

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: P644169

Luminaire Tested: ML5615LSWW9FS1E - 692W WW - 900LM - 4000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644169
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-117)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 692W WW - 900LM - 4000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

Summary

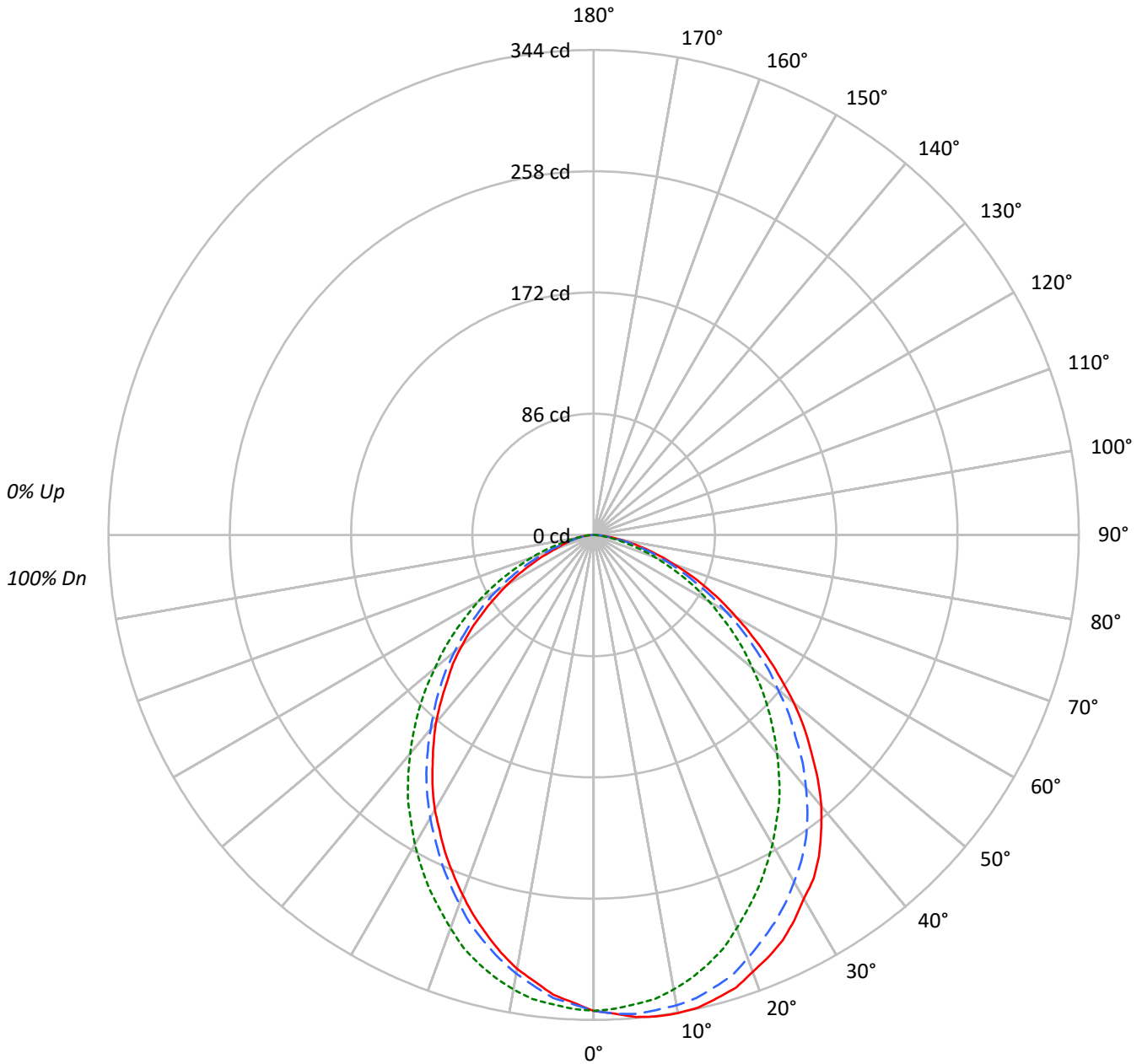
Lumens per Lamp: N/A
Luminaire Lumens: 745.3 lumens
Efficiency: N/A
Efficacy: 71.0 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.13 / 1.25
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

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				
RC	80					70					50					30				
RW	70	50	30	10	70	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	89	87		
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	52	46	72	60	52	46	58	51	46	56	50	45	55	49	45	43		
7	68	55	47	41	67	55	47	41	53	46	41	52	45	41	50	45	40	38		
8	64	51	43	37	62	50	42	37	49	42	37	48	41	37	46	41	36	35		
9	60	47	39	34	58	46	39	34	45	38	33	44	38	33	43	37	33	31		
10	56	43	36	31	55	43	36	31	42	35	30	41	35	30	40	34	30	29		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	18507	18507	18507	18507	18507
5°	18892	18771	18391	18143	18017
10°	19177	18860	18225	17590	17401
15°	19291	18842	17872	16969	16646
20°	19234	18639	17309	16247	15851
25°	19187	18358	16713	15473	15061
30°	18857	17990	16047	14679	14249
35°	18638	17574	15366	13846	13318
40°	17977	16760	14484	12853	12445
45°	16924	15692	13575	11986	11373
50°	15803	14541	12511	10959	10371
55°	14346	13256	11517	9892	9128
60°	12839	11841	10350	8727	7730
65°	11350	10325	8989	7368	6187
70°	9665	8928	7469	5642	4552
75°	7943	7223	5528	3855	3855
80°	6093	5398	3946	3220	3599
85°	4277	3585	2830	2830	2830

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 16924 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	31.7	4.3
10°-20°	88.8	11.9
20°-30°	128.6	17.3
30°-40°	146.1	19.6
40°-50°	137.9	18.5
50°-60°	108.7	14.6
60°-70°	68.0	9.1
70°-80°	29.4	3.9
80°-90°	6.0	0.8
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°	249.1	33.4
0°-40°	395.2	53.0
0°-60°	641.8	86.1
0°-90°	745.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	745.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	338	338	338	338	338	
5°	343	341	334	330	327	33
15°	340	332	315	299	293	96
25°	317	304	276	256	249	146
35°	278	263	230	207	199	173
45°	218	202	175	155	147	169
55°	150	139	120	104	96	134
65°	88	80	69	57	48	87
75°	38	34	26	18	18	41
85°	7	6	4	4	4	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°	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6
2.5°	339.9	339.9	341.1	341.1	339.9	339.9	339.9	339.9	339.9	339.9	339.9
5°	343.3	343.3	343.3	343.3	342.2	342.2	342.2	342.2	342.2	341.1	341.1
7.5°	344.5	344.5	344.5	344.5	343.3	343.3	342.2	342.2	342.2	341.1	339.9
10°	344.5	344.5	344.5	343.3	343.3	342.2	343.3	342.2	341.1	339.9	338.8
12.5°	343.3	342.2	342.2	342.2	341.1	341.1	341.1	339.9	338.8	337.6	336.5
15°	339.9	339.9	339.9	338.8	338.8	337.6	337.6	336.5	335.4	333.1	332.0
17.5°	336.5	336.5	335.4	335.4	334.2	333.1	333.1	332.0	330.8	328.6	327.4
20°	329.7	329.7	329.7	328.6	327.4	327.4	326.3	325.1	322.9	320.6	319.5
22.5°	324.0	322.9	322.9	321.7	320.6	320.6	319.5	317.2	316.0	313.8	311.5
25°	317.2	316.0	316.0	314.9	313.8	312.6	312.6	310.4	308.1	305.8	303.5
27.5°	308.1	308.1	307.0	305.8	304.7	304.7	303.5	302.4	299.0	296.7	294.4
30°	297.9	299.0	297.9	296.7	295.6	295.6	294.4	292.2	289.9	286.5	284.2
32.5°	289.9	289.9	288.8	287.6	285.4	285.4	285.4	281.9	279.7	277.4	274.0
35°	278.5	278.5	278.5	276.3	275.1	274.0	272.8	270.6	268.3	266.0	262.6
37.5°	264.9	266.0	264.9	263.8	262.6	261.5	260.3	258.1	254.7	252.4	249.0
40°	251.2	251.2	250.1	249.0	247.8	246.7	245.6	243.3	241.0	237.6	234.2
42.5°	235.3	235.3	234.2	233.1	231.9	230.8	230.8	228.5	225.1	222.8	219.4
45°	218.3	218.3	218.3	217.1	216.0	214.9	213.7	212.6	210.3	206.9	202.4
47.5°	202.4	202.4	202.4	200.1	200.1	197.8	196.7	194.4	193.3	189.9	187.6
50°	185.3	184.2	184.2	183.0	181.9	180.8	180.8	177.3	176.2	173.9	170.5
52.5°	167.1	167.1	167.1	166.0	164.8	163.7	163.7	161.4	159.2	156.9	155.7
55°	150.1	150.1	150.1	148.9	147.8	147.8	146.7	144.4	143.2	141.0	138.7
57.5°	133.0	134.1	133.0	131.9	131.9	130.7	130.7	129.6	127.3	125.1	123.9
60°	117.1	117.1	117.1	116.0	114.8	114.8	114.8	113.7	111.4	110.3	108.0
62.5°	102.3	102.3	101.2	101.2	100.0	100.0	98.9	97.8	96.6	95.5	94.4
65°	87.5	86.4	86.4	86.4	85.3	85.3	85.3	84.1	81.9	80.7	79.6
67.5°	73.9	73.9	72.8	72.8	71.6	71.6	71.6	70.5	69.3	68.2	67.1
70°	60.3	60.3	60.3	60.3	59.1	59.1	59.1	58.0	56.8	56.8	55.7
72.5°	48.9	48.9	48.9	48.9	47.7	47.7	47.7	46.6	45.5	44.3	44.3
75°	37.5	38.7	37.5	37.5	37.5	37.5	36.4	36.4	35.2	34.1	34.1
77.5°	28.4	28.4	28.4	28.4	27.3	27.3	27.3	27.3	26.1	25.0	25.0
80°	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	18.2	18.2	17.1
82.5°	11.4	12.5	12.5	12.5	11.4	11.4	11.4	11.4	11.4	11.4	10.2
85°	6.8	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
87.5°	2.3	2.3	2.3	2.3	2.3	1.1	1.1	1.1	1.1	1.1	1.1
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°	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6
2.5°	338.8	338.8	338.8	338.8	337.6	337.6	337.6	336.5	336.5	336.5	336.5
5°	339.9	338.8	338.8	337.6	337.6	337.6	336.5	336.5	335.4	334.2	334.2
7.5°	338.8	338.8	337.6	336.5	336.5	335.4	334.2	333.1	332.0	332.0	329.7
10°	337.6	336.5	335.4	334.2	333.1	333.1	330.8	329.7	328.6	327.4	326.3
12.5°	334.2	333.1	332.0	329.7	329.7	328.6	326.3	325.1	322.9	321.7	319.5
15°	329.7	328.6	327.4	325.1	324.0	322.9	320.6	318.3	316.0	314.9	312.6
17.5°	325.1	322.9	320.6	318.3	317.2	316.0	313.8	311.5	309.2	307.0	304.7
20°	317.2	314.9	312.6	309.2	308.1	307.0	303.5	301.3	299.0	296.7	294.4
22.5°	309.2	307.0	303.5	301.3	300.1	297.9	295.6	292.2	289.9	286.5	284.2
25°	301.3	297.9	294.4	292.2	289.9	288.8	285.4	283.1	278.5	276.3	274.0
27.5°	291.0	288.8	285.4	281.9	279.7	277.4	275.1	271.7	268.3	264.9	262.6
30°	280.8	277.4	274.0	271.7	268.3	267.2	263.8	260.3	256.9	253.5	251.2
32.5°	270.6	267.2	263.8	260.3	258.1	255.8	252.4	249.0	244.4	241.0	238.7
35°	259.2	255.8	251.2	247.8	245.6	243.3	239.9	236.5	233.1	229.6	226.2
37.5°	245.6	241.0	238.7	235.3	231.9	229.6	226.2	221.7	219.4	216.0	212.6
40°	230.8	227.4	224.0	220.6	217.1	216.0	211.5	208.0	205.8	202.4	199.0
42.5°	216.0	212.6	208.0	204.6	202.4	201.2	197.8	194.4	191.0	188.7	185.3
45°	200.1	196.7	193.3	189.9	187.6	186.4	183.0	180.8	177.3	175.1	171.7
47.5°	184.2	180.8	178.5	175.1	172.8	171.7	169.4	166.0	162.6	161.4	159.2
50°	168.3	164.8	162.6	159.2	158.0	156.9	154.6	152.3	150.1	146.7	145.5
52.5°	152.3	148.9	146.7	144.4	144.4	142.1	139.8	138.7	136.4	134.1	131.9
55°	136.4	135.3	133.0	129.6	129.6	128.5	126.2	123.9	121.6	120.5	118.2
57.5°	120.5	119.4	117.1	116.0	114.8	113.7	112.5	110.3	109.1	106.9	105.7
60°	106.9	105.7	103.5	102.3	101.2	100.0	98.9	96.6	95.5	94.4	93.2
62.5°	92.1	90.9	89.8	88.7	87.5	86.4	86.4	84.1	83.0	81.9	80.7
65°	79.6	77.3	76.2	75.0	75.0	73.9	72.8	71.6	70.5	69.3	68.2
67.5°	65.9	64.8	64.8	62.5	62.5	61.4	60.3	60.3	58.0	56.8	55.7
70°	54.6	53.4	52.3	51.2	51.2	50.0	48.9	47.7	46.6	46.6	45.5
72.5°	43.2	42.1	42.1	40.9	39.8	39.8	38.7	37.5	36.4	36.4	35.2
75°	33.0	31.8	31.8	30.7	30.7	29.6	28.4	28.4	27.3	26.1	25.0
77.5°	23.9	23.9	22.7	22.7	21.6	21.6	20.5	20.5	19.3	18.2	18.2
80°	17.1	15.9	15.9	14.8	14.8	14.8	13.6	13.6	12.5	12.5	11.4
82.5°	10.2	10.2	9.1	9.1	9.1	9.1	8.0	8.0	8.0	6.8	6.8
85°	5.7	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	3.4
87.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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°	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6
2.5°	335.4	335.4	334.2	335.4	334.2	334.2	334.2	334.2	333.1	333.1	333.1
5°	333.1	332.0	332.0	330.8	332.0	330.8	329.7	329.7	329.7	329.7	328.6
7.5°	328.6	328.6	327.4	326.3	326.3	325.1	324.0	324.0	322.9	322.9	321.7
10°	325.1	322.9	321.7	320.6	320.6	319.5	318.3	317.2	316.0	314.9	314.9
12.5°	317.2	316.0	314.9	313.8	313.8	311.5	310.4	309.2	308.1	307.0	305.8
15°	311.5	309.2	307.0	305.8	305.8	303.5	302.4	301.3	299.0	299.0	296.7
17.5°	302.4	300.1	297.9	296.7	295.6	294.4	293.3	291.0	289.9	287.6	287.6
20°	291.0	289.9	286.5	285.4	284.2	283.1	280.8	279.7	278.5	276.3	275.1
22.5°	281.9	278.5	276.3	275.1	275.1	271.7	270.6	268.3	267.2	266.0	263.8
25°	270.6	268.3	266.0	263.8	263.8	261.5	260.3	258.1	255.8	254.7	253.5
27.5°	259.2	256.9	253.5	252.4	251.2	250.1	247.8	245.6	243.3	242.2	241.0
30°	246.7	244.4	242.2	241.0	238.7	236.5	234.2	233.1	231.9	229.6	228.5
32.5°	235.3	231.9	229.6	227.4	227.4	224.0	222.8	220.6	219.4	218.3	216.0
35°	222.8	219.4	217.1	216.0	214.9	211.5	209.2	206.9	206.9	204.6	203.5
37.5°	209.2	205.8	204.6	202.4	201.2	199.0	196.7	195.5	193.3	191.0	191.0
40°	196.7	193.3	189.9	189.9	187.6	186.4	183.0	181.9	179.6	178.5	177.3
42.5°	183.0	179.6	177.3	176.2	175.1	172.8	170.5	168.3	167.1	166.0	164.8
45°	168.3	166.0	164.8	162.6	161.4	159.2	158.0	155.7	154.6	152.3	151.2
47.5°	155.7	153.5	151.2	150.1	148.9	146.7	145.5	143.2	142.1	139.8	138.7
50°	143.2	141.0	138.7	137.6	136.4	134.1	131.9	130.7	128.5	127.3	125.1
52.5°	129.6	127.3	125.1	125.1	123.9	121.6	120.5	118.2	116.0	113.7	112.5
55°	117.1	114.8	112.5	111.4	111.4	109.1	106.9	105.7	103.5	102.3	100.0
57.5°	103.5	101.2	100.0	98.9	98.9	96.6	95.5	93.2	92.1	89.8	88.7
60°	90.9	89.8	87.5	87.5	86.4	84.1	83.0	80.7	79.6	78.4	77.3
62.5°	78.4	77.3	75.0	75.0	73.9	72.8	71.6	69.3	68.2	65.9	64.8
65°	65.9	64.8	63.7	62.5	62.5	60.3	59.1	58.0	56.8	55.7	54.6
67.5°	54.6	53.4	52.3	52.3	51.2	50.0	47.7	46.6	45.5	44.3	43.2
70°	44.3	42.1	40.9	40.9	39.8	38.7	37.5	36.4	35.2	34.1	33.0
72.5°	34.1	31.8	31.8	30.7	29.6	28.4	28.4	27.3	26.1	26.1	23.9
75°	25.0	23.9	22.7	22.7	21.6	20.5	19.3	19.3	18.2	18.2	18.2
77.5°	17.1	15.9	15.9	14.8	14.8	14.8	13.6	13.6	13.6	13.6	14.8
80°	11.4	11.4	10.2	10.2	10.2	10.2	10.2	10.2	10.2	11.4	11.4
82.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	8.0
85°	3.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
87.5°	1.1	1.1	2.3	1.1	2.3	1.1	2.3	2.3	2.3	2.3	2.3
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: P644169

CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 900LM - 4000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6
2.5°	332.0	333.1	333.1	332.0	333.1	332.0	332.0	332.0
5°	328.6	327.4	327.4	327.4	326.3	327.4	327.4	327.4
7.5°	321.7	321.7	320.6	320.6	319.5	319.5	320.6	319.5
10°	313.8	312.6	313.8	312.6	312.6	312.6	311.5	312.6
12.5°	305.8	304.7	304.7	303.5	303.5	303.5	303.5	303.5
15°	296.7	295.6	295.6	294.4	294.4	293.3	294.4	293.3
17.5°	286.5	286.5	284.2	284.2	284.2	284.2	284.2	283.1
20°	274.0	274.0	272.8	274.0	271.7	271.7	271.7	271.7
22.5°	263.8	262.6	261.5	261.5	261.5	260.3	260.3	260.3
25°	251.2	251.2	250.1	250.1	249.0	249.0	249.0	249.0
27.5°	239.9	238.7	238.7	238.7	237.6	236.5	236.5	236.5
30°	227.4	227.4	226.2	226.2	225.1	225.1	225.1	225.1
32.5°	214.9	214.9	213.7	212.6	212.6	212.6	211.5	212.6
35°	202.4	201.2	201.2	200.1	200.1	200.1	199.0	199.0
37.5°	189.9	188.7	187.6	188.7	187.6	186.4	186.4	186.4
40°	176.2	175.1	175.1	173.9	173.9	173.9	172.8	173.9
42.5°	163.7	163.7	162.6	161.4	161.4	161.4	160.3	160.3
45°	151.2	148.9	150.1	148.9	148.9	147.8	147.8	146.7
47.5°	137.6	136.4	136.4	136.4	135.3	135.3	135.3	135.3
50°	123.9	122.8	123.9	122.8	122.8	121.6	121.6	121.6
52.5°	111.4	110.3	110.3	110.3	110.3	109.1	109.1	109.1
55°	98.9	97.8	97.8	97.8	96.6	96.6	95.5	95.5
57.5°	87.5	86.4	85.3	84.1	84.1	84.1	83.0	83.0
60°	75.0	73.9	72.8	72.8	71.6	71.6	71.6	70.5
62.5°	63.7	62.5	61.4	61.4	60.3	59.1	59.1	59.1
65°	52.3	51.2	51.2	50.0	48.9	48.9	47.7	47.7
67.5°	42.1	40.9	40.9	39.8	38.7	37.5	37.5	37.5
70°	33.0	31.8	30.7	30.7	30.7	29.6	28.4	28.4
72.5°	23.9	22.7	22.7	22.7	22.7	22.7	22.7	22.7
75°	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2
77.5°	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8
80°	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4
82.5°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
85°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Signify Classified - Internal
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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)