

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: P392518

Luminaire Tested: **MWL-2-28-13-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392518
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-2-28-13-UNV-L935-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

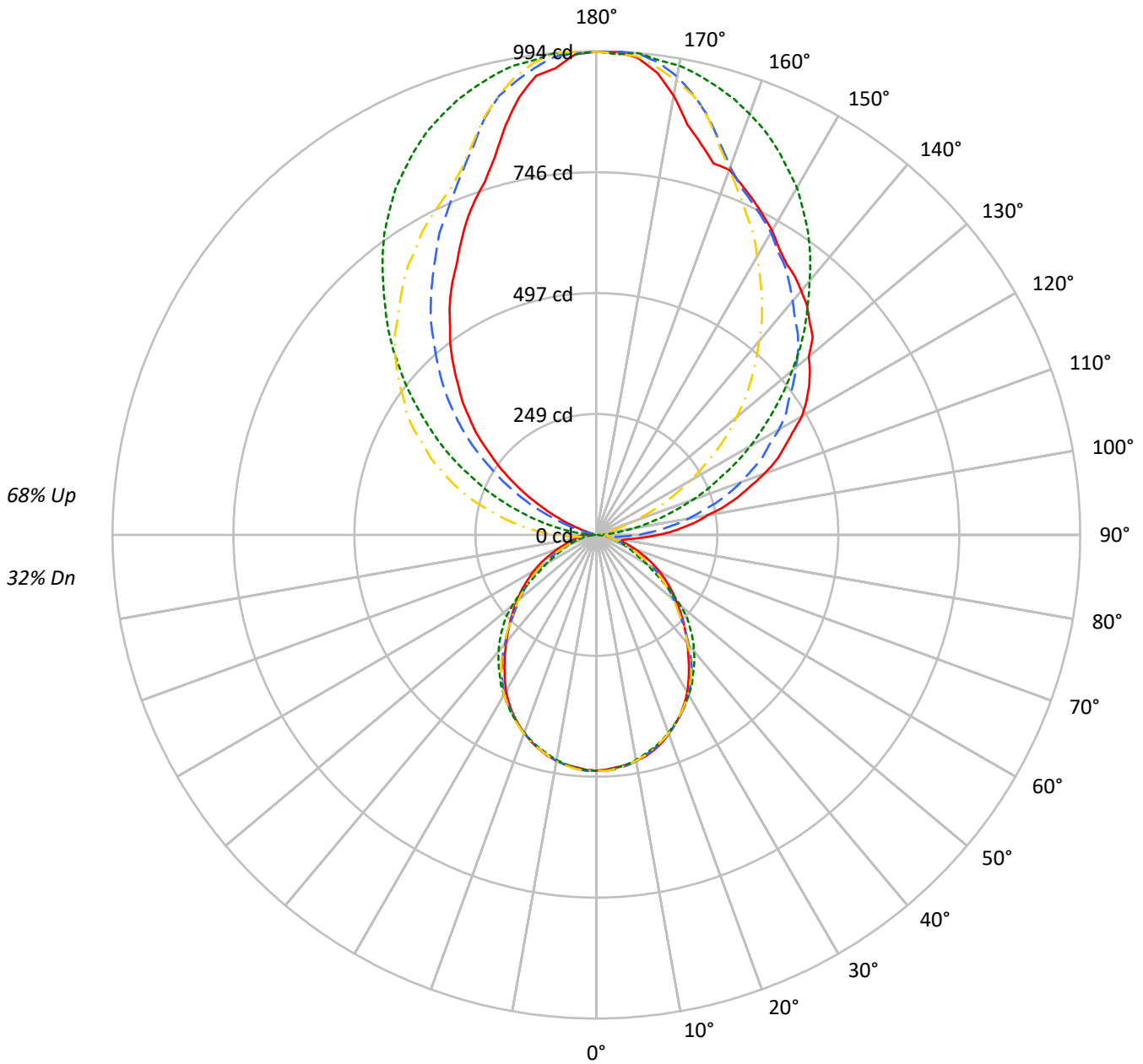
Lumens per Lamp: N/A
Luminaire Lumens: 3475.7 lumens
Efficiency: N/A
Efficacy: 77.0 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Indirect

Input Watts (W): 45.147
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: 25 FT



TEST NUMBER: P392518
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Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270° - - - 135°-315°



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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	0
RCR																		
0	103	103	103	103	93	93	93	93	73	73	73	56	56	56	40	40	40	32
1	94	90	86	82	84	81	78	75	64	62	60	49	48	46	35	34	33	27
2	86	78	73	68	77	71	66	62	56	53	50	43	41	39	31	30	28	23
3	78	69	62	57	70	62	57	52	50	46	42	38	36	33	28	26	25	20
4	72	61	54	48	64	55	49	44	45	40	36	34	31	29	25	23	21	17
5	66	55	47	41	59	49	43	38	40	35	31	31	28	25	23	20	19	15
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	21	18	17	13
7	56	44	36	31	50	40	33	29	33	28	24	25	22	19	19	16	15	12
8	52	40	33	27	47	36	30	25	30	25	21	23	20	17	17	15	13	11
9	48	36	29	24	43	33	27	23	27	22	19	21	18	15	16	14	12	10
10	45	33	26	22	40	30	24	20	25	20	17	20	16	14	15	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	6261	6261	6261	6261
5°	6103	5727	6103	5727
10°	5964	5237	5964	5237
15°	5797	4780	5769	4780
20°	5560	4359	5532	4359
25°	5296	3969	5269	3969
30°	4973	3592	4937	3592
35°	4558	3214	4527	3214
40°	4178	2862	4138	2862
45°	3810	2493	3778	2493
50°	3466	2061	3430	2061
55°	3160	1528	3134	1528
60°	2827	1116	2811	1116
65°	2423	816	2423	816
70°	2018	612	2034	612
75°	1586	439	1645	439
80°	1927	278	1470	278
85°	3585	117	1587	117



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.6	1.3
10°-20°	128.2	3.7
20°-30°	187.6	5.4
30°-40°	211.9	6.1
40°-50°	197.0	5.7
50°-60°	154.9	4.5
60°-70°	98.4	2.8
70°-80°	49.6	1.4
80°-90°	38.9	1.1
90°-100°	74.8	2.2
100°-110°	152.5	4.4
110°-120°	263.7	7.6
120°-130°	358.3	10.3
130°-140°	408.7	11.8
140°-150°	407.7	11.7
150°-160°	355.1	10.2
160°-170°	249.8	7.2
170°-180°	93.0	2.7
0°-30°	361.4	10.4
0°-40°	573.3	16.5
0°-60°	925.3	26.6
0°-90°	1112.1	32.0
90°-120°	491.0	14.1
90°-150°	1665.7	47.9
90°-180°	2364.0	68.0
0°-180°	3475.7	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	485	485	485	485	485	
5°	479	480	479	480	479	46
15°	458	453	456	453	458	129
25°	408	408	406	408	408	187
35°	331	346	329	346	331	207
45°	252	273	250	273	252	195
55°	182	165	181	165	182	163
65°	115	84	115	84	115	114
75°	56	42	59	42	56	66
85°	82	10	36	10	82	62
90°	126	1	21	1	126	70
95°	179	28	13	28	179	158
105°	301	138	6	138	301	317
115°	426	284	98	284	426	423
125°	533	444	242	444	533	476
135°	620	606	390	606	620	478
145°	681	759	524	759	681	429
155°	761	877	660	877	761	351
165°	832	954	804	954	832	236
175°	984	994	963	994	984	92
180°	993	993	993	993	993	



TEST NUMBER: P392518

CATALOG NUMBER: MWL-2-28-13-UNV-L935-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	484.7	484.7	484.7	484.7	484.7	484.7	484.7	484.7	484.7	484.7	484.7
2.5°	482.5	483.9	485.3	484.4	483.6	483.7	485.3	483.9	483.2	483.9	485.3
5°	479.3	481.4	482.8	481.2	480.3	481.2	482.2	481.4	479.3	481.4	482.2
7.5°	476.6	478.0	478.0	477.0	476.1	476.3	477.3	477.3	476.6	477.3	477.3
10°	471.4	472.2	472.2	471.3	469.7	470.5	471.4	470.7	471.4	470.7	471.4
12.5°	466.1	465.4	463.9	463.0	461.6	463.0	463.9	464.1	464.8	464.1	463.9
15°	457.7	456.3	455.5	455.5	453.2	454.8	454.8	454.8	455.5	454.8	454.8
17.5°	447.7	446.3	445.5	444.8	444.0	444.8	444.8	445.5	445.5	445.5	444.8
20°	435.2	435.2	434.6	433.2	432.5	432.5	434.0	433.9	433.0	433.9	434.0
22.5°	422.0	422.0	422.1	422.3	420.8	421.7	421.5	420.5	420.5	420.5	421.5
25°	407.7	407.7	408.8	409.0	408.3	408.3	407.3	405.6	405.6	405.6	407.3
27.5°	391.1	391.8	394.5	395.5	394.2	394.8	393.1	389.8	389.0	389.8	393.1
30°	373.5	375.2	379.3	381.2	379.9	379.8	377.3	373.1	370.8	373.1	377.3
32.5°	352.7	355.2	361.0	365.4	364.7	364.0	359.0	352.4	349.9	352.4	359.0
35°	331.2	333.7	341.2	347.8	346.5	345.8	339.0	331.5	329.0	331.5	339.0
37.5°	310.3	311.2	319.4	329.5	330.6	327.4	317.4	309.0	308.2	309.0	317.4
40°	291.1	289.4	295.3	309.5	312.2	308.2	292.4	286.6	288.3	286.6	292.4
42.5°	271.0	268.5	272.0	287.9	293.8	286.5	269.9	265.8	268.3	265.8	269.9
45°	252.0	249.5	248.6	264.5	273.0	263.2	245.8	247.4	249.9	247.4	245.8
47.5°	234.4	230.3	227.8	239.6	253.0	238.9	225.0	228.2	232.4	228.2	225.0
50°	215.3	213.6	208.6	215.4	224.8	214.0	205.8	210.8	213.1	210.8	205.8
52.5°	199.4	196.9	189.6	192.9	196.4	191.5	187.5	194.2	197.3	194.2	187.5
55°	182.1	180.3	171.2	170.5	164.8	169.1	169.1	178.3	180.6	178.3	169.1
57.5°	165.3	163.7	153.7	147.2	138.1	145.7	151.6	161.6	164.0	161.6	151.6
60°	148.9	147.2	134.7	124.7	118.0	124.1	133.2	145.7	148.1	145.7	133.2
62.5°	133.0	129.7	115.5	103.0	99.1	102.3	114.1	128.2	132.3	128.2	114.1
65°	114.7	110.5	97.2	86.4	84.0	85.7	96.6	109.8	114.7	109.8	96.6
67.5°	98.9	93.0	82.1	71.5	72.3	71.5	81.5	92.3	98.9	92.3	81.5
70°	84.0	76.5	66.5	59.0	60.7	59.0	66.5	77.1	84.7	77.1	66.5
72.5°	69.8	61.5	54.0	48.1	49.9	47.4	54.0	62.1	71.3	62.1	54.0
75°	56.5	49.8	41.6	38.2	41.6	38.2	42.3	50.5	58.6	50.5	42.3
77.5°	52.9	43.4	32.4	29.9	33.2	29.9	33.1	41.3	50.0	41.3	33.1
80°	56.5	46.6	27.0	23.2	24.9	23.2	25.6	35.4	43.1	35.4	25.6
82.5°	65.8	57.0	31.3	16.5	17.3	16.5	22.9	31.7	39.1	31.7	22.9
85°	81.8	74.6	44.2	14.5	9.8	13.1	23.9	31.9	36.2	31.9	23.9
87.5°	102.8	97.3	62.0	22.5	2.5	12.7	22.0	29.9	30.5	29.9	22.0
90°	126.0	120.6	84.7	34.7	0.7	8.1	15.4	21.7	20.8	21.7	15.4
92.5°	154.4	147.6	108.2	53.2	11.3	4.7	12.1	17.9	16.8	17.9	12.1
95°	179.2	175.9	135.0	73.0	28.0	2.8	8.8	13.1	12.9	13.1	8.8
97.5°	207.6	203.2	162.6	98.2	49.8	8.5	7.5	10.4	11.2	10.4	7.5
100°	231.6	230.1	191.7	128.4	76.5	23.2	5.8	9.8	10.6	9.8	5.8
102.5°	269.1	259.9	219.6	157.2	105.2	43.5	10.5	7.2	8.1	7.2	10.5
105°	301.1	291.2	254.0	187.3	138.2	70.8	27.4	9.2	5.8	9.2	27.4
107.5°	331.3	324.3	285.7	218.1	173.3	102.4	52.0	26.7	16.9	26.7	52.0
110°	366.4	357.9	315.9	249.9	209.8	136.9	79.4	49.2	38.1	49.2	79.4



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CATALOG NUMBER: MWL-2-28-13-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	400.0	393.7	343.9	282.2	248.4	173.4	113.0	77.3	66.8	77.3	113.0
115°	426.0	422.5	376.2	312.4	283.5	214.9	150.2	110.3	97.6	110.3	150.2
117.5°	453.4	452.7	400.0	343.3	325.7	252.0	184.7	143.2	129.9	143.2	184.7
120°	487.7	482.2	433.0	374.1	365.7	291.2	222.5	181.1	167.7	181.1	222.5
122.5°	511.6	508.1	461.0	403.6	403.6	331.3	259.0	217.6	203.6	217.6	259.0
125°	533.4	532.0	482.2	433.0	444.3	368.5	299.7	257.7	242.2	257.7	299.7
127.5°	552.9	555.1	509.5	465.3	485.6	406.4	339.7	293.5	277.2	293.5	339.7
130°	569.9	576.8	535.4	494.8	525.0	447.8	375.4	329.1	318.7	329.1	375.4
132.5°	602.8	598.6	562.1	525.0	567.0	485.6	413.4	364.9	353.0	364.9	413.4
135°	619.6	621.0	585.3	550.9	606.3	523.5	449.1	401.5	389.5	401.5	449.1
137.5°	640.0	635.8	603.4	582.5	642.8	560.0	484.3	440.0	421.1	440.0	484.3
140°	654.7	654.0	627.3	610.6	682.0	595.8	520.1	475.1	457.5	475.1	520.1
142.5°	670.1	674.4	651.2	641.4	721.4	633.6	558.6	509.5	492.6	509.5	558.6
145°	680.7	689.8	675.0	680.0	758.6	675.8	592.3	542.5	524.2	542.5	592.3
147.5°	698.3	710.2	692.6	707.3	790.8	712.9	626.0	576.8	560.7	576.8	626.0
150°	722.1	727.7	717.2	745.2	823.8	754.3	660.4	609.8	593.7	609.8	660.4
152.5°	741.1	748.0	736.1	786.6	849.8	792.3	698.3	642.1	623.2	642.1	698.3
155°	760.6	763.5	755.0	826.7	877.1	829.4	728.4	677.9	659.6	677.9	728.4
157.5°	778.9	784.5	774.7	856.8	901.0	861.7	762.7	713.7	697.5	713.7	762.7
160°	798.5	798.5	804.1	891.9	920.6	889.7	799.3	753.0	730.5	753.0	799.3
162.5°	800.6	814.0	844.2	916.4	939.5	914.3	838.6	781.0	761.4	781.0	838.6
165°	831.5	843.4	889.0	938.2	954.3	936.0	887.0	827.3	804.1	827.3	887.0
167.5°	863.8	889.0	925.5	962.7	968.3	956.4	924.1	882.7	861.7	882.7	924.1
170°	916.4	938.2	956.4	971.8	979.6	972.6	947.3	926.9	913.6	926.9	947.3
172.5°	957.8	971.8	978.8	988.7	983.8	981.0	968.3	958.6	951.4	958.6	968.3
175°	983.8	986.6	992.9	989.4	993.6	985.9	986.6	991.5	962.7	991.5	986.6
177.5°	992.9	997.8	994.2	988.0	988.7	987.2	990.1	992.9	988.7	992.9	990.1
180°	992.9	992.9	992.9	992.9	992.9	992.9	992.9	992.9	992.9	992.9	992.9



TEST NUMBER: P392518

CATALOG NUMBER: MWL-2-28-13-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	484.7	484.7	484.7	484.7	484.7	484.7
2.5°	483.7	483.6	484.4	485.3	483.9	482.5
5°	481.2	480.3	481.2	482.8	481.4	479.3
7.5°	476.3	476.1	477.0	478.0	478.0	476.6
10°	470.5	469.7	471.3	472.2	472.2	471.4
12.5°	463.0	461.6	463.0	463.9	465.4	466.1
15°	454.8	453.2	455.5	455.5	456.3	457.7
17.5°	444.8	444.0	444.8	445.5	446.3	447.7
20°	432.5	432.5	433.2	434.6	435.2	435.2
22.5°	421.7	420.8	422.3	422.1	422.0	422.0
25°	408.3	408.3	409.0	408.8	407.7	407.7
27.5°	394.8	394.2	395.5	394.5	391.8	391.1
30°	379.8	379.9	381.2	379.3	375.2	373.5
32.5°	364.0	364.7	365.4	361.0	355.2	352.7
35°	345.8	346.5	347.8	341.2	333.7	331.2
37.5°	327.4	330.6	329.5	319.4	311.2	310.3
40°	308.2	312.2	309.5	295.3	289.4	291.1
42.5°	286.5	293.8	287.9	272.0	268.5	271.0
45°	263.2	273.0	264.5	248.6	249.5	252.0
47.5°	238.9	253.0	239.6	227.8	230.3	234.4
50°	214.0	224.8	215.4	208.6	213.6	215.3
52.5°	191.5	196.4	192.9	189.6	196.9	199.4
55°	169.1	164.8	170.5	171.2	180.3	182.1
57.5°	145.7	138.1	147.2	153.7	163.7	165.3
60°	124.1	118.0	124.7	134.7	147.2	148.9
62.5°	102.3	99.1	103.0	115.5	129.7	133.0
65°	85.7	84.0	86.4	97.2	110.5	114.7
67.5°	71.5	72.3	71.5	82.1	93.0	98.9
70°	59.0	60.7	59.0	66.5	76.5	84.0
72.5°	47.4	49.9	48.1	54.0	61.5	69.8
75°	38.2	41.6	38.2	41.6	49.8	56.5
77.5°	29.9	33.2	29.9	32.4	43.4	52.9
80°	23.2	24.9	23.2	27.0	46.6	56.5
82.5°	16.5	17.3	16.5	31.3	57.0	65.8
85°	13.1	9.8	14.5	44.2	74.6	81.8
87.5°	12.7	2.5	22.5	62.0	97.3	102.8
90°	8.1	0.7	34.7	84.7	120.6	126.0
92.5°	4.7	11.3	53.2	108.2	147.6	154.4
95°	2.8	28.0	73.0	135.0	175.9	179.2
97.5°	8.5	49.8	98.2	162.6	203.2	207.6
100°	23.2	76.5	128.4	191.7	230.1	231.6
102.5°	43.5	105.2	157.2	219.6	259.9	269.1
105°	70.8	138.2	187.3	254.0	291.2	301.1
107.5°	102.4	173.3	218.1	285.7	324.3	331.3
110°	136.9	209.8	249.9	315.9	357.9	366.4



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	173.4	248.4	282.2	343.9	393.7	400.0
115°	214.9	283.5	312.4	376.2	422.5	426.0
117.5°	252.0	325.7	343.3	400.0	452.7	453.4
120°	291.2	365.7	374.1	433.0	482.2	487.7
122.5°	331.3	403.6	403.6	461.0	508.1	511.6
125°	368.5	444.3	433.0	482.2	532.0	533.4
127.5°	406.4	485.6	465.3	509.5	555.1	552.9
130°	447.8	525.0	494.8	535.4	576.8	569.9
132.5°	485.6	567.0	525.0	562.1	598.6	602.8
135°	523.5	606.3	550.9	585.3	621.0	619.6
137.5°	560.0	642.8	582.5	603.4	635.8	640.0
140°	595.8	682.0	610.6	627.3	654.0	654.7
142.5°	633.6	721.4	641.4	651.2	674.4	670.1
145°	675.8	758.6	680.0	675.0	689.8	680.7
147.5°	712.9	790.8	707.3	692.6	710.2	698.3
150°	754.3	823.8	745.2	717.2	727.7	722.1
152.5°	792.3	849.8	786.6	736.1	748.0	741.1
155°	829.4	877.1	826.7	755.0	763.5	760.6
157.5°	861.7	901.0	856.8	774.7	784.5	778.9
160°	889.7	920.6	891.9	804.1	798.5	798.5
162.5°	914.3	939.5	916.4	844.2	814.0	800.6
165°	936.0	954.3	938.2	889.0	843.4	831.5
167.5°	956.4	968.3	962.7	925.5	889.0	863.8
170°	972.6	979.6	971.8	956.4	938.2	916.4
172.5°	981.0	983.8	988.7	978.8	971.8	957.8
175°	985.9	993.6	989.4	992.9	986.6	983.8
177.5°	987.2	988.7	988.0	994.2	997.8	992.9
180°	992.9	992.9	992.9	992.9	992.9	992.9

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