

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: P644134

Luminaire Tested: ML5615LSWW9FS1E - 692H WW - 1500LM - 4000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644134
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 - 4000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH HAZE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1145.1 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

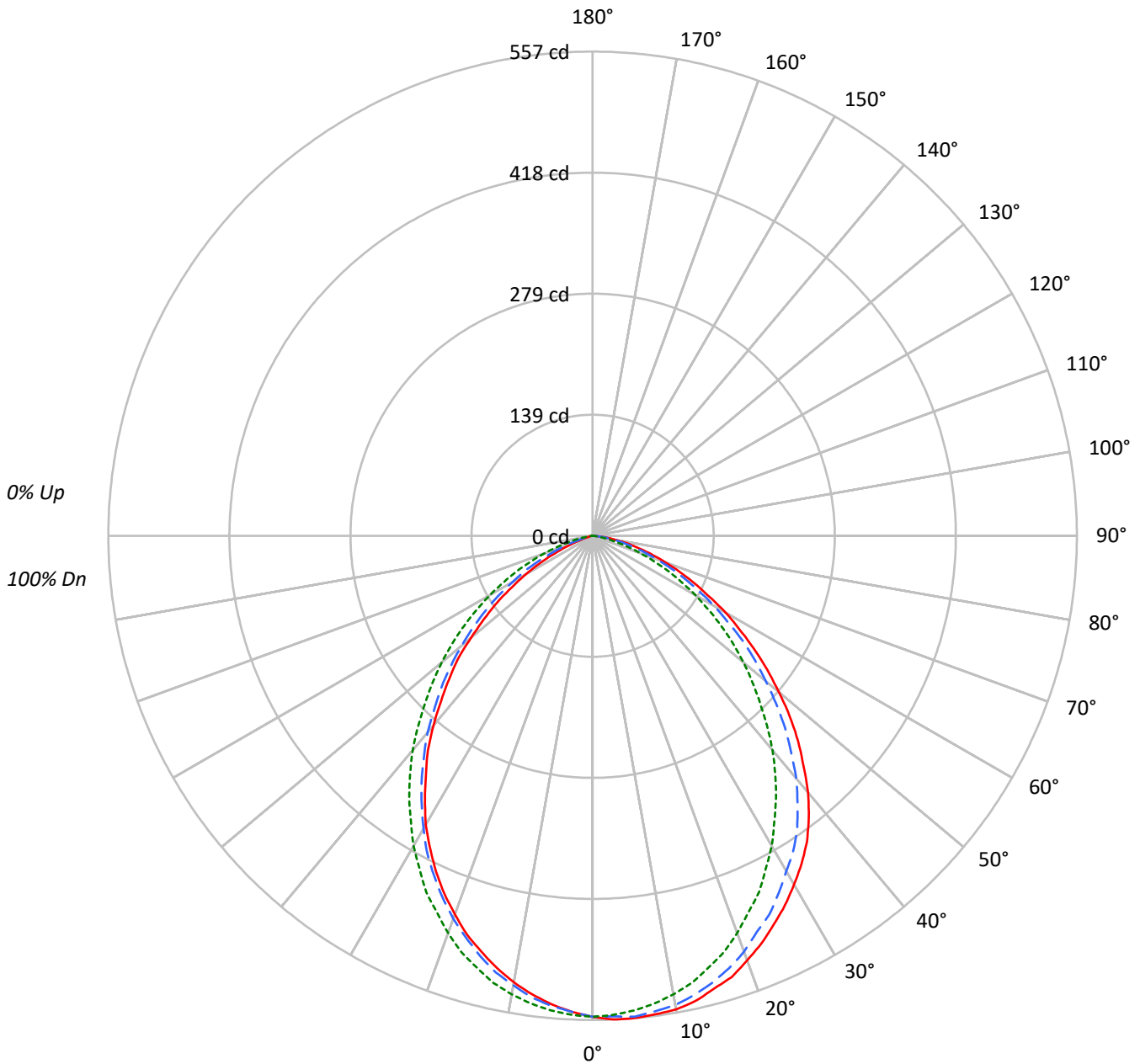
Input Watts (W): 17.1
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90	88	88	88	88	88	88		
	2	102	95	89	84	100	93	88	83	90	85	81	86	83	79	84	80	78	76	76	76	76	76	76		
	3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66	66	66	66	66	66		
	4	87	76	68	62	85	75	67	62	72	66	61	70	65	60	68	63	59	57	57	57	57	57	57		
	5	80	69	60	54	78	68	60	54	66	59	54	64	58	53	62	57	53	51	51	51	51	51	51		
	6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45	45	45	45	45	45		
	7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40	40	40	40	40	40		
	8	65	52	44	39	63	52	44	39	50	43	38	49	43	38	48	42	38	36	36	36	36	36	36		
	9	61	48	40	35	59	48	40	35	46	40	35	45	39	35	44	39	35	33	33	33	33	33	33		
	10	57	45	37	32	56	44	37	32	43	37	32	42	36	32	41	36	32	30	30	30	30	30	30		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	30337	30337	30337	30337	30337
5°	30651	30552	30162	29870	29777
10°	30805	30510	29820	29230	29035
15°	30607	30204	29200	28400	28099
20°	30324	29706	28364	27337	27028
25°	29838	29088	27377	26094	25774
30°	29327	28207	26080	24624	24289
35°	28757	27452	24614	22955	22366
40°	27587	26063	23029	21132	20374
45°	25910	24266	21111	19056	18095
50°	23829	22166	19300	16741	15530
55°	21629	20109	17242	14365	12845
60°	19384	17641	14922	11633	9692
65°	16746	15138	12388	8717	6187
70°	14169	12470	9345	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: 25910 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	52.0	4.5
10°-20°	145.3	12.7
20°-30°	209.4	18.3
30°-40°	234.1	20.4
40°-50°	214.7	18.7
50°-60°	161.2	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°	406.7	35.5
0°-40°	640.8	56.0
0°-60°	1016.7	88.8
0°-90°	1145.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1145.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	553	553	553	553	553	
5°	557	555	548	543	541	53
15°	539	532	514	500	495	152
25°	493	481	453	431	426	227
35°	430	410	368	343	334	268
45°	334	313	272	246	233	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°	553.4	553.4	553.4	553.4	553.4	553.4	553.4	553.4	553.4	553.4	553.4
2.5°	557.0	555.2	555.2	555.2	555.2	555.2	555.2	555.2	555.2	555.2	553.4
5°	557.0	557.0	557.0	557.0	557.0	557.0	557.0	555.2	555.2	555.2	555.2
7.5°	555.2	555.2	555.2	555.2	555.2	555.2	555.2	553.4	553.4	551.7	551.7
10°	553.4	553.4	553.4	551.7	551.7	551.7	551.7	551.7	549.9	549.9	548.1
12.5°	548.1	548.1	548.1	548.1	546.4	546.4	546.4	544.6	542.8	542.8	541.1
15°	539.3	541.1	541.1	539.3	539.3	539.3	539.3	537.5	535.7	534.0	532.2
17.5°	532.2	532.2	532.2	530.4	528.7	530.4	528.7	526.9	525.1	523.4	521.6
20°	519.8	519.8	518.1	518.1	518.1	518.1	516.3	514.5	512.8	511.0	509.2
22.5°	507.5	507.5	507.5	503.9	503.9	503.9	502.2	502.2	498.6	496.8	493.3
25°	493.3	493.3	493.3	491.5	489.8	488.0	489.8	486.2	484.5	480.9	480.9
27.5°	479.2	479.2	477.4	477.4	475.6	475.6	473.9	470.3	468.6	466.8	463.3
30°	463.3	463.3	461.5	461.5	459.7	458.0	458.0	454.4	452.6	449.1	445.6
32.5°	447.3	447.3	445.6	445.6	443.8	442.0	442.0	438.5	435.0	431.4	429.7
35°	429.7	429.7	427.9	427.9	426.1	424.4	422.6	419.1	417.3	412.0	410.2
37.5°	408.4	410.2	406.7	406.7	404.9	403.1	401.4	399.6	396.1	392.5	387.2
40°	385.5	383.7	383.7	381.9	380.2	380.2	378.4	374.8	373.1	367.8	364.2
42.5°	358.9	358.9	358.9	357.2	355.4	355.4	351.9	350.1	346.6	343.0	337.7
45°	334.2	334.2	332.4	332.4	328.9	328.9	327.1	323.6	321.8	316.5	313.0
47.5°	307.7	305.9	305.9	304.1	302.4	302.4	300.6	298.8	295.3	290.0	286.4
50°	279.4	279.4	279.4	277.6	275.8	275.8	274.1	270.5	268.8	265.2	259.9
52.5°	252.8	252.8	252.8	251.1	249.3	249.3	247.5	245.8	242.2	238.7	235.2
55°	226.3	226.3	226.3	224.6	224.6	221.0	221.0	219.3	215.7	212.2	210.4
57.5°	199.8	199.8	199.8	199.8	198.0	198.0	196.3	194.5	191.0	189.2	183.9
60°	176.8	175.0	175.0	173.3	173.3	171.5	169.7	168.0	166.2	162.7	160.9
62.5°	150.3	152.1	150.3	150.3	148.5	148.5	148.5	145.0	143.2	139.7	137.9
65°	129.1	129.1	129.1	129.1	125.5	125.5	125.5	122.0	120.2	120.2	116.7
67.5°	107.9	107.9	107.9	106.1	106.1	106.1	104.3	102.6	100.8	99.0	97.2
70°	88.4	88.4	88.4	86.6	86.6	84.9	84.9	83.1	81.3	81.3	77.8
72.5°	70.7	70.7	70.7	70.7	69.0	69.0	67.2	67.2	65.4	63.7	61.9
75°	54.8	54.8	54.8	53.0	53.0	53.0	51.3	51.3	49.5	47.7	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	14.1	14.1	14.1	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°	553.4	553.4	553.4	553.4	553.4	553.4	553.4	553.4	553.4	553.4	553.4
2.5°	555.2	555.2	553.4	553.4	553.4	553.4	553.4	551.7	551.7	551.7	551.7
5°	555.2	553.4	551.7	551.7	551.7	551.7	549.9	549.9	549.9	548.1	548.1
7.5°	549.9	549.9	549.9	548.1	548.1	546.4	546.4	544.6	544.6	542.8	542.8
10°	546.4	544.6	544.6	542.8	542.8	541.1	541.1	537.5	535.7	535.7	534.0
12.5°	539.3	537.5	537.5	534.0	534.0	534.0	532.2	528.7	526.9	526.9	525.1
15°	530.4	528.7	526.9	523.4	523.4	521.6	519.8	518.1	516.3	514.5	512.8
17.5°	519.8	516.3	514.5	512.8	511.0	509.2	507.5	505.7	502.2	502.2	498.6
20°	507.5	503.9	502.2	498.6	496.8	496.8	493.3	489.8	488.0	486.2	482.7
22.5°	491.5	489.8	486.2	482.7	480.9	480.9	477.4	473.9	472.1	468.6	466.8
25°	477.4	472.1	470.3	466.8	465.0	465.0	461.5	458.0	454.4	452.6	449.1
27.5°	459.7	456.2	454.4	449.1	447.3	445.6	442.0	438.5	435.0	431.4	427.9
30°	442.0	438.5	435.0	429.7	429.7	426.1	422.6	417.3	415.5	412.0	406.7
32.5°	424.4	420.8	415.5	412.0	408.4	406.7	401.4	397.8	394.3	389.0	387.2
35°	404.9	399.6	396.1	390.8	389.0	385.5	381.9	376.6	373.1	367.8	362.5
37.5°	383.7	376.6	373.1	367.8	366.0	362.5	358.9	355.4	350.1	344.8	341.3
40°	360.7	353.6	348.3	344.8	341.3	337.7	335.9	328.9	325.3	321.8	318.3
42.5°	334.2	328.9	323.6	320.0	316.5	314.7	309.4	305.9	300.6	297.0	293.5
45°	309.4	304.1	298.8	293.5	291.7	290.0	286.4	281.1	275.8	272.3	268.8
47.5°	282.9	279.4	272.3	270.5	267.0	265.2	259.9	256.4	254.6	249.3	245.8
50°	256.4	252.8	249.3	244.0	242.2	240.5	236.9	233.4	229.9	226.3	222.8
52.5°	229.9	228.1	224.6	219.3	219.3	217.5	213.9	210.4	206.9	203.3	199.8
55°	206.9	203.3	199.8	196.3	194.5	192.7	189.2	187.4	183.9	180.4	176.8
57.5°	182.1	178.6	176.8	173.3	171.5	169.7	166.2	164.4	160.9	157.4	153.8
60°	159.1	155.6	153.8	150.3	148.5	148.5	145.0	141.5	139.7	136.1	132.6
62.5°	136.1	132.6	130.8	127.3	127.3	125.5	123.8	120.2	118.5	114.9	113.2
65°	114.9	113.2	109.6	107.9	106.1	104.3	102.6	100.8	97.2	95.5	91.9
67.5°	95.5	91.9	90.2	88.4	86.6	84.9	83.1	81.3	77.8	76.0	72.5
70°	76.0	74.3	72.5	70.7	69.0	69.0	65.4	63.7	60.1	58.3	54.8
72.5°	60.1	58.3	56.6	53.0	53.0	51.3	49.5	47.7	44.2	42.4	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	19.4	17.7	14.1
80°	21.2	19.4	17.7	15.9	15.9	14.1	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°	553.4	553.4	553.4	553.4	553.4	553.4	553.4	553.4	553.4	553.4	553.4
2.5°	551.7	549.9	551.7	551.7	549.9	549.9	549.9	549.9	548.1	549.9	548.1
5°	548.1	546.4	546.4	546.4	546.4	544.6	544.6	542.8	542.8	542.8	542.8
7.5°	541.1	539.3	539.3	537.5	537.5	537.5	537.5	535.7	535.7	534.0	534.0
10°	534.0	532.2	530.4	530.4	528.7	528.7	528.7	526.9	525.1	525.1	523.4
12.5°	521.6	521.6	519.8	519.8	518.1	518.1	516.3	514.5	514.5	512.8	512.8
15°	511.0	509.2	507.5	507.5	505.7	503.9	502.2	502.2	500.4	500.4	498.6
17.5°	496.8	493.3	493.3	491.5	489.8	489.8	488.0	486.2	484.5	484.5	484.5
20°	480.9	479.2	477.4	475.6	473.9	473.9	472.1	470.3	468.6	466.8	466.8
22.5°	463.3	461.5	459.7	458.0	458.0	456.2	454.4	452.6	450.9	449.1	449.1
25°	445.6	443.8	442.0	440.3	438.5	436.7	435.0	433.2	431.4	429.7	429.7
27.5°	426.1	422.6	420.8	419.1	417.3	415.5	415.5	412.0	412.0	410.2	408.4
30°	404.9	401.4	397.8	397.8	396.1	394.3	390.8	390.8	389.0	387.2	385.5
32.5°	381.9	380.2	376.6	376.6	373.1	371.3	369.5	367.8	366.0	364.2	364.2
35°	360.7	355.4	353.6	353.6	350.1	348.3	346.6	343.0	343.0	339.5	339.5
37.5°	337.7	334.2	332.4	328.9	327.1	325.3	323.6	320.0	318.3	316.5	314.7
40°	314.7	311.2	307.7	305.9	304.1	300.6	298.8	295.3	295.3	291.7	290.0
42.5°	290.0	286.4	282.9	281.1	279.4	275.8	274.1	270.5	268.8	267.0	265.2
45°	265.2	261.7	259.9	258.1	256.4	254.6	249.3	247.5	245.8	242.2	240.5
47.5°	242.2	238.7	235.2	235.2	231.6	229.9	226.3	222.8	221.0	217.5	215.7
50°	219.3	215.7	212.2	210.4	210.4	205.1	203.3	199.8	196.3	192.7	191.0
52.5°	196.3	192.7	189.2	187.4	185.7	182.1	178.6	176.8	173.3	169.7	168.0
55°	173.3	169.7	166.2	164.4	162.7	159.1	157.4	152.1	150.3	146.8	143.2
57.5°	152.1	148.5	145.0	143.2	141.5	137.9	134.4	130.8	129.1	125.5	122.0
60°	129.1	127.3	123.8	122.0	120.2	118.5	113.2	109.6	106.1	104.3	100.8
62.5°	109.6	106.1	102.6	100.8	99.0	97.2	93.7	90.2	88.4	83.1	79.6
65°	90.2	86.6	83.1	81.3	79.6	77.8	74.3	70.7	67.2	63.7	61.9
67.5°	69.0	67.2	63.7	63.7	61.9	58.3	54.8	53.0	49.5	47.7	44.2
70°	53.0	51.3	47.7	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	19.4	17.7	15.9
75°	24.8	21.2	19.4	17.7	17.7	14.1	12.4	10.6	8.8	7.1	7.1
77.5°	14.1	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: P644134

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CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	553.4	553.4	553.4	553.4	553.4	553.4	553.4	553.4
2.5°	548.1	548.1	548.1	548.1	548.1	548.1	548.1	548.1
5°	542.8	541.1	541.1	541.1	541.1	541.1	541.1	541.1
7.5°	534.0	534.0	532.2	534.0	532.2	532.2	532.2	532.2
10°	523.4	523.4	523.4	523.4	521.6	521.6	521.6	521.6
12.5°	512.8	511.0	511.0	511.0	509.2	511.0	509.2	509.2
15°	498.6	496.8	496.8	496.8	496.8	495.1	496.8	495.1
17.5°	482.7	482.7	480.9	482.7	480.9	480.9	480.9	480.9
20°	465.0	465.0	465.0	463.3	465.0	463.3	463.3	463.3
22.5°	447.3	447.3	445.6	445.6	445.6	445.6	445.6	445.6
25°	427.9	427.9	427.9	427.9	426.1	426.1	426.1	426.1
27.5°	408.4	406.7	406.7	406.7	404.9	406.7	404.9	404.9
30°	385.5	385.5	383.7	383.7	383.7	381.9	381.9	383.7
32.5°	360.7	360.7	360.7	360.7	358.9	358.9	358.9	358.9
35°	337.7	337.7	335.9	335.9	335.9	334.2	334.2	334.2
37.5°	313.0	313.0	311.2	311.2	311.2	309.4	309.4	311.2
40°	288.2	288.2	286.4	286.4	286.4	284.7	284.7	284.7
42.5°	263.5	261.7	261.7	259.9	259.9	259.9	258.1	258.1
45°	238.7	236.9	236.9	236.9	235.2	233.4	233.4	233.4
47.5°	213.9	212.2	210.4	210.4	208.6	208.6	208.6	210.4
50°	189.2	187.4	187.4	185.7	183.9	183.9	183.9	182.1
52.5°	164.4	162.7	162.7	160.9	160.9	159.1	157.4	157.4
55°	141.5	139.7	137.9	136.1	136.1	134.4	134.4	134.4
57.5°	118.5	116.7	114.9	114.9	113.2	113.2	111.4	109.6
60°	97.2	95.5	93.7	93.7	91.9	90.2	88.4	88.4
62.5°	77.8	76.0	74.3	72.5	70.7	69.0	67.2	69.0
65°	60.1	56.6	54.8	53.0	53.0	51.3	49.5	47.7
67.5°	42.4	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	19.4	17.7	17.7
72.5°	14.1	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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(END OF REPORT)