

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: P640533

Luminaire Tested: ML5609LSWWD2W1E - 592W WW - 900LM - 2700K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P640533
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: ML5609LSWWD2W1E - 592W WW - 900LM - 2700K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH WHITE TRIM
Light Source: (1) D2W SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 630.9 lumens
Efficiency: N/A
Efficacy: 53.5 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

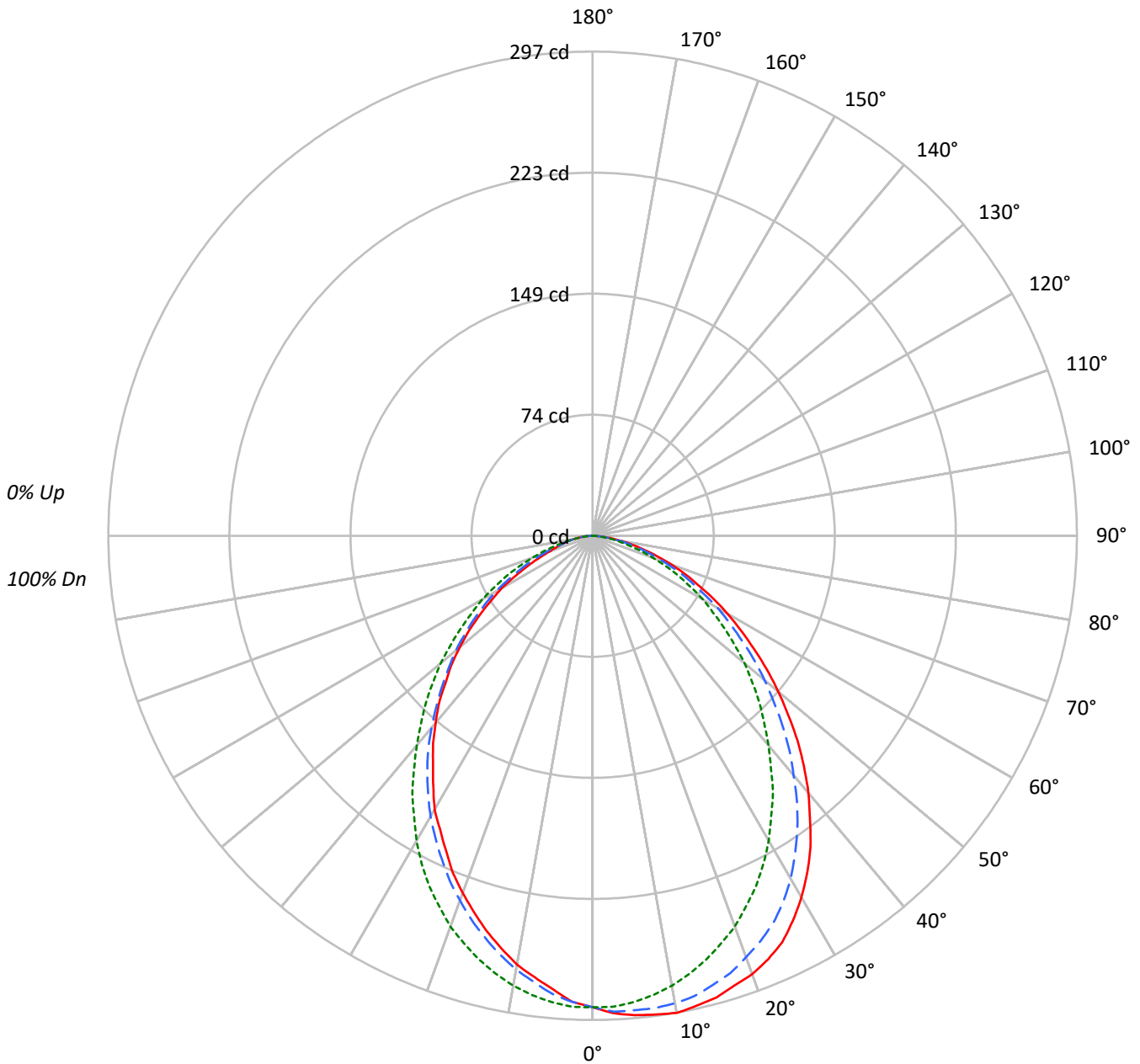
Input Watts (W): 11.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	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°	22830	22830	22830	22830	22830
5°	23392	23155	22758	22362	22124
10°	23823	23342	22460	21651	21410
15°	23962	23308	21992	20848	20513
20°	24043	23110	21430	19994	19574
25°	23962	22829	20643	19067	18544
30°	23344	22150	19680	18121	17665
35°	22454	21095	18580	17028	16450
40°	21218	19765	17281	15828	15416
45°	19838	18387	16143	14569	14234
50°	18250	16899	14921	13448	13067
55°	16584	15346	13543	12166	11616
60°	15062	13957	12362	10783	10152
65°	13318	12384	10871	9190	8256
70°	11817	10663	9048	7409	6486
75°	9791	8876	7046	5826	5826
80°	7774	6864	5501	5001	5001
85°	4529	4529	3623	4529	4529

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 19838 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	27.2	4.3
10°-20°	76.2	12.1
20°-30°	110.5	17.5
30°-40°	123.3	19.5
40°-50°	114.3	18.1
50°-60°	89.9	14.2
60°-70°	57.5	9.1
70°-80°	26.4	4.2
80°-90°	5.7	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°	213.9	33.9
0°-40°	337.1	53.4
0°-60°	541.3	85.8
0°-90°	630.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	630.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	289	289	289	289	289	
5°	295	292	287	282	279	28
15°	293	285	269	255	251	83
25°	275	262	237	219	213	126
35°	233	219	193	177	171	145
45°	178	165	145	130	128	137
55°	120	112	98	88	84	108
65°	71	66	58	49	44	71
75°	32	29	23	19	19	35
85°	5	5	4	5	5	7
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°	289.2	289.2	289.2	289.2	289.2	289.2	289.2	289.2	289.2	289.2	289.2
2.5°	293.2	293.2	293.2	293.2	293.2	293.2	292.2	292.2	292.2	292.2	292.2
5°	295.2	295.2	295.2	295.2	294.2	294.2	294.2	294.2	293.2	293.2	292.2
7.5°	296.2	296.2	296.2	295.2	295.2	295.2	294.2	294.2	294.2	293.2	292.2
10°	297.2	296.2	296.2	295.2	295.2	295.2	294.2	294.2	293.2	292.2	291.2
12.5°	295.2	295.2	295.2	295.2	294.2	294.2	293.2	292.2	291.2	290.2	289.2
15°	293.2	293.2	293.2	292.2	291.2	291.2	290.2	289.2	288.2	287.2	285.2
17.5°	289.2	290.2	289.2	289.2	288.2	288.2	287.2	286.2	284.2	283.2	281.2
20°	286.2	285.2	285.2	285.2	284.2	283.2	282.2	281.2	279.2	278.2	275.1
22.5°	281.2	281.2	280.2	279.2	278.2	278.2	277.2	275.1	274.1	272.1	269.1
25°	275.1	274.1	274.1	273.1	272.1	272.1	270.1	269.1	267.1	264.1	262.1
27.5°	266.1	266.1	266.1	265.1	264.1	263.1	262.1	260.1	259.1	255.1	253.1
30°	256.1	256.1	255.1	255.1	253.1	253.1	252.0	250.0	248.0	245.0	243.0
32.5°	245.0	245.0	245.0	243.0	242.0	241.0	240.0	239.0	236.0	233.0	231.0
35°	233.0	233.0	232.0	231.0	230.0	229.0	227.9	225.9	223.9	221.9	218.9
37.5°	218.9	219.9	218.9	217.9	216.9	215.9	214.9	213.9	210.9	208.9	205.9
40°	205.9	205.9	204.9	203.8	202.8	202.8	201.8	199.8	197.8	194.8	191.8
42.5°	191.8	191.8	190.8	189.8	189.8	188.8	186.8	185.8	183.8	181.8	178.7
45°	177.7	176.7	175.7	175.7	174.7	173.7	173.7	171.7	169.7	166.7	164.7
47.5°	162.7	162.7	161.7	161.7	160.7	159.7	159.7	157.7	154.6	152.6	150.6
50°	148.6	148.6	147.6	147.6	146.6	145.6	144.6	143.6	141.6	139.6	137.6
52.5°	134.6	134.6	134.6	132.6	131.5	131.5	131.5	129.5	128.5	126.5	124.5
55°	120.5	120.5	120.5	119.5	118.5	118.5	118.5	116.5	115.5	113.5	111.5
57.5°	107.4	107.4	107.4	106.4	106.4	105.4	104.4	103.4	102.4	101.4	99.4
60°	95.4	95.4	94.4	93.4	94.4	93.4	92.4	91.4	90.4	89.4	88.4
62.5°	83.3	83.3	83.3	82.3	81.3	81.3	81.3	80.3	78.3	77.3	76.3
65°	71.3	71.3	71.3	71.3	70.3	70.3	69.3	68.3	68.3	67.3	66.3
67.5°	61.3	61.3	60.3	60.3	59.2	59.2	59.2	58.2	57.2	57.2	56.2
70°	51.2	50.2	50.2	50.2	49.2	49.2	49.2	48.2	48.2	47.2	46.2
72.5°	41.2	41.2	41.2	41.2	40.2	40.2	39.2	39.2	38.2	38.2	37.2
75°	32.1	32.1	32.1	32.1	31.1	31.1	31.1	31.1	30.1	30.1	29.1
77.5°	24.1	24.1	24.1	24.1	24.1	24.1	23.1	23.1	23.1	22.1	22.1
80°	17.1	17.1	17.1	17.1	16.1	16.1	16.1	16.1	16.1	15.1	15.1
82.5°	11.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.0
85°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
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°	289.2	289.2	289.2	289.2	289.2	289.2	289.2	289.2	289.2	289.2	289.2
2.5°	291.2	291.2	291.2	291.2	290.2	290.2	290.2	289.2	289.2	289.2	289.2
5°	292.2	292.2	290.2	290.2	290.2	290.2	289.2	289.2	288.2	287.2	286.2
7.5°	291.2	291.2	290.2	289.2	288.2	288.2	287.2	286.2	285.2	284.2	283.2
10°	290.2	289.2	288.2	287.2	286.2	285.2	284.2	283.2	281.2	280.2	279.2
12.5°	288.2	286.2	285.2	283.2	283.2	282.2	280.2	279.2	277.2	275.1	274.1
15°	284.2	282.2	280.2	278.2	278.2	276.1	274.1	273.1	271.1	269.1	267.1
17.5°	279.2	277.2	275.1	273.1	272.1	270.1	268.1	266.1	264.1	262.1	260.1
20°	274.1	271.1	269.1	266.1	265.1	264.1	261.1	259.1	257.1	255.1	252.0
22.5°	267.1	265.1	261.1	259.1	258.1	256.1	254.1	251.0	248.0	246.0	244.0
25°	259.1	257.1	254.1	251.0	249.0	248.0	245.0	242.0	240.0	237.0	235.0
27.5°	250.0	247.0	245.0	241.0	240.0	238.0	235.0	232.0	230.0	226.9	223.9
30°	240.0	237.0	234.0	231.0	229.0	227.9	224.9	221.9	218.9	215.9	213.9
32.5°	227.9	224.9	221.9	219.9	216.9	214.9	212.9	209.9	206.9	203.8	201.8
35°	215.9	212.9	209.9	206.9	204.9	204.9	200.8	197.8	194.8	192.8	189.8
37.5°	202.8	199.8	196.8	193.8	192.8	190.8	187.8	184.8	182.8	179.7	177.7
40°	189.8	185.8	183.8	180.8	179.7	177.7	175.7	172.7	170.7	167.7	165.7
42.5°	175.7	173.7	170.7	168.7	166.7	165.7	162.7	159.7	157.7	155.6	154.6
45°	162.7	159.7	156.7	154.6	153.6	151.6	150.6	147.6	145.6	144.6	142.6
47.5°	148.6	146.6	144.6	141.6	140.6	139.6	137.6	136.6	134.6	132.6	130.5
50°	135.6	133.6	131.5	129.5	128.5	128.5	125.5	123.5	122.5	121.5	119.5
52.5°	122.5	120.5	118.5	116.5	116.5	115.5	113.5	112.5	111.5	109.5	107.4
55°	110.5	108.5	106.4	105.4	104.4	104.4	102.4	101.4	99.4	98.4	97.4
57.5°	98.4	96.4	95.4	94.4	93.4	93.4	91.4	90.4	89.4	87.4	87.4
60°	87.4	85.4	84.4	83.3	82.3	81.3	81.3	79.3	78.3	78.3	76.3
62.5°	75.3	74.3	73.3	72.3	71.3	71.3	70.3	69.3	68.3	67.3	66.3
65°	65.3	64.3	63.3	62.3	61.3	61.3	60.3	59.2	58.2	58.2	56.2
67.5°	55.2	54.2	53.2	52.2	52.2	51.2	50.2	50.2	49.2	48.2	47.2
70°	45.2	45.2	44.2	43.2	43.2	42.2	41.2	41.2	40.2	39.2	38.2
72.5°	37.2	36.2	35.1	35.1	34.1	34.1	33.1	33.1	32.1	31.1	30.1
75°	28.1	27.1	27.1	27.1	26.1	26.1	26.1	25.1	24.1	23.1	23.1
77.5°	21.1	21.1	20.1	19.1	19.1	19.1	18.1	18.1	18.1	17.1	17.1
80°	15.1	14.1	14.1	13.1	13.1	13.1	13.1	12.1	12.1	12.1	11.0
82.5°	9.0	9.0	9.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0
85°	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0
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°	289.2	289.2	289.2	289.2	289.2	289.2	289.2	289.2	289.2	289.2	289.2
2.5°	288.2	288.2	287.2	287.2	287.2	287.2	287.2	286.2	286.2	286.2	286.2
5°	286.2	285.2	284.2	284.2	284.2	283.2	283.2	282.2	282.2	281.2	281.2
7.5°	282.2	281.2	280.2	280.2	279.2	279.2	277.2	277.2	276.1	275.1	275.1
10°	277.2	276.1	275.1	274.1	274.1	272.1	272.1	271.1	270.1	269.1	269.1
12.5°	272.1	271.1	269.1	268.1	268.1	267.1	265.1	264.1	263.1	262.1	261.1
15°	265.1	264.1	262.1	261.1	260.1	259.1	258.1	257.1	255.1	254.1	254.1
17.5°	258.1	257.1	254.1	253.1	253.1	251.0	250.0	248.0	247.0	246.0	245.0
20°	250.0	248.0	246.0	245.0	244.0	242.0	241.0	240.0	238.0	237.0	236.0
22.5°	241.0	239.0	237.0	236.0	235.0	233.0	232.0	230.0	229.0	227.9	226.9
25°	232.0	230.0	227.9	226.9	224.9	223.9	221.9	219.9	218.9	217.9	216.9
27.5°	221.9	219.9	216.9	215.9	214.9	213.9	211.9	209.9	208.9	206.9	206.9
30°	210.9	208.9	206.9	205.9	204.9	202.8	201.8	199.8	198.8	196.8	196.8
32.5°	199.8	196.8	194.8	193.8	192.8	191.8	189.8	188.8	187.8	186.8	185.8
35°	187.8	185.8	183.8	182.8	181.8	179.7	178.7	177.7	176.7	174.7	174.7
37.5°	175.7	173.7	171.7	170.7	170.7	168.7	167.7	165.7	165.7	163.7	163.7
40°	163.7	161.7	159.7	159.7	158.7	156.7	155.6	154.6	153.6	152.6	152.6
42.5°	152.6	149.6	148.6	148.6	146.6	145.6	144.6	143.6	141.6	141.6	141.6
45°	140.6	138.6	137.6	136.6	135.6	134.6	133.6	131.5	130.5	129.5	129.5
47.5°	129.5	127.5	126.5	125.5	124.5	123.5	122.5	121.5	119.5	119.5	118.5
50°	118.5	116.5	115.5	114.5	113.5	112.5	111.5	110.5	109.5	108.5	107.4
52.5°	106.4	105.4	104.4	103.4	103.4	101.4	100.4	99.4	98.4	98.4	96.4
55°	96.4	95.4	94.4	93.4	92.4	91.4	90.4	89.4	88.4	87.4	86.4
57.5°	85.4	84.4	83.3	83.3	82.3	81.3	80.3	79.3	78.3	77.3	76.3
60°	75.3	74.3	73.3	73.3	72.3	71.3	70.3	70.3	68.3	67.3	66.3
62.5°	65.3	64.3	63.3	63.3	62.3	62.3	61.3	60.3	58.2	58.2	57.2
65°	56.2	55.2	54.2	53.2	53.2	52.2	51.2	50.2	49.2	49.2	48.2
67.5°	47.2	46.2	45.2	45.2	44.2	43.2	42.2	41.2	40.2	40.2	39.2
70°	38.2	37.2	36.2	36.2	35.1	34.1	34.1	33.1	32.1	31.1	31.1
72.5°	29.1	29.1	28.1	28.1	27.1	27.1	26.1	25.1	25.1	24.1	23.1
75°	22.1	22.1	21.1	21.1	20.1	20.1	19.1	19.1	19.1	18.1	19.1
77.5°	16.1	16.1	15.1	15.1	15.1	14.1	14.1	14.1	15.1	15.1	15.1
80°	11.0	11.0	11.0	11.0	10.0	10.0	11.0	11.0	11.0	11.0	11.0
82.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0	8.0	8.0
85°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
87.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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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CATALOG NUMBER: ML5609LSWWD2W1E - 592W WW - 900LM - 2700K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	289.2	289.2	289.2	289.2	289.2	289.2	289.2	289.2
2.5°	285.2	285.2	285.2	285.2	285.2	285.2	285.2	286.2
5°	280.2	280.2	280.2	280.2	280.2	280.2	280.2	279.2
7.5°	275.1	274.1	274.1	274.1	274.1	273.1	273.1	273.1
10°	268.1	268.1	267.1	267.1	267.1	267.1	266.1	267.1
12.5°	261.1	260.1	260.1	260.1	259.1	259.1	259.1	259.1
15°	253.1	252.0	252.0	252.0	251.0	251.0	251.0	251.0
17.5°	244.0	244.0	243.0	243.0	242.0	242.0	242.0	242.0
20°	235.0	235.0	235.0	234.0	234.0	234.0	233.0	233.0
22.5°	225.9	224.9	223.9	224.9	223.9	222.9	223.9	223.9
25°	215.9	214.9	213.9	213.9	213.9	213.9	212.9	212.9
27.5°	205.9	203.8	203.8	203.8	203.8	202.8	202.8	202.8
30°	195.8	194.8	194.8	193.8	192.8	192.8	192.8	193.8
32.5°	184.8	183.8	182.8	182.8	182.8	182.8	181.8	181.8
35°	173.7	173.7	172.7	172.7	172.7	171.7	171.7	170.7
37.5°	162.7	162.7	161.7	161.7	161.7	160.7	160.7	160.7
40°	151.6	150.6	150.6	151.6	150.6	150.6	149.6	149.6
42.5°	140.6	140.6	139.6	139.6	139.6	139.6	138.6	139.6
45°	128.5	128.5	128.5	128.5	128.5	128.5	127.5	127.5
47.5°	118.5	117.5	117.5	117.5	117.5	117.5	117.5	117.5
50°	107.4	106.4	106.4	106.4	106.4	106.4	106.4	106.4
52.5°	96.4	95.4	95.4	95.4	95.4	95.4	95.4	95.4
55°	86.4	85.4	85.4	84.4	85.4	84.4	84.4	84.4
57.5°	76.3	75.3	74.3	75.3	74.3	74.3	74.3	73.3
60°	66.3	65.3	65.3	65.3	64.3	63.3	63.3	64.3
62.5°	56.2	56.2	55.2	55.2	54.2	53.2	53.2	53.2
65°	47.2	46.2	46.2	45.2	45.2	44.2	44.2	44.2
67.5°	38.2	38.2	37.2	37.2	36.2	36.2	36.2	35.1
70°	30.1	30.1	29.1	29.1	29.1	28.1	28.1	28.1
72.5°	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
75°	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.1
77.5°	15.1	15.1	15.1	15.1	15.1	15.1	15.1	16.1
80°	11.0	11.0	12.1	11.0	12.1	11.0	11.0	11.0
82.5°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
85°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
87.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Signify Classified - Internal
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Peachtree City, GA 30269

Scaled Data Report



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

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(END OF REPORT)