

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: P644090

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

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644090
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-130)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 592H WW - 1500LM - 5000K
Description: ML56 RR, WW OPTIC, 5" 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: 1120.8 lumens
Efficiency: N/A
Efficacy: 65.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.25
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

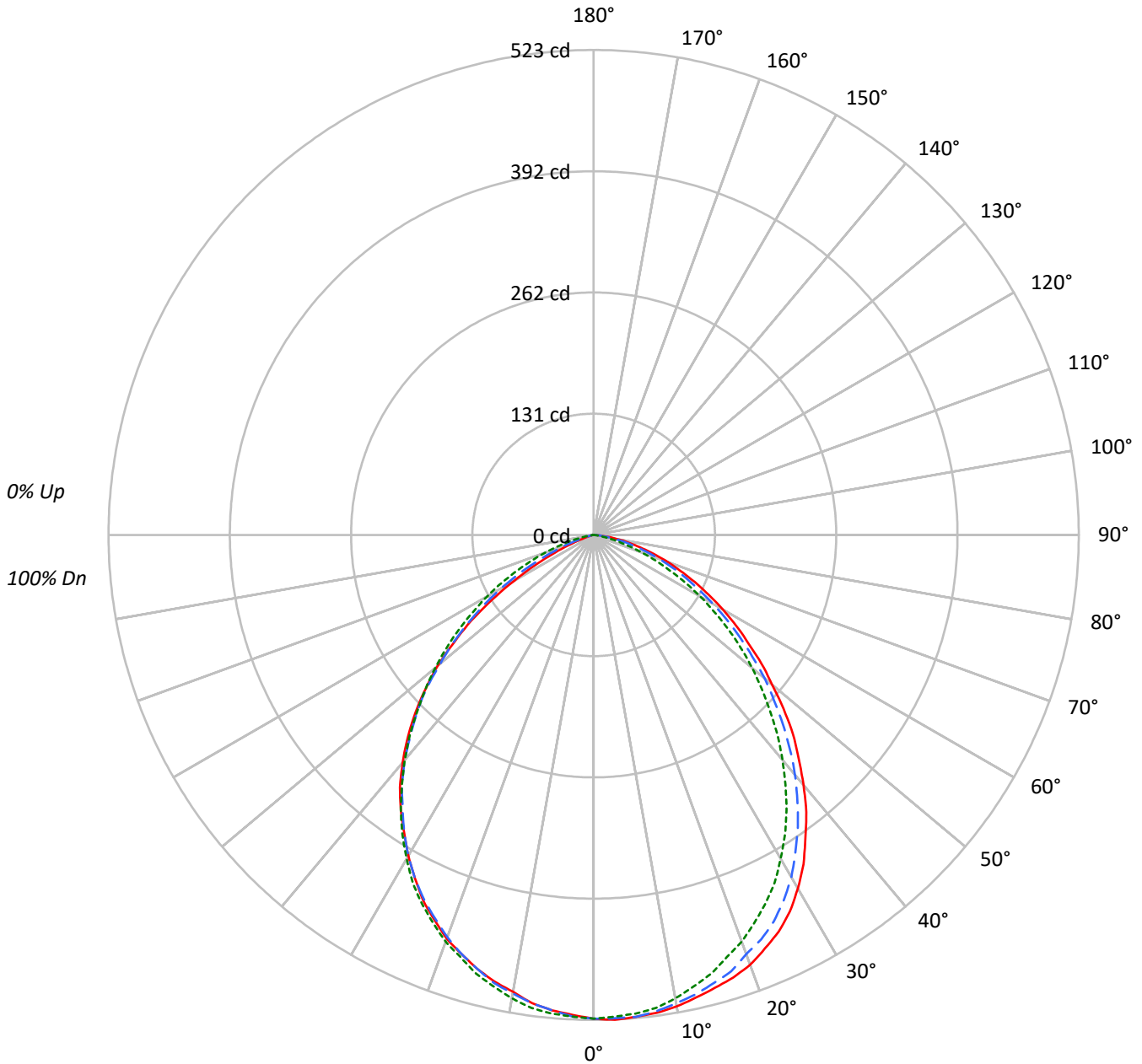
Input Watts (W): 17.1
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P644090

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

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	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				
1	111	107	103	100	108	105	101	98	100	98	95	96	94	92	93	91	90	88				
2	102	95	89	84	100	93	88	83	90	85	81	87	83	79	84	80	78	76				
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66				
4	87	76	68	62	85	75	67	62	72	66	61	70	65	60	68	63	59	57				
5	80	69	60	54	78	67	60	54	65	59	54	64	58	53	62	57	52	50				
6	74	62	54	48	73	61	54	48	60	53	47	58	52	47	56	51	47	45				
7	69	57	49	43	68	56	48	43	54	48	42	53	47	42	52	46	42	40				
8	65	52	44	39	63	51	44	39	50	43	38	49	43	38	48	42	38	36				
9	61	48	40	35	59	47	40	35	46	39	35	45	39	35	44	39	34	33				
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	31	30				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	41183	41183	41183	41183	41183
5°	41341	41341	41056	40778	40778
10°	41386	41105	40681	40256	40111
15°	41329	40896	40029	39596	39596
20°	41449	40407	39215	38769	38921
25°	41121	40049	38194	37732	37889
30°	40135	38849	36753	36425	36425
35°	38345	36977	34934	34596	34934
40°	36263	34800	32615	32615	32986
45°	33950	32174	30009	30009	30399
50°	30838	29536	27362	26490	26932
55°	27994	26521	24333	22640	22145
60°	25403	23445	20935	18141	15630
65°	22452	20472	16848	12552	9246
70°	19596	17149	12648	6947	3670
75°	15647	13481	8083	2166	1068
80°	12047	8865	3228	818	818
85°	6431	4800	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 33950 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	49.1	4.4
10°-20°	138.8	12.4
20°-30°	204.8	18.3
30°-40°	231.9	20.7
40°-50°	214.2	19.1
50°-60°	160.0	14.3
60°-70°	88.4	7.9
70°-80°	29.8	2.7
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°	392.7	35.0
0°-40°	624.6	55.7
0°-60°	998.8	89.1
0°-90°	1120.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1120.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	522	522	522	522	522	
5°	522	522	518	515	515	50
15°	506	500	490	484	484	143
25°	472	460	438	433	435	217
35°	398	384	362	359	362	249
45°	304	288	269	269	272	233
55°	203	193	177	164	161	183
65°	120	110	90	67	50	120
75°	51	44	26	7	4	56
85°	7	5	0	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°	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7
2.5°	523.4	523.4	523.4	523.4	521.7	521.7	523.4	521.7	521.7	521.7	521.7
5°	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7
7.5°	519.9	519.9	519.9	519.9	519.9	519.9	519.9	519.9	518.1	518.1	518.1
10°	516.3	516.3	516.3	516.3	516.3	516.3	516.3	514.6	514.6	514.6	512.8
12.5°	511.0	512.8	511.0	512.8	511.0	511.0	509.3	509.3	509.3	507.5	507.5
15°	505.7	505.7	505.7	505.7	505.7	504.0	504.0	502.2	502.2	502.2	500.4
17.5°	500.4	498.7	498.7	498.7	496.9	496.9	496.9	496.9	495.1	493.4	493.4
20°	493.4	491.6	491.6	491.6	489.8	489.8	488.1	488.1	484.5	484.5	481.0
22.5°	482.7	482.7	482.7	481.0	481.0	479.2	479.2	477.4	475.7	473.9	472.1
25°	472.1	472.1	470.4	470.4	468.6	468.6	468.6	465.1	463.3	461.5	459.8
27.5°	458.0	458.0	456.2	456.2	454.5	452.7	452.7	449.1	449.1	445.6	443.8
30°	440.3	440.3	440.3	436.8	436.8	436.8	435.0	433.2	429.7	427.9	426.2
32.5°	420.9	419.1	419.1	419.1	417.3	415.6	415.6	412.0	410.2	408.5	404.9
35°	397.9	397.9	397.9	397.9	396.1	394.3	394.3	390.8	389.0	385.5	383.7
37.5°	376.6	376.6	374.9	374.9	371.3	373.1	371.3	369.6	367.8	362.5	360.7
40°	351.9	351.9	351.9	350.1	348.4	348.4	346.6	344.8	341.3	339.5	337.7
42.5°	327.1	327.1	327.1	325.4	323.6	323.6	323.6	320.1	318.3	316.5	313.0
45°	304.1	302.4	302.4	300.6	300.6	298.8	297.1	295.3	293.5	291.8	288.2
47.5°	277.6	277.6	275.9	275.9	274.1	274.1	272.3	270.6	268.8	267.0	263.5
50°	251.1	252.9	252.9	251.1	251.1	249.3	247.6	247.6	245.8	244.0	240.5
52.5°	228.1	228.1	228.1	226.3	226.3	224.6	224.6	222.8	221.0	217.5	215.7
55°	203.4	205.1	203.4	203.4	203.4	201.6	201.6	199.8	198.1	194.5	192.7
57.5°	182.1	182.1	180.4	180.4	178.6	178.6	178.6	176.8	175.1	173.3	169.8
60°	160.9	159.1	159.1	159.1	157.4	157.4	157.4	153.8	152.1	150.3	148.5
62.5°	139.7	139.7	139.7	137.9	137.9	136.2	134.4	134.4	132.6	130.9	127.3
65°	120.2	120.2	118.5	118.5	118.5	116.7	116.7	114.9	113.2	111.4	109.6
67.5°	100.8	100.8	100.8	99.0	99.0	99.0	97.3	95.5	95.5	93.7	92.0
70°	84.9	83.1	83.1	83.1	81.3	81.3	81.3	79.6	77.8	76.0	74.3
72.5°	67.2	67.2	67.2	67.2	65.4	65.4	63.7	63.7	61.9	60.1	58.4
75°	51.3	51.3	51.3	51.3	49.5	49.5	49.5	47.7	47.7	46.0	44.2
77.5°	38.9	38.9	38.9	37.1	37.1	35.4	35.4	35.4	33.6	33.6	31.8
80°	26.5	26.5	24.8	24.8	24.8	24.8	24.8	23.0	21.2	21.2	19.5
82.5°	15.9	15.9	15.9	14.1	14.1	14.1	14.1	14.1	12.4	12.4	10.6
85°	7.1	7.1	7.1	7.1	7.1	7.1	5.3	5.3	5.3	5.3	5.3
87.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	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: P644090

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

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7
2.5°	521.7	521.7	521.7	521.7	521.7	521.7	521.7	519.9	519.9	519.9	519.9
5°	519.9	519.9	519.9	519.9	519.9	518.1	519.9	518.1	518.1	518.1	518.1
7.5°	516.3	516.3	516.3	516.3	514.6	516.3	514.6	514.6	514.6	514.6	512.8
10°	512.8	511.0	511.0	511.0	511.0	509.3	509.3	507.5	507.5	507.5	505.7
12.5°	507.5	505.7	505.7	504.0	504.0	504.0	502.2	502.2	500.4	498.7	498.7
15°	498.7	498.7	496.9	495.1	495.1	493.4	493.4	491.6	491.6	489.8	488.1
17.5°	491.6	489.8	488.1	486.3	484.5	484.5	482.7	481.0	481.0	477.4	477.4
20°	479.2	477.4	475.7	473.9	473.9	473.9	470.4	470.4	468.6	466.8	465.1
22.5°	468.6	466.8	463.3	461.5	461.5	459.8	458.0	456.2	454.5	452.7	450.9
25°	456.2	454.5	450.9	449.1	447.4	445.6	443.8	442.1	440.3	438.5	436.8
27.5°	440.3	436.8	436.8	433.2	431.5	429.7	427.9	426.2	424.4	422.6	420.9
30°	422.6	420.9	417.3	413.8	412.0	412.0	408.5	406.7	406.7	403.2	401.4
32.5°	403.2	399.6	396.1	394.3	392.6	390.8	389.0	387.3	385.5	383.7	382.0
35°	382.0	376.6	374.9	371.3	371.3	369.6	367.8	364.3	364.3	362.5	359.0
37.5°	359.0	355.4	353.7	350.1	348.4	346.6	344.8	343.1	341.3	339.5	337.7
40°	334.2	330.7	328.9	327.1	325.4	323.6	321.8	320.1	318.3	316.5	314.8
42.5°	309.5	307.7	304.1	300.6	300.6	298.8	297.1	295.3	293.5	293.5	291.8
45°	284.7	282.9	279.4	277.6	275.9	275.9	272.3	272.3	270.6	268.8	268.8
47.5°	261.7	258.2	254.6	254.6	251.1	252.9	249.3	249.3	245.8	245.8	244.0
50°	237.0	235.2	231.6	229.9	229.9	228.1	226.3	226.3	224.6	222.8	221.0
52.5°	214.0	210.4	208.7	206.9	205.1	205.1	203.4	203.4	199.8	199.8	198.1
55°	191.0	189.2	185.7	183.9	183.9	183.9	180.4	178.6	178.6	176.8	175.1
57.5°	168.0	166.2	164.5	162.7	160.9	160.9	159.1	157.4	155.6	153.8	150.3
60°	146.8	145.0	143.2	141.5	139.7	139.7	137.9	136.2	134.4	132.6	130.9
62.5°	125.5	125.5	122.0	120.2	118.5	118.5	116.7	114.9	113.2	111.4	109.6
65°	107.9	106.1	102.6	100.8	100.8	100.8	97.3	95.5	93.7	90.2	88.4
67.5°	90.2	86.6	84.9	84.9	83.1	81.3	79.6	77.8	74.3	72.5	69.0
70°	72.5	70.7	69.0	67.2	65.4	63.7	61.9	60.1	56.6	54.8	53.0
72.5°	56.6	54.8	53.0	51.3	49.5	49.5	46.0	44.2	42.4	38.9	37.1
75°	42.4	40.7	38.9	37.1	35.4	33.6	33.6	30.1	28.3	26.5	23.0
77.5°	30.1	28.3	26.5	24.8	24.8	23.0	21.2	19.5	17.7	15.9	14.1
80°	19.5	17.7	15.9	15.9	14.1	14.1	12.4	10.6	8.8	7.1	7.1
82.5°	10.6	8.8	8.8	7.1	7.1	7.1	5.3	3.5	3.5	3.5	1.8
85°	3.5	3.5	3.5	1.8	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: P644090

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

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7
2.5°	519.9	519.9	519.9	519.9	519.9	519.9	519.9	519.9	519.9	518.1	518.1
5°	516.3	516.3	516.3	516.3	516.3	516.3	514.6	514.6	514.6	514.6	514.6
7.5°	512.8	512.8	512.8	511.0	511.0	511.0	511.0	509.3	509.3	509.3	509.3
10°	505.7	505.7	505.7	504.0	504.0	504.0	504.0	504.0	502.2	502.2	502.2
12.5°	496.9	496.9	496.9	496.9	496.9	495.1	495.1	495.1	495.1	493.4	495.1
15°	488.1	488.1	486.3	486.3	486.3	484.5	484.5	484.5	484.5	484.5	484.5
17.5°	477.4	475.7	475.7	473.9	473.9	473.9	473.9	473.9	473.9	473.9	473.9
20°	465.1	463.3	463.3	463.3	463.3	461.5	461.5	459.8	461.5	461.5	461.5
22.5°	450.9	449.1	449.1	449.1	447.4	447.4	447.4	447.4	447.4	447.4	447.4
25°	436.8	435.0	433.2	433.2	433.2	431.5	431.5	433.2	433.2	433.2	433.2
27.5°	419.1	419.1	417.3	417.3	417.3	415.6	415.6	415.6	417.3	417.3	417.3
30°	399.6	399.6	399.6	399.6	397.9	397.9	399.6	397.9	399.6	397.9	399.6
32.5°	382.0	382.0	380.2	378.4	378.4	380.2	378.4	378.4	380.2	380.2	380.2
35°	359.0	359.0	359.0	359.0	359.0	359.0	359.0	359.0	359.0	360.7	362.5
37.5°	337.7	337.7	337.7	337.7	337.7	337.7	337.7	339.5	339.5	339.5	339.5
40°	314.8	314.8	314.8	314.8	314.8	314.8	314.8	314.8	316.5	316.5	318.3
42.5°	290.0	291.8	291.8	291.8	290.0	290.0	291.8	291.8	291.8	293.5	293.5
45°	267.0	267.0	267.0	267.0	268.8	267.0	267.0	267.0	268.8	268.8	268.8
47.5°	244.0	242.3	242.3	244.0	242.3	242.3	242.3	242.3	244.0	244.0	242.3
50°	221.0	219.3	219.3	219.3	217.5	217.5	219.3	215.7	215.7	215.7	217.5
52.5°	198.1	196.3	194.5	194.5	194.5	192.7	191.0	191.0	191.0	189.2	189.2
55°	173.3	171.5	169.8	169.8	169.8	168.0	168.0	164.5	164.5	162.7	162.7
57.5°	150.3	148.5	146.8	146.8	145.0	143.2	143.2	139.7	139.7	137.9	134.4
60°	127.3	125.5	123.8	123.8	123.8	120.2	118.5	114.9	114.9	111.4	109.6
62.5°	106.1	104.3	102.6	100.8	100.8	97.3	95.5	92.0	90.2	88.4	84.9
65°	86.6	83.1	81.3	79.6	79.6	76.0	74.3	70.7	67.2	65.4	61.9
67.5°	67.2	65.4	61.9	60.1	60.1	56.6	53.0	51.3	47.7	44.2	42.4
70°	49.5	47.7	44.2	42.4	40.7	38.9	35.4	33.6	30.1	28.3	24.8
72.5°	33.6	31.8	28.3	28.3	26.5	23.0	21.2	19.5	15.9	14.1	12.4
75°	21.2	19.5	17.7	15.9	14.1	12.4	10.6	8.8	7.1	5.3	5.3
77.5°	12.4	10.6	8.8	7.1	7.1	5.3	3.5	3.5	3.5	1.8	1.8
80°	5.3	3.5	3.5	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	0.0	0.0	1.8	1.8
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: P644090

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7
2.5°	519.9	518.1	519.9	519.9	518.1	518.1	518.1	518.1
5°	514.6	514.6	514.6	514.6	514.6	514.6	514.6	514.6
7.5°	511.0	509.3	509.3	509.3	509.3	509.3	509.3	509.3
10°	502.2	502.2	502.2	502.2	502.2	502.2	502.2	500.4
12.5°	493.4	493.4	493.4	493.4	493.4	493.4	493.4	493.4
15°	484.5	484.5	484.5	484.5	484.5	484.5	484.5	484.5
17.5°	473.9	473.9	473.9	473.9	473.9	472.1	473.9	473.9
20°	461.5	461.5	461.5	461.5	461.5	461.5	461.5	463.3
22.5°	447.4	447.4	447.4	447.4	447.4	447.4	447.4	449.1
25°	433.2	433.2	433.2	433.2	433.2	433.2	433.2	435.0
27.5°	417.3	417.3	417.3	417.3	417.3	417.3	417.3	417.3
30°	399.6	399.6	401.4	399.6	399.6	399.6	401.4	399.6
32.5°	382.0	382.0	382.0	382.0	382.0	382.0	382.0	380.2
35°	362.5	360.7	362.5	362.5	362.5	362.5	362.5	362.5
37.5°	341.3	341.3	341.3	341.3	341.3	341.3	343.1	343.1
40°	320.1	318.3	318.3	320.1	320.1	320.1	318.3	320.1
42.5°	293.5	295.3	295.3	295.3	297.1	295.3	297.1	297.1
45°	268.8	270.6	270.6	270.6	270.6	270.6	272.3	272.3
47.5°	244.0	244.0	244.0	244.0	245.8	245.8	245.8	245.8
50°	217.5	217.5	217.5	217.5	219.3	217.5	219.3	219.3
52.5°	189.2	189.2	189.2	189.2	189.2	189.2	191.0	189.2
55°	160.9	160.9	160.9	160.9	159.1	159.1	159.1	160.9
57.5°	134.4	132.6	130.9	132.6	129.1	129.1	129.1	129.1
60°	106.1	104.3	104.3	102.6	100.8	99.0	100.8	99.0
62.5°	81.3	79.6	79.6	76.0	74.3	74.3	72.5	72.5
65°	60.1	56.6	54.8	54.8	53.0	51.3	49.5	49.5
67.5°	38.9	37.1	35.4	35.4	33.6	31.8	31.8	30.1
70°	23.0	21.2	19.5	21.2	17.7	15.9	15.9	15.9
72.5°	10.6	8.8	8.8	8.8	7.1	7.1	7.1	7.1
75°	5.3	3.5	3.5	3.5	3.5	3.5	3.5	3.5
77.5°	1.8	1.8	3.5	1.8	1.8	1.8	1.8	1.8
80°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
82.5°	1.8	0.0	0.0	0.0	1.8	1.8	0.0	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)