

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: P644136

Luminaire Tested: ML5615LSWW9FS1E - 692H WW - 900LM - 2700K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644136
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 - 900LM - 2700K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH HAZE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

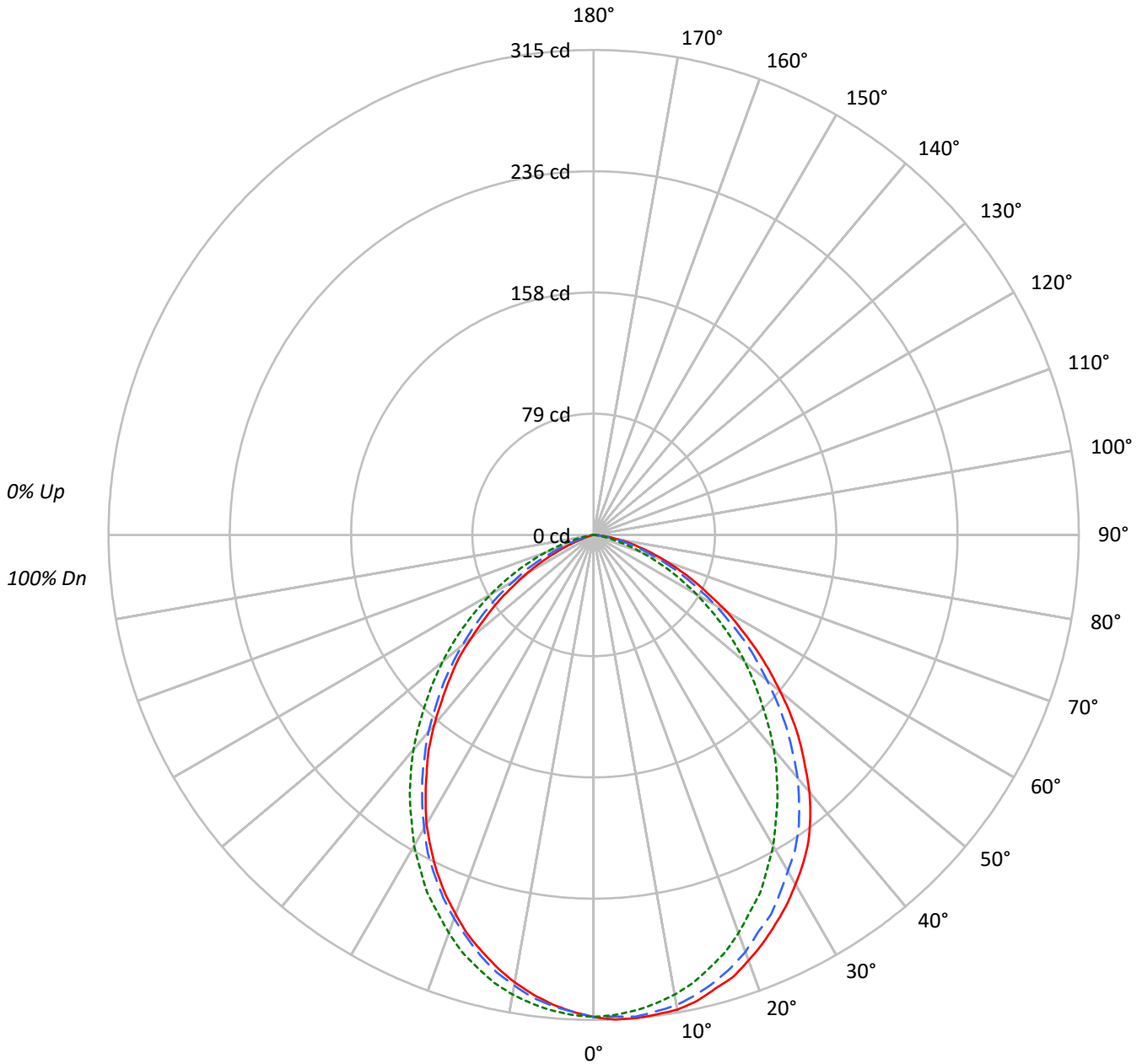
Lumens per Lamp: N/A
Luminaire Lumens: 647.8 lumens
Efficiency: N/A
Efficacy: 61.7 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.12 / 1.23
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

Input Watts (W): 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	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°	17164	17164	17164	17164	17164
5°	17340	17285	17065	16900	16845
10°	17429	17262	16872	16538	16427
15°	17316	17089	16521	16067	15897
20°	17157	16807	16049	15466	15290
25°	16882	16459	15491	14765	14584
30°	16591	15958	14755	13933	13743
35°	16269	15533	13927	12990	12655
40°	15608	14749	13024	11951	11522
45°	14660	13722	11939	10776	10234
50°	13475	12537	10916	9467	8784
55°	12234	11374	9749	8124	7264
60°	10964	9977	8442	6578	5482
65°	9469	8561	7005	4929	3502
70°	8014	7052	5289	3045	1603
75°	6566	5507	3389	1059	635
80°	4735	3788	1578	316	316
85°	2516	1887	629	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 14660 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	29.4	4.5
10°-20°	82.2	12.7
20°-30°	118.5	18.3
30°-40°	132.5	20.4
40°-50°	121.4	18.7
50°-60°	91.2	14.1
60°-70°	52.1	8.0
70°-80°	18.2	2.8
80°-90°	2.4	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°	230.1	35.5
0°-40°	362.6	56.0
0°-60°	575.2	88.8
0°-90°	647.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	647.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	313	313	313	313	313	
5°	315	314	310	307	306	30
15°	305	301	291	283	280	86
25°	279	272	256	244	241	129
35°	243	232	208	194	189	151
45°	189	177	154	139	132	145
55°	128	119	102	85	76	115
65°	73	66	54	38	27	73
75°	31	26	16	5	3	33
85°	4	3	1	0	0	6
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°	313.1	313.1	313.1	313.1	313.1	313.1	313.1	313.1	313.1	313.1	313.1
2.5°	315.1	314.1	314.1	314.1	314.1	314.1	314.1	314.1	314.1	314.1	313.1
5°	315.1	315.1	315.1	315.1	315.1	315.1	315.1	314.1	314.1	314.1	314.1
7.5°	314.1	314.1	314.1	314.1	314.1	314.1	314.1	313.1	313.1	312.1	312.1
10°	313.1	313.1	313.1	312.1	312.1	312.1	312.1	312.1	311.1	311.1	310.1
12.5°	310.1	310.1	310.1	310.1	309.1	309.1	309.1	308.1	307.1	307.1	306.1
15°	305.1	306.1	306.1	305.1	305.1	305.1	305.1	304.1	303.1	302.1	301.1
17.5°	301.1	301.1	301.1	300.1	299.1	300.1	299.1	298.1	297.1	296.1	295.1
20°	294.1	294.1	293.1	293.1	293.1	293.1	292.1	291.1	290.1	289.1	288.1
22.5°	287.1	287.1	287.1	285.1	285.1	285.1	284.1	284.1	282.1	281.1	279.1
25°	279.1	279.1	279.1	278.1	277.1	276.1	277.1	275.1	274.1	272.1	272.1
27.5°	271.1	271.1	270.1	270.1	269.1	269.1	268.1	266.1	265.1	264.1	262.1
30°	262.1	262.1	261.1	261.1	260.1	259.1	259.1	257.1	256.1	254.1	252.1
32.5°	253.1	253.1	252.1	252.1	251.1	250.1	250.1	248.1	246.1	244.1	243.1
35°	243.1	243.1	242.1	242.1	241.1	240.1	239.1	237.1	236.1	233.1	232.1
37.5°	231.1	232.1	230.1	230.1	229.1	228.1	227.1	226.1	224.1	222.1	219.1
40°	218.1	217.1	217.1	216.1	215.1	215.1	214.1	212.1	211.1	208.1	206.1
42.5°	203.1	203.1	203.1	202.1	201.1	201.1	199.1	198.1	196.1	194.1	191.1
45°	189.1	189.1	188.1	188.1	186.0	186.0	185.0	183.0	182.0	179.0	177.0
47.5°	174.0	173.0	173.0	172.0	171.0	171.0	170.0	169.0	167.0	164.0	162.0
50°	158.0	158.0	158.0	157.0	156.0	156.0	155.0	153.0	152.0	150.0	147.0
52.5°	143.0	143.0	143.0	142.0	141.0	141.0	140.0	139.0	137.0	135.0	133.0
55°	128.0	128.0	128.0	127.0	127.0	125.0	125.0	124.0	122.0	120.0	119.0
57.5°	113.0	113.0	113.0	113.0	112.0	112.0	111.0	110.0	108.0	107.0	104.0
60°	100.0	99.0	99.0	98.0	98.0	97.0	96.0	95.0	94.0	92.0	91.0
62.5°	85.0	86.0	85.0	85.0	84.0	84.0	84.0	82.0	81.0	79.0	78.0
65°	73.0	73.0	73.0	73.0	71.0	71.0	71.0	69.0	68.0	68.0	66.0
67.5°	61.0	61.0	61.0	60.0	60.0	60.0	59.0	58.0	57.0	56.0	55.0
70°	50.0	50.0	50.0	49.0	49.0	48.0	48.0	47.0	46.0	46.0	44.0
72.5°	40.0	40.0	40.0	40.0	39.0	39.0	38.0	38.0	37.0	36.0	35.0
75°	31.0	31.0	31.0	30.0	30.0	30.0	29.0	29.0	28.0	27.0	26.0
77.5°	23.0	22.0	22.0	22.0	22.0	21.0	21.0	21.0	20.0	19.0	19.0
80°	15.0	15.0	15.0	15.0	15.0	14.0	14.0	14.0	13.0	13.0	12.0
82.5°	9.0	9.0	9.0	9.0	9.0	8.0	8.0	8.0	7.0	7.0	7.0
85°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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°	313.1	313.1	313.1	313.1	313.1	313.1	313.1	313.1	313.1	313.1	313.1
2.5°	314.1	314.1	313.1	313.1	313.1	313.1	313.1	312.1	312.1	312.1	312.1
5°	314.1	313.1	312.1	312.1	312.1	312.1	311.1	311.1	311.1	310.1	310.1
7.5°	311.1	311.1	311.1	310.1	310.1	309.1	309.1	308.1	308.1	307.1	307.1
10°	309.1	308.1	308.1	307.1	307.1	306.1	306.1	304.1	303.1	303.1	302.1
12.5°	305.1	304.1	304.1	302.1	302.1	302.1	301.1	299.1	298.1	298.1	297.1
15°	300.1	299.1	298.1	296.1	296.1	295.1	294.1	293.1	292.1	291.1	290.1
17.5°	294.1	292.1	291.1	290.1	289.1	288.1	287.1	286.1	284.1	284.1	282.1
20°	287.1	285.1	284.1	282.1	281.1	281.1	279.1	277.1	276.1	275.1	273.1
22.5°	278.1	277.1	275.1	273.1	272.1	272.1	270.1	268.1	267.1	265.1	264.1
25°	270.1	267.1	266.1	264.1	263.1	263.1	261.1	259.1	257.1	256.1	254.1
27.5°	260.1	258.1	257.1	254.1	253.1	252.1	250.1	248.1	246.1	244.1	242.1
30°	250.1	248.1	246.1	243.1	243.1	241.1	239.1	236.1	235.1	233.1	230.1
32.5°	240.1	238.1	235.1	233.1	231.1	230.1	227.1	225.1	223.1	220.1	219.1
35°	229.1	226.1	224.1	221.1	220.1	218.1	216.1	213.1	211.1	208.1	205.1
37.5°	217.1	213.1	211.1	208.1	207.1	205.1	203.1	201.1	198.1	195.1	193.1
40°	204.1	200.1	197.1	195.1	193.1	191.1	190.1	186.0	184.0	182.0	180.0
42.5°	189.1	186.0	183.0	181.0	179.0	178.0	175.0	173.0	170.0	168.0	166.0
45°	175.0	172.0	169.0	166.0	165.0	164.0	162.0	159.0	156.0	154.0	152.0
47.5°	160.0	158.0	154.0	153.0	151.0	150.0	147.0	145.0	144.0	141.0	139.0
50°	145.0	143.0	141.0	138.0	137.0	136.0	134.0	132.0	130.0	128.0	126.0
52.5°	130.0	129.0	127.0	124.0	124.0	123.0	121.0	119.0	117.0	115.0	113.0
55°	117.0	115.0	113.0	111.0	110.0	109.0	107.0	106.0	104.0	102.0	100.0
57.5°	103.0	101.0	100.0	98.0	97.0	96.0	94.0	93.0	91.0	89.0	87.0
60°	90.0	88.0	87.0	85.0	84.0	84.0	82.0	80.0	79.0	77.0	75.0
62.5°	77.0	75.0	74.0	72.0	72.0	71.0	70.0	68.0	67.0	65.0	64.0
65°	65.0	64.0	62.0	61.0	60.0	59.0	58.0	57.0	55.0	54.0	52.0
67.5°	54.0	52.0	51.0	50.0	49.0	48.0	47.0	46.0	44.0	43.0	41.0
70°	43.0	42.0	41.0	40.0	39.0	39.0	37.0	36.0	34.0	33.0	31.0
72.5°	34.0	33.0	32.0	30.0	30.0	29.0	28.0	27.0	25.0	24.0	22.0
75°	25.0	25.0	23.0	22.0	22.0	21.0	20.0	19.0	18.0	16.0	15.0
77.5°	18.0	17.0	16.0	15.0	14.0	14.0	13.0	12.0	11.0	10.0	8.0
80°	12.0	11.0	10.0	9.0	9.0	8.0	7.0	7.0	6.0	5.0	4.0
82.5°	6.0	6.0	5.0	5.0	4.0	4.0	4.0	3.0	3.0	2.0	2.0
85°	3.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	0.0
87.5°	1.0	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°	313.1	313.1	313.1	313.1	313.1	313.1	313.1	313.1	313.1	313.1	313.1
2.5°	312.1	311.1	312.1	312.1	311.1	311.1	311.1	311.1	310.1	311.1	310.1
5°	310.1	309.1	309.1	309.1	309.1	308.1	308.1	307.1	307.1	307.1	307.1
7.5°	306.1	305.1	305.1	304.1	304.1	304.1	304.1	303.1	303.1	302.1	302.1
10°	302.1	301.1	300.1	300.1	299.1	299.1	299.1	298.1	297.1	297.1	296.1
12.5°	295.1	295.1	294.1	294.1	293.1	293.1	292.1	291.1	291.1	290.1	290.1
15°	289.1	288.1	287.1	287.1	286.1	285.1	284.1	284.1	283.1	283.1	282.1
17.5°	281.1	279.1	279.1	278.1	277.1	277.1	276.1	275.1	274.1	274.1	274.1
20°	272.1	271.1	270.1	269.1	268.1	268.1	267.1	266.1	265.1	264.1	264.1
22.5°	262.1	261.1	260.1	259.1	259.1	258.1	257.1	256.1	255.1	254.1	254.1
25°	252.1	251.1	250.1	249.1	248.1	247.1	246.1	245.1	244.1	243.1	243.1
27.5°	241.1	239.1	238.1	237.1	236.1	235.1	235.1	233.1	233.1	232.1	231.1
30°	229.1	227.1	225.1	225.1	224.1	223.1	221.1	221.1	220.1	219.1	218.1
32.5°	216.1	215.1	213.1	213.1	211.1	210.1	209.1	208.1	207.1	206.1	206.1
35°	204.1	201.1	200.1	200.1	198.1	197.1	196.1	194.1	194.1	192.1	192.1
37.5°	191.1	189.1	188.1	186.0	185.0	184.0	183.0	181.0	180.0	179.0	178.0
40°	178.0	176.0	174.0	173.0	172.0	170.0	169.0	167.0	167.0	165.0	164.0
42.5°	164.0	162.0	160.0	159.0	158.0	156.0	155.0	153.0	152.0	151.0	150.0
45°	150.0	148.0	147.0	146.0	145.0	144.0	141.0	140.0	139.0	137.0	136.0
47.5°	137.0	135.0	133.0	133.0	131.0	130.0	128.0	126.0	125.0	123.0	122.0
50°	124.0	122.0	120.0	119.0	119.0	116.0	115.0	113.0	111.0	109.0	108.0
52.5°	111.0	109.0	107.0	106.0	105.0	103.0	101.0	100.0	98.0	96.0	95.0
55°	98.0	96.0	94.0	93.0	92.0	90.0	89.0	86.0	85.0	83.0	81.0
57.5°	86.0	84.0	82.0	81.0	80.0	78.0	76.0	74.0	73.0	71.0	69.0
60°	73.0	72.0	70.0	69.0	68.0	67.0	64.0	62.0	60.0	59.0	57.0
62.5°	62.0	60.0	58.0	57.0	56.0	55.0	53.0	51.0	50.0	47.0	45.0
65°	51.0	49.0	47.0	46.0	45.0	44.0	42.0	40.0	38.0	36.0	35.0
67.5°	39.0	38.0	36.0	36.0	35.0	33.0	31.0	30.0	28.0	27.0	25.0
70°	30.0	29.0	27.0	26.0	25.0	23.0	22.0	20.0	19.0	18.0	16.0
72.5°	21.0	20.0	18.0	17.0	16.0	15.0	13.0	12.0	11.0	10.0	9.0
75°	14.0	12.0	11.0	10.0	10.0	8.0	7.0	6.0	5.0	4.0	4.0
77.5°	8.0	7.0	5.0	5.0	5.0	4.0	3.0	3.0	2.0	2.0	2.0
80°	4.0	3.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0
82.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
85°	0.0	0.0	0.0	0.0	0.0	1.0	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: P644136

CATALOG NUMBER: ML5615LSWW9FS1E - 692H WW - 900LM - 2700K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	313.1	313.1	313.1	313.1	313.1	313.1	313.1	313.1
2.5°	310.1	310.1	310.1	310.1	310.1	310.1	310.1	310.1
5°	307.1	306.1	306.1	306.1	306.1	306.1	306.1	306.1
7.5°	302.1	302.1	301.1	302.1	301.1	301.1	301.1	301.1
10°	296.1	296.1	296.1	296.1	295.1	295.1	295.1	295.1
12.5°	290.1	289.1	289.1	289.1	288.1	289.1	288.1	288.1
15°	282.1	281.1	281.1	281.1	281.1	280.1	281.1	280.1
17.5°	273.1	273.1	272.1	273.1	272.1	272.1	272.1	272.1
20°	263.1	263.1	263.1	262.1	263.1	262.1	262.1	262.1
22.5°	253.1	253.1	252.1	252.1	252.1	252.1	252.1	252.1
25°	242.1	242.1	242.1	242.1	241.1	241.1	241.1	241.1
27.5°	231.1	230.1	230.1	230.1	229.1	230.1	229.1	229.1
30°	218.1	218.1	217.1	217.1	217.1	216.1	216.1	217.1
32.5°	204.1	204.1	204.1	204.1	203.1	203.1	203.1	203.1
35°	191.1	191.1	190.1	190.1	190.1	189.1	189.1	189.1
37.5°	177.0	177.0	176.0	176.0	176.0	175.0	175.0	176.0
40°	163.0	163.0	162.0	162.0	162.0	161.0	161.0	161.0
42.5°	149.0	148.0	148.0	147.0	147.0	147.0	146.0	146.0
45°	135.0	134.0	134.0	134.0	133.0	132.0	132.0	132.0
47.5°	121.0	120.0	119.0	119.0	118.0	118.0	118.0	119.0
50°	107.0	106.0	106.0	105.0	104.0	104.0	104.0	103.0
52.5°	93.0	92.0	92.0	91.0	91.0	90.0	89.0	89.0
55°	80.0	79.0	78.0	77.0	77.0	76.0	76.0	76.0
57.5°	67.0	66.0	65.0	65.0	64.0	64.0	63.0	62.0
60°	55.0	54.0	53.0	53.0	52.0	51.0	50.0	50.0
62.5°	44.0	43.0	42.0	41.0	40.0	39.0	38.0	39.0
65°	34.0	32.0	31.0	30.0	30.0	29.0	28.0	27.0
67.5°	24.0	23.0	22.0	21.0	20.0	19.0	18.0	18.0
70°	15.0	13.0	13.0	13.0	12.0	11.0	10.0	10.0
72.5°	8.0	7.0	6.0	6.0	5.0	5.0	5.0	5.0
75°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
77.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)