

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: P644135

Luminaire Tested: ML5615LSWW9FS1E - 692H WW - 1500LM - 5000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644135
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 - 1500LM - 5000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH HAZE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1145.5 lumens
Efficiency: N/A
Efficacy: 67.0 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

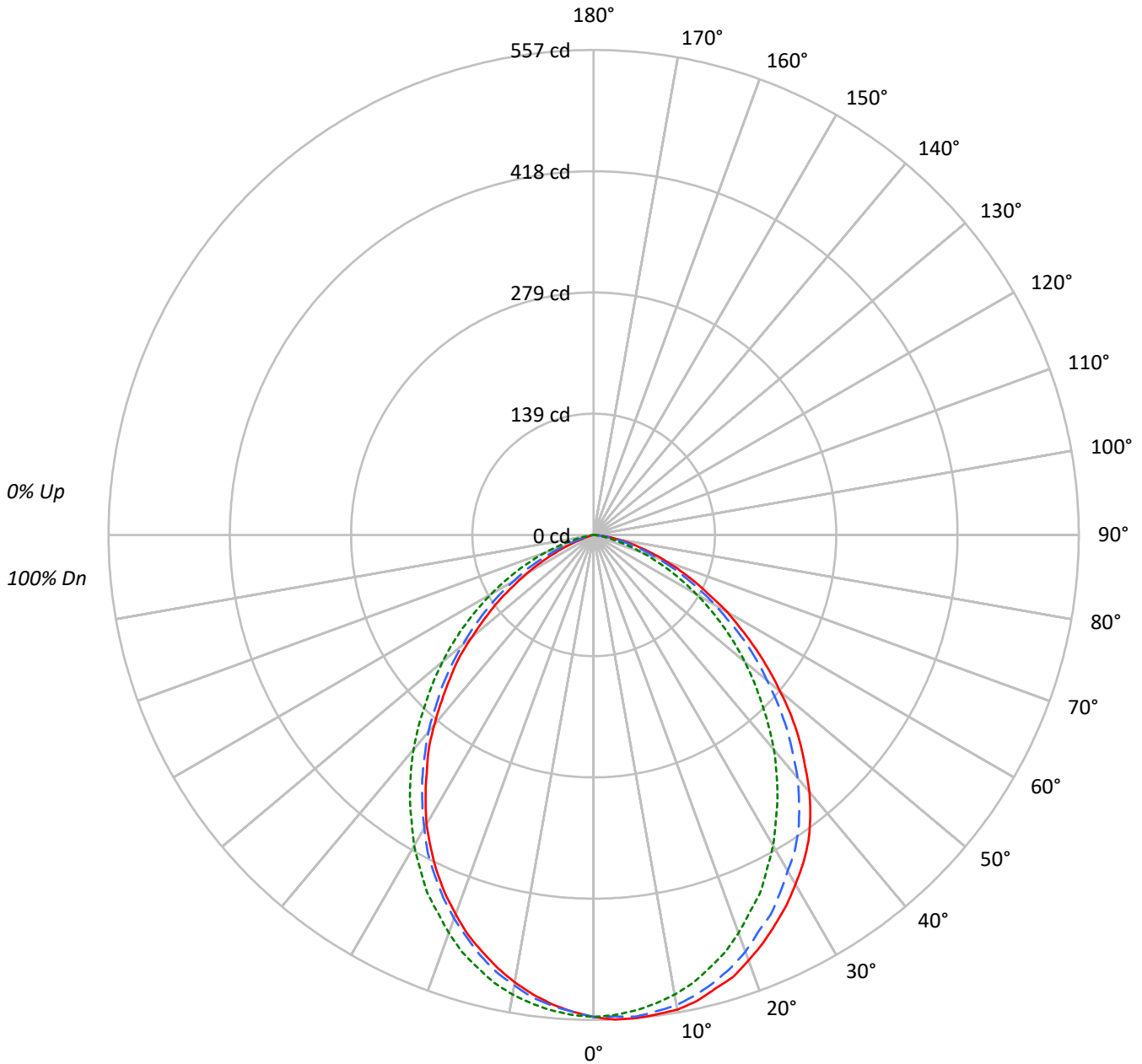
Input Watts (W): 17.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20										
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°	30348	30348	30348	30348	30348
5°	30662	30563	30173	29881	29788
10°	30817	30522	29837	29241	29046
15°	30619	30216	29211	28411	28110
20°	30336	29718	28376	27343	27034
25°	29851	29100	27389	26106	25786
30°	29334	28213	26086	24630	24295
35°	28764	27465	24621	22968	22372
40°	27595	26077	23036	21140	20381
45°	25917	24274	21118	19064	18103
50°	23837	22174	19309	16741	15539
55°	21638	20119	17242	14365	12845
60°	19395	17652	14933	11633	9692
65°	16746	15138	12388	8717	6200
70°	14169	12470	9361	5386	2837
75°	11607	9743	5994	1864	1123
80°	8366	6693	2778	568	568
85°	4466	3334	1132	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 25917 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	52.0	4.5
10°-20°	145.4	12.7
20°-30°	209.5	18.3
30°-40°	234.2	20.4
40°-50°	214.7	18.7
50°-60°	161.3	14.1
60°-70°	92.1	8.0
70°-80°	32.1	2.8
80°-90°	4.2	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°	406.9	35.5
0°-40°	641.1	56.0
0°-60°	1017.1	88.8
0°-90°	1145.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1145.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	554	554	554	554	554	
5°	557	555	548	543	541	53
15°	540	532	515	501	495	152
25°	494	481	453	432	426	227
35°	430	410	368	343	334	268
45°	334	313	272	246	234	257
55°	226	210	180	150	134	203
65°	129	117	96	67	48	128
75°	55	46	28	9	5	59
85°	7	5	2	0	0	10
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°	553.6	553.6	553.6	553.6	553.6	553.6	553.6	553.6	553.6	553.6	553.6
2.5°	557.2	555.4	555.4	555.4	555.4	555.4	555.4	555.4	555.4	555.4	553.6
5°	557.2	557.2	557.2	557.2	557.2	557.2	557.2	555.4	555.4	555.4	555.4
7.5°	555.4	555.4	555.4	555.4	555.4	555.4	555.4	553.6	553.6	551.9	551.9
10°	553.6	553.6	553.6	551.9	551.9	551.9	551.9	551.9	550.1	550.1	548.3
12.5°	548.3	548.3	548.3	548.3	546.6	546.6	546.6	544.8	543.0	543.0	541.3
15°	539.5	541.3	541.3	539.5	539.5	539.5	539.5	537.7	536.0	534.2	532.4
17.5°	532.4	532.4	532.4	530.6	528.9	530.6	528.9	527.1	525.3	523.6	521.8
20°	520.0	520.0	518.3	518.3	518.3	518.3	516.5	514.7	513.0	511.2	509.4
22.5°	507.7	507.7	507.7	504.1	504.1	504.1	502.3	502.3	498.8	497.0	493.5
25°	493.5	493.5	493.5	491.7	490.0	488.2	490.0	486.4	484.7	481.1	481.1
27.5°	479.3	479.3	477.6	477.6	475.8	475.8	474.0	470.5	468.7	467.0	463.4
30°	463.4	463.4	461.7	461.7	459.9	458.1	458.1	454.6	452.8	449.3	445.7
32.5°	447.5	447.5	445.7	445.7	444.0	442.2	442.2	438.7	435.1	431.6	429.8
35°	429.8	429.8	428.1	428.1	426.3	424.5	422.7	419.2	417.4	412.1	410.4
37.5°	408.6	410.4	406.8	406.8	405.1	403.3	401.5	399.8	396.2	392.7	387.4
40°	385.6	383.8	383.8	382.1	380.3	380.3	378.5	375.0	373.2	367.9	364.4
42.5°	359.1	359.1	359.1	357.3	355.5	355.5	352.0	350.2	346.7	343.2	337.8
45°	334.3	334.3	332.5	332.5	329.0	329.0	327.2	323.7	321.9	316.6	313.1
47.5°	307.8	306.0	306.0	304.2	302.5	302.5	300.7	298.9	295.4	290.1	286.5
50°	279.5	279.5	279.5	277.7	275.9	275.9	274.2	270.6	268.9	265.3	260.0
52.5°	252.9	252.9	252.9	251.2	249.4	249.4	247.6	245.9	242.3	238.8	235.3
55°	226.4	226.4	226.4	224.6	224.6	221.1	221.1	219.3	215.8	212.3	210.5
57.5°	199.9	199.9	199.9	199.9	198.1	198.1	196.3	194.6	191.0	189.3	184.0
60°	176.9	175.1	175.1	173.3	173.3	171.6	169.8	168.0	166.3	162.7	161.0
62.5°	150.3	152.1	150.3	150.3	148.6	148.6	148.6	145.0	143.3	139.7	138.0
65°	129.1	129.1	129.1	129.1	125.6	125.6	125.6	122.0	120.3	120.3	116.7
67.5°	107.9	107.9	107.9	106.1	106.1	106.1	104.4	102.6	100.8	99.1	97.3
70°	88.4	88.4	88.4	86.7	86.7	84.9	84.9	83.1	81.4	81.4	77.8
72.5°	70.8	70.8	70.8	70.8	69.0	69.0	67.2	67.2	65.4	63.7	61.9
75°	54.8	54.8	54.8	53.1	53.1	53.1	51.3	51.3	49.5	47.8	46.0
77.5°	40.7	38.9	38.9	38.9	38.9	37.1	37.1	37.1	35.4	33.6	33.6
80°	26.5	26.5	26.5	26.5	26.5	24.8	24.8	24.8	23.0	23.0	21.2
82.5°	15.9	15.9	15.9	15.9	15.9	14.2	14.2	14.2	12.4	12.4	12.4
85°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	5.3	5.3	5.3
87.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
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°	553.6	553.6	553.6	553.6	553.6	553.6	553.6	553.6	553.6	553.6	553.6
2.5°	555.4	555.4	553.6	553.6	553.6	553.6	553.6	551.9	551.9	551.9	551.9
5°	555.4	553.6	551.9	551.9	551.9	551.9	550.1	550.1	550.1	548.3	548.3
7.5°	550.1	550.1	550.1	548.3	548.3	546.6	546.6	544.8	544.8	543.0	543.0
10°	546.6	544.8	544.8	543.0	543.0	541.3	541.3	537.7	536.0	536.0	534.2
12.5°	539.5	537.7	537.7	534.2	534.2	534.2	532.4	528.9	527.1	527.1	525.3
15°	530.6	528.9	527.1	523.6	523.6	521.8	520.0	518.3	516.5	514.7	513.0
17.5°	520.0	516.5	514.7	513.0	511.2	509.4	507.7	505.9	502.3	502.3	498.8
20°	507.7	504.1	502.3	498.8	497.0	497.0	493.5	490.0	488.2	486.4	482.9
22.5°	491.7	490.0	486.4	482.9	481.1	481.1	477.6	474.0	472.3	468.7	467.0
25°	477.6	472.3	470.5	467.0	465.2	465.2	461.7	458.1	454.6	452.8	449.3
27.5°	459.9	456.4	454.6	449.3	447.5	445.7	442.2	438.7	435.1	431.6	428.1
30°	442.2	438.7	435.1	429.8	429.8	426.3	422.7	417.4	415.7	412.1	406.8
32.5°	424.5	421.0	415.7	412.1	408.6	406.8	401.5	398.0	394.4	389.1	387.4
35°	405.1	399.8	396.2	390.9	389.1	385.6	382.1	376.8	373.2	367.9	362.6
37.5°	383.8	376.8	373.2	367.9	366.1	362.6	359.1	355.5	350.2	344.9	341.4
40°	360.8	353.8	348.5	344.9	341.4	337.8	336.1	329.0	325.5	321.9	318.4
42.5°	334.3	329.0	323.7	320.2	316.6	314.8	309.5	306.0	300.7	297.2	293.6
45°	309.5	304.2	298.9	293.6	291.9	290.1	286.5	281.2	275.9	272.4	268.9
47.5°	283.0	279.5	272.4	270.6	267.1	265.3	260.0	256.5	254.7	249.4	245.9
50°	256.5	252.9	249.4	244.1	242.3	240.6	237.0	233.5	229.9	226.4	222.9
52.5°	229.9	228.2	224.6	219.3	219.3	217.6	214.0	210.5	207.0	203.4	199.9
55°	207.0	203.4	199.9	196.3	194.6	192.8	189.3	187.5	184.0	180.4	176.9
57.5°	182.2	178.7	176.9	173.3	171.6	169.8	166.3	164.5	161.0	157.4	153.9
60°	159.2	155.7	153.9	150.3	148.6	148.6	145.0	141.5	139.7	136.2	132.7
62.5°	136.2	132.7	130.9	127.4	127.4	125.6	123.8	120.3	118.5	115.0	113.2
65°	115.0	113.2	109.7	107.9	106.1	104.4	102.6	100.8	97.3	95.5	92.0
67.5°	95.5	92.0	90.2	88.4	86.7	84.9	83.1	81.4	77.8	76.1	72.5
70°	76.1	74.3	72.5	70.8	69.0	69.0	65.4	63.7	60.1	58.4	54.8
72.5°	60.1	58.4	56.6	53.1	53.1	51.3	49.5	47.8	44.2	42.5	38.9
75°	44.2	44.2	40.7	38.9	38.9	37.1	35.4	33.6	31.8	28.3	26.5
77.5°	31.8	30.1	28.3	26.5	24.8	24.8	23.0	21.2	19.5	17.7	14.2
80°	21.2	19.5	17.7	15.9	15.9	14.2	12.4	12.4	10.6	8.8	7.1
82.5°	10.6	10.6	8.8	8.8	7.1	7.1	7.1	5.3	5.3	3.5	3.5
85°	5.3	3.5	3.5	3.5	3.5	3.5	1.8	1.8	1.8	1.8	0.0
87.5°	1.8	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°	553.6	553.6	553.6	553.6	553.6	553.6	553.6	553.6	553.6	553.6	553.6
2.5°	551.9	550.1	551.9	551.9	550.1	550.1	550.1	550.1	548.3	550.1	548.3
5°	548.3	546.6	546.6	546.6	546.6	544.8	544.8	543.0	543.0	543.0	543.0
7.5°	541.3	539.5	539.5	537.7	537.7	537.7	537.7	536.0	536.0	534.2	534.2
10°	534.2	532.4	530.6	530.6	528.9	528.9	528.9	527.1	525.3	525.3	523.6
12.5°	521.8	521.8	520.0	520.0	518.3	518.3	516.5	514.7	514.7	513.0	513.0
15°	511.2	509.4	507.7	507.7	505.9	504.1	502.3	502.3	500.6	500.6	498.8
17.5°	497.0	493.5	493.5	491.7	490.0	490.0	488.2	486.4	484.7	484.7	484.7
20°	481.1	479.3	477.6	475.8	474.0	474.0	472.3	470.5	468.7	467.0	467.0
22.5°	463.4	461.7	459.9	458.1	458.1	456.4	454.6	452.8	451.0	449.3	449.3
25°	445.7	444.0	442.2	440.4	438.7	436.9	435.1	433.4	431.6	429.8	429.8
27.5°	426.3	422.7	421.0	419.2	417.4	415.7	415.7	412.1	412.1	410.4	408.6
30°	405.1	401.5	398.0	398.0	396.2	394.4	390.9	390.9	389.1	387.4	385.6
32.5°	382.1	380.3	376.8	376.8	373.2	371.5	369.7	367.9	366.1	364.4	364.4
35°	360.8	355.5	353.8	353.8	350.2	348.5	346.7	343.2	343.2	339.6	339.6
37.5°	337.8	334.3	332.5	329.0	327.2	325.5	323.7	320.2	318.4	316.6	314.8
40°	314.8	311.3	307.8	306.0	304.2	300.7	298.9	295.4	295.4	291.9	290.1
42.5°	290.1	286.5	283.0	281.2	279.5	275.9	274.2	270.6	268.9	267.1	265.3
45°	265.3	261.8	260.0	258.2	256.5	254.7	249.4	247.6	245.9	242.3	240.6
47.5°	242.3	238.8	235.3	235.3	231.7	229.9	226.4	222.9	221.1	217.6	215.8
50°	219.3	215.8	212.3	210.5	210.5	205.2	203.4	199.9	196.3	192.8	191.0
52.5°	196.3	192.8	189.3	187.5	185.7	182.2	178.7	176.9	173.3	169.8	168.0
55°	173.3	169.8	166.3	164.5	162.7	159.2	157.4	152.1	150.3	146.8	143.3
57.5°	152.1	148.6	145.0	143.3	141.5	138.0	134.4	130.9	129.1	125.6	122.0
60°	129.1	127.4	123.8	122.0	120.3	118.5	113.2	109.7	106.1	104.4	100.8
62.5°	109.7	106.1	102.6	100.8	99.1	97.3	93.7	90.2	88.4	83.1	79.6
65°	90.2	86.7	83.1	81.4	79.6	77.8	74.3	70.8	67.2	63.7	61.9
67.5°	69.0	67.2	63.7	63.7	61.9	58.4	54.8	53.1	49.5	47.8	44.2
70°	53.1	51.3	47.8	46.0	44.2	40.7	38.9	35.4	33.6	31.8	28.3
72.5°	37.1	35.4	31.8	30.1	28.3	26.5	23.0	21.2	19.5	17.7	15.9
75°	24.8	21.2	19.5	17.7	17.7	14.2	12.4	10.6	8.8	7.1	7.1
77.5°	14.2	12.4	8.8	8.8	8.8	7.1	5.3	5.3	3.5	3.5	3.5
80°	7.1	5.3	3.5	3.5	3.5	3.5	1.8	1.8	1.8	1.8	1.8
82.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
85°	0.0	0.0	0.0	0.0	0.0	1.8	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: P644135

CATALOG NUMBER: ML5615LSWW9FS1E - 692H WW - 1500LM - 5000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	553.6	553.6	553.6	553.6	553.6	553.6	553.6	553.6
2.5°	548.3	548.3	548.3	548.3	548.3	548.3	548.3	548.3
5°	543.0	541.3	541.3	541.3	541.3	541.3	541.3	541.3
7.5°	534.2	534.2	532.4	534.2	532.4	532.4	532.4	532.4
10°	523.6	523.6	523.6	523.6	521.8	521.8	521.8	521.8
12.5°	513.0	511.2	511.2	511.2	509.4	511.2	509.4	509.4
15°	498.8	497.0	497.0	497.0	497.0	495.3	497.0	495.3
17.5°	482.9	482.9	481.1	482.9	481.1	481.1	481.1	481.1
20°	465.2	465.2	465.2	463.4	465.2	463.4	463.4	463.4
22.5°	447.5	447.5	445.7	445.7	445.7	445.7	445.7	445.7
25°	428.1	428.1	428.1	428.1	426.3	426.3	426.3	426.3
27.5°	408.6	406.8	406.8	406.8	405.1	406.8	405.1	405.1
30°	385.6	385.6	383.8	383.8	383.8	382.1	382.1	383.8
32.5°	360.8	360.8	360.8	360.8	359.1	359.1	359.1	359.1
35°	337.8	337.8	336.1	336.1	336.1	334.3	334.3	334.3
37.5°	313.1	313.1	311.3	311.3	311.3	309.5	309.5	311.3
40°	288.3	288.3	286.5	286.5	286.5	284.8	284.8	284.8
42.5°	263.6	261.8	261.8	260.0	260.0	260.0	258.2	258.2
45°	238.8	237.0	237.0	237.0	235.3	233.5	233.5	233.5
47.5°	214.0	212.3	210.5	210.5	208.7	208.7	208.7	210.5
50°	189.3	187.5	187.5	185.7	184.0	184.0	184.0	182.2
52.5°	164.5	162.7	162.7	161.0	161.0	159.2	157.4	157.4
55°	141.5	139.7	138.0	136.2	136.2	134.4	134.4	134.4
57.5°	118.5	116.7	115.0	115.0	113.2	113.2	111.4	109.7
60°	97.3	95.5	93.7	93.7	92.0	90.2	88.4	88.4
62.5°	77.8	76.1	74.3	72.5	70.8	69.0	67.2	69.0
65°	60.1	56.6	54.8	53.1	53.1	51.3	49.5	47.8
67.5°	42.5	40.7	38.9	37.1	35.4	33.6	31.8	31.8
70°	26.5	23.0	23.0	23.0	21.2	19.5	17.7	17.7
72.5°	14.2	12.4	10.6	10.6	8.8	8.8	8.8	8.8
75°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
77.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
80°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
82.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
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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