

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: P644093

Luminaire Tested: ML5615LSWW9FS1E - 592H WW - 900LM - 3500K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644093
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 - 3500K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH HAZE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 669.7 lumens
Efficiency: N/A
Efficacy: 63.8 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

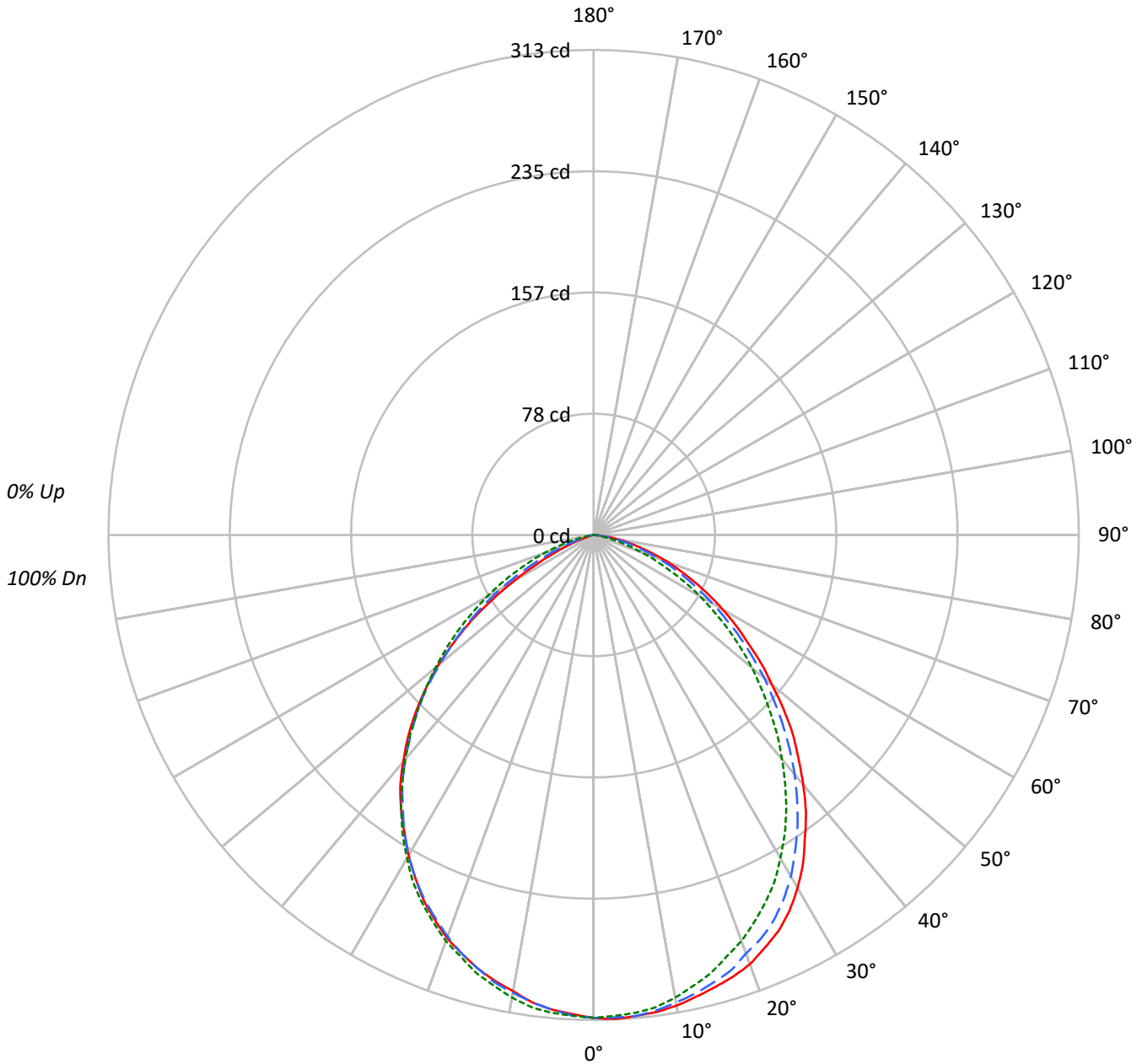
Input Watts (W): 10.5
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P644093

CATALOG NUMBER: ML5615LSWW9FS1E - 592H WW - 900LM - 3500K

Luminous Intensity Polar Plot





TEST NUMBER: P644093

CATALOG NUMBER: ML5615LSWW9FS1E - 592H WW - 900LM - 3500K

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	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	87	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	67	60	54	65	59	54	64	58	53	62	57	52	50	50	50	50	50	50		
	6	74	62	54	48	73	61	54	48	60	53	47	58	52	47	56	51	47	45	45	45	45	45	45		
	7	69	57	49	43	68	56	48	43	54	48	42	53	47	42	52	46	42	40	40	40	40	40	40		
	8	65	52	44	39	63	51	44	39	50	43	38	49	43	38	48	42	38	36	36	36	36	36	36		
	9	61	48	40	35	59	47	40	35	46	39	35	45	39	35	44	39	34	33	33	33	33	33	33		
	10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	31	30	30	30	30	30	30		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	24606	24606	24606	24606	24606
5°	24700	24700	24533	24367	24367
10°	24729	24561	24304	24056	23967
15°	24697	24436	23921	23660	23660
20°	24765	24144	23430	23169	23253
25°	24571	23927	22821	22551	22638
30°	23982	23208	21959	21767	21767
35°	22907	22097	20874	20671	20874
40°	21671	20795	19487	19487	19703
45°	20285	19224	17929	17929	18164
50°	18422	17648	16346	15830	16088
55°	16722	15855	14547	13529	13226
60°	15172	14004	12504	10846	9347
65°	13412	12235	10068	7490	5529
70°	11702	10248	7570	4155	2193
75°	9333	8052	4819	1281	641
80°	7183	5273	1909	500	500
85°	3804	2898	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 20285 cd/sqm



TEST NUMBER: P644093

CATALOG NUMBER: ML5615LSWW9FS1E - 592H WW - 900LM - 3500K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	29.4	4.4
10°-20°	82.9	12.4
20°-30°	122.4	18.3
30°-40°	138.5	20.7
40°-50°	128.0	19.1
50°-60°	95.6	14.3
60°-70°	52.8	7.9
70°-80°	17.8	2.7
80°-90°	2.2	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°	234.7	35.0
0°-40°	373.2	55.7
0°-60°	596.8	89.1
0°-90°	669.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	669.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	312	312	312	312	312	
5°	312	312	310	308	308	30
15°	302	299	293	290	290	85
25°	282	275	262	259	260	130
35°	238	229	217	214	217	149
45°	182	172	161	161	163	139
55°	122	115	106	98	96	109
65°	72	66	54	40	30	71
75°	31	26	16	4	2	33
85°	4	3	0	0	0	6
90°	0	0	0	0	0	



TEST NUMBER: P644093

CATALOG NUMBER: ML5615LSWW9FS1E - 592H WW - 900LM - 3500K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7
2.5°	312.7	312.7	312.7	312.7	311.7	311.7	312.7	311.7	311.7	311.7	311.7
5°	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7
7.5°	310.6	310.6	310.6	310.6	310.6	310.6	310.6	310.6	309.6	309.6	309.6
10°	308.5	308.5	308.5	308.5	308.5	308.5	308.5	307.5	307.5	307.5	306.4
12.5°	305.3	306.4	305.3	306.4	305.3	305.3	304.3	304.3	304.3	303.2	303.2
15°	302.2	302.2	302.2	302.2	302.2	301.1	301.1	300.1	300.1	300.1	299.0
17.5°	299.0	297.9	297.9	297.9	296.9	296.9	296.9	296.9	295.8	294.8	294.8
20°	294.8	293.7	293.7	293.7	292.7	292.7	291.6	291.6	289.5	289.5	287.4
22.5°	288.4	288.4	288.4	287.4	287.4	286.3	286.3	285.3	284.2	283.2	282.1
25°	282.1	282.1	281.0	281.0	280.0	280.0	280.0	277.9	276.8	275.8	274.7
27.5°	273.6	273.6	272.6	272.6	271.5	270.5	270.5	268.4	268.4	266.2	265.2
30°	263.1	263.1	263.1	261.0	261.0	261.0	259.9	258.9	256.7	255.7	254.6
32.5°	251.5	250.4	250.4	250.4	249.3	248.3	248.3	246.2	245.1	244.1	241.9
35°	237.7	237.7	237.7	237.7	236.7	235.6	235.6	233.5	232.4	230.3	229.3
37.5°	225.0	225.0	224.0	224.0	221.9	222.9	221.9	220.8	219.8	216.6	215.5
40°	210.3	210.3	210.3	209.2	208.1	208.1	207.1	206.0	203.9	202.9	201.8
42.5°	195.5	195.5	195.5	194.4	193.3	193.3	193.3	191.2	190.2	189.1	187.0
45°	181.7	180.7	180.7	179.6	179.6	178.6	177.5	176.4	175.4	174.3	172.2
47.5°	165.9	165.9	164.8	164.8	163.8	163.8	162.7	161.7	160.6	159.5	157.4
50°	150.0	151.1	151.1	150.0	150.0	149.0	147.9	147.9	146.9	145.8	143.7
52.5°	136.3	136.3	136.3	135.2	135.2	134.2	134.2	133.1	132.1	130.0	128.9
55°	121.5	122.6	121.5	121.5	121.5	120.4	120.4	119.4	118.3	116.2	115.2
57.5°	108.8	108.8	107.8	107.8	106.7	106.7	106.7	105.7	104.6	103.5	101.4
60°	96.1	95.1	95.1	95.1	94.0	94.0	94.0	91.9	90.9	89.8	88.7
62.5°	83.5	83.5	83.5	82.4	82.4	81.4	80.3	80.3	79.2	78.2	76.1
65°	71.8	71.8	70.8	70.8	70.8	69.7	69.7	68.7	67.6	66.6	65.5
67.5°	60.2	60.2	60.2	59.2	59.2	59.2	58.1	57.1	57.1	56.0	54.9
70°	50.7	49.7	49.7	49.7	48.6	48.6	48.6	47.5	46.5	45.4	44.4
72.5°	40.1	40.1	40.1	40.1	39.1	39.1	38.0	38.0	37.0	35.9	34.9
75°	30.6	30.6	30.6	30.6	29.6	29.6	29.6	28.5	28.5	27.5	26.4
77.5°	23.2	23.2	23.2	22.2	22.2	21.1	21.1	21.1	20.1	20.1	19.0
80°	15.8	15.8	14.8	14.8	14.8	14.8	14.8	13.7	12.7	12.7	11.6
82.5°	9.5	9.5	9.5	8.5	8.5	8.5	8.5	8.5	7.4	7.4	6.3
85°	4.2	4.2	4.2	4.2	4.2	4.2	3.2	3.2	3.2	3.2	3.2
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



TEST NUMBER: P644093

CATALOG NUMBER: ML5615LSWW9FS1E - 592H WW - 900LM - 3500K

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7
2.5°	311.7	311.7	311.7	311.7	311.7	311.7	311.7	310.6	310.6	310.6	310.6
5°	310.6	310.6	310.6	310.6	310.6	309.6	310.6	309.6	309.6	309.6	309.6
7.5°	308.5	308.5	308.5	308.5	307.5	308.5	307.5	307.5	307.5	307.5	306.4
10°	306.4	305.3	305.3	305.3	305.3	304.3	304.3	303.2	303.2	303.2	302.2
12.5°	303.2	302.2	302.2	301.1	301.1	301.1	300.1	300.1	299.0	297.9	297.9
15°	297.9	297.9	296.9	295.8	295.8	294.8	294.8	293.7	293.7	292.7	291.6
17.5°	293.7	292.7	291.6	290.6	289.5	289.5	288.4	287.4	287.4	285.3	285.3
20°	286.3	285.3	284.2	283.2	283.2	283.2	281.0	281.0	280.0	278.9	277.9
22.5°	280.0	278.9	276.8	275.8	275.8	274.7	273.6	272.6	271.5	270.5	269.4
25°	272.6	271.5	269.4	268.4	267.3	266.2	265.2	264.1	263.1	262.0	261.0
27.5°	263.1	261.0	261.0	258.9	257.8	256.7	255.7	254.6	253.6	252.5	251.5
30°	252.5	251.5	249.3	247.2	246.2	246.2	244.1	243.0	243.0	240.9	239.8
32.5°	240.9	238.8	236.7	235.6	234.6	233.5	232.4	231.4	230.3	229.3	228.2
35°	228.2	225.0	224.0	221.9	221.9	220.8	219.8	217.6	217.6	216.6	214.5
37.5°	214.5	212.4	211.3	209.2	208.1	207.1	206.0	205.0	203.9	202.9	201.8
40°	199.7	197.6	196.5	195.5	194.4	193.3	192.3	191.2	190.2	189.1	188.1
42.5°	184.9	183.8	181.7	179.6	179.6	178.6	177.5	176.4	175.4	175.4	174.3
45°	170.1	169.0	166.9	165.9	164.8	164.8	162.7	162.7	161.7	160.6	160.6
47.5°	156.4	154.3	152.1	152.1	150.0	151.1	149.0	149.0	146.9	146.9	145.8
50°	141.6	140.5	138.4	137.4	137.4	136.3	135.2	135.2	134.2	133.1	132.1
52.5°	127.8	125.7	124.7	123.6	122.6	122.6	121.5	121.5	119.4	119.4	118.3
55°	114.1	113.1	110.9	109.9	109.9	109.9	107.8	106.7	106.7	105.7	104.6
57.5°	100.4	99.3	98.3	97.2	96.1	96.1	95.1	94.0	93.0	91.9	89.8
60°	87.7	86.6	85.6	84.5	83.5	83.5	82.4	81.4	80.3	79.2	78.2
62.5°	75.0	75.0	72.9	71.8	70.8	70.8	69.7	68.7	67.6	66.6	65.5
65°	64.4	63.4	61.3	60.2	60.2	60.2	58.1	57.1	56.0	53.9	52.8
67.5°	53.9	51.8	50.7	50.7	49.7	48.6	47.5	46.5	44.4	43.3	41.2
70°	43.3	42.3	41.2	40.1	39.1	38.0	37.0	35.9	33.8	32.8	31.7
72.5°	33.8	32.8	31.7	30.6	29.6	29.6	27.5	26.4	25.4	23.2	22.2
75°	25.4	24.3	23.2	22.2	21.1	20.1	20.1	18.0	16.9	15.8	13.7
77.5°	18.0	16.9	15.8	14.8	14.8	13.7	12.7	11.6	10.6	9.5	8.5
80°	11.6	10.6	9.5	9.5	8.5	8.5	7.4	6.3	5.3	4.2	4.2
82.5°	6.3	5.3	5.3	4.2	4.2	4.2	3.2	2.1	2.1	2.1	1.1
85°	2.1	2.1	2.1	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



TEST NUMBER: P644093

CATALOG NUMBER: ML5615LSWW9FS1E - 592H WW - 900LM - 3500K

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7
2.5°	310.6	310.6	310.6	310.6	310.6	310.6	310.6	310.6	310.6	309.6	309.6
5°	308.5	308.5	308.5	308.5	308.5	308.5	307.5	307.5	307.5	307.5	307.5
7.5°	306.4	306.4	306.4	305.3	305.3	305.3	305.3	304.3	304.3	304.3	304.3
10°	302.2	302.2	302.2	301.1	301.1	301.1	301.1	301.1	300.1	300.1	300.1
12.5°	296.9	296.9	296.9	296.9	296.9	295.8	295.8	295.8	295.8	294.8	295.8
15°	291.6	291.6	290.6	290.6	290.6	289.5	289.5	289.5	289.5	289.5	289.5
17.5°	285.3	284.2	284.2	283.2	283.2	283.2	283.2	283.2	283.2	283.2	283.2
20°	277.9	276.8	276.8	276.8	276.8	275.8	275.8	274.7	275.8	275.8	275.8
22.5°	269.4	268.4	268.4	268.4	267.3	267.3	267.3	267.3	267.3	267.3	267.3
25°	261.0	259.9	258.9	258.9	258.9	257.8	257.8	258.9	258.9	258.9	258.9
27.5°	250.4	250.4	249.3	249.3	249.3	248.3	248.3	248.3	249.3	249.3	249.3
30°	238.8	238.8	238.8	238.8	237.7	237.7	238.8	237.7	238.8	237.7	238.8
32.5°	228.2	228.2	227.2	226.1	226.1	227.2	226.1	226.1	227.2	227.2	227.2
35°	214.5	214.5	214.5	214.5	214.5	214.5	214.5	214.5	214.5	215.5	216.6
37.5°	201.8	201.8	201.8	201.8	201.8	201.8	201.8	202.9	202.9	202.9	202.9
40°	188.1	188.1	188.1	188.1	188.1	188.1	188.1	188.1	189.1	189.1	190.2
42.5°	173.3	174.3	174.3	174.3	173.3	173.3	174.3	174.3	174.3	175.4	175.4
45°	159.5	159.5	159.5	159.5	160.6	159.5	159.5	159.5	160.6	160.6	160.6
47.5°	145.8	144.7	144.7	145.8	144.7	144.7	144.7	144.7	145.8	145.8	144.7
50°	132.1	131.0	131.0	131.0	130.0	130.0	131.0	128.9	128.9	128.9	130.0
52.5°	118.3	117.3	116.2	116.2	116.2	115.2	114.1	114.1	114.1	113.1	113.1
55°	103.5	102.5	101.4	101.4	101.4	100.4	100.4	98.3	98.3	97.2	97.2
57.5°	89.8	88.7	87.7	87.7	86.6	85.6	85.6	83.5	83.5	82.4	80.3
60°	76.1	75.0	74.0	74.0	74.0	71.8	70.8	68.7	68.7	66.6	65.5
62.5°	63.4	62.3	61.3	60.2	60.2	58.1	57.1	54.9	53.9	52.8	50.7
65°	51.8	49.7	48.6	47.5	47.5	45.4	44.4	42.3	40.1	39.1	37.0
67.5°	40.1	39.1	37.0	35.9	35.9	33.8	31.7	30.6	28.5	26.4	25.4
70°	29.6	28.5	26.4	25.4	24.3	23.2	21.1	20.1	18.0	16.9	14.8
72.5°	20.1	19.0	16.9	16.9	15.8	13.7	12.7	11.6	9.5	8.5	7.4
75°	12.7	11.6	10.6	9.5	8.5	7.4	6.3	5.3	4.2	3.2	3.2
77.5°	7.4	6.3	5.3	4.2	4.2	3.2	2.1	2.1	2.1	1.1	1.1
80°	3.2	2.1	2.1	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: P644093

CATALOG NUMBER: ML5615LSWW9FS1E - 592H WW - 900LM - 3500K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7
2.5°	310.6	309.6	310.6	310.6	309.6	309.6	309.6	309.6
5°	307.5	307.5	307.5	307.5	307.5	307.5	307.5	307.5
7.5°	305.3	304.3	304.3	304.3	304.3	304.3	304.3	304.3
10°	300.1	300.1	300.1	300.1	300.1	300.1	300.1	299.0
12.5°	294.8	294.8	294.8	294.8	294.8	294.8	294.8	294.8
15°	289.5	289.5	289.5	289.5	289.5	289.5	289.5	289.5
17.5°	283.2	283.2	283.2	283.2	283.2	282.1	283.2	283.2
20°	275.8	275.8	275.8	275.8	275.8	275.8	275.8	276.8
22.5°	267.3	267.3	267.3	267.3	267.3	267.3	267.3	268.4
25°	258.9	258.9	258.9	258.9	258.9	258.9	258.9	259.9
27.5°	249.3	249.3	249.3	249.3	249.3	249.3	249.3	249.3
30°	238.8	238.8	239.8	238.8	238.8	238.8	239.8	238.8
32.5°	228.2	228.2	228.2	228.2	228.2	228.2	228.2	227.2
35°	216.6	215.5	216.6	216.6	216.6	216.6	216.6	216.6
37.5°	203.9	203.9	203.9	203.9	203.9	203.9	205.0	205.0
40°	191.2	190.2	190.2	191.2	191.2	191.2	190.2	191.2
42.5°	175.4	176.4	176.4	176.4	177.5	176.4	177.5	177.5
45°	160.6	161.7	161.7	161.7	161.7	161.7	162.7	162.7
47.5°	145.8	145.8	145.8	145.8	146.9	146.9	146.9	146.9
50°	130.0	130.0	130.0	130.0	131.0	130.0	131.0	131.0
52.5°	113.1	113.1	113.1	113.1	113.1	113.1	114.1	113.1
55°	96.1	96.1	96.1	96.1	95.1	95.1	95.1	96.1
57.5°	80.3	79.2	78.2	79.2	77.1	77.1	77.1	77.1
60°	63.4	62.3	62.3	61.3	60.2	59.2	60.2	59.2
62.5°	48.6	47.5	47.5	45.4	44.4	44.4	43.3	43.3
65°	35.9	33.8	32.8	32.8	31.7	30.6	29.6	29.6
67.5°	23.2	22.2	21.1	21.1	20.1	19.0	19.0	18.0
70°	13.7	12.7	11.6	12.7	10.6	9.5	9.5	9.5
72.5°	6.3	5.3	5.3	5.3	4.2	4.2	4.2	4.2
75°	3.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1
77.5°	1.1	1.1	2.1	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



Report Generated By 670245859 / DESKTOP-T8S5UU9

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report





— 0°-180° - - 45°-225° - - - - 90°-270°

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



(END OF REPORT)