

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: P644126

Luminaire Tested: ML5615LSWW9FS1E - 692H WW - 1200LM - 2700K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P644126  
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: ML5615LSWW9FS1E - 692H WW - 1200LM - 2700K  
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH HAZE TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

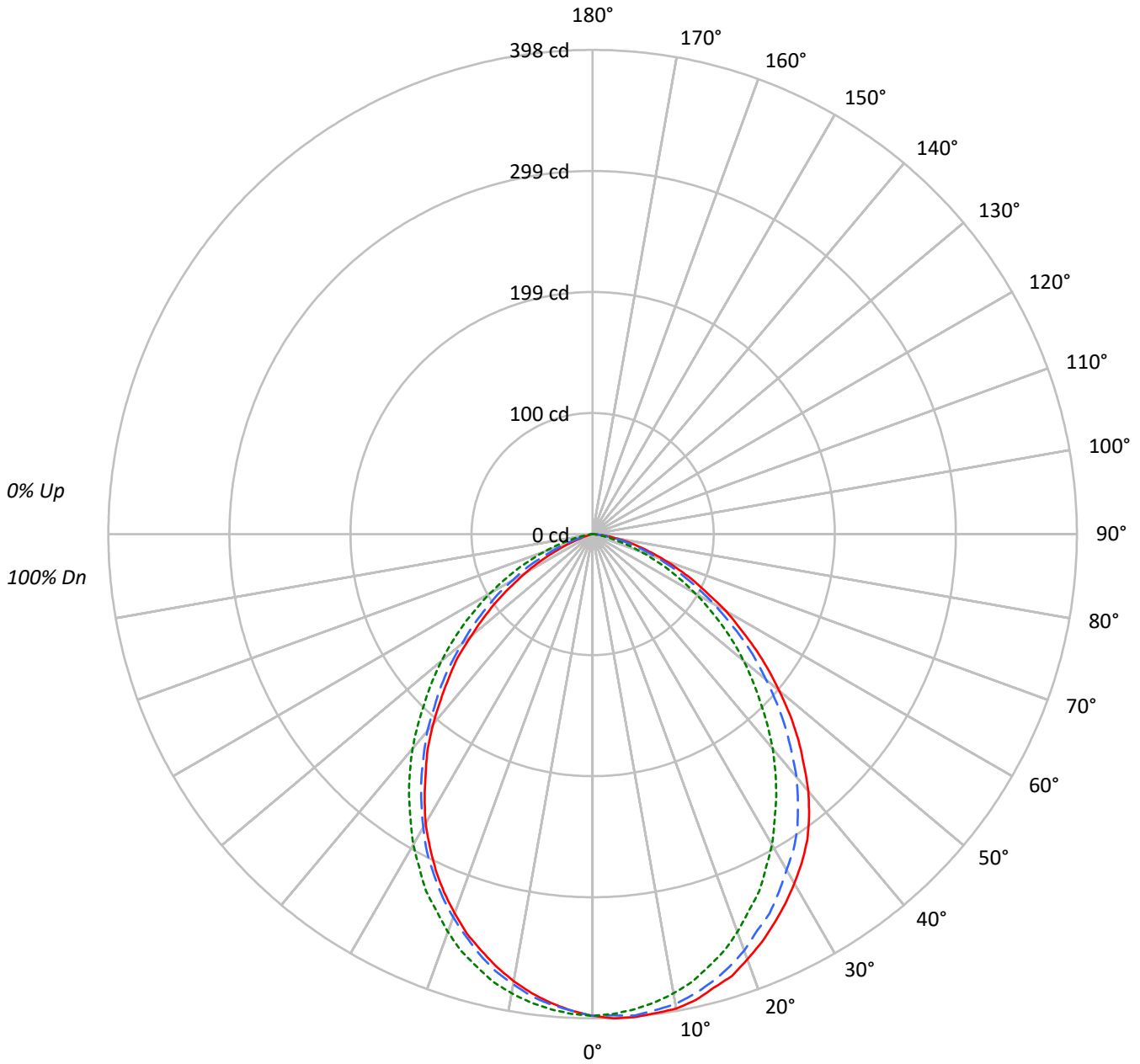
Lumens per Lamp: N/A  
Luminaire Lumens: 819.3 lumens  
Efficiency: N/A  
Efficacy: 61.1 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.12 / 1.23  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

Input Watts (W): 13.4  
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°	21709	21709	21709	21709	21709
5°	21929	21858	21583	21373	21302
10°	22044	21832	21337	20914	20774
15°	21901	21612	20891	20318	20102
20°	21696	21253	20296	19555	19339
25°	21352	20814	19592	18672	18443
30°	20984	20180	18661	17617	17376
35°	20572	19642	17607	16423	16001
40°	19737	18649	16474	15121	14577
45°	18537	17358	15102	13629	12947
50°	17048	15863	13808	11974	11113
55°	15474	14384	12329	10274	9185
60°	13870	12620	10679	8322	6940
65°	11986	10831	8860	6239	4436
70°	10146	8928	6684	3847	2036
75°	8303	6969	4279	1334	805
80°	5998	4799	1989	410	410
85°	3208	2390	818	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 18537 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	37.2	4.5
10°-20°	104.0	12.7
20°-30°	149.8	18.3
30°-40°	167.5	20.4
40°-50°	153.6	18.7
50°-60°	115.4	14.1
60°-70°	65.9	8.0
70°-80°	23.0	2.8
80°-90°	3.0	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°	291.0	35.5
0°-40°	458.5	56.0
0°-60°	727.5	88.8
0°-90°	819.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	819.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	396	396	396	396	396	
5°	398	397	392	388	387	38
15°	386	381	368	358	354	109
25°	353	344	324	309	305	163
35°	307	294	263	245	239	191
45°	239	224	195	176	167	184
55°	162	150	129	108	96	145
65°	92	84	68	48	34	92
75°	39	33	20	6	4	42
85°	5	4	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°	396.0	396.0	396.0	396.0	396.0	396.0	396.0	396.0	396.0	396.0	396.0
2.5°	398.5	397.2	397.2	397.2	397.2	397.2	397.2	397.2	397.2	397.2	396.0
5°	398.5	398.5	398.5	398.5	398.5	398.5	398.5	397.2	397.2	397.2	397.2
7.5°	397.2	397.2	397.2	397.2	397.2	397.2	397.2	396.0	396.0	394.7	394.7
10°	396.0	396.0	396.0	394.7	394.7	394.7	394.7	394.7	393.4	393.4	392.2
12.5°	392.2	392.2	392.2	392.2	390.9	390.9	390.9	389.6	388.4	388.4	387.1
15°	385.9	387.1	387.1	385.9	385.9	385.9	385.9	384.6	383.3	382.1	380.8
17.5°	380.8	380.8	380.8	379.5	378.3	379.5	378.3	377.0	375.7	374.5	373.2
20°	371.9	371.9	370.7	370.7	370.7	370.7	369.4	368.1	366.9	365.6	364.3
22.5°	363.1	363.1	363.1	360.6	360.6	360.6	359.3	359.3	356.8	355.5	353.0
25°	353.0	353.0	353.0	351.7	350.4	349.2	350.4	347.9	346.6	344.1	344.1
27.5°	342.8	342.8	341.6	341.6	340.3	340.3	339.0	336.5	335.2	334.0	331.5
30°	331.5	331.5	330.2	330.2	328.9	327.7	327.7	325.1	323.9	321.3	318.8
32.5°	320.1	320.1	318.8	318.8	317.5	316.3	316.3	313.7	311.2	308.7	307.4
35°	307.4	307.4	306.2	306.2	304.9	303.6	302.4	299.8	298.6	294.8	293.5
37.5°	292.2	293.5	291.0	291.0	289.7	288.4	287.2	285.9	283.4	280.9	277.1
40°	275.8	274.5	274.5	273.3	272.0	272.0	270.7	268.2	266.9	263.1	260.6
42.5°	256.8	256.8	256.8	255.5	254.3	254.3	251.8	250.5	248.0	245.4	241.6
45°	239.1	239.1	237.8	237.8	235.3	235.3	234.0	231.5	230.2	226.5	223.9
47.5°	220.1	218.9	218.9	217.6	216.3	216.3	215.1	213.8	211.3	207.5	204.9
50°	199.9	199.9	199.9	198.6	197.4	197.4	196.1	193.6	192.3	189.8	186.0
52.5°	180.9	180.9	180.9	179.6	178.4	178.4	177.1	175.8	173.3	170.8	168.3
55°	161.9	161.9	161.9	160.7	160.7	158.1	158.1	156.9	154.3	151.8	150.5
57.5°	143.0	143.0	143.0	143.0	141.7	141.7	140.4	139.2	136.6	135.4	131.6
60°	126.5	125.2	125.2	124.0	124.0	122.7	121.4	120.2	118.9	116.4	115.1
62.5°	107.5	108.8	107.5	107.5	106.3	106.3	106.3	103.7	102.5	99.9	98.7
65°	92.4	92.4	92.4	92.4	89.8	89.8	89.8	87.3	86.0	86.0	83.5
67.5°	77.2	77.2	77.2	75.9	75.9	75.9	74.6	73.4	72.1	70.8	69.6
70°	63.3	63.3	63.3	62.0	62.0	60.7	60.7	59.5	58.2	58.2	55.7
72.5°	50.6	50.6	50.6	50.6	49.3	49.3	48.1	48.1	46.8	45.5	44.3
75°	39.2	39.2	39.2	38.0	38.0	38.0	36.7	36.7	35.4	34.2	32.9
77.5°	29.1	27.8	27.8	27.8	27.8	26.6	26.6	26.6	25.3	24.0	24.0
80°	19.0	19.0	19.0	19.0	19.0	17.7	17.7	17.7	16.4	16.4	15.2
82.5°	11.4	11.4	11.4	11.4	11.4	10.1	10.1	10.1	8.9	8.9	8.9
85°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	3.8	3.8	3.8
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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°	396.0	396.0	396.0	396.0	396.0	396.0	396.0	396.0	396.0	396.0	396.0
2.5°	397.2	397.2	396.0	396.0	396.0	396.0	396.0	394.7	394.7	394.7	394.7
5°	397.2	396.0	394.7	394.7	394.7	394.7	393.4	393.4	393.4	392.2	392.2
7.5°	393.4	393.4	393.4	392.2	392.2	390.9	390.9	389.6	389.6	388.4	388.4
10°	390.9	389.6	389.6	388.4	388.4	387.1	387.1	384.6	383.3	383.3	382.1
12.5°	385.9	384.6	384.6	382.1	382.1	382.1	380.8	378.3	377.0	377.0	375.7
15°	379.5	378.3	377.0	374.5	374.5	373.2	371.9	370.7	369.4	368.1	366.9
17.5°	371.9	369.4	368.1	366.9	365.6	364.3	363.1	361.8	359.3	359.3	356.8
20°	363.1	360.6	359.3	356.8	355.5	355.5	353.0	350.4	349.2	347.9	345.4
22.5°	351.7	350.4	347.9	345.4	344.1	344.1	341.6	339.0	337.8	335.2	334.0
25°	341.6	337.8	336.5	334.0	332.7	332.7	330.2	327.7	325.1	323.9	321.3
27.5°	328.9	326.4	325.1	321.3	320.1	318.8	316.3	313.7	311.2	308.7	306.2
30°	316.3	313.7	311.2	307.4	307.4	304.9	302.4	298.6	297.3	294.8	291.0
32.5°	303.6	301.1	297.3	294.8	292.2	291.0	287.2	284.6	282.1	278.3	277.1
35°	289.7	285.9	283.4	279.6	278.3	275.8	273.3	269.5	266.9	263.1	259.3
37.5°	274.5	269.5	266.9	263.1	261.9	259.3	256.8	254.3	250.5	246.7	244.2
40°	258.1	253.0	249.2	246.7	244.2	241.6	240.4	235.3	232.8	230.2	227.7
42.5°	239.1	235.3	231.5	229.0	226.5	225.2	221.4	218.9	215.1	212.5	210.0
45°	221.4	217.6	213.8	210.0	208.7	207.5	204.9	201.1	197.4	194.8	192.3
47.5°	202.4	199.9	194.8	193.6	191.0	189.8	186.0	183.4	182.2	178.4	175.8
50°	183.4	180.9	178.4	174.6	173.3	172.1	169.5	167.0	164.5	161.9	159.4
52.5°	164.5	163.2	160.7	156.9	156.9	155.6	153.1	150.5	148.0	145.5	143.0
55°	148.0	145.5	143.0	140.4	139.2	137.9	135.4	134.1	131.6	129.0	126.5
57.5°	130.3	127.8	126.5	124.0	122.7	121.4	118.9	117.7	115.1	112.6	110.1
60°	113.9	111.3	110.1	107.5	106.3	106.3	103.7	101.2	99.9	97.4	94.9
62.5°	97.4	94.9	93.6	91.1	91.1	89.8	88.6	86.0	84.8	82.2	81.0
65°	82.2	81.0	78.4	77.2	75.9	74.6	73.4	72.1	69.6	68.3	65.8
67.5°	68.3	65.8	64.5	63.3	62.0	60.7	59.5	58.2	55.7	54.4	51.9
70°	54.4	53.1	51.9	50.6	49.3	49.3	46.8	45.5	43.0	41.7	39.2
72.5°	43.0	41.7	40.5	38.0	38.0	36.7	35.4	34.2	31.6	30.4	27.8
75°	31.6	31.6	29.1	27.8	27.8	26.6	25.3	24.0	22.8	20.2	19.0
77.5°	22.8	21.5	20.2	19.0	17.7	17.7	16.4	15.2	13.9	12.7	10.1
80°	15.2	13.9	12.7	11.4	11.4	10.1	8.9	8.9	7.6	6.3	5.1
82.5°	7.6	7.6	6.3	6.3	5.1	5.1	5.1	3.8	3.8	2.5	2.5
85°	3.8	2.5	2.5	2.5	2.5	2.5	1.3	1.3	1.3	1.3	0.0
87.5°	1.3	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°	396.0	396.0	396.0	396.0	396.0	396.0	396.0	396.0	396.0	396.0	396.0
2.5°	394.7	393.4	394.7	394.7	393.4	393.4	393.4	393.4	392.2	393.4	392.2
5°	392.2	390.9	390.9	390.9	390.9	389.6	389.6	388.4	388.4	388.4	388.4
7.5°	387.1	385.9	385.9	384.6	384.6	384.6	384.6	383.3	383.3	382.1	382.1
10°	382.1	380.8	379.5	379.5	378.3	378.3	378.3	377.0	375.7	375.7	374.5
12.5°	373.2	373.2	371.9	371.9	370.7	370.7	369.4	368.1	368.1	366.9	366.9
15°	365.6	364.3	363.1	363.1	361.8	360.6	359.3	359.3	358.0	358.0	356.8
17.5°	355.5	353.0	353.0	351.7	350.4	350.4	349.2	347.9	346.6	346.6	346.6
20°	344.1	342.8	341.6	340.3	339.0	339.0	337.8	336.5	335.2	334.0	334.0
22.5°	331.5	330.2	328.9	327.7	327.7	326.4	325.1	323.9	322.6	321.3	321.3
25°	318.8	317.5	316.3	315.0	313.7	312.5	311.2	309.9	308.7	307.4	307.4
27.5°	304.9	302.4	301.1	299.8	298.6	297.3	297.3	294.8	294.8	293.5	292.2
30°	289.7	287.2	284.6	284.6	283.4	282.1	279.6	279.6	278.3	277.1	275.8
32.5°	273.3	272.0	269.5	269.5	266.9	265.7	264.4	263.1	261.9	260.6	260.6
35°	258.1	254.3	253.0	253.0	250.5	249.2	248.0	245.4	245.4	242.9	242.9
37.5°	241.6	239.1	237.8	235.3	234.0	232.8	231.5	229.0	227.7	226.5	225.2
40°	225.2	222.7	220.1	218.9	217.6	215.1	213.8	211.3	211.3	208.7	207.5
42.5°	207.5	204.9	202.4	201.1	199.9	197.4	196.1	193.6	192.3	191.0	189.8
45°	189.8	187.2	186.0	184.7	183.4	182.2	178.4	177.1	175.8	173.3	172.1
47.5°	173.3	170.8	168.3	168.3	165.7	164.5	161.9	159.4	158.1	155.6	154.3
50°	156.9	154.3	151.8	150.5	150.5	146.8	145.5	143.0	140.4	137.9	136.6
52.5°	140.4	137.9	135.4	134.1	132.8	130.3	127.8	126.5	124.0	121.4	120.2
55°	124.0	121.4	118.9	117.7	116.4	113.9	112.6	108.8	107.5	105.0	102.5
57.5°	108.8	106.3	103.7	102.5	101.2	98.7	96.1	93.6	92.4	89.8	87.3
60°	92.4	91.1	88.6	87.3	86.0	84.8	81.0	78.4	75.9	74.6	72.1
62.5°	78.4	75.9	73.4	72.1	70.8	69.6	67.0	64.5	63.3	59.5	56.9
65°	64.5	62.0	59.5	58.2	56.9	55.7	53.1	50.6	48.1	45.5	44.3
67.5°	49.3	48.1	45.5	45.5	44.3	41.7	39.2	38.0	35.4	34.2	31.6
70°	38.0	36.7	34.2	32.9	31.6	29.1	27.8	25.3	24.0	22.8	20.2
72.5°	26.6	25.3	22.8	21.5	20.2	19.0	16.4	15.2	13.9	12.7	11.4
75°	17.7	15.2	13.9	12.7	12.7	10.1	8.9	7.6	6.3	5.1	5.1
77.5°	10.1	8.9	6.3	6.3	6.3	5.1	3.8	3.8	2.5	2.5	2.5
80°	5.1	3.8	2.5	2.5	2.5	2.5	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
85°	0.0	0.0	0.0	0.0	0.0	1.3	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: P644126

CATALOG NUMBER: ML5615LSWW9FS1E - 692H WW - 1200LM - 2700K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	396.0	396.0	396.0	396.0	396.0	396.0	396.0	396.0
2.5°	392.2	392.2	392.2	392.2	392.2	392.2	392.2	392.2
5°	388.4	387.1	387.1	387.1	387.1	387.1	387.1	387.1
7.5°	382.1	382.1	380.8	382.1	380.8	380.8	380.8	380.8
10°	374.5	374.5	374.5	374.5	373.2	373.2	373.2	373.2
12.5°	366.9	365.6	365.6	365.6	364.3	365.6	364.3	364.3
15°	356.8	355.5	355.5	355.5	355.5	354.2	355.5	354.2
17.5°	345.4	345.4	344.1	345.4	344.1	344.1	344.1	344.1
20°	332.7	332.7	332.7	331.5	332.7	331.5	331.5	331.5
22.5°	320.1	320.1	318.8	318.8	318.8	318.8	318.8	318.8
25°	306.2	306.2	306.2	306.2	304.9	304.9	304.9	304.9
27.5°	292.2	291.0	291.0	291.0	289.7	291.0	289.7	289.7
30°	275.8	275.8	274.5	274.5	274.5	273.3	273.3	274.5
32.5°	258.1	258.1	258.1	258.1	256.8	256.8	256.8	256.8
35°	241.6	241.6	240.4	240.4	240.4	239.1	239.1	239.1
37.5°	223.9	223.9	222.7	222.7	222.7	221.4	221.4	222.7
40°	206.2	206.2	204.9	204.9	204.9	203.7	203.7	203.7
42.5°	188.5	187.2	187.2	186.0	186.0	186.0	184.7	184.7
45°	170.8	169.5	169.5	169.5	168.3	167.0	167.0	167.0
47.5°	153.1	151.8	150.5	150.5	149.3	149.3	149.3	150.5
50°	135.4	134.1	134.1	132.8	131.6	131.6	131.6	130.3
52.5°	117.7	116.4	116.4	115.1	115.1	113.9	112.6	112.6
55°	101.2	99.9	98.7	97.4	97.4	96.1	96.1	96.1
57.5°	84.8	83.5	82.2	82.2	81.0	81.0	79.7	78.4
60°	69.6	68.3	67.0	67.0	65.8	64.5	63.3	63.3
62.5°	55.7	54.4	53.1	51.9	50.6	49.3	48.1	49.3
65°	43.0	40.5	39.2	38.0	38.0	36.7	35.4	34.2
67.5°	30.4	29.1	27.8	26.6	25.3	24.0	22.8	22.8
70°	19.0	16.4	16.4	16.4	15.2	13.9	12.7	12.7
72.5°	10.1	8.9	7.6	7.6	6.3	6.3	6.3	6.3
75°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
77.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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)