

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: P644125

Luminaire Tested: ML5615LSWW9FS1E - 592W WW - 900LM - 5000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644125
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-116)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 592W WW - 900LM - 5000K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: -

Summary

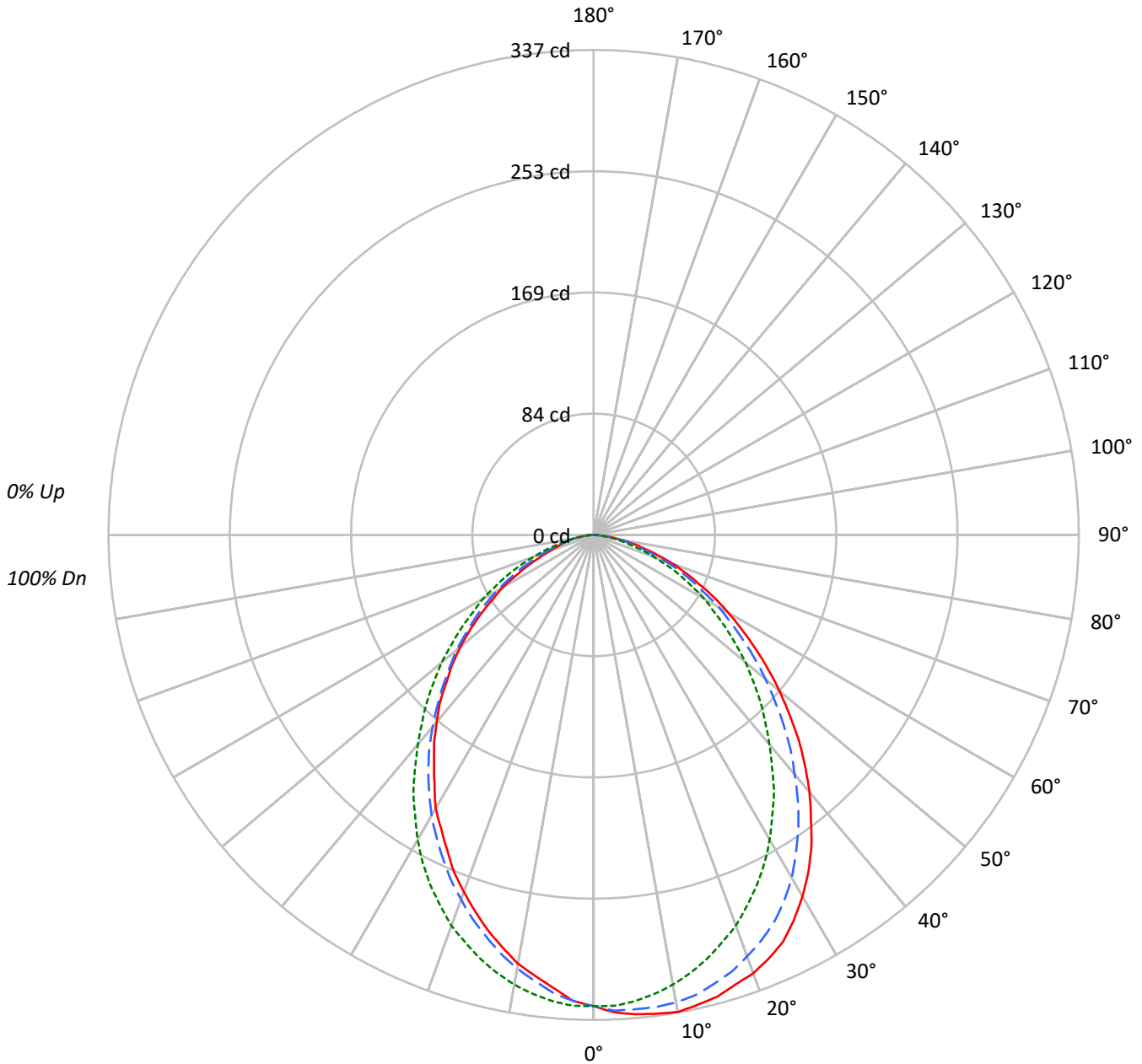
Lumens per Lamp: N/A
Luminaire Lumens: 714.5 lumens
Efficiency: N/A
Efficacy: 68.1 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.13 / 1.23
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

Input Watts (W): 10.5
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					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	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	88	86					86			
2	101	94	88	82	99	92	86	81	88	84	80	85	81	78	82	79	76	74					74			
3	93	83	76	70	91	82	75	69	79	73	68	76	71	67	74	69	66	64					64			
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	57	55					55			
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49					49			
6	73	61	53	46	72	60	52	46	58	51	46	57	50	45	55	49	45	43					43			
7	68	56	47	41	67	55	47	41	53	46	41	52	45	41	51	45	40	39					39			
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37	35					35			
9	60	47	39	34	58	46	39	34	45	38	34	44	38	33	43	37	33	32					32			
10	56	43	36	31	55	43	36	31	42	35	31	41	35	31	40	35	30	29					29			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	25853	25853	25853	25853	25853
5°	26499	26221	25778	25326	25056
10°	26981	26436	25434	24521	24248
15°	27141	26397	24910	23611	23235
20°	27227	26177	24270	22640	22161
25°	27141	25852	23378	21593	21000
30°	26434	25085	22287	20528	20008
35°	25422	23890	21047	19293	18628
40°	24021	22382	19569	17931	17467
45°	22473	20821	18287	16500	16121
50°	20669	19134	16899	15228	14811
55°	18786	17369	15346	13777	13144
60°	17051	15804	14004	12204	11494
65°	15074	14028	12328	10404	9340
70°	13387	12071	10248	8401	7340
75°	11102	10065	7991	6588	6588
80°	8774	7774	6183	5683	5683
85°	5163	5163	4076	5163	5163

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 22473 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	30.8	4.3
10°-20°	86.3	12.1
20°-30°	125.1	17.5
30°-40°	139.6	19.5
40°-50°	129.5	18.1
50°-60°	101.8	14.2
60°-70°	65.1	9.1
70°-80°	29.9	4.2
80°-90°	6.4	0.9
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°	242.2	33.9
0°-40°	381.8	53.4
0°-60°	613.1	85.8
0°-90°	714.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	714.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	328	328	328	328	328	
5°	334	331	325	320	316	32
15°	332	323	305	289	284	94
25°	312	297	268	248	241	143
35°	264	248	218	200	193	164
45°	201	186	164	148	144	155
55°	136	126	112	100	96	123
65°	81	75	66	56	50	81
75°	36	33	26	22	22	39
85°	6	6	4	6	6	8
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°	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5
2.5°	332.1	332.1	332.1	332.1	332.1	332.1	330.9	330.9	330.9	330.9	330.9
5°	334.4	334.4	334.4	334.4	333.2	333.2	333.2	333.2	332.1	332.1	330.9
7.5°	335.5	335.5	335.5	334.4	334.4	334.4	333.2	333.2	333.2	332.1	330.9
10°	336.6	335.5	335.5	334.4	334.4	334.4	333.2	333.2	332.1	330.9	329.8
12.5°	334.4	334.4	334.4	334.4	333.2	333.2	332.1	330.9	329.8	328.7	327.5
15°	332.1	332.1	332.1	330.9	329.8	329.8	328.7	327.5	326.4	325.3	323.0
17.5°	327.5	328.7	327.5	327.5	326.4	326.4	325.3	324.1	321.8	320.7	318.4
20°	324.1	323.0	323.0	323.0	321.8	320.7	319.6	318.4	316.2	315.0	311.6
22.5°	318.4	318.4	317.3	316.2	315.0	315.0	313.9	311.6	310.5	308.2	304.8
25°	311.6	310.5	310.5	309.3	308.2	308.2	305.9	304.8	302.5	299.1	296.8
27.5°	301.4	301.4	301.4	300.2	299.1	298.0	296.8	294.6	293.4	288.9	286.6
30°	290.0	290.0	288.9	288.9	286.6	286.6	285.5	283.2	280.9	277.5	275.2
32.5°	277.5	277.5	277.5	275.2	274.1	272.9	271.8	270.7	267.3	263.8	261.6
35°	263.8	263.8	262.7	261.6	260.4	259.3	258.2	255.9	253.6	251.3	247.9
37.5°	247.9	249.1	247.9	246.8	245.7	244.5	243.4	242.2	238.8	236.6	233.1
40°	233.1	233.1	232.0	230.9	229.7	229.7	228.6	226.3	224.0	220.6	217.2
42.5°	217.2	217.2	216.1	214.9	214.9	213.8	211.5	210.4	208.1	205.8	202.4
45°	201.3	200.2	199.0	199.0	197.9	196.7	196.7	194.5	192.2	188.8	186.5
47.5°	184.2	184.2	183.1	183.1	182.0	180.8	180.8	178.6	175.1	172.9	170.6
50°	168.3	168.3	167.2	167.2	166.0	164.9	163.8	162.6	160.4	158.1	155.8
52.5°	152.4	152.4	152.4	150.1	149.0	149.0	149.0	146.7	145.6	143.3	141.0
55°	136.5	136.5	136.5	135.3	134.2	134.2	134.2	131.9	130.8	128.5	126.2
57.5°	121.7	121.7	121.7	120.6	120.6	119.4	118.3	117.1	116.0	114.9	112.6
60°	108.0	108.0	106.9	105.8	106.9	105.8	104.6	103.5	102.4	101.2	100.1
62.5°	94.4	94.4	94.4	93.3	92.1	92.1	92.1	91.0	88.7	87.6	86.4
65°	80.7	80.7	80.7	80.7	79.6	79.6	78.5	77.3	77.3	76.2	75.1
67.5°	69.4	69.4	68.2	68.2	67.1	67.1	67.1	66.0	64.8	64.8	63.7
70°	58.0	56.9	56.9	56.9	55.7	55.7	55.7	54.6	54.6	53.5	52.3
72.5°	46.6	46.6	46.6	46.6	45.5	45.5	44.4	44.4	43.2	43.2	42.1
75°	36.4	36.4	36.4	36.4	35.3	35.3	35.3	35.3	34.1	34.1	33.0
77.5°	27.3	27.3	27.3	27.3	27.3	27.3	26.2	26.2	26.2	25.0	25.0
80°	19.3	19.3	19.3	19.3	18.2	18.2	18.2	18.2	18.2	17.1	17.1
82.5°	12.5	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	10.2
85°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
87.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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°	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5
2.5°	329.8	329.8	329.8	329.8	328.7	328.7	328.7	327.5	327.5	327.5	327.5
5°	330.9	330.9	328.7	328.7	328.7	328.7	327.5	327.5	326.4	325.3	324.1
7.5°	329.8	329.8	328.7	327.5	326.4	326.4	325.3	324.1	323.0	321.8	320.7
10°	328.7	327.5	326.4	325.3	324.1	323.0	321.8	320.7	318.4	317.3	316.2
12.5°	326.4	324.1	323.0	320.7	320.7	319.6	317.3	316.2	313.9	311.6	310.5
15°	321.8	319.6	317.3	315.0	315.0	312.7	310.5	309.3	307.1	304.8	302.5
17.5°	316.2	313.9	311.6	309.3	308.2	305.9	303.7	301.4	299.1	296.8	294.6
20°	310.5	307.1	304.8	301.4	300.2	299.1	295.7	293.4	291.1	288.9	285.5
22.5°	302.5	300.2	295.7	293.4	292.3	290.0	287.7	284.3	280.9	278.6	276.4
25°	293.4	291.1	287.7	284.3	282.0	280.9	277.5	274.1	271.8	268.4	266.1
27.5°	283.2	279.8	277.5	272.9	271.8	269.5	266.1	262.7	260.4	257.0	253.6
30°	271.8	268.4	265.0	261.6	259.3	258.2	254.7	251.3	247.9	244.5	242.2
32.5°	258.2	254.7	251.3	249.1	245.7	243.4	241.1	237.7	234.3	230.9	228.6
35°	244.5	241.1	237.7	234.3	232.0	232.0	227.5	224.0	220.6	218.4	214.9
37.5°	229.7	226.3	222.9	219.5	218.4	216.1	212.7	209.3	207.0	203.6	201.3
40°	214.9	210.4	208.1	204.7	203.6	201.3	199.0	195.6	193.3	189.9	187.6
42.5°	199.0	196.7	193.3	191.1	188.8	187.6	184.2	180.8	178.6	176.3	175.1
45°	184.2	180.8	177.4	175.1	174.0	171.7	170.6	167.2	164.9	163.8	161.5
47.5°	168.3	166.0	163.8	160.4	159.2	158.1	155.8	154.7	152.4	150.1	147.8
50°	153.5	151.3	149.0	146.7	145.6	145.6	142.2	139.9	138.7	137.6	135.3
52.5°	138.7	136.5	134.2	131.9	131.9	130.8	128.5	127.4	126.2	124.0	121.7
55°	125.1	122.8	120.6	119.4	118.3	118.3	116.0	114.9	112.6	111.5	110.3
57.5°	111.5	109.2	108.0	106.9	105.8	105.8	103.5	102.4	101.2	98.9	98.9
60°	98.9	96.7	95.5	94.4	93.3	92.1	92.1	89.8	88.7	88.7	86.4
62.5°	85.3	84.2	83.0	81.9	80.7	80.7	79.6	78.5	77.3	76.2	75.1
65°	73.9	72.8	71.6	70.5	69.4	69.4	68.2	67.1	66.0	66.0	63.7
67.5°	62.5	61.4	60.3	59.1	59.1	58.0	56.9	56.9	55.7	54.6	53.5
70°	51.2	51.2	50.0	48.9	48.9	47.8	46.6	46.6	45.5	44.4	43.2
72.5°	42.1	40.9	39.8	39.8	38.7	38.7	37.5	37.5	36.4	35.3	34.1
75°	31.8	30.7	30.7	30.7	29.6	29.6	29.6	28.4	27.3	26.2	26.2
77.5°	23.9	23.9	22.7	21.6	21.6	21.6	20.5	20.5	20.5	19.3	19.3
80°	17.1	15.9	15.9	14.8	14.8	14.8	14.8	13.6	13.6	13.6	12.5
82.5°	10.2	10.2	10.2	9.1	9.1	9.1	9.1	9.1	8.0	8.0	8.0
85°	5.7	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
87.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.3	2.3
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5
2.5°	326.4	326.4	325.3	325.3	325.3	325.3	325.3	324.1	324.1	324.1	324.1
5°	324.1	323.0	321.8	321.8	321.8	320.7	320.7	319.6	319.6	318.4	318.4
7.5°	319.6	318.4	317.3	317.3	316.2	316.2	313.9	313.9	312.7	311.6	311.6
10°	313.9	312.7	311.6	310.5	310.5	308.2	308.2	307.1	305.9	304.8	304.8
12.5°	308.2	307.1	304.8	303.7	303.7	302.5	300.2	299.1	298.0	296.8	295.7
15°	300.2	299.1	296.8	295.7	294.6	293.4	292.3	291.1	288.9	287.7	287.7
17.5°	292.3	291.1	287.7	286.6	286.6	284.3	283.2	280.9	279.8	278.6	277.5
20°	283.2	280.9	278.6	277.5	276.4	274.1	272.9	271.8	269.5	268.4	267.3
22.5°	272.9	270.7	268.4	267.3	266.1	263.8	262.7	260.4	259.3	258.2	257.0
25°	262.7	260.4	258.2	257.0	254.7	253.6	251.3	249.1	247.9	246.8	245.7
27.5°	251.3	249.1	245.7	244.5	243.4	242.2	240.0	237.7	236.6	234.3	234.3
30°	238.8	236.6	234.3	233.1	232.0	229.7	228.6	226.3	225.2	222.9	222.9
32.5°	226.3	222.9	220.6	219.5	218.4	217.2	214.9	213.8	212.7	211.5	210.4
35°	212.7	210.4	208.1	207.0	205.8	203.6	202.4	201.3	200.2	197.9	197.9
37.5°	199.0	196.7	194.5	193.3	193.3	191.1	189.9	187.6	187.6	185.4	185.4
40°	185.4	183.1	180.8	180.8	179.7	177.4	176.3	175.1	174.0	172.9	172.9
42.5°	172.9	169.5	168.3	168.3	166.0	164.9	163.8	162.6	160.4	160.4	160.4
45°	159.2	156.9	155.8	154.7	153.5	152.4	151.3	149.0	147.8	146.7	146.7
47.5°	146.7	144.4	143.3	142.2	141.0	139.9	138.7	137.6	135.3	135.3	134.2
50°	134.2	131.9	130.8	129.6	128.5	127.4	126.2	125.1	124.0	122.8	121.7
52.5°	120.6	119.4	118.3	117.1	117.1	114.9	113.7	112.6	111.5	111.5	109.2
55°	109.2	108.0	106.9	105.8	104.6	103.5	102.4	101.2	100.1	98.9	97.8
57.5°	96.7	95.5	94.4	94.4	93.3	92.1	91.0	89.8	88.7	87.6	86.4
60°	85.3	84.2	83.0	83.0	81.9	80.7	79.6	79.6	77.3	76.2	75.1
62.5°	73.9	72.8	71.6	71.6	70.5	70.5	69.4	68.2	66.0	66.0	64.8
65°	63.7	62.5	61.4	60.3	60.3	59.1	58.0	56.9	55.7	55.7	54.6
67.5°	53.5	52.3	51.2	51.2	50.0	48.9	47.8	46.6	45.5	45.5	44.4
70°	43.2	42.1	40.9	40.9	39.8	38.7	38.7	37.5	36.4	35.3	35.3
72.5°	33.0	33.0	31.8	31.8	30.7	30.7	29.6	28.4	28.4	27.3	26.2
75°	25.0	25.0	23.9	23.9	22.7	22.7	21.6	21.6	21.6	20.5	21.6
77.5°	18.2	18.2	17.1	17.1	17.1	15.9	15.9	15.9	17.1	17.1	17.1
80°	12.5	12.5	12.5	12.5	11.4	11.4	12.5	12.5	12.5	12.5	12.5
82.5°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	9.1	9.1	9.1
85°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.7	5.7	5.7	5.7
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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: P644125

CATALOG NUMBER: ML5615LSWW9FS1E - 592W WW - 900LM - 5000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	327.5	327.5	327.5	327.5	327.5	327.5	327.5	327.5
2.5°	323.0	323.0	323.0	323.0	323.0	323.0	323.0	324.1
5°	317.3	317.3	317.3	317.3	317.3	317.3	317.3	316.2
7.5°	311.6	310.5	310.5	310.5	310.5	309.3	309.3	309.3
10°	303.7	303.7	302.5	302.5	302.5	302.5	301.4	302.5
12.5°	295.7	294.6	294.6	294.6	293.4	293.4	293.4	293.4
15°	286.6	285.5	285.5	285.5	284.3	284.3	284.3	284.3
17.5°	276.4	276.4	275.2	275.2	274.1	274.1	274.1	274.1
20°	266.1	266.1	266.1	265.0	265.0	265.0	263.8	263.8
22.5°	255.9	254.7	253.6	254.7	253.6	252.5	253.6	253.6
25°	244.5	243.4	242.2	242.2	242.2	242.2	241.1	241.1
27.5°	233.1	230.9	230.9	230.9	230.9	229.7	229.7	229.7
30°	221.8	220.6	220.6	219.5	218.4	218.4	218.4	219.5
32.5°	209.3	208.1	207.0	207.0	207.0	207.0	205.8	205.8
35°	196.7	196.7	195.6	195.6	195.6	194.5	194.5	193.3
37.5°	184.2	184.2	183.1	183.1	183.1	182.0	182.0	182.0
40°	171.7	170.6	170.6	171.7	170.6	170.6	169.5	169.5
42.5°	159.2	159.2	158.1	158.1	158.1	158.1	156.9	158.1
45°	145.6	145.6	145.6	145.6	145.6	145.6	144.4	144.4
47.5°	134.2	133.1	133.1	133.1	133.1	133.1	133.1	133.1
50°	121.7	120.6	120.6	120.6	120.6	120.6	120.6	120.6
52.5°	109.2	108.0	108.0	108.0	108.0	108.0	108.0	108.0
55°	97.8	96.7	96.7	95.5	96.7	95.5	95.5	95.5
57.5°	86.4	85.3	84.2	85.3	84.2	84.2	84.2	83.0
60°	75.1	73.9	73.9	73.9	72.8	71.6	71.6	72.8
62.5°	63.7	63.7	62.5	62.5	61.4	60.3	60.3	60.3
65°	53.5	52.3	52.3	51.2	51.2	50.0	50.0	50.0
67.5°	43.2	43.2	42.1	42.1	40.9	40.9	40.9	39.8
70°	34.1	34.1	33.0	33.0	33.0	31.8	31.8	31.8
72.5°	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2
75°	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
77.5°	17.1	17.1	17.1	17.1	17.1	17.1	17.1	18.2
80°	12.5	12.5	13.6	12.5	13.6	12.5	12.5	12.5
82.5°	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1
85°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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)