

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P392500

Luminaire Tested: **MWL-2-18-38-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392500
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-25 &
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MWL-2-18-38-UNV-L935-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

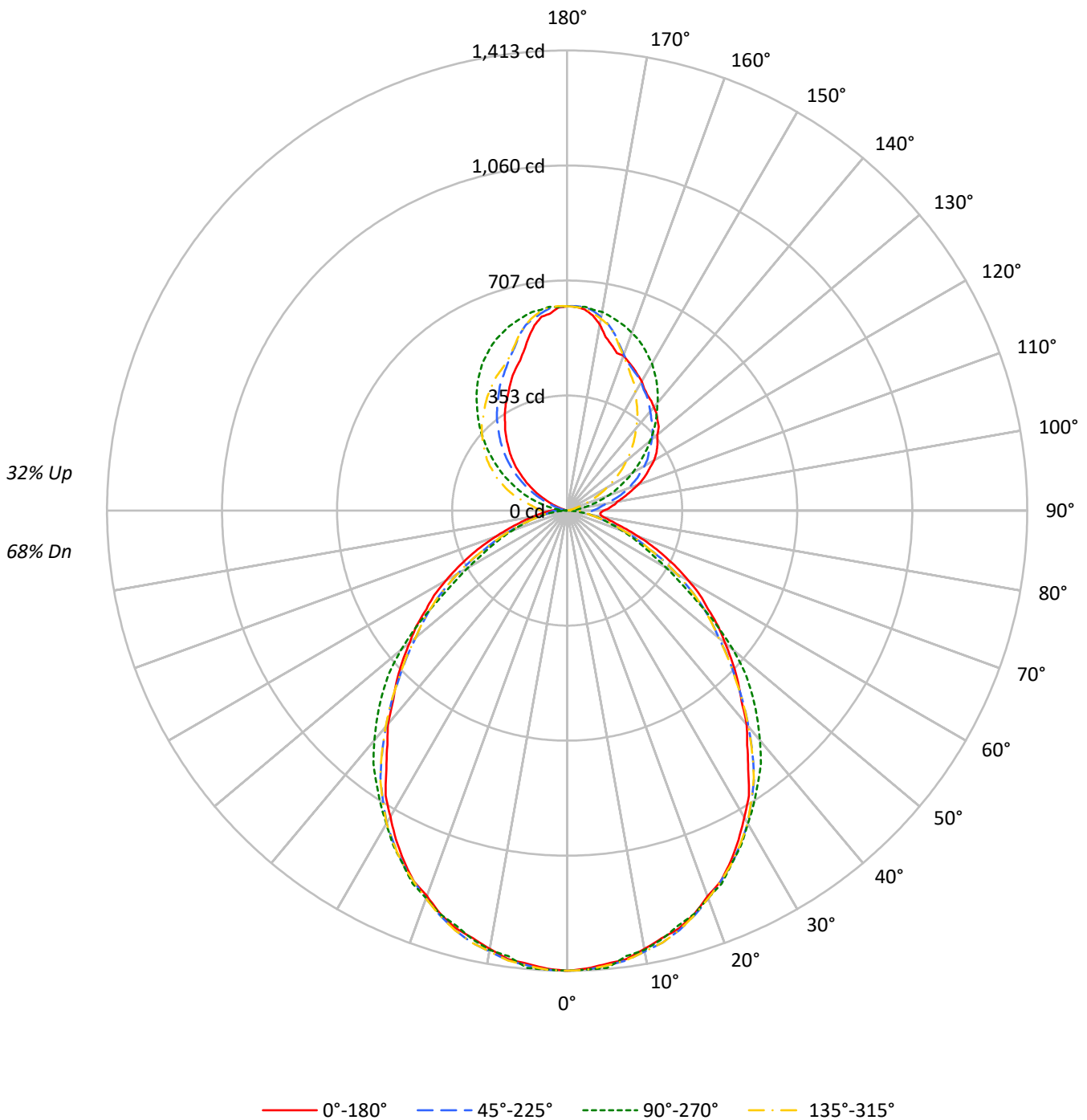
Lumens per Lamp: N/A
Luminaire Lumens: 4711.4 lumens
Efficiency: N/A
Efficacy: 79.2 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 59.489
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: 25 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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	73	73	73	68				
1	102	98	94	91	96	93	89	86	83	80	78	73	71	70	65	63	62	58				
2	94	86	80	75	88	82	76	72	73	69	65	65	62	59	58	55	53	50				
3	86	76	69	63	81	72	66	61	65	60	56	58	54	51	52	49	46	43				
4	79	68	60	54	74	65	58	52	58	52	48	52	48	44	47	43	40	37				
5	73	61	53	47	68	58	51	45	52	46	42	47	42	39	42	38	35	33				
6	67	55	47	41	63	52	45	40	47	41	37	43	38	34	39	34	31	29				
7	62	50	42	36	59	48	40	35	43	37	33	39	34	30	35	31	28	26				
8	58	46	38	32	55	43	36	31	40	34	29	36	31	27	33	28	25	23				
9	54	42	34	29	51	40	33	28	36	31	26	33	28	25	30	26	23	21				
10	51	38	31	26	48	37	30	26	34	28	24	31	26	22	28	24	21	19				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	18251	18251	18251	18251
5°	17785	16803	17785	16803
10°	17290	15271	17290	15271
15°	16820	13908	16802	13908
20°	16104	12755	16087	12755
25°	15435	11621	15417	11621
30°	14476	10501	14451	10501
35°	13337	9471	13318	9471
40°	12306	8441	12281	8441
45°	11214	7350	11194	7350
50°	10182	6104	10161	6104
55°	9174	4531	9159	4531
60°	8174	3326	8167	3326
65°	6921	2475	6921	2475
70°	5591	1809	5601	1809
75°	4338	1271	4372	1271
80°	3850	804	3560	804
85°	4475	334	3217	334



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	132.9	2.8
10°-20°	373.8	7.9
20°-30°	548.3	11.6
30°-40°	621.7	13.2
40°-50°	580.2	12.3
50°-60°	455.7	9.7
60°-70°	283.7	6.0
70°-80°	137.0	2.9
80°-90°	66.5	1.4
90°-100°	60.9	1.3
100°-110°	97.6	2.1
110°-120°	167.3	3.6
120°-130°	227.1	4.8
130°-140°	259.1	5.5
140°-150°	258.2	5.5
150°-160°	224.8	4.8
160°-170°	157.9	3.4
170°-180°	58.8	1.2
0°-30°	1055.0	22.4
0°-40°	1676.7	35.6
0°-60°	2712.5	57.6
0°-90°	3199.7	67.9
90°-120°	325.7	6.9
90°-150°	1070.2	22.7
90°-180°	1512.0	32.1
0°-180°	4711.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1413	1413	1413	1413	1413	
5°	1397	1409	1397	1409	1397	133
15°	1328	1319	1327	1319	1328	373
25°	1188	1196	1187	1196	1188	545
35°	969	1021	968	1021	969	608
45°	742	805	740	805	742	572
55°	529	489	528	489	529	476
65°	328	255	328	255	328	326
75°	154	120	156	120	154	171
85°	102	28	73	28	102	86
90°	112	1	46	1	112	62
95°	135	19	30	19	135	115
105°	190	88	5	88	190	202
115°	270	180	63	180	270	268
125°	338	281	154	281	338	301
135°	392	384	248	384	392	303
145°	431	480	333	480	431	272
155°	482	554	419	554	482	222
165°	527	602	510	602	527	149
175°	620	628	607	628	620	58
180°	627	627	627	627	627	



TEST NUMBER: P392500

CATALOG NUMBER: MWL-2-18-38-UNV-L935-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1413.0	1413.0	1413.0	1413.0	1413.0	1413.0	1413.0	1413.0	1413.0	1413.0	1413.0
2.5°	1407.5	1404.3	1410.9	1406.4	1410.6	1405.9	1410.9	1404.3	1407.9	1404.3	1410.9
5°	1396.7	1400.1	1402.6	1400.1	1409.3	1400.1	1402.1	1400.1	1396.7	1400.1	1402.1
7.5°	1389.5	1392.1	1393.0	1389.3	1380.0	1388.8	1392.5	1391.8	1389.5	1391.8	1392.5
10°	1366.7	1377.1	1374.6	1371.3	1369.6	1370.9	1374.3	1376.2	1366.7	1376.2	1374.3
12.5°	1345.0	1347.9	1358.4	1350.9	1347.8	1350.9	1358.4	1347.0	1344.1	1347.0	1358.4
15°	1328.0	1325.4	1333.4	1325.0	1318.7	1324.5	1332.8	1324.5	1326.6	1324.5	1332.8
17.5°	1298.8	1294.5	1302.5	1301.9	1298.7	1301.9	1301.9	1294.1	1297.5	1294.1	1301.9
20°	1260.4	1268.3	1267.4	1269.4	1265.7	1269.0	1266.9	1267.4	1259.1	1267.4	1266.9
22.5°	1232.4	1230.8	1232.4	1235.2	1239.8	1234.8	1231.9	1229.9	1231.5	1229.9	1231.9
25°	1188.2	1185.7	1196.1	1194.3	1195.6	1193.9	1195.2	1184.3	1186.8	1184.3	1195.2
27.5°	1139.8	1138.1	1153.5	1156.5	1157.2	1155.9	1152.7	1136.8	1138.4	1136.8	1152.7
30°	1087.3	1091.4	1108.9	1111.0	1110.5	1110.1	1107.6	1090.1	1085.4	1090.1	1107.6
32.5°	1038.8	1035.5	1054.7	1068.4	1066.7	1067.5	1053.3	1033.8	1037.1	1033.8	1053.3
35°	969.2	973.4	1000.9	1017.5	1021.2	1016.2	999.6	972.0	967.8	972.0	999.6
37.5°	908.3	911.6	934.2	967.5	977.4	966.2	932.8	910.3	906.9	910.3	932.8
40°	857.4	847.4	866.5	906.2	920.7	905.3	864.8	845.6	855.7	845.6	864.8
42.5°	792.3	788.2	800.3	843.7	863.9	842.7	798.9	786.4	790.6	786.4	798.9
45°	741.8	730.2	731.8	776.0	804.7	775.1	730.1	728.8	740.5	728.8	730.1
47.5°	687.6	672.6	670.9	707.1	743.0	706.7	669.2	671.2	686.3	671.2	669.2
50°	632.5	625.0	608.3	634.6	665.8	633.7	606.6	623.3	631.2	623.3	606.6
52.5°	585.0	575.0	556.1	572.0	580.7	571.2	554.8	573.2	583.7	573.2	554.8
55°	528.6	524.4	502.7	504.0	488.6	503.2	501.5	523.2	527.7	523.2	501.5
57.5°	484.3	478.6	446.0	431.4	411.8	430.6	444.7	477.3	483.6	477.3	444.7
60°	430.6	423.9	388.0	361.7	351.7	361.3	387.2	423.1	430.2	423.1	387.2
62.5°	379.7	372.2	333.8	300.0	296.2	299.6	333.0	371.3	379.2	371.3	333.0
65°	327.6	315.0	276.6	248.3	254.6	247.8	276.2	314.6	327.6	314.6	276.2
67.5°	280.8	261.6	232.5	206.1	215.3	206.1	232.0	261.2	280.8	261.2	232.0
70°	232.8	212.0	191.1	169.5	179.5	169.5	191.1	212.4	233.2	212.4	191.1
72.5°	190.3	171.1	153.6	138.6	147.2	138.1	153.6	171.5	191.1	171.5	153.6
75°	154.5	133.6	118.9	109.7	120.5	109.7	119.4	134.0	155.7	134.0	119.4
77.5°	130.4	111.1	88.9	85.5	95.5	85.5	89.3	109.8	128.7	109.8	89.3
80°	112.9	99.0	70.2	63.9	72.1	63.9	69.3	91.8	104.4	91.8	69.3
82.5°	103.5	94.4	63.9	44.6	48.0	44.6	58.5	78.6	86.7	78.6	58.5
85°	102.1	96.0	64.3	35.1	28.0	34.3	51.5	69.1	73.4	69.1	51.5
87.5°	104.6	104.1	69.5	34.3	8.4	28.0	44.4	61.6	59.1	61.6	44.4
90°	111.8	112.4	78.9	35.2	1.3	18.5	35.1	50.2	45.6	50.2	35.1
92.5°	125.4	122.6	88.5	38.9	7.9	8.5	28.0	41.0	38.9	41.0	28.0
95°	135.0	133.3	98.3	46.7	18.6	2.6	18.9	31.0	30.5	31.0	18.9
97.5°	147.8	143.2	107.7	62.6	32.2	6.1	10.2	21.7	24.2	21.7	10.2
100°	155.9	151.3	121.8	81.6	49.0	15.4	4.7	12.7	16.8	12.7	4.7
102.5°	172.7	165.8	139.0	99.7	67.0	28.2	7.4	6.8	8.5	6.8	7.4
105°	190.5	184.4	161.4	118.6	87.8	45.4	18.9	6.9	4.7	6.9	18.9
107.5°	209.5	205.0	180.9	138.9	109.8	66.1	33.9	18.0	11.8	18.0	33.9
110°	231.6	226.3	199.8	158.3	133.7	87.2	51.1	32.1	25.0	32.1	51.1



TEST NUMBER: P392500

CATALOG NUMBER: MWL-2-18-38-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	252.7	248.8	217.5	178.6	157.4	110.2	72.2	49.8	43.1	49.8	72.2
115°	269.9	266.9	237.7	197.6	179.6	136.3	95.7	70.5	63.4	70.5	95.7
117.5°	287.2	286.7	253.6	217.0	206.0	159.7	118.1	92.1	83.7	92.1	118.1
120°	308.7	305.3	274.3	237.3	232.0	185.2	141.9	115.9	107.5	115.9	141.9
122.5°	323.8	321.5	292.0	255.8	255.8	210.3	164.9	138.8	130.0	138.8	164.9
125°	337.5	336.5	305.3	274.3	281.4	233.8	190.4	164.0	154.4	164.0	190.4
127.5°	349.8	351.1	322.5	294.7	307.5	257.6	215.6	186.6	176.4	186.6	215.6
130°	361.2	364.8	338.8	313.1	332.1	283.5	238.2	209.1	203.2	209.1	238.2
132.5°	381.9	379.3	355.6	333.0	359.5	308.2	262.0	232.4	224.9	232.4	262.0
135°	392.5	393.5	371.0	349.3	384.2	332.1	285.4	255.2	247.7	255.2	285.4
137.5°	405.4	402.7	382.4	369.1	407.1	355.1	307.4	279.6	267.7	279.6	307.4
140°	414.6	414.2	397.5	386.8	431.8	377.6	329.9	301.7	290.5	301.7	329.9
142.5°	424.3	427.0	412.4	406.2	456.5	401.3	354.1	323.2	312.7	323.2	354.1
145°	431.0	436.6	427.4	430.5	479.9	427.9	375.4	344.0	332.6	344.0	375.4
147.5°	442.0	449.5	438.4	447.8	500.2	451.3	396.5	365.7	355.5	365.7	396.5
150°	457.9	461.4	454.7	471.5	521.0	477.3	418.9	387.2	377.1	387.2	418.9
152.5°	469.7	474.1	466.6	497.5	537.2	501.2	442.8	407.5	395.6	407.5	442.8
155°	482.1	483.9	477.7	522.7	554.5	524.5	461.0	430.0	418.6	430.0	461.0
157.5°	493.6	497.0	490.0	541.7	569.5	544.7	482.5	452.5	442.4	452.5	482.5
160°	505.9	505.9	508.7	563.8	581.1	562.4	505.6	477.2	463.1	477.2	505.6
162.5°	507.2	514.8	533.8	579.3	592.9	577.9	530.3	494.1	482.5	494.1	530.3
165°	526.7	533.4	562.0	592.9	602.2	591.6	560.7	523.2	509.5	523.2	560.7
167.5°	546.1	562.0	585.0	607.5	611.0	603.5	584.1	558.0	544.7	558.0	584.1
170°	579.3	592.9	603.5	614.1	619.0	614.6	597.8	585.8	577.5	585.8	597.8
172.5°	604.5	614.1	617.7	624.7	621.6	619.8	611.0	605.7	600.4	605.7	611.0
175°	619.9	622.5	627.3	625.1	627.8	622.9	623.4	625.6	606.7	625.6	623.4
177.5°	626.5	629.6	628.2	625.0	625.5	624.7	625.5	626.5	623.9	626.5	625.5
180°	627.3	627.3	627.3	627.3	627.3	627.3	627.3	627.3	627.3	627.3	627.3



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CATALOG NUMBER: MWL-2-18-38-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1413.0	1413.0	1413.0	1413.0	1413.0	1413.0
2.5°	1405.9	1410.6	1406.4	1410.9	1404.3	1407.5
5°	1400.1	1409.3	1400.1	1402.6	1400.1	1396.7
7.5°	1388.8	1380.0	1389.3	1393.0	1392.1	1389.5
10°	1370.9	1369.6	1371.3	1374.6	1377.1	1366.7
12.5°	1350.9	1347.8	1350.9	1358.4	1347.9	1345.0
15°	1324.5	1318.7	1325.0	1333.4	1325.4	1328.0
17.5°	1301.9	1298.7	1301.9	1302.5	1294.5	1298.8
20°	1269.0	1265.7	1269.4	1267.4	1268.3	1260.4
22.5°	1234.8	1239.8	1235.2	1232.4	1230.8	1232.4
25°	1193.9	1195.6	1194.3	1196.1	1185.7	1188.2
27.5°	1155.9	1157.2	1156.5	1153.5	1138.1	1139.8
30°	1110.1	1110.5	1111.0	1108.9	1091.4	1087.3
32.5°	1067.5	1066.7	1068.4	1054.7	1035.5	1038.8
35°	1016.2	1021.2	1017.5	1000.9	973.4	969.2
37.5°	966.2	977.4	967.5	934.2	911.6	908.3
40°	905.3	920.7	906.2	866.5	847.4	857.4
42.5°	842.7	863.9	843.7	800.3	788.2	792.3
45°	775.1	804.7	776.0	731.8	730.2	741.8
47.5°	706.7	743.0	707.1	670.9	672.6	687.6
50°	633.7	665.8	634.6	608.3	625.0	632.5
52.5°	571.2	580.7	572.0	556.1	575.0	585.0
55°	503.2	488.6	504.0	502.7	524.4	528.6
57.5°	430.6	411.8	431.4	446.0	478.6	484.3
60°	361.3	351.7	361.7	388.0	423.9	430.6
62.5°	299.6	296.2	300.0	333.8	372.2	379.7
65°	247.8	254.6	248.3	276.6	315.0	327.6
67.5°	206.1	215.3	206.1	232.5	261.6	280.8
70°	169.5	179.5	169.5	191.1	212.0	232.8
72.5°	138.1	147.2	138.6	153.6	171.1	190.3
75°	109.7	120.5	109.7	118.9	133.6	154.5
77.5°	85.5	95.5	85.5	88.9	111.1	130.4
80°	63.9	72.1	63.9	70.2	99.0	112.9
82.5°	44.6	48.0	44.6	63.9	94.4	103.5
85°	34.3	28.0	35.1	64.3	96.0	102.1
87.5°	28.0	8.4	34.3	69.5	104.1	104.6
90°	18.5	1.3	35.2	78.9	112.4	111.8
92.5°	8.5	7.9	38.9	88.5	122.6	125.4
95°	2.6	18.6	46.7	98.3	133.3	135.0
97.5°	6.1	32.2	62.6	107.7	143.2	147.8
100°	15.4	49.0	81.6	121.8	151.3	155.9
102.5°	28.2	67.0	99.7	139.0	165.8	172.7
105°	45.4	87.8	118.6	161.4	184.4	190.5
107.5°	66.1	109.8	138.9	180.9	205.0	209.5
110°	87.2	133.7	158.3	199.8	226.3	231.6



TEST NUMBER: P392500

CATALOG NUMBER: MWL-2-18-38-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	110.2	157.4	178.6	217.5	248.8	252.7
115°	136.3	179.6	197.6	237.7	266.9	269.9
117.5°	159.7	206.0	217.0	253.6	286.7	287.2
120°	185.2	232.0	237.3	274.3	305.3	308.7
122.5°	210.3	255.8	255.8	292.0	321.5	323.8
125°	233.8	281.4	274.3	305.3	336.5	337.5
127.5°	257.6	307.5	294.7	322.5	351.1	349.8
130°	283.5	332.1	313.1	338.8	364.8	361.2
132.5°	308.2	359.5	333.0	355.6	379.3	381.9
135°	332.1	384.2	349.3	371.0	393.5	392.5
137.5°	355.1	407.1	369.1	382.4	402.7	405.4
140°	377.6	431.8	386.8	397.5	414.2	414.6
142.5°	401.3	456.5	406.2	412.4	427.0	424.3
145°	427.9	479.9	430.5	427.4	436.6	431.0
147.5°	451.3	500.2	447.8	438.4	449.5	442.0
150°	477.3	521.0	471.5	454.7	461.4	457.9
152.5°	501.2	537.2	497.5	466.6	474.1	469.7
155°	524.5	554.5	522.7	477.7	483.9	482.1
157.5°	544.7	569.5	541.7	490.0	497.0	493.6
160°	562.4	581.1	563.8	508.7	505.9	505.9
162.5°	577.9	592.9	579.3	533.8	514.8	507.2
165°	591.6	602.2	592.9	562.0	533.4	526.7
167.5°	603.5	611.0	607.5	585.0	562.0	546.1
170°	614.6	619.0	614.1	603.5	592.9	579.3
172.5°	619.8	621.6	624.7	617.7	614.1	604.5
175°	622.9	627.8	625.1	627.3	622.5	619.9
177.5°	624.7	625.5	625.0	628.2	629.6	626.5
180°	627.3	627.3	627.3	627.3	627.3	627.3

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