

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: P644105

Luminaire Tested: ML5615LSWW9FS1E - 592SC WW - 1500LM - 5000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644105
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-129)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 592SC WW - 1500LM - 5000K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: -

Summary

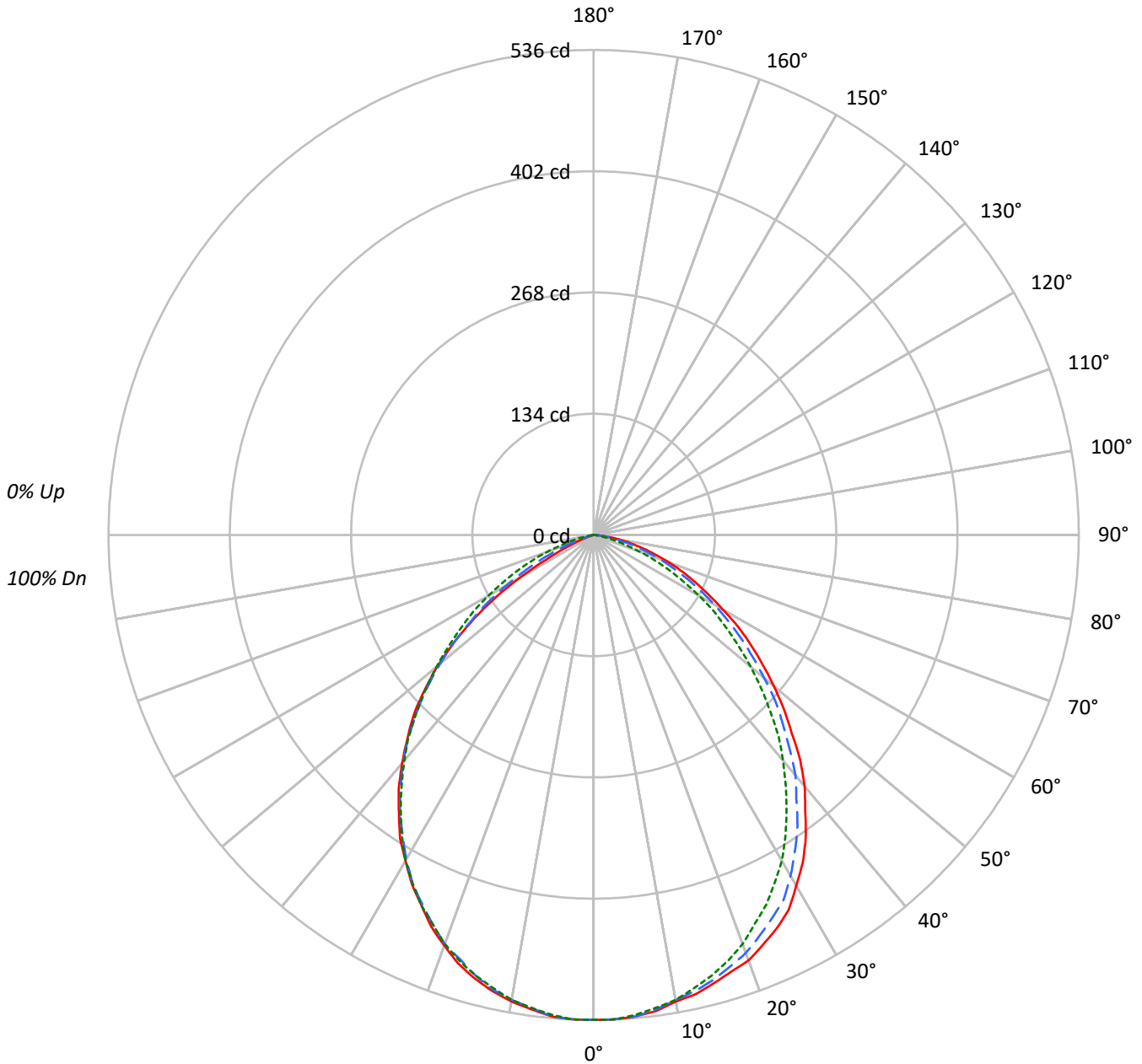
Lumens per Lamp: N/A
Luminaire Lumens: 1146.4 lumens
Efficiency: N/A
Efficacy: 67.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.26
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

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



TEST NUMBER: P644105
CATALOG NUMBER: ML5615LSWW9FS1E - 592SC WW - 1500LM - 5000K

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	105	101	98	100	98	95	97	94	93	93	91	90	88	88	88	88	88	88		
	2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76	76	76	76	76	76		
	3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66	66	66	66	66	66		
	4	87	76	68	62	85	75	68	62	72	66	61	70	65	60	68	63	60	58	58	58	58	58	58		
	5	80	69	61	55	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	36	32	42	36	32	41	36	32	30	30	30	30	30	30		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	42304	42304	42304	42304	42304
5°	42331	42331	42189	42331	42331
10°	41963	41827	41827	41827	41963
15°	41917	41631	41198	41198	41484
20°	42046	41306	40416	40416	40567
25°	41748	40668	39283	39135	39283
30°	40791	39661	37892	37728	37892
35°	39376	37844	35791	35965	36138
40°	37366	35727	33532	33718	33903
45°	34552	32978	30801	30801	31393
50°	31931	30199	27804	27153	27583
55°	29205	27264	24581	22640	22158
60°	25972	24298	21219	17588	14525
65°	23125	21145	17185	11562	6930
70°	20403	17957	12648	5724	2031
75°	16714	14030	7564	1617	549
80°	12865	9638	3228	0	0
85°	6431	4800	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 34753 cd/sqm



TEST NUMBER: P644105

CATALOG NUMBER: ML5615LSWW9FS1E - 592SC WW - 1500LM - 5000K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	50.5	4.4
10°-20°	142.9	12.5
20°-30°	210.8	18.4
30°-40°	238.6	20.8
40°-50°	220.3	19.2
50°-60°	162.8	14.2
60°-70°	87.5	7.6
70°-80°	29.3	2.6
80°-90°	3.7	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°	404.2	35.3
0°-40°	642.8	56.1
0°-60°	1025.9	89.5
0°-90°	1146.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1146.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	536	536	536	536	536	
5°	534	534	532	534	534	51
15°	513	509	504	504	508	145
25°	479	467	451	449	451	220
35°	409	393	371	373	375	254
45°	310	295	276	276	281	240
55°	212	198	179	164	161	190
65°	124	113	92	62	37	124
75°	55	46	25	5	2	59
85°	7	5	0	0	0	11
90°	0	0	0	0	0	



TEST NUMBER: P644105

CATALOG NUMBER: ML5615LSWW9FS1E - 592SC WW - 1500LM - 5000K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9
2.5°	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9
5°	534.2	534.2	532.4	534.2	534.2	534.2	534.2	532.4	534.2	534.2	534.2
7.5°	530.6	528.8	528.8	528.8	528.8	528.8	528.8	528.8	528.8	528.8	528.8
10°	523.5	523.5	523.5	523.5	523.5	523.5	523.5	523.5	523.5	523.5	521.8
12.5°	520.0	518.2	518.2	518.2	518.2	518.2	518.2	516.5	518.2	516.5	516.5
15°	512.9	512.9	512.9	512.9	512.9	512.9	511.2	511.2	511.2	511.2	509.4
17.5°	505.9	505.9	507.6	507.6	505.9	505.9	505.9	504.1	502.3	502.3	500.5
20°	500.5	500.5	498.8	498.8	497.0	498.8	497.0	495.2	495.2	493.5	491.7
22.5°	489.9	489.9	489.9	489.9	489.9	488.2	488.2	486.4	484.6	482.9	479.3
25°	479.3	479.3	479.3	479.3	477.6	477.6	477.6	474.0	472.2	470.5	466.9
27.5°	466.9	465.2	465.2	465.2	463.4	463.4	461.6	459.9	458.1	456.3	454.6
30°	447.5	447.5	447.5	447.5	445.7	444.0	444.0	442.2	440.4	436.9	435.1
32.5°	429.8	429.8	428.0	426.3	426.3	426.3	424.5	422.7	419.2	417.4	413.9
35°	408.6	406.8	406.8	405.0	405.0	405.0	403.3	399.7	398.0	396.2	392.7
37.5°	383.8	385.6	383.8	383.8	382.0	380.3	378.5	376.7	375.0	371.4	367.9
40°	362.6	362.6	360.8	359.1	357.3	357.3	355.5	353.7	352.0	350.2	346.7
42.5°	337.8	337.8	336.1	336.1	334.3	334.3	330.8	329.0	327.2	325.4	320.1
45°	309.5	309.5	311.3	309.5	307.8	306.0	306.0	304.2	300.7	298.9	295.4
47.5°	284.8	286.5	284.8	283.0	283.0	281.2	281.2	277.7	277.7	274.2	272.4
50°	260.0	260.0	260.0	260.0	258.2	256.5	256.5	254.7	251.2	249.4	245.9
52.5°	235.2	235.2	235.2	235.2	233.5	233.5	231.7	229.9	228.2	224.6	221.1
55°	212.2	210.5	210.5	210.5	208.7	208.7	206.9	205.2	203.4	201.6	198.1
57.5°	189.3	187.5	187.5	185.7	185.7	183.9	183.9	182.2	180.4	176.9	175.1
60°	164.5	166.3	164.5	164.5	162.7	162.7	162.7	161.0	157.4	155.6	153.9
62.5°	143.3	145.0	143.3	141.5	141.5	141.5	141.5	138.0	136.2	134.4	132.7
65°	123.8	123.8	123.8	122.0	122.0	122.0	118.5	118.5	116.7	115.0	113.2
67.5°	106.1	104.4	104.4	104.4	102.6	102.6	100.8	100.8	97.3	97.3	93.7
70°	88.4	86.7	86.7	86.7	84.9	83.1	84.9	81.4	79.6	77.8	77.8
72.5°	70.7	70.7	69.0	69.0	69.0	67.2	67.2	65.4	63.7	61.9	60.1
75°	54.8	54.8	54.8	53.1	53.1	51.3	51.3	49.5	49.5	46.0	46.0
77.5°	40.7	40.7	40.7	38.9	38.9	38.9	37.1	37.1	35.4	33.6	31.8
80°	28.3	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	15.9	14.1	14.1	14.1	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



TEST NUMBER: P644105

CATALOG NUMBER: ML5615LSWW9FS1E - 592SC WW - 1500LM - 5000K

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9
2.5°	535.9	535.9	535.9	535.9	534.2	535.9	534.2	535.9	535.9	535.9	535.9
5°	534.2	532.4	532.4	532.4	534.2	534.2	532.4	532.4	532.4	532.4	532.4
7.5°	528.8	528.8	528.8	527.1	528.8	528.8	527.1	528.8	528.8	527.1	528.8
10°	523.5	523.5	521.8	521.8	521.8	521.8	521.8	521.8	520.0	521.8	521.8
12.5°	516.5	516.5	516.5	514.7	514.7	514.7	514.7	514.7	512.9	512.9	514.7
15°	509.4	509.4	507.6	507.6	507.6	505.9	505.9	505.9	505.9	504.1	504.1
17.5°	500.5	498.8	498.8	497.0	497.0	495.2	495.2	493.5	493.5	493.5	491.7
20°	489.9	488.2	486.4	486.4	484.6	484.6	482.9	482.9	481.1	481.1	479.3
22.5°	477.6	475.8	474.0	472.2	472.2	470.5	470.5	468.7	466.9	465.2	465.2
25°	466.9	463.4	461.6	459.9	456.3	456.3	454.6	454.6	452.8	451.0	449.3
27.5°	451.0	447.5	445.7	444.0	442.2	440.4	436.9	436.9	435.1	433.3	431.6
30°	431.6	429.8	426.3	424.5	422.7	422.7	419.2	415.7	415.7	415.7	413.9
32.5°	412.1	408.6	406.8	403.3	401.5	401.5	399.7	396.2	394.4	394.4	392.7
35°	390.9	387.4	383.8	382.0	380.3	378.5	376.7	375.0	373.2	371.4	369.7
37.5°	366.1	362.6	360.8	359.1	357.3	355.5	353.7	352.0	350.2	348.4	350.2
40°	343.1	339.6	336.1	334.3	332.5	332.5	330.8	329.0	327.2	325.4	325.4
42.5°	318.4	314.8	313.1	311.3	309.5	307.8	306.0	304.2	302.5	302.5	300.7
45°	291.8	290.1	286.5	284.8	283.0	283.0	279.5	277.7	277.7	275.9	275.9
47.5°	268.8	265.3	261.8	260.0	258.2	256.5	254.7	252.9	251.2	251.2	251.2
50°	242.3	240.5	237.0	235.2	233.5	233.5	231.7	229.9	228.2	226.4	226.4
52.5°	217.6	215.8	215.8	212.2	210.5	210.5	206.9	206.9	203.4	201.6	199.9
55°	196.3	192.8	191.0	187.5	187.5	185.7	183.9	182.2	180.4	178.6	176.9
57.5°	171.6	169.8	168.0	166.3	166.3	164.5	162.7	161.0	157.4	157.4	153.9
60°	152.1	148.6	146.8	145.0	143.3	143.3	141.5	139.7	136.2	134.4	132.7
62.5°	130.9	127.3	127.3	125.6	122.0	122.0	120.3	116.7	115.0	111.4	109.7
65°	111.4	109.7	106.1	104.4	104.4	102.6	99.0	97.3	95.5	92.0	88.4
67.5°	92.0	90.2	88.4	84.9	84.9	83.1	79.6	77.8	74.3	72.5	69.0
70°	74.3	72.5	70.7	67.2	67.2	65.4	63.7	60.1	56.6	54.8	51.3
72.5°	58.4	56.6	54.8	51.3	51.3	49.5	46.0	44.2	40.7	37.1	35.4
75°	44.2	42.4	38.9	37.1	35.4	35.4	31.8	30.1	28.3	24.8	23.0
77.5°	30.1	28.3	26.5	24.8	24.8	23.0	21.2	19.5	17.7	15.9	12.4
80°	19.5	17.7	15.9	15.9	14.1	14.1	12.4	10.6	8.8	7.1	5.3
82.5°	10.6	10.6	8.8	7.1	7.1	7.1	5.3	5.3	3.5	1.8	1.8
85°	3.5	3.5	3.5	3.5	1.8	1.8	1.8	1.8	1.8	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: P644105

CATALOG NUMBER: ML5615LSWW9FS1E - 592SC WW - 1500LM - 5000K

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9
2.5°	535.9	535.9	535.9	535.9	535.9	535.9	534.2	535.9	535.9	535.9	534.2
5°	534.2	532.4	532.4	534.2	532.4	532.4	534.2	534.2	534.2	532.4	532.4
7.5°	527.1	528.8	527.1	527.1	528.8	528.8	528.8	528.8	527.1	527.1	528.8
10°	521.8	521.8	520.0	521.8	520.0	521.8	521.8	521.8	521.8	521.8	521.8
12.5°	512.9	512.9	512.9	514.7	512.9	512.9	514.7	514.7	514.7	514.7	514.7
15°	502.3	502.3	504.1	502.3	504.1	504.1	504.1	504.1	504.1	504.1	505.9
17.5°	491.7	491.7	491.7	491.7	491.7	491.7	491.7	491.7	491.7	493.5	493.5
20°	479.3	479.3	479.3	479.3	479.3	477.6	479.3	479.3	481.1	481.1	481.1
22.5°	463.4	463.4	463.4	463.4	463.4	463.4	463.4	463.4	465.2	466.9	465.2
25°	447.5	447.5	447.5	447.5	447.5	447.5	447.5	449.3	449.3	449.3	451.0
27.5°	431.6	431.6	431.6	429.8	431.6	429.8	431.6	431.6	433.3	431.6	433.3
30°	413.9	412.1	412.1	412.1	412.1	413.9	412.1	412.1	413.9	415.7	413.9
32.5°	390.9	390.9	390.9	392.7	392.7	392.7	394.4	392.7	392.7	394.4	394.4
35°	369.7	369.7	369.7	371.4	371.4	371.4	371.4	373.2	373.2	373.2	375.0
37.5°	346.7	348.4	346.7	348.4	348.4	350.2	350.2	350.2	350.2	352.0	352.0
40°	325.4	323.7	325.4	325.4	325.4	325.4	325.4	325.4	327.2	329.0	329.0
42.5°	300.7	300.7	300.7	300.7	300.7	300.7	302.5	302.5	302.5	304.2	304.2
45°	275.9	274.2	274.2	274.2	274.2	275.9	274.2	275.9	275.9	277.7	277.7
47.5°	249.4	249.4	249.4	249.4	249.4	249.4	249.4	249.4	249.4	251.2	249.4
50°	226.4	224.6	222.9	222.9	221.1	222.9	221.1	221.1	221.1	222.9	221.1
52.5°	199.9	198.1	196.3	196.3	196.3	194.6	192.8	192.8	192.8	191.0	191.0
55°	176.9	175.1	171.6	173.3	169.8	168.0	168.0	166.3	164.5	164.5	162.7
57.5°	152.1	150.3	148.6	146.8	146.8	143.3	141.5	139.7	138.0	136.2	132.7
60°	130.9	127.3	123.8	123.8	122.0	120.3	116.7	113.2	111.4	107.9	106.1
62.5°	107.9	104.4	100.8	99.0	97.3	95.5	92.0	88.4	84.9	83.1	79.6
65°	86.7	83.1	79.6	77.8	76.1	72.5	69.0	65.4	61.9	58.4	56.6
67.5°	65.4	61.9	60.1	56.6	54.8	51.3	47.8	46.0	42.4	38.9	33.6
70°	47.8	44.2	40.7	38.9	37.1	33.6	31.8	28.3	24.8	23.0	19.5
72.5°	31.8	28.3	26.5	24.8	23.0	21.2	17.7	15.9	12.4	10.6	8.8
75°	19.5	17.7	15.9	14.1	12.4	10.6	8.8	7.1	5.3	3.5	1.8
77.5°	10.6	8.8	7.1	7.1	5.3	3.5	3.5	1.8	1.8	1.8	1.8
80°	5.3	3.5	1.8	1.8	1.8	1.8	0.0	0.0	0.0	0.0	1.8
82.5°	1.8	0.0	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: P644105

CATALOG NUMBER: ML5615LSWW9FS1E - 592SC WW - 1500LM - 5000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9
2.5°	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9
5°	534.2	534.2	532.4	534.2	532.4	532.4	532.4	534.2
7.5°	528.8	528.8	528.8	528.8	528.8	528.8	528.8	528.8
10°	521.8	521.8	521.8	523.5	523.5	523.5	521.8	523.5
12.5°	514.7	514.7	514.7	516.5	514.7	516.5	514.7	516.5
15°	505.9	505.9	507.6	507.6	505.9	505.9	507.6	507.6
17.5°	493.5	495.2	495.2	495.2	495.2	495.2	495.2	497.0
20°	482.9	482.9	481.1	482.9	482.9	484.6	484.6	482.9
22.5°	465.2	468.7	468.7	468.7	468.7	468.7	468.7	468.7
25°	451.0	451.0	451.0	452.8	451.0	451.0	452.8	451.0
27.5°	433.3	435.1	433.3	435.1	435.1	435.1	435.1	435.1
30°	415.7	415.7	415.7	415.7	415.7	417.4	415.7	415.7
32.5°	394.4	396.2	396.2	396.2	398.0	396.2	396.2	398.0
35°	375.0	375.0	375.0	376.7	375.0	376.7	376.7	375.0
37.5°	352.0	353.7	352.0	353.7	353.7	353.7	353.7	353.7
40°	330.8	329.0	330.8	329.0	330.8	330.8	330.8	329.0
42.5°	304.2	306.0	306.0	306.0	306.0	306.0	306.0	304.2
45°	277.7	279.5	279.5	279.5	279.5	279.5	281.2	281.2
47.5°	249.4	252.9	252.9	252.9	251.2	254.7	252.9	252.9
50°	221.1	221.1	222.9	222.9	224.6	224.6	224.6	224.6
52.5°	192.8	191.0	192.8	192.8	194.6	192.8	194.6	192.8
55°	161.0	161.0	161.0	159.2	161.0	161.0	161.0	161.0
57.5°	132.7	130.9	129.1	127.3	127.3	127.3	125.6	127.3
60°	102.6	99.0	100.8	97.3	95.5	93.7	93.7	92.0
62.5°	76.1	72.5	70.7	69.0	65.4	61.9	61.9	60.1
65°	51.3	47.8	46.0	42.4	40.7	38.9	37.1	37.1
67.5°	31.8	28.3	28.3	26.5	24.8	23.0	21.2	21.2
70°	17.7	15.9	14.1	12.4	12.4	10.6	8.8	8.8
72.5°	7.1	5.3	5.3	3.5	3.5	3.5	3.5	1.8
75°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
77.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
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)