

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: P644082

Luminaire Tested: ML5615LSWW9FS1E - 592H WW - 1200LM - 3000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644082
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 - 1200LM - 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: 824.5 lumens
Efficiency: N/A
Efficacy: 61.5 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

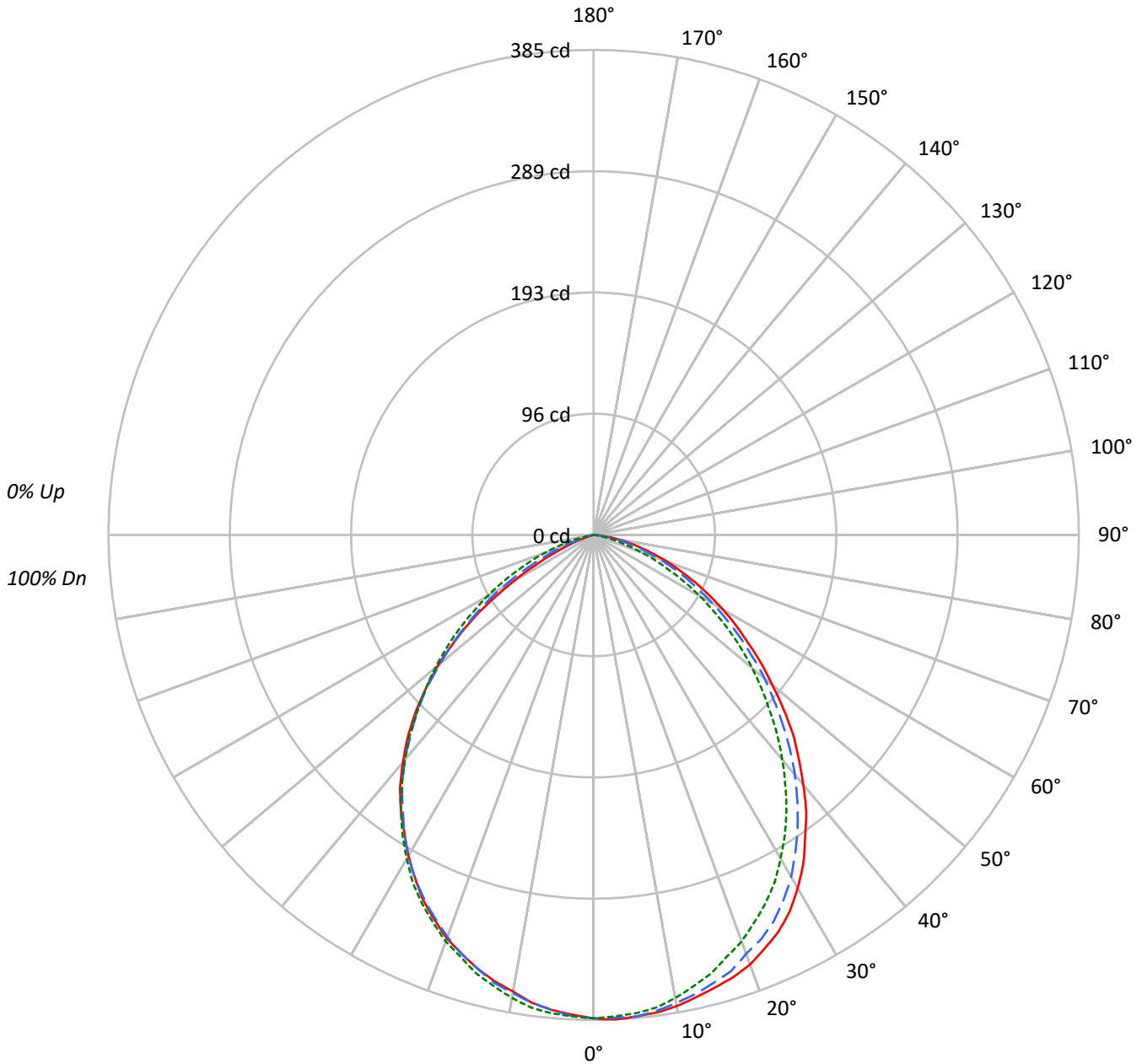
Input Watts (W): 13.4
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	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°	30298	30298	30298	30298	30298
5°	30413	30413	30207	30001	30001
10°	30452	30244	29923	29611	29506
15°	30402	30083	29446	29127	29127
20°	30486	29722	28848	28520	28630
25°	30250	29458	28099	27759	27873
30°	29524	28577	27036	26799	26799
35°	28207	27205	25702	25451	25702
40°	26680	25608	24000	24000	24268
45°	24974	23668	22071	22071	22361
50°	22683	21725	20129	19490	19809
55°	20589	19516	17906	16653	16295
60°	18693	17256	15409	13357	11494
65°	16531	15074	12384	9227	6799
70°	14402	12602	9302	5101	2700
75°	11499	9913	5948	1586	793
80°	8865	6501	2364	591	591
85°	4710	3532	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 24974 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	36.2	4.4
10°-20°	102.1	12.4
20°-30°	150.6	18.3
30°-40°	170.6	20.7
40°-50°	157.6	19.1
50°-60°	117.7	14.3
60°-70°	65.0	7.9
70°-80°	21.9	2.7
80°-90°	2.8	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°	288.9	35.0
0°-40°	459.5	55.7
0°-60°	734.8	89.1
0°-90°	824.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	824.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	384	384	384	384	384	
5°	384	384	381	379	379	37
15°	372	368	360	356	356	105
25°	347	338	323	319	320	159
35°	293	282	267	264	267	183
45°	224	212	198	198	200	172
55°	150	142	130	121	118	135
65°	88	81	66	49	36	88
75°	38	32	20	5	3	41
85°	5	4	0	0	0	8
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°	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8
2.5°	385.1	385.1	385.1	385.1	383.8	383.8	385.1	383.8	383.8	383.8	383.8
5°	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8
7.5°	382.5	382.5	382.5	382.5	382.5	382.5	382.5	382.5	381.2	381.2	381.2
10°	379.9	379.9	379.9	379.9	379.9	379.9	379.9	378.6	378.6	378.6	377.3
12.5°	375.9	377.3	375.9	377.3	375.9	375.9	374.6	374.6	374.6	373.3	373.3
15°	372.0	372.0	372.0	372.0	372.0	370.7	370.7	369.4	369.4	369.4	368.1
17.5°	368.1	366.8	366.8	366.8	365.5	365.5	365.5	365.5	364.2	362.9	362.9
20°	362.9	361.6	361.6	361.6	360.3	360.3	359.0	359.0	356.4	356.4	353.8
22.5°	355.1	355.1	355.1	353.8	353.8	352.5	352.5	351.2	349.9	348.6	347.3
25°	347.3	347.3	346.0	346.0	344.7	344.7	344.7	342.1	340.8	339.5	338.2
27.5°	336.9	336.9	335.6	335.6	334.3	333.0	333.0	330.4	330.4	327.8	326.5
30°	323.9	323.9	323.9	321.3	321.3	321.3	320.0	318.7	316.1	314.8	313.5
32.5°	309.6	308.3	308.3	308.3	307.0	305.7	305.7	303.1	301.8	300.5	297.9
35°	292.7	292.7	292.7	292.7	291.4	290.1	290.1	287.5	286.2	283.6	282.3
37.5°	277.1	277.1	275.8	275.8	273.2	274.5	273.2	271.9	270.6	266.7	265.4
40°	258.9	258.9	258.9	257.6	256.3	256.3	255.0	253.7	251.1	249.8	248.5
42.5°	240.7	240.7	240.7	239.4	238.1	238.1	238.1	235.5	234.2	232.9	230.3
45°	223.7	222.4	222.4	221.1	221.1	219.8	218.5	217.2	215.9	214.6	212.0
47.5°	204.2	204.2	202.9	202.9	201.6	201.6	200.3	199.0	197.7	196.4	193.8
50°	184.7	186.0	186.0	184.7	184.7	183.4	182.1	182.1	180.8	179.5	176.9
52.5°	167.8	167.8	167.8	166.5	166.5	165.2	165.2	163.9	162.6	160.0	158.7
55°	149.6	150.9	149.6	149.6	149.6	148.3	148.3	147.0	145.7	143.1	141.8
57.5°	134.0	134.0	132.7	132.7	131.4	131.4	131.4	130.1	128.8	127.5	124.9
60°	118.4	117.1	117.1	117.1	115.8	115.8	115.8	113.2	111.9	110.6	109.3
62.5°	102.8	102.8	102.8	101.5	101.5	100.2	98.9	98.9	97.6	96.3	93.7
65°	88.5	88.5	87.2	87.2	87.2	85.9	85.9	84.6	83.3	82.0	80.7
67.5°	74.1	74.1	74.1	72.8	72.8	72.8	71.5	70.2	70.2	68.9	67.6
70°	62.4	61.1	61.1	61.1	59.8	59.8	59.8	58.5	57.2	55.9	54.6
72.5°	49.4	49.4	49.4	49.4	48.1	48.1	46.8	46.8	45.5	44.2	42.9
75°	37.7	37.7	37.7	37.7	36.4	36.4	36.4	35.1	35.1	33.8	32.5
77.5°	28.6	28.6	28.6	27.3	27.3	26.0	26.0	26.0	24.7	24.7	23.4
80°	19.5	19.5	18.2	18.2	18.2	18.2	18.2	16.9	15.6	15.6	14.3
82.5°	11.7	11.7	11.7	10.4	10.4	10.4	10.4	10.4	9.1	9.1	7.8
85°	5.2	5.2	5.2	5.2	5.2	5.2	3.9	3.9	3.9	3.9	3.9
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	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°	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8
2.5°	383.8	383.8	383.8	383.8	383.8	383.8	383.8	382.5	382.5	382.5	382.5
5°	382.5	382.5	382.5	382.5	382.5	381.2	382.5	381.2	381.2	381.2	381.2
7.5°	379.9	379.9	379.9	379.9	378.6	379.9	378.6	378.6	378.6	378.6	377.3
10°	377.3	375.9	375.9	375.9	375.9	374.6	374.6	373.3	373.3	373.3	372.0
12.5°	373.3	372.0	372.0	370.7	370.7	370.7	369.4	369.4	368.1	366.8	366.8
15°	366.8	366.8	365.5	364.2	364.2	362.9	362.9	361.6	361.6	360.3	359.0
17.5°	361.6	360.3	359.0	357.7	356.4	356.4	355.1	353.8	353.8	351.2	351.2
20°	352.5	351.2	349.9	348.6	348.6	348.6	346.0	346.0	344.7	343.4	342.1
22.5°	344.7	343.4	340.8	339.5	339.5	338.2	336.9	335.6	334.3	333.0	331.7
25°	335.6	334.3	331.7	330.4	329.1	327.8	326.5	325.2	323.9	322.6	321.3
27.5°	323.9	321.3	321.3	318.7	317.4	316.1	314.8	313.5	312.2	310.9	309.6
30°	310.9	309.6	307.0	304.4	303.1	303.1	300.5	299.2	299.2	296.6	295.3
32.5°	296.6	294.0	291.4	290.1	288.8	287.5	286.2	284.9	283.6	282.3	281.0
35°	281.0	277.1	275.8	273.2	273.2	271.9	270.6	268.0	268.0	266.7	264.1
37.5°	264.1	261.5	260.2	257.6	256.3	255.0	253.7	252.4	251.1	249.8	248.5
40°	245.9	243.3	242.0	240.7	239.4	238.1	236.8	235.5	234.2	232.9	231.6
42.5°	227.7	226.4	223.7	221.1	221.1	219.8	218.5	217.2	215.9	215.9	214.6
45°	209.4	208.1	205.5	204.2	202.9	202.9	200.3	200.3	199.0	197.7	197.7
47.5°	192.5	189.9	187.3	187.3	184.7	186.0	183.4	183.4	180.8	180.8	179.5
50°	174.3	173.0	170.4	169.1	169.1	167.8	166.5	166.5	165.2	163.9	162.6
52.5°	157.4	154.8	153.5	152.2	150.9	150.9	149.6	149.6	147.0	147.0	145.7
55°	140.5	139.2	136.6	135.3	135.3	135.3	132.7	131.4	131.4	130.1	128.8
57.5°	123.6	122.3	121.0	119.7	118.4	118.4	117.1	115.8	114.5	113.2	110.6
60°	108.0	106.7	105.4	104.1	102.8	102.8	101.5	100.2	98.9	97.6	96.3
62.5°	92.4	92.4	89.8	88.5	87.2	87.2	85.9	84.6	83.3	82.0	80.7
65°	79.4	78.1	75.5	74.1	74.1	74.1	71.5	70.2	68.9	66.3	65.0
67.5°	66.3	63.7	62.4	62.4	61.1	59.8	58.5	57.2	54.6	53.3	50.7
70°	53.3	52.0	50.7	49.4	48.1	46.8	45.5	44.2	41.6	40.3	39.0
72.5°	41.6	40.3	39.0	37.7	36.4	36.4	33.8	32.5	31.2	28.6	27.3
75°	31.2	29.9	28.6	27.3	26.0	24.7	24.7	22.1	20.8	19.5	16.9
77.5°	22.1	20.8	19.5	18.2	18.2	16.9	15.6	14.3	13.0	11.7	10.4
80°	14.3	13.0	11.7	11.7	10.4	10.4	9.1	7.8	6.5	5.2	5.2
82.5°	7.8	6.5	6.5	5.2	5.2	5.2	3.9	2.6	2.6	2.6	1.3
85°	2.6	2.6	2.6	1.3	1.3	1.3	1.3	1.3	1.3	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°	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8
2.5°	382.5	382.5	382.5	382.5	382.5	382.5	382.5	382.5	382.5	381.2	381.2
5°	379.9	379.9	379.9	379.9	379.9	379.9	378.6	378.6	378.6	378.6	378.6
7.5°	377.3	377.3	377.3	375.9	375.9	375.9	375.9	374.6	374.6	374.6	374.6
10°	372.0	372.0	372.0	370.7	370.7	370.7	370.7	370.7	369.4	369.4	369.4
12.5°	365.5	365.5	365.5	365.5	365.5	364.2	364.2	364.2	364.2	362.9	364.2
15°	359.0	359.0	357.7	357.7	357.7	356.4	356.4	356.4	356.4	356.4	356.4
17.5°	351.2	349.9	349.9	348.6	348.6	348.6	348.6	348.6	348.6	348.6	348.6
20°	342.1	340.8	340.8	340.8	340.8	339.5	339.5	338.2	339.5	339.5	339.5
22.5°	331.7	330.4	330.4	330.4	329.1	329.1	329.1	329.1	329.1	329.1	329.1
25°	321.3	320.0	318.7	318.7	318.7	317.4	317.4	318.7	318.7	318.7	318.7
27.5°	308.3	308.3	307.0	307.0	307.0	305.7	305.7	305.7	307.0	307.0	307.0
30°	294.0	294.0	294.0	294.0	292.7	292.7	294.0	292.7	294.0	292.7	294.0
32.5°	281.0	281.0	279.7	278.4	278.4	279.7	278.4	278.4	279.7	279.7	279.7
35°	264.1	264.1	264.1	264.1	264.1	264.1	264.1	264.1	264.1	265.4	266.7
37.5°	248.5	248.5	248.5	248.5	248.5	248.5	248.5	249.8	249.8	249.8	249.8
40°	231.6	231.6	231.6	231.6	231.6	231.6	231.6	231.6	232.9	232.9	234.2
42.5°	213.3	214.6	214.6	214.6	213.3	213.3	214.6	214.6	214.6	215.9	215.9
45°	196.4	196.4	196.4	196.4	197.7	196.4	196.4	196.4	197.7	197.7	197.7
47.5°	179.5	178.2	178.2	179.5	178.2	178.2	178.2	178.2	179.5	179.5	178.2
50°	162.6	161.3	161.3	161.3	160.0	160.0	161.3	158.7	158.7	158.7	160.0
52.5°	145.7	144.4	143.1	143.1	143.1	141.8	140.5	140.5	140.5	139.2	139.2
55°	127.5	126.2	124.9	124.9	124.9	123.6	123.6	121.0	121.0	119.7	119.7
57.5°	110.6	109.3	108.0	108.0	106.7	105.4	105.4	102.8	102.8	101.5	98.9
60°	93.7	92.4	91.1	91.1	91.1	88.5	87.2	84.6	84.6	82.0	80.7
62.5°	78.1	76.8	75.5	74.1	74.1	71.5	70.2	67.6	66.3	65.0	62.4
65°	63.7	61.1	59.8	58.5	58.5	55.9	54.6	52.0	49.4	48.1	45.5
67.5°	49.4	48.1	45.5	44.2	44.2	41.6	39.0	37.7	35.1	32.5	31.2
70°	36.4	35.1	32.5	31.2	29.9	28.6	26.0	24.7	22.1	20.8	18.2
72.5°	24.7	23.4	20.8	20.8	19.5	16.9	15.6	14.3	11.7	10.4	9.1
75°	15.6	14.3	13.0	11.7	10.4	9.1	7.8	6.5	5.2	3.9	3.9
77.5°	9.1	7.8	6.5	5.2	5.2	3.9	2.6	2.6	2.6	1.3	1.3
80°	3.9	2.6	2.6	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.0	0.0	1.3	1.3
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: P644082

CATALOG NUMBER: ML5615LSWW9FS1E - 592H WW - 1200LM - 3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	383.8	383.8	383.8	383.8	383.8	383.8	383.8	383.8
2.5°	382.5	381.2	382.5	382.5	381.2	381.2	381.2	381.2
5°	378.6	378.6	378.6	378.6	378.6	378.6	378.6	378.6
7.5°	375.9	374.6	374.6	374.6	374.6	374.6	374.6	374.6
10°	369.4	369.4	369.4	369.4	369.4	369.4	369.4	368.1
12.5°	362.9	362.9	362.9	362.9	362.9	362.9	362.9	362.9
15°	356.4	356.4	356.4	356.4	356.4	356.4	356.4	356.4
17.5°	348.6	348.6	348.6	348.6	348.6	347.3	348.6	348.6
20°	339.5	339.5	339.5	339.5	339.5	339.5	339.5	340.8
22.5°	329.1	329.1	329.1	329.1	329.1	329.1	329.1	330.4
25°	318.7	318.7	318.7	318.7	318.7	318.7	318.7	320.0
27.5°	307.0	307.0	307.0	307.0	307.0	307.0	307.0	307.0
30°	294.0	294.0	295.3	294.0	294.0	294.0	295.3	294.0
32.5°	281.0	281.0	281.0	281.0	281.0	281.0	281.0	279.7
35°	266.7	265.4	266.7	266.7	266.7	266.7	266.7	266.7
37.5°	251.1	251.1	251.1	251.1	251.1	251.1	252.4	252.4
40°	235.5	234.2	234.2	235.5	235.5	235.5	234.2	235.5
42.5°	215.9	217.2	217.2	217.2	218.5	217.2	218.5	218.5
45°	197.7	199.0	199.0	199.0	199.0	199.0	200.3	200.3
47.5°	179.5	179.5	179.5	179.5	180.8	180.8	180.8	180.8
50°	160.0	160.0	160.0	160.0	161.3	160.0	161.3	161.3
52.5°	139.2	139.2	139.2	139.2	139.2	139.2	140.5	139.2
55°	118.4	118.4	118.4	118.4	117.1	117.1	117.1	118.4
57.5°	98.9	97.6	96.3	97.6	95.0	95.0	95.0	95.0
60°	78.1	76.8	76.8	75.5	74.1	72.8	74.1	72.8
62.5°	59.8	58.5	58.5	55.9	54.6	54.6	53.3	53.3
65°	44.2	41.6	40.3	40.3	39.0	37.7	36.4	36.4
67.5°	28.6	27.3	26.0	26.0	24.7	23.4	23.4	22.1
70°	16.9	15.6	14.3	15.6	13.0	11.7	11.7	11.7
72.5°	7.8	6.5	6.5	6.5	5.2	5.2	5.2	5.2
75°	3.9	2.6	2.6	2.6	2.6	2.6	2.6	2.6
77.5°	1.3	1.3	2.6	1.3	1.3	1.3	1.3	1.3
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	0.0	0.0	0.0	1.3	1.3	0.0	1.3
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)