

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: P644095

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

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644095
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 - 900LM - 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

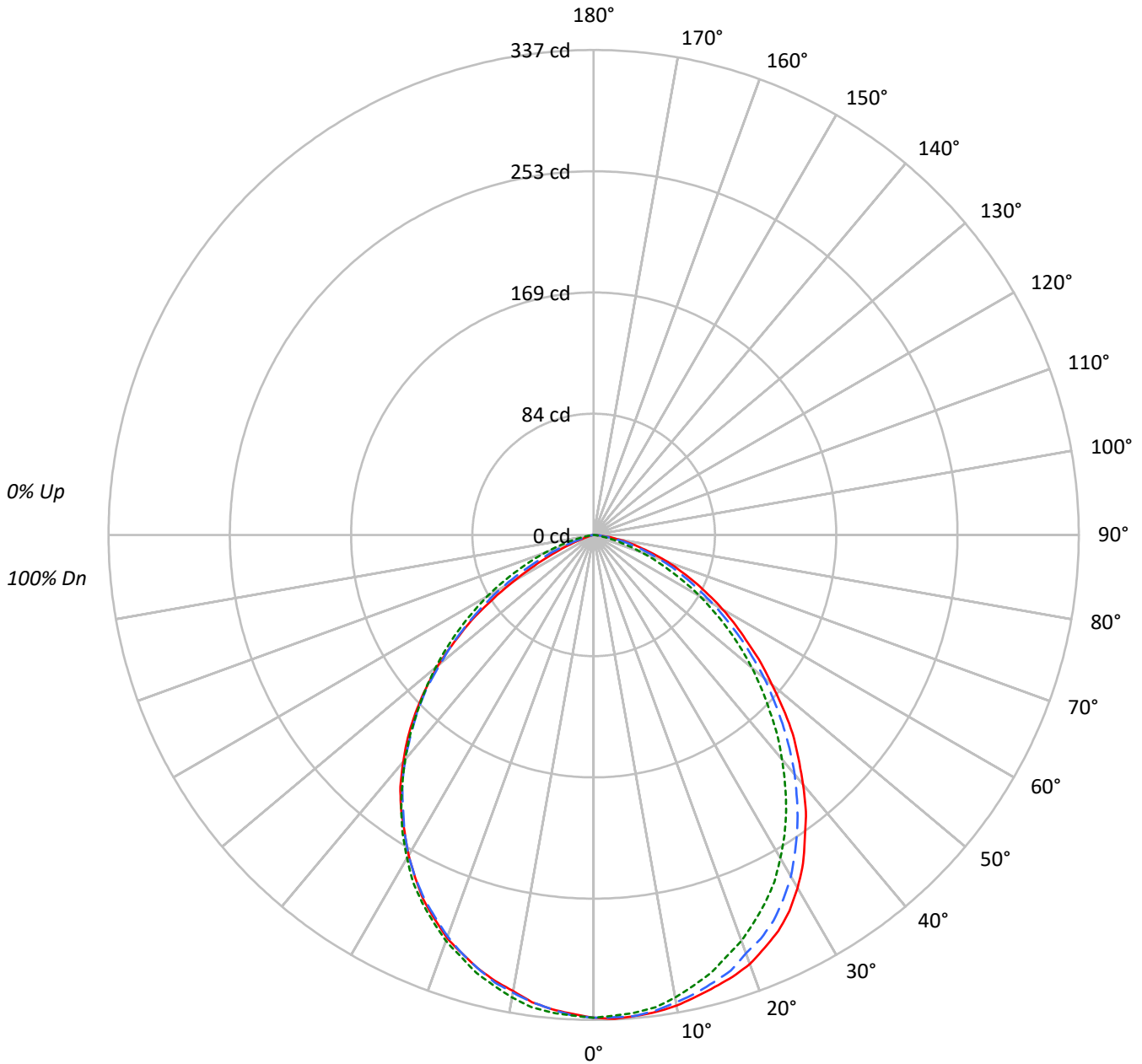
Lumens per Lamp: N/A
Luminaire Lumens: 720.8 lumens
Efficiency: N/A
Efficacy: 68.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.25
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

Input Watts (W): 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										
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	100						
	1	111	107	103	100	108	105	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	87	83	79	84	81	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	67	60	54	65	59	54	64	58	53	62	57	52	50	50						
	6	74	62	54	48	73	61	54	48	60	53	47	58	52	47	56	51	47	45	45						
	7	69	57	49	43	68	56	48	43	54	48	42	53	47	42	52	46	42	40	40						
	8	65	52	44	39	63	51	44	39	50	43	38	49	43	38	48	42	38	36	36						
	9	61	48	40	35	59	47	40	35	46	39	35	45	39	35	44	39	34	33	33						
	10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	31	30	30						

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	26485	26485	26485	26485	26485
5°	26586	26586	26404	26221	26221
10°	26621	26436	26164	25891	25795
15°	26577	26299	25744	25466	25466
20°	26655	25983	25219	24933	25034
25°	26444	25756	24563	24267	24371
30°	25815	24985	23636	23426	23426
35°	24661	23784	22464	22252	22464
40°	23320	22382	20981	20981	21208
45°	21837	20698	19302	19302	19548
50°	19834	18999	17599	17034	17316
55°	18002	17066	15648	14561	14245
60°	16341	15078	13467	11667	10057
65°	14439	13169	10834	8069	5940
70°	12602	11033	8148	4455	2354
75°	10065	8662	5216	1373	702
80°	7774	5683	2046	500	500
85°	4076	3080	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 21837 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	31.6	4.4
10°-20°	89.3	12.4
20°-30°	131.7	18.3
30°-40°	149.1	20.7
40°-50°	137.8	19.1
50°-60°	102.9	14.3
60°-70°	56.9	7.9
70°-80°	19.2	2.7
80°-90°	2.4	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°	252.6	35.0
0°-40°	401.7	55.7
0°-60°	642.4	89.1
0°-90°	720.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	720.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	336	336	336	336	336	
5°	336	336	333	331	331	32
15°	325	322	315	312	312	92
25°	304	296	282	279	280	139
35°	256	247	233	231	233	160
45°	196	185	173	173	175	150
55°	131	124	114	106	104	118
65°	77	70	58	43	32	77
75°	33	28	17	4	2	36
85°	4	3	0	0	0	7
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°	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5
2.5°	336.6	336.6	336.6	336.6	335.5	335.5	336.6	335.5	335.5	335.5	335.5
5°	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5
7.5°	334.3	334.3	334.3	334.3	334.3	334.3	334.3	334.3	333.2	333.2	333.2
10°	332.1	332.1	332.1	332.1	332.1	332.1	332.1	330.9	330.9	330.9	329.8
12.5°	328.7	329.8	328.7	329.8	328.7	328.7	327.5	327.5	327.5	326.4	326.4
15°	325.2	325.2	325.2	325.2	325.2	324.1	324.1	323.0	323.0	323.0	321.8
17.5°	321.8	320.7	320.7	320.7	319.6	319.6	319.6	319.6	318.4	317.3	317.3
20°	317.3	316.2	316.2	316.2	315.0	315.0	313.9	313.9	311.6	311.6	309.3
22.5°	310.5	310.5	310.5	309.3	309.3	308.2	308.2	307.1	305.9	304.8	303.6
25°	303.6	303.6	302.5	302.5	301.4	301.4	301.4	299.1	298.0	296.8	295.7
27.5°	294.5	294.5	293.4	293.4	292.3	291.1	291.1	288.9	288.9	286.6	285.4
30°	283.2	283.2	283.2	280.9	280.9	280.9	279.8	278.6	276.3	275.2	274.1
32.5°	270.7	269.5	269.5	269.5	268.4	267.3	267.3	265.0	263.8	262.7	260.4
35°	255.9	255.9	255.9	255.9	254.7	253.6	253.6	251.3	250.2	247.9	246.8
37.5°	242.2	242.2	241.1	241.1	238.8	240.0	238.8	237.7	236.5	233.1	232.0
40°	226.3	226.3	226.3	225.2	224.0	224.0	222.9	221.8	219.5	218.3	217.2
42.5°	210.4	210.4	210.4	209.3	208.1	208.1	208.1	205.8	204.7	203.6	201.3
45°	195.6	194.5	194.5	193.3	193.3	192.2	191.1	189.9	188.8	187.6	185.4
47.5°	178.5	178.5	177.4	177.4	176.3	176.3	175.1	174.0	172.9	171.7	169.4
50°	161.5	162.6	162.6	161.5	161.5	160.4	159.2	159.2	158.1	156.9	154.7
52.5°	146.7	146.7	146.7	145.6	145.6	144.4	144.4	143.3	142.2	139.9	138.7
55°	130.8	131.9	130.8	130.8	130.8	129.6	129.6	128.5	127.4	125.1	124.0
57.5°	117.1	117.1	116.0	116.0	114.9	114.9	114.9	113.7	112.6	111.4	109.2
60°	103.5	102.4	102.4	102.4	101.2	101.2	101.2	98.9	97.8	96.7	95.5
62.5°	89.8	89.8	89.8	88.7	88.7	87.6	86.4	86.4	85.3	84.2	81.9
65°	77.3	77.3	76.2	76.2	76.2	75.1	75.1	73.9	72.8	71.6	70.5
67.5°	64.8	64.8	64.8	63.7	63.7	63.7	62.5	61.4	61.4	60.3	59.1
70°	54.6	53.5	53.5	53.5	52.3	52.3	52.3	51.2	50.0	48.9	47.8
72.5°	43.2	43.2	43.2	43.2	42.1	42.1	40.9	40.9	39.8	38.7	37.5
75°	33.0	33.0	33.0	33.0	31.8	31.8	31.8	30.7	30.7	29.6	28.4
77.5°	25.0	25.0	25.0	23.9	23.9	22.7	22.7	22.7	21.6	21.6	20.5
80°	17.1	17.1	15.9	15.9	15.9	15.9	15.9	14.8	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	6.8
85°	4.5	4.5	4.5	4.5	4.5	4.5	3.4	3.4	3.4	3.4	3.4
87.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5
2.5°	335.5	335.5	335.5	335.5	335.5	335.5	335.5	334.3	334.3	334.3	334.3
5°	334.3	334.3	334.3	334.3	334.3	333.2	334.3	333.2	333.2	333.2	333.2
7.5°	332.1	332.1	332.1	332.1	330.9	332.1	330.9	330.9	330.9	330.9	329.8
10°	329.8	328.7	328.7	328.7	328.7	327.5	327.5	326.4	326.4	326.4	325.2
12.5°	326.4	325.2	325.2	324.1	324.1	324.1	323.0	323.0	321.8	320.7	320.7
15°	320.7	320.7	319.6	318.4	318.4	317.3	317.3	316.2	316.2	315.0	313.9
17.5°	316.2	315.0	313.9	312.7	311.6	311.6	310.5	309.3	309.3	307.1	307.1
20°	308.2	307.1	305.9	304.8	304.8	304.8	302.5	302.5	301.4	300.2	299.1
22.5°	301.4	300.2	298.0	296.8	296.8	295.7	294.5	293.4	292.3	291.1	290.0
25°	293.4	292.3	290.0	288.9	287.7	286.6	285.4	284.3	283.2	282.0	280.9
27.5°	283.2	280.9	280.9	278.6	277.5	276.3	275.2	274.1	272.9	271.8	270.7
30°	271.8	270.7	268.4	266.1	265.0	265.0	262.7	261.6	261.6	259.3	258.2
32.5°	259.3	257.0	254.7	253.6	252.5	251.3	250.2	249.1	247.9	246.8	245.6
35°	245.6	242.2	241.1	238.8	238.8	237.7	236.5	234.3	234.3	233.1	230.9
37.5°	230.9	228.6	227.4	225.2	224.0	222.9	221.8	220.6	219.5	218.3	217.2
40°	214.9	212.7	211.5	210.4	209.3	208.1	207.0	205.8	204.7	203.6	202.4
42.5°	199.0	197.9	195.6	193.3	193.3	192.2	191.1	189.9	188.8	188.8	187.6
45°	183.1	182.0	179.7	178.5	177.4	177.4	175.1	175.1	174.0	172.9	172.9
47.5°	168.3	166.0	163.8	163.8	161.5	162.6	160.4	160.4	158.1	158.1	156.9
50°	152.4	151.3	149.0	147.8	147.8	146.7	145.6	145.6	144.4	143.3	142.2
52.5°	137.6	135.3	134.2	133.1	131.9	131.9	130.8	130.8	128.5	128.5	127.4
55°	122.8	121.7	119.4	118.3	118.3	118.3	116.0	114.9	114.9	113.7	112.6
57.5°	108.0	106.9	105.8	104.6	103.5	103.5	102.4	101.2	100.1	98.9	96.7
60°	94.4	93.3	92.1	91.0	89.8	89.8	88.7	87.6	86.4	85.3	84.2
62.5°	80.7	80.7	78.5	77.3	76.2	76.2	75.1	73.9	72.8	71.6	70.5
65°	69.4	68.2	66.0	64.8	64.8	64.8	62.5	61.4	60.3	58.0	56.9
67.5°	58.0	55.7	54.6	54.6	53.5	52.3	51.2	50.0	47.8	46.6	44.4
70°	46.6	45.5	44.4	43.2	42.1	40.9	39.8	38.7	36.4	35.3	34.1
72.5°	36.4	35.3	34.1	33.0	31.8	31.8	29.6	28.4	27.3	25.0	23.9
75°	27.3	26.2	25.0	23.9	22.7	21.6	21.6	19.3	18.2	17.1	14.8
77.5°	19.3	18.2	17.1	15.9	15.9	14.8	13.6	12.5	11.4	10.2	9.1
80°	12.5	11.4	10.2	10.2	9.1	9.1	8.0	6.8	5.7	4.5	4.5
82.5°	6.8	5.7	5.7	4.5	4.5	4.5	3.4	2.3	2.3	2.3	1.1
85°	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	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



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5
2.5°	334.3	334.3	334.3	334.3	334.3	334.3	334.3	334.3	334.3	333.2	333.2
5°	332.1	332.1	332.1	332.1	332.1	332.1	330.9	330.9	330.9	330.9	330.9
7.5°	329.8	329.8	329.8	328.7	328.7	328.7	328.7	327.5	327.5	327.5	327.5
10°	325.2	325.2	325.2	324.1	324.1	324.1	324.1	324.1	323.0	323.0	323.0
12.5°	319.6	319.6	319.6	319.6	319.6	318.4	318.4	318.4	318.4	317.3	318.4
15°	313.9	313.9	312.7	312.7	312.7	311.6	311.6	311.6	311.6	311.6	311.6
17.5°	307.1	305.9	305.9	304.8	304.8	304.8	304.8	304.8	304.8	304.8	304.8
20°	299.1	298.0	298.0	298.0	298.0	296.8	296.8	295.7	296.8	296.8	296.8
22.5°	290.0	288.9	288.9	288.9	287.7	287.7	287.7	287.7	287.7	287.7	287.7
25°	280.9	279.8	278.6	278.6	278.6	277.5	277.5	278.6	278.6	278.6	278.6
27.5°	269.5	269.5	268.4	268.4	268.4	267.3	267.3	267.3	268.4	268.4	268.4
30°	257.0	257.0	257.0	257.0	255.9	255.9	257.0	255.9	257.0	255.9	257.0
32.5°	245.6	245.6	244.5	243.4	243.4	244.5	243.4	243.4	244.5	244.5	244.5
35°	230.9	230.9	230.9	230.9	230.9	230.9	230.9	230.9	230.9	232.0	233.1
37.5°	217.2	217.2	217.2	217.2	217.2	217.2	217.2	218.3	218.3	218.3	218.3
40°	202.4	202.4	202.4	202.4	202.4	202.4	202.4	202.4	203.6	203.6	204.7
42.5°	186.5	187.6	187.6	187.6	186.5	186.5	187.6	187.6	187.6	188.8	188.8
45°	171.7	171.7	171.7	171.7	172.9	171.7	171.7	171.7	172.9	172.9	172.9
47.5°	156.9	155.8	155.8	156.9	155.8	155.8	155.8	155.8	156.9	156.9	155.8
50°	142.2	141.0	141.0	141.0	139.9	139.9	141.0	138.7	138.7	138.7	139.9
52.5°	127.4	126.2	125.1	125.1	125.1	124.0	122.8	122.8	122.8	121.7	121.7
55°	111.4	110.3	109.2	109.2	109.2	108.0	108.0	105.8	105.8	104.6	104.6
57.5°	96.7	95.5	94.4	94.4	93.3	92.1	92.1	89.8	89.8	88.7	86.4
60°	81.9	80.7	79.6	79.6	79.6	77.3	76.2	73.9	73.9	71.6	70.5
62.5°	68.2	67.1	66.0	64.8	64.8	62.5	61.4	59.1	58.0	56.9	54.6
65°	55.7	53.5	52.3	51.2	51.2	48.9	47.8	45.5	43.2	42.1	39.8
67.5°	43.2	42.1	39.8	38.7	38.7	36.4	34.1	33.0	30.7	28.4	27.3
70°	31.8	30.7	28.4	27.3	26.2	25.0	22.7	21.6	19.3	18.2	15.9
72.5°	21.6	20.5	18.2	18.2	17.1	14.8	13.6	12.5	10.2	9.1	8.0
75°	13.6	12.5	11.4	10.2	9.1	8.0	6.8	5.7	4.5	3.4	3.4
77.5°	8.0	6.8	5.7	4.5	4.5	3.4	2.3	2.3	2.3	1.1	1.1
80°	3.4	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	1.1	1.1
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: P644095

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

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5
2.5°	334.3	333.2	334.3	334.3	333.2	333.2	333.2	333.2
5°	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9
7.5°	328.7	327.5	327.5	327.5	327.5	327.5	327.5	327.5
10°	323.0	323.0	323.0	323.0	323.0	323.0	323.0	321.8
12.5°	317.3	317.3	317.3	317.3	317.3	317.3	317.3	317.3
15°	311.6	311.6	311.6	311.6	311.6	311.6	311.6	311.6
17.5°	304.8	304.8	304.8	304.8	304.8	303.6	304.8	304.8
20°	296.8	296.8	296.8	296.8	296.8	296.8	296.8	298.0
22.5°	287.7	287.7	287.7	287.7	287.7	287.7	287.7	288.9
25°	278.6	278.6	278.6	278.6	278.6	278.6	278.6	279.8
27.5°	268.4	268.4	268.4	268.4	268.4	268.4	268.4	268.4
30°	257.0	257.0	258.2	257.0	257.0	257.0	258.2	257.0
32.5°	245.6	245.6	245.6	245.6	245.6	245.6	245.6	244.5
35°	233.1	232.0	233.1	233.1	233.1	233.1	233.1	233.1
37.5°	219.5	219.5	219.5	219.5	219.5	219.5	220.6	220.6
40°	205.8	204.7	204.7	205.8	205.8	205.8	204.7	205.8
42.5°	188.8	189.9	189.9	189.9	191.1	189.9	191.1	191.1
45°	172.9	174.0	174.0	174.0	174.0	174.0	175.1	175.1
47.5°	156.9	156.9	156.9	156.9	158.1	158.1	158.1	158.1
50°	139.9	139.9	139.9	139.9	141.0	139.9	141.0	141.0
52.5°	121.7	121.7	121.7	121.7	121.7	121.7	122.8	121.7
55°	103.5	103.5	103.5	103.5	102.4	102.4	102.4	103.5
57.5°	86.4	85.3	84.2	85.3	83.0	83.0	83.0	83.0
60°	68.2	67.1	67.1	66.0	64.8	63.7	64.8	63.7
62.5°	52.3	51.2	51.2	48.9	47.8	47.8	46.6	46.6
65°	38.7	36.4	35.3	35.3	34.1	33.0	31.8	31.8
67.5°	25.0	23.9	22.7	22.7	21.6	20.5	20.5	19.3
70°	14.8	13.6	12.5	13.6	11.4	10.2	10.2	10.2
72.5°	6.8	5.7	5.7	5.7	4.5	4.5	4.5	4.5
75°	3.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3
77.5°	1.1	1.1	2.3	1.1	1.1	1.1	1.1	1.1
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	1.1	0.0	0.0	0.0	1.1	1.1	0.0	1.1
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)