54.4	51.6	48.9	47.6
67.5°	53.0	51.6	48.9	48.9	47.6	44.8	42.1	40.8	38.0	36.7	34.0
70°	40.8	39.4	36.7	35.3	34.0	31.3	29.9	27.2	25.8	24.5	21.7
72.5°	28.5	27.2	24.5	23.1	21.7	20.4	17.7	16.3	14.9	13.6	12.2
75°	19.0	16.3	14.9	13.6	13.6	10.9	9.5	8.2	6.8	5.4	5.4
77.5°	10.9	9.5	6.8	6.8	6.8	5.4	4.1	4.1	2.7	2.7	2.7
80°	5.4	4.1	2.7	2.7	2.7	2.7	1.4	1.4	1.4	1.4	1.4
82.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
85°	0.0	0.0	0.0	0.0	0.0	1.4	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: P642312

CATALOG NUMBER: ML5612LSWW97FS1E - 692H WW - 1200LM - 3000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	425.3	425.3	425.3	425.3	425.3	425.3	425.3	425.3
2.5°	421.2	421.2	421.2	421.2	421.2	421.2	421.2	421.2
5°	417.2	415.8	415.8	415.8	415.8	415.8	415.8	415.8
7.5°	410.4	410.4	409.0	410.4	409.0	409.0	409.0	409.0
10°	402.2	402.2	402.2	402.2	400.9	400.9	400.9	400.9
12.5°	394.1	392.7	392.7	392.7	391.3	392.7	391.3	391.3
15°	383.2	381.8	381.8	381.8	381.8	380.5	381.8	380.5
17.5°	371.0	371.0	369.6	371.0	369.6	369.6	369.6	369.6
20°	357.4	357.4	357.4	356.0	357.4	356.0	356.0	356.0
22.5°	343.8	343.8	342.4	342.4	342.4	342.4	342.4	342.4
25°	328.8	328.8	328.8	328.8	327.5	327.5	327.5	327.5
27.5°	313.9	312.5	312.5	312.5	311.2	312.5	311.2	311.2
30°	296.2	296.2	294.9	294.9	294.9	293.5	293.5	294.9
32.5°	277.2	277.2	277.2	277.2	275.8	275.8	275.8	275.8
35°	259.5	259.5	258.2	258.2	258.2	256.8	256.8	256.8
37.5°	240.5	240.5	239.2	239.2	239.2	237.8	237.8	239.2
40°	221.5	221.5	220.1	220.1	220.1	218.8	218.8	218.8
42.5°	202.5	201.1	201.1	199.8	199.8	199.8	198.4	198.4
45°	183.4	182.1	182.1	182.1	180.7	179.4	179.4	179.4
47.5°	164.4	163.1	161.7	161.7	160.3	160.3	160.3	161.7
50°	145.4	144.0	144.0	142.7	141.3	141.3	141.3	140.0
52.5°	126.4	125.0	125.0	123.7	123.7	122.3	120.9	120.9
55°	108.7	107.3	106.0	104.6	104.6	103.3	103.3	103.3
57.5°	91.0	89.7	88.3	88.3	87.0	87.0	85.6	84.2
60°	74.7	73.4	72.0	72.0	70.7	69.3	67.9	67.9
62.5°	59.8	58.4	57.1	55.7	54.4	53.0	51.6	53.0
65°	46.2	43.5	42.1	40.8	40.8	39.4	38.0	36.7
67.5°	32.6	31.3	29.9	28.5	27.2	25.8	24.5	24.5
70°	20.4	17.7	17.7	17.7	16.3	14.9	13.6	13.6
72.5°	10.9	9.5	8.2	8.2	6.8	6.8	6.8	6.8
75°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
77.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
82.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)