

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: P642332

Luminaire Tested: ML5612LSWW97FS1E - 692SC WW - 600LM - 3000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P642332
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-131)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5612LSWW97FS1E - 692SC WW - 600LM - 3000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 580.0 lumens
Efficiency: N/A
Efficacy: 56.3 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 1.09 / 1.17
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

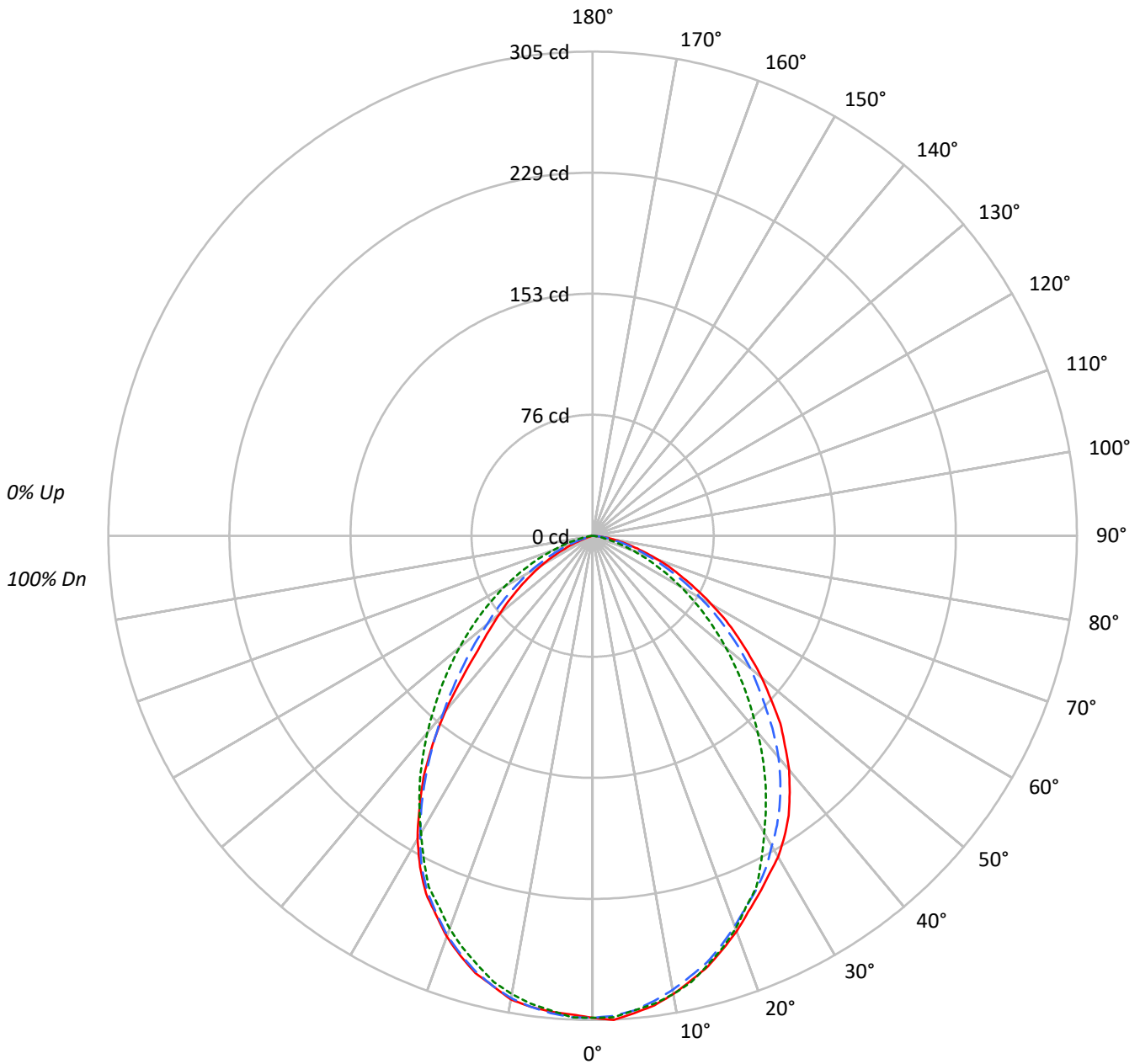
Input Watts (W): 10.3
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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								
1	111	107	104	100	108	105	102	99	101	98	96	97	95	93	93	92	90	88								
2	103	96	90	85	100	94	89	84	90	86	82	87	84	80	84	81	79	77								
3	95	86	79	73	92	84	78	72	81	76	71	79	74	70	76	72	69	67								
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61	59								
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52								
6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	53	48	46								
7	70	58	50	45	69	57	50	44	56	49	44	55	48	44	53	48	44	42								
8	66	53	46	40	64	53	45	40	52	45	40	50	44	40	49	44	40	38								
9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34								
10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	32								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	16643	16643	16643	16643	16643
5°	16608	16514	16514	16608	16558
10°	16316	16165	16316	16460	16510
15°	15937	15789	15885	16135	16186
20°	15466	15261	15361	15617	15670
25°	15031	14819	14765	14922	15031
30°	14787	14287	13679	13736	13958
35°	14402	13759	12702	12234	12414
40°	13776	13024	11579	10520	10326
45°	12955	12001	10443	8885	7939
50°	11863	11044	9330	7386	6490
55°	10705	9863	8191	6270	5266
60°	9495	8629	7006	5087	4024
65°	8172	7381	5669	3749	2491
70°	7004	6027	4199	2100	978
75°	5549	4639	2775	551	0
80°	4136	3315	1389	0	0
85°	2201	1635	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 12955 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	28.5	4.9
10°-20°	79.0	13.6
20°-30°	112.6	19.4
30°-40°	121.1	20.9
40°-50°	104.3	18.0
50°-60°	75.6	13.0
60°-70°	42.6	7.4
70°-80°	14.5	2.5
80°-90°	1.9	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°	220.0	37.9
0°-40°	341.1	58.8
0°-60°	521.0	89.8
0°-90°	580.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	580.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	304	304	304	304	304	
5°	302	300	300	302	301	29
15°	281	278	280	284	285	79
25°	248	245	244	247	248	115
35°	215	206	190	183	186	134
45°	167	155	135	115	102	128
55°	112	103	86	66	55	100
65°	63	57	44	29	19	63
75°	26	22	13	3	0	28
85°	4	3	0	0	0	5
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°	303.6	303.6	303.6	303.6	303.6	303.6	303.6	303.6	303.6	303.6	303.6
2.5°	305.3	302.7	301.8	302.7	302.7	302.7	302.7	302.7	302.7	301.8	302.7
5°	301.8	299.2	299.2	299.2	299.2	299.2	298.3	299.2	299.2	299.2	300.1
7.5°	298.3	294.8	295.7	294.8	295.7	294.8	294.8	295.7	294.8	295.7	295.7
10°	293.1	290.4	290.4	290.4	290.4	290.4	290.4	290.4	290.4	290.4	290.4
12.5°	286.9	284.3	284.3	284.3	284.3	284.3	284.3	284.3	285.2	284.3	284.3
15°	280.8	277.3	278.2	277.3	277.3	277.3	277.3	277.3	277.3	277.3	278.2
17.5°	272.9	270.3	270.3	270.3	270.3	270.3	270.3	269.4	270.3	270.3	270.3
20°	265.1	262.4	262.4	261.6	262.4	261.6	261.6	261.6	262.4	261.6	261.6
22.5°	256.3	253.7	254.6	253.7	253.7	253.7	253.7	253.7	252.8	253.7	252.8
25°	248.5	247.6	246.7	247.6	246.7	246.7	246.7	245.8	245.8	245.8	245.0
27.5°	240.6	238.8	238.8	238.8	238.8	238.0	238.0	238.0	237.1	236.2	236.2
30°	233.6	231.0	231.0	231.0	230.1	230.1	229.2	229.2	227.5	226.6	225.7
32.5°	224.8	223.1	222.2	222.2	221.3	221.3	220.5	220.5	218.7	217.8	216.1
35°	215.2	214.3	214.3	213.5	212.6	211.7	210.8	210.0	209.1	207.3	205.6
37.5°	203.8	203.0	202.1	202.1	201.2	200.3	200.3	198.6	197.7	196.0	194.2
40°	192.5	190.7	190.7	189.8	189.0	188.1	188.1	186.3	185.5	183.7	182.0
42.5°	179.3	177.6	177.6	176.7	176.7	176.7	175.8	174.1	172.3	170.6	168.8
45°	167.1	165.3	165.3	163.6	163.6	162.7	161.8	161.0	159.2	157.5	154.8
47.5°	152.2	151.3	151.3	150.5	149.6	148.7	148.7	147.8	146.1	143.5	141.7
50°	139.1	138.2	138.2	137.3	136.5	135.6	134.7	133.8	133.0	131.2	129.5
52.5°	125.1	125.1	124.2	123.4	123.4	122.5	121.6	120.7	119.0	117.2	116.4
55°	112.0	111.1	111.1	110.2	110.2	109.4	108.5	107.6	106.7	105.0	103.2
57.5°	99.7	98.0	98.0	97.1	97.1	97.1	96.2	94.5	93.6	91.9	91.0
60°	86.6	85.7	85.7	85.7	84.9	84.0	84.0	82.2	81.4	80.5	78.7
62.5°	74.4	73.5	73.5	73.5	72.6	72.6	71.7	70.9	70.0	69.1	67.4
65°	63.0	63.0	63.0	62.1	62.1	61.2	60.4	60.4	59.5	58.6	56.9
67.5°	53.4	52.5	52.5	52.5	51.6	51.6	50.7	49.9	49.0	48.1	46.4
70°	43.7	42.9	42.9	42.0	42.0	42.0	42.0	41.1	39.4	39.4	37.6
72.5°	34.1	34.1	34.1	33.2	33.2	33.2	32.4	32.4	31.5	30.6	29.7
75°	26.2	26.2	26.2	25.4	25.4	25.4	24.5	24.5	23.6	22.7	21.9
77.5°	19.2	19.2	19.2	18.4	18.4	18.4	17.5	17.5	16.6	16.6	15.7
80°	13.1	13.1	13.1	12.2	12.2	12.2	12.2	11.4	11.4	10.5	10.5
82.5°	7.9	7.9	7.9	7.9	7.0	7.0	7.0	7.0	7.0	6.1	6.1
85°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.6	2.6
87.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
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°	303.6	303.6	303.6	303.6	303.6	303.6	303.6	303.6	303.6	303.6	303.6
2.5°	302.7	302.7	302.7	302.7	302.7	302.7	302.7	302.7	302.7	303.6	302.7
5°	300.1	300.1	300.1	300.1	300.1	300.1	300.9	300.1	300.9	300.1	300.9
7.5°	295.7	295.7	296.6	296.6	295.7	296.6	296.6	296.6	296.6	297.4	297.4
10°	290.4	291.3	291.3	292.2	292.2	292.2	292.2	293.1	293.1	293.1	293.1
12.5°	285.2	285.2	285.2	285.2	286.1	285.2	286.1	286.1	286.9	287.8	286.9
15°	277.3	278.2	278.2	278.2	278.2	278.2	279.1	279.9	279.9	279.9	280.8
17.5°	270.3	270.3	270.3	271.2	270.3	271.2	271.2	271.2	272.1	272.1	272.9
20°	261.6	260.7	262.4	261.6	261.6	262.4	262.4	262.4	263.3	263.3	263.3
22.5°	251.9	252.8	251.9	251.9	252.8	252.8	252.8	251.9	252.8	252.8	253.7
25°	244.1	244.1	244.1	244.1	244.1	244.1	244.1	243.2	244.1	244.1	244.1
27.5°	235.3	233.6	233.6	232.7	232.7	231.8	231.0	231.0	231.0	230.1	231.0
30°	224.8	223.1	222.2	221.3	220.5	220.5	218.7	217.8	217.0	216.1	215.2
32.5°	214.3	212.6	211.7	210.8	209.1	208.2	206.5	205.6	204.7	203.0	201.2
35°	204.7	202.1	200.3	198.6	197.7	196.8	195.1	193.3	191.6	189.8	188.1
37.5°	191.6	189.8	188.1	186.3	185.5	184.6	182.8	179.3	177.6	175.8	174.1
40°	180.2	177.6	175.8	173.2	172.3	170.6	168.8	166.2	163.6	161.8	160.1
42.5°	166.2	164.5	162.7	160.1	159.2	157.5	154.8	153.1	151.3	147.8	146.1
45°	153.1	151.3	149.6	147.0	145.2	144.3	142.6	140.0	137.3	134.7	133.0
47.5°	140.0	138.2	135.6	133.8	132.1	131.2	129.5	126.8	124.2	121.6	119.9
50°	126.8	125.1	123.4	119.9	119.9	118.1	116.4	113.7	112.0	109.4	106.7
52.5°	114.6	112.0	110.2	107.6	107.6	106.7	104.1	101.5	99.7	97.1	95.4
55°	101.5	99.7	98.0	96.2	94.5	93.6	92.7	90.1	87.5	85.7	83.1
57.5°	89.2	86.6	85.7	84.0	83.1	82.2	80.5	77.9	76.1	74.4	72.6
60°	77.9	76.1	73.5	72.6	71.7	70.9	69.1	67.4	65.6	63.9	62.1
62.5°	66.5	64.7	63.0	61.2	60.4	59.5	58.6	56.9	55.1	53.4	51.6
65°	55.1	54.2	52.5	51.6	50.7	49.9	48.1	46.4	45.5	43.7	42.0
67.5°	45.5	44.6	42.9	42.0	41.1	41.1	38.5	37.6	35.9	35.0	33.2
70°	36.7	35.9	34.1	33.2	32.4	31.5	30.6	29.7	28.0	26.2	25.4
72.5°	28.9	27.1	26.2	25.4	24.5	24.5	22.7	21.9	20.1	19.2	17.5
75°	21.0	20.1	19.2	18.4	18.4	17.5	16.6	15.7	14.0	13.1	12.2
77.5°	14.9	14.0	13.1	12.2	12.2	11.4	10.5	9.6	8.7	7.9	7.0
80°	9.6	8.7	8.7	7.9	7.0	7.0	6.1	5.2	4.4	4.4	3.5
82.5°	5.2	5.2	4.4	4.4	3.5	3.5	2.6	2.6	1.7	1.7	0.9
85°	2.6	1.7	1.7	1.7	1.7	0.9	0.9	0.9	0.0	0.0	0.0
87.5°	0.9	0.9	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°	303.6	303.6	303.6	303.6	303.6	303.6	303.6	303.6	303.6	303.6	303.6
2.5°	302.7	302.7	302.7	302.7	302.7	302.7	302.7	302.7	303.6	302.7	302.7
5°	300.9	300.9	301.8	300.9	301.8	301.8	300.9	300.9	301.8	302.7	301.8
7.5°	297.4	297.4	298.3	298.3	298.3	298.3	298.3	299.2	299.2	300.1	300.1
10°	293.9	293.9	293.9	293.9	294.8	294.8	295.7	295.7	295.7	295.7	295.7
12.5°	287.8	288.7	288.7	288.7	288.7	289.6	289.6	290.4	290.4	290.4	291.3
15°	280.8	281.7	282.6	282.6	281.7	282.6	283.4	283.4	284.3	284.3	284.3
17.5°	272.9	273.8	273.8	274.7	273.8	275.6	275.6	276.4	276.4	277.3	277.3
20°	264.2	265.1	265.1	265.1	265.9	265.9	266.8	266.8	267.7	267.7	267.7
22.5°	253.7	254.6	254.6	254.6	254.6	255.4	255.4	256.3	257.2	258.1	257.2
25°	244.1	245.0	245.8	245.0	245.8	245.8	245.8	246.7	246.7	247.6	246.7
27.5°	231.0	231.0	231.0	231.8	232.7	232.7	232.7	233.6	233.6	233.6	234.5
30°	215.2	214.3	215.2	215.2	215.2	215.2	217.0	217.0	217.0	217.8	218.7
32.5°	200.3	200.3	200.3	199.5	199.5	199.5	199.5	200.3	200.3	201.2	202.1
35°	186.3	185.5	183.7	183.7	183.7	182.8	182.0	182.0	182.8	182.8	182.8
37.5°	171.5	170.6	169.7	168.0	168.0	166.2	165.3	164.5	164.5	163.6	163.6
40°	157.5	155.7	154.0	154.0	152.2	151.3	149.6	148.7	147.0	145.2	145.2
42.5°	143.5	141.7	140.0	139.1	137.3	136.5	133.8	132.1	130.3	129.5	127.7
45°	130.3	128.6	126.0	125.1	123.4	121.6	119.9	117.2	114.6	112.9	112.0
47.5°	117.2	115.5	112.9	111.1	110.2	107.6	105.9	103.2	100.6	98.0	95.4
50°	105.0	102.4	99.7	98.0	97.1	94.5	92.7	90.1	86.6	85.7	83.1
52.5°	92.7	90.1	87.5	86.6	85.7	83.1	80.5	77.9	76.1	73.5	71.7
55°	80.5	78.7	76.1	75.2	74.4	71.7	69.1	67.4	65.6	63.0	61.2
57.5°	70.0	68.2	65.6	64.7	63.9	61.2	59.5	56.9	55.1	53.4	51.6
60°	60.4	57.7	56.0	55.1	54.2	51.6	49.9	48.1	46.4	44.6	42.0
62.5°	49.9	48.1	46.4	45.5	43.7	42.9	40.2	39.4	36.7	35.9	34.1
65°	40.2	38.5	36.7	36.7	35.9	33.2	32.4	30.6	28.9	27.1	26.2
67.5°	32.4	30.6	28.9	28.0	27.1	25.4	24.5	22.7	21.0	20.1	18.4
70°	24.5	22.7	21.0	20.1	19.2	18.4	16.6	14.9	13.1	12.2	10.5
72.5°	16.6	14.9	14.0	14.0	13.1	11.4	9.6	8.7	7.0	6.1	5.2
75°	10.5	8.7	7.9	7.0	7.0	6.1	4.4	3.5	2.6	1.7	0.9
77.5°	6.1	5.2	4.4	3.5	3.5	2.6	1.7	0.9	0.9	0.0	0.0
80°	2.6	1.7	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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°	303.6	303.6	303.6	303.6	303.6	303.6	303.6	303.6
2.5°	302.7	302.7	302.7	302.7	301.8	301.8	301.8	301.8
5°	301.8	301.8	301.8	301.8	300.9	300.9	301.8	300.9
7.5°	300.1	300.1	299.2	299.2	299.2	299.2	299.2	299.2
10°	296.6	296.6	296.6	295.7	296.6	296.6	295.7	296.6
12.5°	291.3	291.3	291.3	291.3	290.4	290.4	291.3	290.4
15°	285.2	285.2	285.2	285.2	285.2	284.3	285.2	285.2
17.5°	278.2	278.2	277.3	277.3	277.3	278.2	278.2	277.3
20°	268.6	268.6	268.6	268.6	268.6	268.6	268.6	268.6
22.5°	258.1	258.1	258.1	258.1	258.1	258.1	258.1	258.1
25°	247.6	247.6	247.6	247.6	247.6	247.6	247.6	248.5
27.5°	234.5	234.5	234.5	234.5	234.5	233.6	233.6	235.3
30°	218.7	219.6	219.6	219.6	219.6	219.6	219.6	220.5
32.5°	203.0	203.0	203.0	203.8	203.0	203.8	203.0	203.0
35°	184.6	184.6	184.6	184.6	184.6	185.5	185.5	185.5
37.5°	163.6	164.5	164.5	165.3	165.3	165.3	166.2	165.3
40°	144.3	144.3	144.3	143.5	144.3	143.5	144.3	144.3
42.5°	126.0	124.2	124.2	123.4	123.4	122.5	121.6	121.6
45°	109.4	106.7	106.7	105.9	105.0	103.2	102.4	102.4
47.5°	93.6	92.7	91.9	91.0	90.1	88.4	87.5	88.4
50°	80.5	79.6	78.7	78.7	77.9	77.0	76.1	76.1
52.5°	70.0	68.2	67.4	67.4	66.5	65.6	65.6	65.6
55°	59.5	57.7	57.7	57.7	56.9	56.0	56.0	55.1
57.5°	49.9	48.1	48.1	47.2	46.4	46.4	46.4	45.5
60°	41.1	39.4	38.5	38.5	37.6	36.7	36.7	36.7
62.5°	32.4	31.5	29.7	29.7	28.9	28.0	27.1	28.0
65°	24.5	22.7	21.9	21.9	21.0	20.1	19.2	19.2
67.5°	16.6	15.7	14.9	14.9	13.1	13.1	12.2	12.2
70°	9.6	8.7	8.7	7.9	7.0	7.0	6.1	6.1
72.5°	4.4	3.5	3.5	2.6	2.6	1.7	1.7	1.7
75°	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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)