

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: P644092

Luminaire Tested: ML5615LSWW9FS1E - 592H WW - 900LM - 3000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644092
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 - 3000K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH HAZE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 651.9 lumens
Efficiency: N/A
Efficacy: 62.1 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

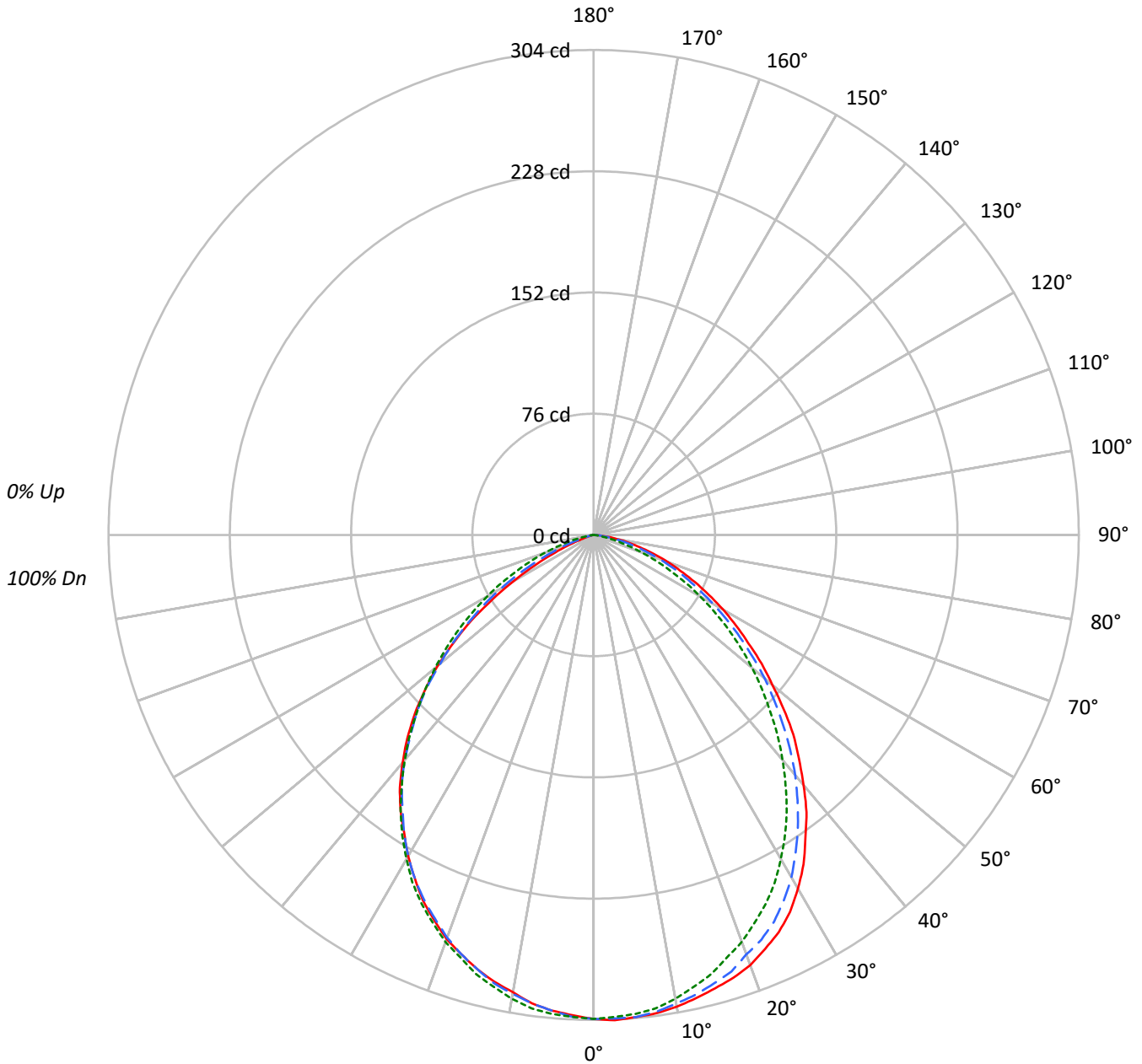
Input Watts (W): 10.5
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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									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	81	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°	23951	23951	23951	23951	23951
5°	24042	24042	23884	23717	23717
10°	24072	23911	23663	23414	23334
15°	24044	23790	23284	23030	23030
20°	24110	23505	22808	22556	22640
25°	23918	23291	22220	21950	22037
30°	23344	22597	21375	21193	21193
35°	22300	21510	20324	20122	20324
40°	21094	20249	18972	18972	19188
45°	19749	18722	17449	17449	17684
50°	17943	17181	15916	15413	15658
55°	16282	15428	14162	13171	12882
60°	14778	13641	12173	10562	9094
65°	13057	11917	9806	7303	5380
70°	11402	9971	7363	4039	2147
75°	9089	7839	4697	1251	641
80°	7001	5137	1864	455	455
85°	3714	2808	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 19749 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	28.6	4.4
10°-20°	80.7	12.4
20°-30°	119.1	18.3
30°-40°	134.9	20.7
40°-50°	124.6	19.1
50°-60°	93.1	14.3
60°-70°	51.4	7.9
70°-80°	17.3	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°	228.4	35.0
0°-40°	363.3	55.7
0°-60°	581.0	89.1
0°-90°	651.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	651.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	303	303	303	303	303	
5°	303	303	301	299	299	29
15°	294	291	285	282	282	83
25°	275	267	255	252	253	126
35°	231	223	211	209	211	145
45°	177	168	156	156	158	136
55°	118	112	103	96	94	106
65°	70	64	52	39	29	70
75°	30	26	15	4	2	33
85°	4	3	0	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°	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4
2.5°	304.5	304.5	304.5	304.5	303.4	303.4	304.5	303.4	303.4	303.4	303.4
5°	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4
7.5°	302.4	302.4	302.4	302.4	302.4	302.4	302.4	302.4	301.4	301.4	301.4
10°	300.3	300.3	300.3	300.3	300.3	300.3	300.3	299.3	299.3	299.3	298.3
12.5°	297.3	298.3	297.3	298.3	297.3	297.3	296.2	296.2	296.2	295.2	295.2
15°	294.2	294.2	294.2	294.2	294.2	293.1	293.1	292.1	292.1	292.1	291.1
17.5°	291.1	290.1	290.1	290.1	289.0	289.0	289.0	289.0	288.0	287.0	287.0
20°	287.0	285.9	285.9	285.9	284.9	284.9	283.9	283.9	281.8	281.8	279.8
22.5°	280.8	280.8	280.8	279.8	279.8	278.7	278.7	277.7	276.7	275.7	274.6
25°	274.6	274.6	273.6	273.6	272.6	272.6	272.6	270.5	269.5	268.5	267.4
27.5°	266.4	266.4	265.4	265.4	264.3	263.3	263.3	261.3	261.3	259.2	258.2
30°	256.1	256.1	256.1	254.1	254.1	254.1	253.0	252.0	249.9	248.9	247.9
32.5°	244.8	243.8	243.8	243.8	242.7	241.7	241.7	239.7	238.6	237.6	235.5
35°	231.4	231.4	231.4	231.4	230.4	229.4	229.4	227.3	226.3	224.2	223.2
37.5°	219.1	219.1	218.1	218.1	216.0	217.0	216.0	215.0	213.9	210.9	209.8
40°	204.7	204.7	204.7	203.7	202.6	202.6	201.6	200.6	198.5	197.5	196.5
42.5°	190.3	190.3	190.3	189.3	188.2	188.2	188.2	186.2	185.1	184.1	182.1
45°	176.9	175.9	175.9	174.9	174.9	173.8	172.8	171.8	170.7	169.7	167.7
47.5°	161.5	161.5	160.5	160.5	159.4	159.4	158.4	157.4	156.3	155.3	153.3
50°	146.1	147.1	147.1	146.1	146.1	145.0	144.0	144.0	143.0	141.9	139.9
52.5°	132.7	132.7	132.7	131.7	131.7	130.6	130.6	129.6	128.6	126.5	125.5
55°	118.3	119.3	118.3	118.3	118.3	117.3	117.3	116.2	115.2	113.1	112.1
57.5°	105.9	105.9	104.9	104.9	103.9	103.9	103.9	102.9	101.8	100.8	98.7
60°	93.6	92.6	92.6	92.6	91.5	91.5	91.5	89.5	88.5	87.4	86.4
62.5°	81.3	81.3	81.3	80.2	80.2	79.2	78.2	78.2	77.1	76.1	74.1
65°	69.9	69.9	68.9	68.9	68.9	67.9	67.9	66.9	65.8	64.8	63.8
67.5°	58.6	58.6	58.6	57.6	57.6	57.6	56.6	55.5	55.5	54.5	53.5
70°	49.4	48.3	48.3	48.3	47.3	47.3	47.3	46.3	45.3	44.2	43.2
72.5°	39.1	39.1	39.1	39.1	38.1	38.1	37.0	37.0	36.0	35.0	33.9
75°	29.8	29.8	29.8	29.8	28.8	28.8	28.8	27.8	27.8	26.7	25.7
77.5°	22.6	22.6	22.6	21.6	21.6	20.6	20.6	20.6	19.5	19.5	18.5
80°	15.4	15.4	14.4	14.4	14.4	14.4	14.4	13.4	12.3	12.3	11.3
82.5°	9.3	9.3	9.3	8.2	8.2	8.2	8.2	8.2	7.2	7.2	6.2
85°	4.1	4.1	4.1	4.1	4.1	4.1	3.1	3.1	3.1	3.1	3.1
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4
2.5°	303.4	303.4	303.4	303.4	303.4	303.4	303.4	302.4	302.4	302.4	302.4
5°	302.4	302.4	302.4	302.4	302.4	301.4	302.4	301.4	301.4	301.4	301.4
7.5°	300.3	300.3	300.3	300.3	299.3	300.3	299.3	299.3	299.3	299.3	298.3
10°	298.3	297.3	297.3	297.3	297.3	296.2	296.2	295.2	295.2	295.2	294.2
12.5°	295.2	294.2	294.2	293.1	293.1	293.1	292.1	292.1	291.1	290.1	290.1
15°	290.1	290.1	289.0	288.0	288.0	287.0	287.0	285.9	285.9	284.9	283.9
17.5°	285.9	284.9	283.9	282.9	281.8	281.8	280.8	279.8	279.8	277.7	277.7
20°	278.7	277.7	276.7	275.7	275.7	275.7	273.6	273.6	272.6	271.5	270.5
22.5°	272.6	271.5	269.5	268.5	268.5	267.4	266.4	265.4	264.3	263.3	262.3
25°	265.4	264.3	262.3	261.3	260.2	259.2	258.2	257.1	256.1	255.1	254.1
27.5°	256.1	254.1	254.1	252.0	251.0	249.9	248.9	247.9	246.9	245.8	244.8
30°	245.8	244.8	242.7	240.7	239.7	239.7	237.6	236.6	236.6	234.5	233.5
32.5°	234.5	232.5	230.4	229.4	228.3	227.3	226.3	225.3	224.2	223.2	222.2
35°	222.2	219.1	218.1	216.0	216.0	215.0	213.9	211.9	211.9	210.9	208.8
37.5°	208.8	206.7	205.7	203.7	202.6	201.6	200.6	199.5	198.5	197.5	196.5
40°	194.4	192.3	191.3	190.3	189.3	188.2	187.2	186.2	185.1	184.1	183.1
42.5°	180.0	179.0	176.9	174.9	174.9	173.8	172.8	171.8	170.7	170.7	169.7
45°	165.6	164.6	162.5	161.5	160.5	160.5	158.4	158.4	157.4	156.3	156.3
47.5°	152.2	150.2	148.1	148.1	146.1	147.1	145.0	145.0	143.0	143.0	141.9
50°	137.8	136.8	134.7	133.7	133.7	132.7	131.7	131.7	130.6	129.6	128.6
52.5°	124.5	122.4	121.4	120.3	119.3	119.3	118.3	118.3	116.2	116.2	115.2
55°	111.1	110.1	108.0	107.0	107.0	107.0	104.9	103.9	103.9	102.9	101.8
57.5°	97.7	96.7	95.7	94.6	93.6	93.6	92.6	91.5	90.5	89.5	87.4
60°	85.4	84.3	83.3	82.3	81.3	81.3	80.2	79.2	78.2	77.1	76.1
62.5°	73.0	73.0	71.0	69.9	68.9	68.9	67.9	66.9	65.8	64.8	63.8
65°	62.7	61.7	59.7	58.6	58.6	58.6	56.6	55.5	54.5	52.5	51.4
67.5°	52.5	50.4	49.4	49.4	48.3	47.3	46.3	45.3	43.2	42.2	40.1
70°	42.2	41.1	40.1	39.1	38.1	37.0	36.0	35.0	32.9	31.9	30.9
72.5°	32.9	31.9	30.9	29.8	28.8	28.8	26.7	25.7	24.7	22.6	21.6
75°	24.7	23.7	22.6	21.6	20.6	19.5	19.5	17.5	16.5	15.4	13.4
77.5°	17.5	16.5	15.4	14.4	14.4	13.4	12.3	11.3	10.3	9.3	8.2
80°	11.3	10.3	9.3	9.3	8.2	8.2	7.2	6.2	5.1	4.1	4.1
82.5°	6.2	5.1	5.1	4.1	4.1	4.1	3.1	2.1	2.1	2.1	1.0
85°	2.1	2.1	2.1	1.0	1.0	1.0	1.0	1.0	1.0	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



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4
2.5°	302.4	302.4	302.4	302.4	302.4	302.4	302.4	302.4	302.4	301.4	301.4
5°	300.3	300.3	300.3	300.3	300.3	300.3	299.3	299.3	299.3	299.3	299.3
7.5°	298.3	298.3	298.3	297.3	297.3	297.3	297.3	296.2	296.2	296.2	296.2
10°	294.2	294.2	294.2	293.1	293.1	293.1	293.1	293.1	292.1	292.1	292.1
12.5°	289.0	289.0	289.0	289.0	289.0	288.0	288.0	288.0	288.0	287.0	288.0
15°	283.9	283.9	282.9	282.9	282.9	281.8	281.8	281.8	281.8	281.8	281.8
17.5°	277.7	276.7	276.7	275.7	275.7	275.7	275.7	275.7	275.7	275.7	275.7
20°	270.5	269.5	269.5	269.5	269.5	268.5	268.5	267.4	268.5	268.5	268.5
22.5°	262.3	261.3	261.3	261.3	260.2	260.2	260.2	260.2	260.2	260.2	260.2
25°	254.1	253.0	252.0	252.0	252.0	251.0	251.0	252.0	252.0	252.0	252.0
27.5°	243.8	243.8	242.7	242.7	242.7	241.7	241.7	241.7	242.7	242.7	242.7
30°	232.5	232.5	232.5	232.5	231.4	231.4	232.5	231.4	232.5	231.4	232.5
32.5°	222.2	222.2	221.1	220.1	220.1	221.1	220.1	220.1	221.1	221.1	221.1
35°	208.8	208.8	208.8	208.8	208.8	208.8	208.8	208.8	208.8	209.8	210.9
37.5°	196.5	196.5	196.5	196.5	196.5	196.5	196.5	197.5	197.5	197.5	197.5
40°	183.1	183.1	183.1	183.1	183.1	183.1	183.1	183.1	184.1	184.1	185.1
42.5°	168.7	169.7	169.7	169.7	168.7	168.7	169.7	169.7	169.7	170.7	170.7
45°	155.3	155.3	155.3	155.3	156.3	155.3	155.3	155.3	156.3	156.3	156.3
47.5°	141.9	140.9	140.9	141.9	140.9	140.9	140.9	140.9	141.9	141.9	140.9
50°	128.6	127.5	127.5	127.5	126.5	126.5	127.5	125.5	125.5	125.5	126.5
52.5°	115.2	114.2	113.1	113.1	113.1	112.1	111.1	111.1	111.1	110.1	110.1
55°	100.8	99.8	98.7	98.7	98.7	97.7	97.7	95.7	95.7	94.6	94.6
57.5°	87.4	86.4	85.4	85.4	84.3	83.3	83.3	81.3	81.3	80.2	78.2
60°	74.1	73.0	72.0	72.0	72.0	69.9	68.9	66.9	66.9	64.8	63.8
62.5°	61.7	60.7	59.7	58.6	58.6	56.6	55.5	53.5	52.5	51.4	49.4
65°	50.4	48.3	47.3	46.3	46.3	44.2	43.2	41.1	39.1	38.1	36.0
67.5°	39.1	38.1	36.0	35.0	35.0	32.9	30.9	29.8	27.8	25.7	24.7
70°	28.8	27.8	25.7	24.7	23.7	22.6	20.6	19.5	17.5	16.5	14.4
72.5°	19.5	18.5	16.5	16.5	15.4	13.4	12.3	11.3	9.3	8.2	7.2
75°	12.3	11.3	10.3	9.3	8.2	7.2	6.2	5.1	4.1	3.1	3.1
77.5°	7.2	6.2	5.1	4.1	4.1	3.1	2.1	2.1	2.1	1.0	1.0
80°	3.1	2.1	2.1	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	0.0	0.0	1.0	1.0
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



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CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	303.4	303.4	303.4	303.4	303.4	303.4	303.4	303.4
2.5°	302.4	301.4	302.4	302.4	301.4	301.4	301.4	301.4
5°	299.3	299.3	299.3	299.3	299.3	299.3	299.3	299.3
7.5°	297.3	296.2	296.2	296.2	296.2	296.2	296.2	296.2
10°	292.1	292.1	292.1	292.1	292.1	292.1	292.1	291.1
12.5°	287.0	287.0	287.0	287.0	287.0	287.0	287.0	287.0
15°	281.8	281.8	281.8	281.8	281.8	281.8	281.8	281.8
17.5°	275.7	275.7	275.7	275.7	275.7	274.6	275.7	275.7
20°	268.5	268.5	268.5	268.5	268.5	268.5	268.5	269.5
22.5°	260.2	260.2	260.2	260.2	260.2	260.2	260.2	261.3
25°	252.0	252.0	252.0	252.0	252.0	252.0	252.0	253.0
27.5°	242.7	242.7	242.7	242.7	242.7	242.7	242.7	242.7
30°	232.5	232.5	233.5	232.5	232.5	232.5	233.5	232.5
32.5°	222.2	222.2	222.2	222.2	222.2	222.2	222.2	221.1
35°	210.9	209.8	210.9	210.9	210.9	210.9	210.9	210.9
37.5°	198.5	198.5	198.5	198.5	198.5	198.5	199.5	199.5
40°	186.2	185.1	185.1	186.2	186.2	186.2	185.1	186.2
42.5°	170.7	171.8	171.8	171.8	172.8	171.8	172.8	172.8
45°	156.3	157.4	157.4	157.4	157.4	157.4	158.4	158.4
47.5°	141.9	141.9	141.9	141.9	143.0	143.0	143.0	143.0
50°	126.5	126.5	126.5	126.5	127.5	126.5	127.5	127.5
52.5°	110.1	110.1	110.1	110.1	110.1	110.1	111.1	110.1
55°	93.6	93.6	93.6	93.6	92.6	92.6	92.6	93.6
57.5°	78.2	77.1	76.1	77.1	75.1	75.1	75.1	75.1
60°	61.7	60.7	60.7	59.7	58.6	57.6	58.6	57.6
62.5°	47.3	46.3	46.3	44.2	43.2	43.2	42.2	42.2
65°	35.0	32.9	31.9	31.9	30.9	29.8	28.8	28.8
67.5°	22.6	21.6	20.6	20.6	19.5	18.5	18.5	17.5
70°	13.4	12.3	11.3	12.3	10.3	9.3	9.3	9.3
72.5°	6.2	5.1	5.1	5.1	4.1	4.1	4.1	4.1
75°	3.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
77.5°	1.0	1.0	2.1	1.0	1.0	1.0	1.0	1.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	1.0	0.0	0.0	0.0	1.0	1.0	0.0	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)