

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: P642302

Luminaire Tested: ML5612LSWW97FS1E - 592W WW - 600LM - 3000K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P642302  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-116)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 2/17/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML5612LSWW97FS1E - 592W WW - 600LM - 3000K  
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH WHITE TRIM  
Light Source: (1) HCL SELECTABLE LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 549.6 lumens  
Efficiency: N/A  
Efficacy: 53.4 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.13 / 1.23  
Luminous Opening: Circular (Dia: 0.42' x H: 0')  
CIE Type: Direct

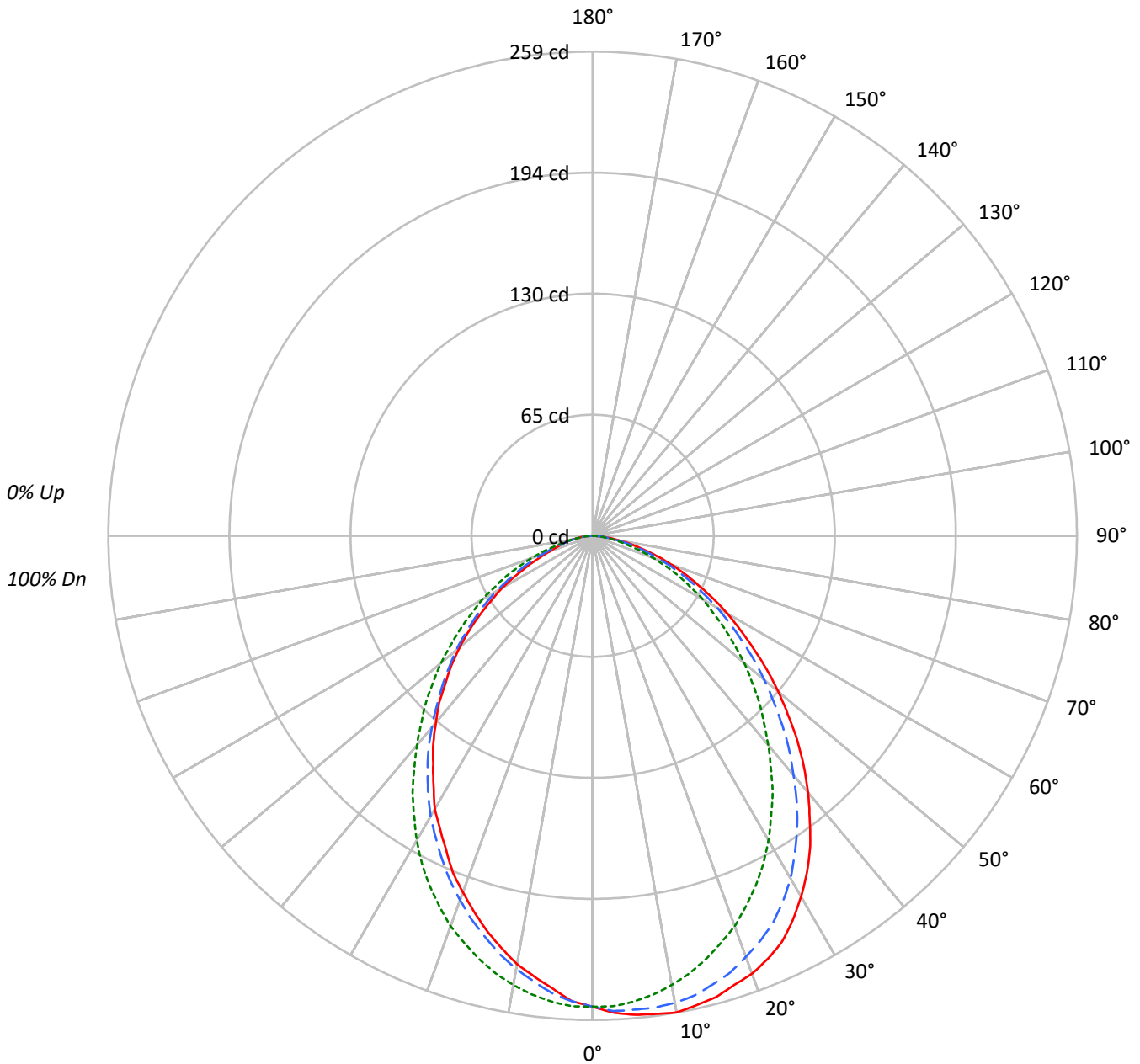
Input Watts (W): 10.3  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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								
1	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	88	86								
2	101	94	88	82	99	92	86	81	88	84	80	85	81	78	82	79	76	74								
3	93	83	76	70	91	82	75	69	79	73	68	76	71	67	74	69	66	64								
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	57	55								
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49								
6	73	61	53	46	72	60	52	46	58	51	46	57	50	45	55	49	45	43								
7	68	56	47	41	67	55	47	41	53	46	41	52	45	41	51	45	40	39								
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37	35								
9	60	47	39	34	58	46	39	34	45	38	34	44	38	33	43	37	33	32								
10	56	43	36	31	55	43	36	31	42	35	31	41	35	31	40	35	30	29								

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	19885	19885	19885	19885	19885
5°	20381	20167	19826	19478	19272
10°	20753	20336	19559	18861	18653
15°	20873	20301	19156	18159	17873
20°	20943	20137	18666	17415	17045
25°	20878	19885	17978	16610	16149
30°	20327	19297	17146	15788	15387
35°	19553	18378	16180	14831	14330
40°	18477	17220	15056	13788	13427
45°	17282	16020	14067	12693	12403
50°	15904	14713	12993	11704	11385
55°	14451	13364	11795	10597	10116
60°	13120	12157	10768	9394	8841
65°	11600	10778	9470	8013	7191
70°	10294	9278	7871	6463	5655
75°	8540	7747	6131	5063	5063
80°	6774	5955	4773	4364	4364
85°	3985	3985	3170	3985	3985

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 17282 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	23.7	4.3
10°-20°	66.3	12.1
20°-30°	96.3	17.5
30°-40°	107.4	19.5
40°-50°	99.6	18.1
50°-60°	78.3	14.2
60°-70°	50.1	9.1
70°-80°	23.0	4.2
80°-90°	5.0	0.9
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°	186.3	33.9
0°-40°	293.7	53.4
0°-60°	471.5	85.8
0°-90°	549.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	549.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	252	252	252	252	252	
5°	257	254	250	246	243	25
15°	255	248	234	222	219	72
25°	240	228	206	191	185	110
35°	203	191	168	154	149	126
45°	155	144	126	114	111	119
55°	105	97	86	77	74	94
65°	62	58	51	43	38	62
75°	28	25	20	17	17	30
85°	4	4	4	4	4	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°	251.9	251.9	251.9	251.9	251.9	251.9	251.9	251.9	251.9	251.9	251.9
2.5°	255.4	255.4	255.4	255.4	255.4	255.4	254.5	254.5	254.5	254.5	254.5
5°	257.2	257.2	257.2	257.2	256.3	256.3	256.3	256.3	255.4	255.4	254.5
7.5°	258.0	258.0	258.0	257.2	257.2	257.2	256.3	256.3	256.3	255.4	254.5
10°	258.9	258.0	258.0	257.2	257.2	257.2	256.3	256.3	255.4	254.5	253.7
12.5°	257.2	257.2	257.2	257.2	256.3	256.3	255.4	254.5	253.7	252.8	251.9
15°	255.4	255.4	255.4	254.5	253.7	253.7	252.8	251.9	251.0	250.2	248.4
17.5°	251.9	252.8	251.9	251.9	251.0	251.0	250.2	249.3	247.5	246.7	244.9
20°	249.3	248.4	248.4	248.4	247.5	246.7	245.8	244.9	243.2	242.3	239.7
22.5°	244.9	244.9	244.0	243.2	242.3	242.3	241.4	239.7	238.8	237.0	234.4
25°	239.7	238.8	238.8	237.9	237.0	237.0	235.3	234.4	232.7	230.0	228.3
27.5°	231.8	231.8	231.8	230.9	230.0	229.2	228.3	226.5	225.7	222.2	220.4
30°	223.0	223.0	222.2	222.2	220.4	220.4	219.6	217.8	216.1	213.4	211.7
32.5°	213.4	213.4	213.4	211.7	210.8	209.9	209.1	208.2	205.6	202.9	201.2
35°	202.9	202.9	202.1	201.2	200.3	199.4	198.6	196.8	195.1	193.3	190.7
37.5°	190.7	191.6	190.7	189.8	188.9	188.1	187.2	186.3	183.7	181.9	179.3
40°	179.3	179.3	178.4	177.6	176.7	176.7	175.8	174.1	172.3	169.7	167.1
42.5°	167.1	167.1	166.2	165.3	165.3	164.4	162.7	161.8	160.1	158.3	155.7
45°	154.8	153.9	153.1	153.1	152.2	151.3	151.3	149.6	147.8	145.2	143.5
47.5°	141.7	141.7	140.8	140.8	140.0	139.1	139.1	137.3	134.7	133.0	131.2
50°	129.5	129.5	128.6	128.6	127.7	126.8	126.0	125.1	123.3	121.6	119.8
52.5°	117.2	117.2	117.2	115.5	114.6	114.6	114.6	112.8	112.0	110.2	108.5
55°	105.0	105.0	105.0	104.1	103.2	103.2	103.2	101.5	100.6	98.8	97.1
57.5°	93.6	93.6	93.6	92.7	92.7	91.8	91.0	90.1	89.2	88.3	86.6
60°	83.1	83.1	82.2	81.3	82.2	81.3	80.5	79.6	78.7	77.8	77.0
62.5°	72.6	72.6	72.6	71.7	70.9	70.9	70.9	70.0	68.2	67.4	66.5
65°	62.1	62.1	62.1	62.1	61.2	61.2	60.4	59.5	59.5	58.6	57.7
67.5°	53.4	53.4	52.5	52.5	51.6	51.6	51.6	50.7	49.9	49.9	49.0
70°	44.6	43.7	43.7	43.7	42.9	42.9	42.9	42.0	42.0	41.1	40.2
72.5°	35.9	35.9	35.9	35.9	35.0	35.0	34.1	34.1	33.2	33.2	32.4
75°	28.0	28.0	28.0	28.0	27.1	27.1	27.1	27.1	26.2	26.2	25.4
77.5°	21.0	21.0	21.0	21.0	21.0	21.0	20.1	20.1	20.1	19.2	19.2
80°	14.9	14.9	14.9	14.9	14.0	14.0	14.0	14.0	14.0	13.1	13.1
82.5°	9.6	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	7.9
85°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
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°	251.9	251.9	251.9	251.9	251.9	251.9	251.9	251.9	251.9	251.9	251.9
2.5°	253.7	253.7	253.7	253.7	252.8	252.8	252.8	251.9	251.9	251.9	251.9
5°	254.5	254.5	252.8	252.8	252.8	252.8	251.9	251.9	251.0	250.2	249.3
7.5°	253.7	253.7	252.8	251.9	251.0	251.0	250.2	249.3	248.4	247.5	246.7
10°	252.8	251.9	251.0	250.2	249.3	248.4	247.5	246.7	244.9	244.0	243.2
12.5°	251.0	249.3	248.4	246.7	246.7	245.8	244.0	243.2	241.4	239.7	238.8
15°	247.5	245.8	244.0	242.3	242.3	240.5	238.8	237.9	236.2	234.4	232.7
17.5°	243.2	241.4	239.7	237.9	237.0	235.3	233.5	231.8	230.0	228.3	226.5
20°	238.8	236.2	234.4	231.8	230.9	230.0	227.4	225.7	223.9	222.2	219.6
22.5°	232.7	230.9	227.4	225.7	224.8	223.0	221.3	218.7	216.1	214.3	212.6
25°	225.7	223.9	221.3	218.7	216.9	216.1	213.4	210.8	209.1	206.4	204.7
27.5°	217.8	215.2	213.4	209.9	209.1	207.3	204.7	202.1	200.3	197.7	195.1
30°	209.1	206.4	203.8	201.2	199.4	198.6	195.9	193.3	190.7	188.1	186.3
32.5°	198.6	195.9	193.3	191.6	188.9	187.2	185.4	182.8	180.2	177.6	175.8
35°	188.1	185.4	182.8	180.2	178.4	178.4	174.9	172.3	169.7	167.9	165.3
37.5°	176.7	174.1	171.4	168.8	167.9	166.2	163.6	160.9	159.2	156.6	154.8
40°	165.3	161.8	160.1	157.4	156.6	154.8	153.1	150.4	148.7	146.1	144.3
42.5°	153.1	151.3	148.7	146.9	145.2	144.3	141.7	139.1	137.3	135.6	134.7
45°	141.7	139.1	136.5	134.7	133.8	132.1	131.2	128.6	126.8	126.0	124.2
47.5°	129.5	127.7	126.0	123.3	122.5	121.6	119.8	119.0	117.2	115.5	113.7
50°	118.1	116.3	114.6	112.8	112.0	112.0	109.3	107.6	106.7	105.8	104.1
52.5°	106.7	105.0	103.2	101.5	101.5	100.6	98.8	98.0	97.1	95.3	93.6
55°	96.2	94.5	92.7	91.8	91.0	91.0	89.2	88.3	86.6	85.7	84.8
57.5°	85.7	84.0	83.1	82.2	81.3	81.3	79.6	78.7	77.8	76.1	76.1
60°	76.1	74.3	73.5	72.6	71.7	70.9	70.9	69.1	68.2	68.2	66.5
62.5°	65.6	64.7	63.9	63.0	62.1	62.1	61.2	60.4	59.5	58.6	57.7
65°	56.9	56.0	55.1	54.2	53.4	53.4	52.5	51.6	50.7	50.7	49.0
67.5°	48.1	47.2	46.4	45.5	45.5	44.6	43.7	43.7	42.9	42.0	41.1
70°	39.4	39.4	38.5	37.6	37.6	36.7	35.9	35.9	35.0	34.1	33.2
72.5°	32.4	31.5	30.6	30.6	29.7	29.7	28.9	28.9	28.0	27.1	26.2
75°	24.5	23.6	23.6	23.6	22.7	22.7	22.7	21.9	21.0	20.1	20.1
77.5°	18.4	18.4	17.5	16.6	16.6	16.6	15.7	15.7	15.7	14.9	14.9
80°	13.1	12.2	12.2	11.4	11.4	11.4	11.4	10.5	10.5	10.5	9.6
82.5°	7.9	7.9	7.9	7.0	7.0	7.0	7.0	7.0	6.1	6.1	6.1
85°	4.4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
87.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.7	1.7
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°	251.9	251.9	251.9	251.9	251.9	251.9	251.9	251.9	251.9	251.9	251.9
2.5°	251.0	251.0	250.2	250.2	250.2	250.2	250.2	249.3	249.3	249.3	249.3
5°	249.3	248.4	247.5	247.5	247.5	246.7	246.7	245.8	245.8	244.9	244.9
7.5°	245.8	244.9	244.0	244.0	243.2	243.2	241.4	241.4	240.5	239.7	239.7
10°	241.4	240.5	239.7	238.8	238.8	237.0	237.0	236.2	235.3	234.4	234.4
12.5°	237.0	236.2	234.4	233.5	233.5	232.7	230.9	230.0	229.2	228.3	227.4
15°	230.9	230.0	228.3	227.4	226.5	225.7	224.8	223.9	222.2	221.3	221.3
17.5°	224.8	223.9	221.3	220.4	220.4	218.7	217.8	216.1	215.2	214.3	213.4
20°	217.8	216.1	214.3	213.4	212.6	210.8	209.9	209.1	207.3	206.4	205.6
22.5°	209.9	208.2	206.4	205.6	204.7	202.9	202.1	200.3	199.4	198.6	197.7
25°	202.1	200.3	198.6	197.7	195.9	195.1	193.3	191.6	190.7	189.8	188.9
27.5°	193.3	191.6	188.9	188.1	187.2	186.3	184.6	182.8	181.9	180.2	180.2
30°	183.7	181.9	180.2	179.3	178.4	176.7	175.8	174.1	173.2	171.4	171.4
32.5°	174.1	171.4	169.7	168.8	167.9	167.1	165.3	164.4	163.6	162.7	161.8
35°	163.6	161.8	160.1	159.2	158.3	156.6	155.7	154.8	153.9	152.2	152.2
37.5°	153.1	151.3	149.6	148.7	148.7	146.9	146.1	144.3	144.3	142.6	142.6
40°	142.6	140.8	139.1	139.1	138.2	136.5	135.6	134.7	133.8	133.0	133.0
42.5°	133.0	130.3	129.5	129.5	127.7	126.8	126.0	125.1	123.3	123.3	123.3
45°	122.5	120.7	119.8	119.0	118.1	117.2	116.3	114.6	113.7	112.8	112.8
47.5°	112.8	111.1	110.2	109.3	108.5	107.6	106.7	105.8	104.1	104.1	103.2
50°	103.2	101.5	100.6	99.7	98.8	98.0	97.1	96.2	95.3	94.5	93.6
52.5°	92.7	91.8	91.0	90.1	90.1	88.3	87.5	86.6	85.7	85.7	84.0
55°	84.0	83.1	82.2	81.3	80.5	79.6	78.7	77.8	77.0	76.1	75.2
57.5°	74.3	73.5	72.6	72.6	71.7	70.9	70.0	69.1	68.2	67.4	66.5
60°	65.6	64.7	63.9	63.9	63.0	62.1	61.2	61.2	59.5	58.6	57.7
62.5°	56.9	56.0	55.1	55.1	54.2	54.2	53.4	52.5	50.7	50.7	49.9
65°	49.0	48.1	47.2	46.4	46.4	45.5	44.6	43.7	42.9	42.9	42.0
67.5°	41.1	40.2	39.4	39.4	38.5	37.6	36.7	35.9	35.0	35.0	34.1
70°	33.2	32.4	31.5	31.5	30.6	29.7	29.7	28.9	28.0	27.1	27.1
72.5°	25.4	25.4	24.5	24.5	23.6	23.6	22.7	21.9	21.9	21.0	20.1
75°	19.2	19.2	18.4	18.4	17.5	17.5	16.6	16.6	16.6	15.7	16.6
77.5°	14.0	14.0	13.1	13.1	13.1	12.2	12.2	12.2	13.1	13.1	13.1
80°	9.6	9.6	9.6	9.6	8.7	8.7	9.6	9.6	9.6	9.6	9.6
82.5°	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	7.0	7.0	7.0
85°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.4	4.4	4.4	4.4
87.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
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: P642302

CATALOG NUMBER: ML5612LSWW97FS1E - 592W WW - 600LM - 3000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	251.9	251.9	251.9	251.9	251.9	251.9	251.9	251.9
2.5°	248.4	248.4	248.4	248.4	248.4	248.4	248.4	249.3
5°	244.0	244.0	244.0	244.0	244.0	244.0	244.0	243.2
7.5°	239.7	238.8	238.8	238.8	238.8	237.9	237.9	237.9
10°	233.5	233.5	232.7	232.7	232.7	232.7	231.8	232.7
12.5°	227.4	226.5	226.5	226.5	225.7	225.7	225.7	225.7
15°	220.4	219.6	219.6	219.6	218.7	218.7	218.7	218.7
17.5°	212.6	212.6	211.7	211.7	210.8	210.8	210.8	210.8
20°	204.7	204.7	204.7	203.8	203.8	203.8	202.9	202.9
22.5°	196.8	195.9	195.1	195.9	195.1	194.2	195.1	195.1
25°	188.1	187.2	186.3	186.3	186.3	186.3	185.4	185.4
27.5°	179.3	177.6	177.6	177.6	177.6	176.7	176.7	176.7
30°	170.6	169.7	169.7	168.8	167.9	167.9	167.9	168.8
32.5°	160.9	160.1	159.2	159.2	159.2	159.2	158.3	158.3
35°	151.3	151.3	150.4	150.4	150.4	149.6	149.6	148.7
37.5°	141.7	141.7	140.8	140.8	140.8	140.0	140.0	140.0
40°	132.1	131.2	131.2	132.1	131.2	131.2	130.3	130.3
42.5°	122.5	122.5	121.6	121.6	121.6	121.6	120.7	121.6
45°	112.0	112.0	112.0	112.0	112.0	112.0	111.1	111.1
47.5°	103.2	102.3	102.3	102.3	102.3	102.3	102.3	102.3
50°	93.6	92.7	92.7	92.7	92.7	92.7	92.7	92.7
52.5°	84.0	83.1	83.1	83.1	83.1	83.1	83.1	83.1
55°	75.2	74.3	74.3	73.5	74.3	73.5	73.5	73.5
57.5°	66.5	65.6	64.7	65.6	64.7	64.7	64.7	63.9
60°	57.7	56.9	56.9	56.9	56.0	55.1	55.1	56.0
62.5°	49.0	49.0	48.1	48.1	47.2	46.4	46.4	46.4
65°	41.1	40.2	40.2	39.4	39.4	38.5	38.5	38.5
67.5°	33.2	33.2	32.4	32.4	31.5	31.5	31.5	30.6
70°	26.2	26.2	25.4	25.4	25.4	24.5	24.5	24.5
72.5°	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1
75°	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
77.5°	13.1	13.1	13.1	13.1	13.1	13.1	13.1	14.0
80°	9.6	9.6	10.5	9.6	10.5	9.6	9.6	9.6
82.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
85°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
87.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
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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Scaled Data Report





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

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(END OF REPORT)