

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: P644137

Luminaire Tested: ML5615LSWW9FS1E - 692H WW - 900LM - 3000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644137
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 - 3000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH HAZE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

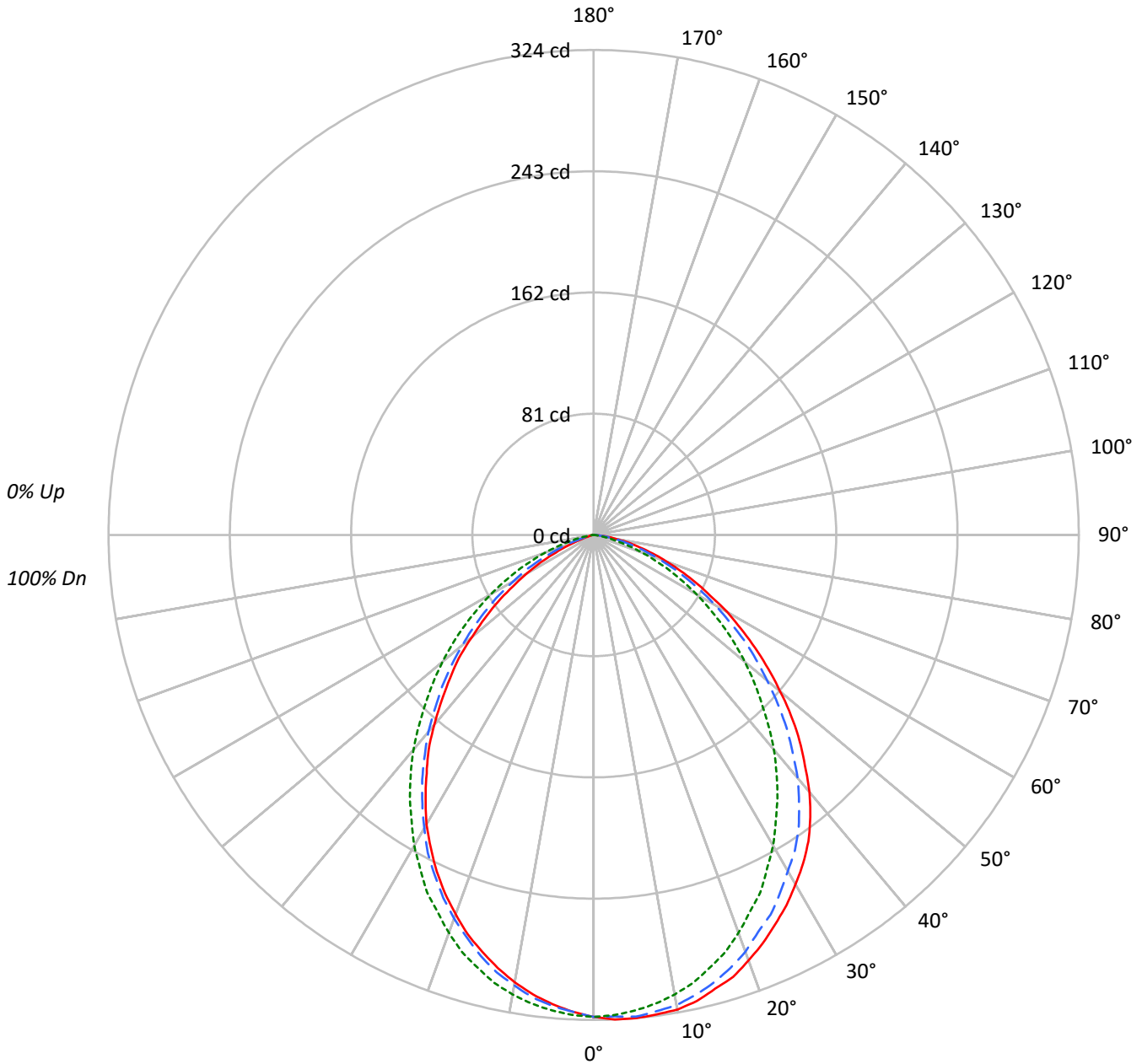
Lumens per Lamp: N/A
Luminaire Lumens: 666.3 lumens
Efficiency: N/A
Efficacy: 63.5 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.12 / 1.23
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

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	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	104	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	86	83	79	84	80	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	68	60	54	66	59	54	64	58	53	62	57	53	51				51				
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45				45				
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40				40				
8	65	52	44	39	63	52	44	39	50	43	38	49	43	38	48	42	38	36				36				
9	61	48	40	35	59	48	40	35	46	40	35	45	39	35	44	39	35	33				33				
10	57	45	37	32	56	44	37	32	43	37	32	42	36	32	41	36	32	30				30				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	17652	17652	17652	17652	17652
5°	17835	17780	17549	17384	17323
10°	17924	17752	17351	17011	16895
15°	17809	17577	16992	16527	16351
20°	17647	17286	16504	15903	15728
25°	17360	16924	15932	15182	15001
30°	17066	16414	15173	14325	14135
35°	16731	15975	14322	13358	13017
40°	16052	15164	13404	12294	11851
45°	15079	14118	12280	11086	10528
50°	13867	12895	11232	9740	9040
55°	12587	11699	10026	8363	7474
60°	11282	10262	8684	6765	5636
65°	9742	8808	7212	5072	3606
70°	8239	7261	5450	3126	1651
75°	6757	5676	3495	1080	657
80°	4862	3883	1610	316	316
85°	2579	1950	629	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 15079 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	30.3	4.5
10°-20°	84.6	12.7
20°-30°	121.9	18.3
30°-40°	136.2	20.4
40°-50°	124.9	18.7
50°-60°	93.8	14.1
60°-70°	53.6	8.0
70°-80°	18.7	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°	236.7	35.5
0°-40°	372.9	56.0
0°-60°	591.6	88.8
0°-90°	666.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	666.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	322	322	322	322	322	
5°	324	323	319	316	315	31
15°	314	310	299	291	288	89
25°	287	280	263	251	248	132
35°	250	239	214	200	194	156
45°	194	182	158	143	136	150
55°	132	122	105	88	78	118
65°	75	68	56	39	28	75
75°	32	27	16	5	3	34
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°	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0
2.5°	324.1	323.1	323.1	323.1	323.1	323.1	323.1	323.1	323.1	323.1	322.0
5°	324.1	324.1	324.1	324.1	324.1	324.1	324.1	323.1	323.1	323.1	323.1
7.5°	323.1	323.1	323.1	323.1	323.1	323.1	323.1	322.0	322.0	321.0	321.0
10°	322.0	322.0	322.0	321.0	321.0	321.0	321.0	321.0	320.0	320.0	318.9
12.5°	318.9	318.9	318.9	318.9	317.9	317.9	317.9	316.9	315.9	315.9	314.8
15°	313.8	314.8	314.8	313.8	313.8	313.8	313.8	312.8	311.7	310.7	309.7
17.5°	309.7	309.7	309.7	308.7	307.6	308.7	307.6	306.6	305.6	304.5	303.5
20°	302.5	302.5	301.5	301.5	301.5	301.5	300.4	299.4	298.4	297.3	296.3
22.5°	295.3	295.3	295.3	293.2	293.2	293.2	292.2	292.2	290.1	289.1	287.0
25°	287.0	287.0	287.0	286.0	285.0	284.0	285.0	282.9	281.9	279.8	279.8
27.5°	278.8	278.8	277.8	277.8	276.8	276.8	275.7	273.7	272.6	271.6	269.6
30°	269.6	269.6	268.5	268.5	267.5	266.5	266.5	264.4	263.4	261.3	259.3
32.5°	260.3	260.3	259.3	259.3	258.2	257.2	257.2	255.2	253.1	251.0	250.0
35°	250.0	250.0	249.0	249.0	248.0	246.9	245.9	243.8	242.8	239.7	238.7
37.5°	237.7	238.7	236.6	236.6	235.6	234.6	233.5	232.5	230.5	228.4	225.3
40°	224.3	223.3	223.3	222.2	221.2	221.2	220.2	218.1	217.1	214.0	211.9
42.5°	208.9	208.9	208.9	207.8	206.8	206.8	204.7	203.7	201.7	199.6	196.5
45°	194.5	194.5	193.4	193.4	191.4	191.4	190.3	188.3	187.3	184.2	182.1
47.5°	179.0	178.0	178.0	177.0	175.9	175.9	174.9	173.9	171.8	168.7	166.7
50°	162.6	162.6	162.6	161.5	160.5	160.5	159.5	157.4	156.4	154.3	151.2
52.5°	147.1	147.1	147.1	146.1	145.1	145.1	144.0	143.0	141.0	138.9	136.8
55°	131.7	131.7	131.7	130.7	130.7	128.6	128.6	127.6	125.5	123.5	122.4
57.5°	116.3	116.3	116.3	116.3	115.2	115.2	114.2	113.2	111.1	110.1	107.0
60°	102.9	101.9	101.9	100.8	100.8	99.8	98.8	97.7	96.7	94.7	93.6
62.5°	87.5	88.5	87.5	87.5	86.4	86.4	86.4	84.4	83.3	81.3	80.3
65°	75.1	75.1	75.1	75.1	73.0	73.0	73.0	71.0	70.0	70.0	67.9
67.5°	62.8	62.8	62.8	61.7	61.7	61.7	60.7	59.7	58.6	57.6	56.6
70°	51.4	51.4	51.4	50.4	50.4	49.4	49.4	48.4	47.3	47.3	45.3
72.5°	41.2	41.2	41.2	41.2	40.1	40.1	39.1	39.1	38.1	37.0	36.0
75°	31.9	31.9	31.9	30.9	30.9	30.9	29.8	29.8	28.8	27.8	26.8
77.5°	23.7	22.6	22.6	22.6	22.6	21.6	21.6	21.6	20.6	19.5	19.5
80°	15.4	15.4	15.4	15.4	15.4	14.4	14.4	14.4	13.4	13.4	12.3
82.5°	9.3	9.3	9.3	9.3	9.3	8.2	8.2	8.2	7.2	7.2	7.2
85°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	3.1	3.1	3.1
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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°	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0
2.5°	323.1	323.1	322.0	322.0	322.0	322.0	322.0	321.0	321.0	321.0	321.0
5°	323.1	322.0	321.0	321.0	321.0	321.0	320.0	320.0	320.0	318.9	318.9
7.5°	320.0	320.0	320.0	318.9	318.9	317.9	317.9	316.9	316.9	315.9	315.9
10°	317.9	316.9	316.9	315.9	315.9	314.8	314.8	312.8	311.7	311.7	310.7
12.5°	313.8	312.8	312.8	310.7	310.7	310.7	309.7	307.6	306.6	306.6	305.6
15°	308.7	307.6	306.6	304.5	304.5	303.5	302.5	301.5	300.4	299.4	298.4
17.5°	302.5	300.4	299.4	298.4	297.3	296.3	295.3	294.3	292.2	292.2	290.1
20°	295.3	293.2	292.2	290.1	289.1	289.1	287.0	285.0	284.0	282.9	280.9
22.5°	286.0	285.0	282.9	280.9	279.8	279.8	277.8	275.7	274.7	272.6	271.6
25°	277.8	274.7	273.7	271.6	270.6	270.6	268.5	266.5	264.4	263.4	261.3
27.5°	267.5	265.4	264.4	261.3	260.3	259.3	257.2	255.2	253.1	251.0	249.0
30°	257.2	255.2	253.1	250.0	250.0	248.0	245.9	242.8	241.8	239.7	236.6
32.5°	246.9	244.9	241.8	239.7	237.7	236.6	233.5	231.5	229.4	226.3	225.3
35°	235.6	232.5	230.5	227.4	226.3	224.3	222.2	219.1	217.1	214.0	210.9
37.5°	223.3	219.1	217.1	214.0	213.0	210.9	208.9	206.8	203.7	200.6	198.6
40°	209.9	205.8	202.7	200.6	198.6	196.5	195.5	191.4	189.3	187.3	185.2
42.5°	194.5	191.4	188.3	186.2	184.2	183.1	180.0	178.0	174.9	172.8	170.8
45°	180.0	177.0	173.9	170.8	169.8	168.7	166.7	163.6	160.5	158.4	156.4
47.5°	164.6	162.6	158.4	157.4	155.4	154.3	151.2	149.2	148.2	145.1	143.0
50°	149.2	147.1	145.1	142.0	141.0	139.9	137.9	135.8	133.8	131.7	129.6
52.5°	133.8	132.7	130.7	127.6	127.6	126.5	124.5	122.4	120.4	118.3	116.3
55°	120.4	118.3	116.3	114.2	113.2	112.1	110.1	109.1	107.0	104.9	102.9
57.5°	106.0	103.9	102.9	100.8	99.8	98.8	96.7	95.7	93.6	91.6	89.5
60°	92.6	90.5	89.5	87.5	86.4	86.4	84.4	82.3	81.3	79.2	77.2
62.5°	79.2	77.2	76.1	74.1	74.1	73.0	72.0	70.0	68.9	66.9	65.8
65°	66.9	65.8	63.8	62.8	61.7	60.7	59.7	58.6	56.6	55.6	53.5
67.5°	55.6	53.5	52.5	51.4	50.4	49.4	48.4	47.3	45.3	44.2	42.2
70°	44.2	43.2	42.2	41.2	40.1	40.1	38.1	37.0	35.0	34.0	31.9
72.5°	35.0	34.0	32.9	30.9	30.9	29.8	28.8	27.8	25.7	24.7	22.6
75°	25.7	25.7	23.7	22.6	22.6	21.6	20.6	19.5	18.5	16.5	15.4
77.5°	18.5	17.5	16.5	15.4	14.4	14.4	13.4	12.3	11.3	10.3	8.2
80°	12.3	11.3	10.3	9.3	9.3	8.2	7.2	7.2	6.2	5.1	4.1
82.5°	6.2	6.2	5.1	5.1	4.1	4.1	4.1	3.1	3.1	2.1	2.1
85°	3.1	2.1	2.1	2.1	2.1	2.1	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°	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0
2.5°	321.0	320.0	321.0	321.0	320.0	320.0	320.0	320.0	318.9	320.0	318.9
5°	318.9	317.9	317.9	317.9	317.9	316.9	316.9	315.9	315.9	315.9	315.9
7.5°	314.8	313.8	313.8	312.8	312.8	312.8	312.8	311.7	311.7	310.7	310.7
10°	310.7	309.7	308.7	308.7	307.6	307.6	307.6	306.6	305.6	305.6	304.5
12.5°	303.5	303.5	302.5	302.5	301.5	301.5	300.4	299.4	299.4	298.4	298.4
15°	297.3	296.3	295.3	295.3	294.3	293.2	292.2	292.2	291.2	291.2	290.1
17.5°	289.1	287.0	287.0	286.0	285.0	285.0	284.0	282.9	281.9	281.9	281.9
20°	279.8	278.8	277.8	276.8	275.7	275.7	274.7	273.7	272.6	271.6	271.6
22.5°	269.6	268.5	267.5	266.5	266.5	265.4	264.4	263.4	262.4	261.3	261.3
25°	259.3	258.2	257.2	256.2	255.2	254.1	253.1	252.1	251.0	250.0	250.0
27.5°	248.0	245.9	244.9	243.8	242.8	241.8	241.8	239.7	239.7	238.7	237.7
30°	235.6	233.5	231.5	231.5	230.5	229.4	227.4	227.4	226.3	225.3	224.3
32.5°	222.2	221.2	219.1	219.1	217.1	216.1	215.0	214.0	213.0	211.9	211.9
35°	209.9	206.8	205.8	205.8	203.7	202.7	201.7	199.6	199.6	197.5	197.5
37.5°	196.5	194.5	193.4	191.4	190.3	189.3	188.3	186.2	185.2	184.2	183.1
40°	183.1	181.1	179.0	178.0	177.0	174.9	173.9	171.8	171.8	169.8	168.7
42.5°	168.7	166.7	164.6	163.6	162.6	160.5	159.5	157.4	156.4	155.4	154.3
45°	154.3	152.3	151.2	150.2	149.2	148.2	145.1	144.0	143.0	141.0	139.9
47.5°	141.0	138.9	136.8	136.8	134.8	133.8	131.7	129.6	128.6	126.5	125.5
50°	127.6	125.5	123.5	122.4	122.4	119.3	118.3	116.3	114.2	112.1	111.1
52.5°	114.2	112.1	110.1	109.1	108.0	106.0	103.9	102.9	100.8	98.8	97.7
55°	100.8	98.8	96.7	95.7	94.7	92.6	91.6	88.5	87.5	85.4	83.3
57.5°	88.5	86.4	84.4	83.3	82.3	80.3	78.2	76.1	75.1	73.0	71.0
60°	75.1	74.1	72.0	71.0	70.0	68.9	65.8	63.8	61.7	60.7	58.6
62.5°	63.8	61.7	59.7	58.6	57.6	56.6	54.5	52.5	51.4	48.4	46.3
65°	52.5	50.4	48.4	47.3	46.3	45.3	43.2	41.2	39.1	37.0	36.0
67.5°	40.1	39.1	37.0	37.0	36.0	34.0	31.9	30.9	28.8	27.8	25.7
70°	30.9	29.8	27.8	26.8	25.7	23.7	22.6	20.6	19.5	18.5	16.5
72.5°	21.6	20.6	18.5	17.5	16.5	15.4	13.4	12.3	11.3	10.3	9.3
75°	14.4	12.3	11.3	10.3	10.3	8.2	7.2	6.2	5.1	4.1	4.1
77.5°	8.2	7.2	5.1	5.1	5.1	4.1	3.1	3.1	2.1	2.1	2.1
80°	4.1	3.1	2.1	2.1	2.1	2.1	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



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CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0
2.5°	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9
5°	315.9	314.8	314.8	314.8	314.8	314.8	314.8	314.8
7.5°	310.7	310.7	309.7	310.7	309.7	309.7	309.7	309.7
10°	304.5	304.5	304.5	304.5	303.5	303.5	303.5	303.5
12.5°	298.4	297.3	297.3	297.3	296.3	297.3	296.3	296.3
15°	290.1	289.1	289.1	289.1	289.1	288.1	289.1	288.1
17.5°	280.9	280.9	279.8	280.9	279.8	279.8	279.8	279.8
20°	270.6	270.6	270.6	269.6	270.6	269.6	269.6	269.6
22.5°	260.3	260.3	259.3	259.3	259.3	259.3	259.3	259.3
25°	249.0	249.0	249.0	249.0	248.0	248.0	248.0	248.0
27.5°	237.7	236.6	236.6	236.6	235.6	236.6	235.6	235.6
30°	224.3	224.3	223.3	223.3	223.3	222.2	222.2	223.3
32.5°	209.9	209.9	209.9	209.9	208.9	208.9	208.9	208.9
35°	196.5	196.5	195.5	195.5	195.5	194.5	194.5	194.5
37.5°	182.1	182.1	181.1	181.1	181.1	180.0	180.0	181.1
40°	167.7	167.7	166.7	166.7	166.7	165.6	165.6	165.6
42.5°	153.3	152.3	152.3	151.2	151.2	151.2	150.2	150.2
45°	138.9	137.9	137.9	137.9	136.8	135.8	135.8	135.8
47.5°	124.5	123.5	122.4	122.4	121.4	121.4	121.4	122.4
50°	110.1	109.1	109.1	108.0	107.0	107.0	107.0	106.0
52.5°	95.7	94.7	94.7	93.6	93.6	92.6	91.6	91.6
55°	82.3	81.3	80.3	79.2	79.2	78.2	78.2	78.2
57.5°	68.9	67.9	66.9	66.9	65.8	65.8	64.8	63.8
60°	56.6	55.6	54.5	54.5	53.5	52.5	51.4	51.4
62.5°	45.3	44.2	43.2	42.2	41.2	40.1	39.1	40.1
65°	35.0	32.9	31.9	30.9	30.9	29.8	28.8	27.8
67.5°	24.7	23.7	22.6	21.6	20.6	19.5	18.5	18.5
70°	15.4	13.4	13.4	13.4	12.3	11.3	10.3	10.3
72.5°	8.2	7.2	6.2	6.2	5.1	5.1	5.1	5.1
75°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
77.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
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)