

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: P392517

Luminaire Tested: **MWL-2-28-13-UNV-L930-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392517
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-L930-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

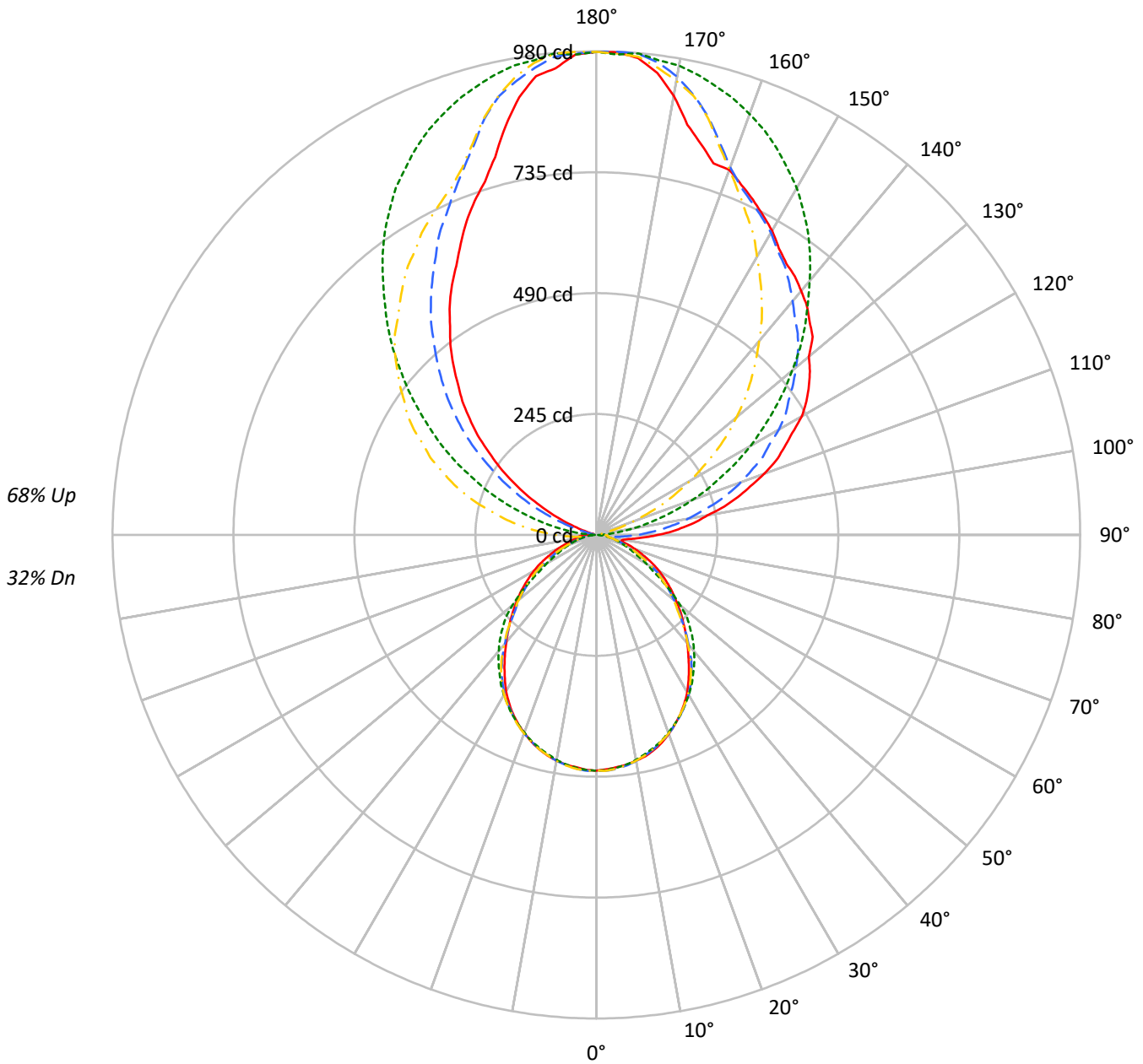
Lumens per Lamp: N/A
Luminaire Lumens: 3426.1 lumens
Efficiency: N/A
Efficacy: 75.9 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Indirect

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



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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°	6172	6172	6172	6172
5°	6016	5644	6016	5644
10°	5878	5161	5878	5161
15°	5715	4711	5688	4711
20°	5481	4296	5453	4296
25°	5221	3912	5193	3912
30°	4902	3541	4866	3541
35°	4492	3168	4464	3168
40°	4119	2821	4078	2821
45°	3755	2458	3723	2458
50°	3416	2031	3382	2031
55°	3114	1507	3089	1507
60°	2785	1101	2772	1101
65°	2389	806	2389	806
70°	1991	603	2006	603
75°	1561	431	1623	431
80°	1896	273	1449	273
85°	3533	116	1560	116



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.0	1.3
10°-20°	126.4	3.7
20°-30°	184.9	5.4
30°-40°	208.9	6.1
40°-50°	194.2	5.7
50°-60°	152.7	4.5
60°-70°	97.0	2.8
70°-80°	48.9	1.4
80°-90°	38.3	1.1
90°-100°	73.7	2.2
100°-110°	150.3	4.4
110°-120°	260.0	7.6
120°-130°	353.2	10.3
130°-140°	402.9	11.8
140°-150°	401.9	11.7
150°-160°	350.0	10.2
160°-170°	246.2	7.2
170°-180°	91.7	2.7
0°-30°	356.3	10.4
0°-40°	565.1	16.5
0°-60°	912.0	26.6
0°-90°	1096.2	32.0
90°-120°	484.0	14.1
90°-150°	1641.9	47.9
90°-180°	2330.0	68.0
0°-180°	3426.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	478	478	478	478	478	
5°	472	473	472	473	472	45
15°	451	447	449	447	451	127
25°	402	402	400	402	402	185
35°	326	342	324	342	326	204
45°	248	269	246	269	248	192
55°	179	162	178	162	179	161
65°	113	83	113	83	113	113
75°	56	41	58	41	56	65
85°	81	10	36	10	81	61
90°	124	1	20	1	124	69
95°	177	28	13	28	177	156
105°	297	136	6	136	297	312
115°	420	280	96	280	420	417
125°	526	438	239	438	526	469
135°	611	598	384	598	611	471
145°	671	748	517	748	671	423
155°	750	865	650	865	750	346
165°	820	941	793	941	820	233
175°	970	979	949	979	970	90
180°	979	979	979	979	979	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	477.8	477.8	477.8	477.8	477.8	477.8	477.8	477.8	477.8	477.8	477.8
2.5°	475.6	477.0	478.4	477.5	476.6	476.7	478.4	477.0	476.4	477.0	478.4
5°	472.4	474.5	475.9	474.2	473.4	474.2	475.3	474.5	472.4	474.5	475.3
7.5°	469.7	471.2	471.2	470.2	469.3	469.5	470.4	470.4	469.7	470.4	470.4
10°	464.6	465.3	465.3	464.6	462.9	463.8	464.6	464.0	464.6	464.0	464.6
12.5°	459.4	458.8	457.2	456.5	455.0	456.5	457.2	457.4	458.0	457.4	457.2
15°	451.2	449.8	449.1	449.1	446.7	448.4	448.4	448.4	449.1	448.4	448.4
17.5°	441.3	439.9	439.2	438.5	437.7	438.5	438.5	439.2	439.2	439.2	438.5
20°	429.0	429.1	428.5	427.0	426.3	426.3	427.8	427.7	426.8	427.7	427.8
22.5°	415.9	415.9	416.1	416.3	414.8	415.6	415.5	414.5	414.5	414.5	415.5
25°	401.9	401.9	402.9	403.1	402.5	402.5	401.5	399.8	399.8	399.8	401.5
27.5°	385.5	386.3	388.9	389.8	388.5	389.2	387.5	384.3	383.4	384.3	387.5
30°	368.2	369.8	373.9	375.7	374.5	374.4	371.9	367.8	365.5	367.8	371.9
32.5°	347.6	350.1	355.8	360.1	359.5	358.7	353.8	347.4	344.9	347.4	353.8
35°	326.4	328.9	336.3	342.9	341.6	340.8	334.2	326.8	324.4	326.8	334.2
37.5°	305.9	306.7	314.9	324.7	325.8	322.7	312.8	304.7	303.8	304.7	312.8
40°	287.0	285.3	291.0	305.1	307.7	303.8	288.3	282.5	284.1	282.5	288.3
42.5°	267.2	264.8	268.1	283.7	289.7	282.4	266.0	261.9	264.4	261.9	266.0
45°	248.4	245.9	245.0	260.7	269.1	259.4	242.3	243.8	246.3	243.8	242.3
47.5°	231.1	227.0	224.5	236.2	249.4	235.5	221.8	224.9	229.0	224.9	221.8
50°	212.2	210.5	205.6	212.4	221.5	211.0	202.9	207.8	210.1	207.8	202.9
52.5°	196.5	194.1	186.8	190.1	193.6	188.8	184.8	191.3	194.5	191.3	184.8
55°	179.4	177.8	168.8	168.1	162.5	166.7	166.7	175.7	178.0	175.7	166.7
57.5°	163.0	161.4	151.4	145.1	136.1	143.7	149.4	159.3	161.6	159.3	149.4
60°	146.7	145.1	132.7	122.9	116.4	122.3	131.4	143.7	146.0	143.7	131.4
62.5°	131.1	127.8	113.8	101.5	97.6	100.9	112.4	126.4	130.3	126.4	112.4
65°	113.1	109.0	95.8	85.1	82.9	84.4	95.2	108.3	113.1	108.3	95.2
67.5°	97.5	91.7	81.0	70.4	71.3	70.4	80.4	91.0	97.5	91.0	80.4
70°	82.9	75.4	65.5	58.1	59.8	58.1	65.5	76.1	83.5	76.1	65.5
72.5°	68.9	60.6	53.2	47.5	49.2	46.8	53.2	61.3	70.3	61.3	53.2
75°	55.6	49.1	40.9	37.7	40.9	37.7	41.7	49.7	57.8	49.7	41.7
77.5°	52.1	42.8	31.9	29.4	32.8	29.4	32.7	40.7	49.3	40.7	32.7
80°	55.6	45.9	26.7	22.9	24.5	22.9	25.3	34.9	42.5	34.9	25.3
82.5°	64.9	56.2	30.8	16.3	17.1	16.3	22.5	31.3	38.6	31.3	22.5
85°	80.6	73.6	43.6	14.4	9.7	12.9	23.5	31.5	35.6	31.5	23.5
87.5°	101.3	96.0	61.1	22.2	2.5	12.5	21.7	29.5	30.1	29.5	21.7
90°	124.2	119.0	83.6	34.3	0.6	8.0	15.1	21.4	20.5	21.4	15.1
92.5°	152.2	145.5	106.6	52.4	11.1	4.7	11.9	17.6	16.6	17.6	11.9
95°	176.6	173.4	133.1	71.9	27.6	2.8	8.6	12.9	12.8	12.9	8.6
97.5°	204.6	200.3	160.3	96.8	49.1	8.3	7.4	10.2	11.0	10.2	7.4
100°	228.3	226.8	188.9	126.5	75.4	22.9	5.6	9.6	10.5	9.6	5.6
102.5°	265.2	256.1	216.4	155.0	103.7	42.9	10.4	7.1	8.0	7.1	10.4
105°	296.8	287.1	250.3	184.6	136.3	69.8	26.9	9.2	5.6	9.2	26.9
107.5°	326.6	319.6	281.6	215.0	170.8	101.0	51.3	26.4	16.7	26.4	51.3
110°	361.1	352.8	311.3	246.3	206.7	135.0	78.3	48.5	37.5	48.5	78.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	394.4	388.1	339.0	278.1	244.9	171.0	111.5	76.3	65.8	76.3	111.5
115°	419.9	416.5	370.8	307.9	279.6	211.8	148.1	108.7	96.2	108.7	148.1
117.5°	446.9	446.2	394.4	338.3	320.9	248.4	182.0	141.2	128.0	141.2	182.0
120°	480.8	475.3	426.8	368.8	360.5	287.1	219.3	178.6	165.4	178.6	219.3
122.5°	504.3	500.8	454.4	397.8	397.8	326.6	255.3	214.5	200.7	214.5	255.3
125°	525.7	524.3	475.3	426.8	438.0	363.2	295.4	253.9	238.7	253.9	295.4
127.5°	545.1	547.1	502.2	458.7	478.7	400.5	334.9	289.2	273.3	289.2	334.9
130°	561.7	568.6	527.8	487.7	517.5	441.4	370.1	324.5	314.1	324.5	370.1
132.5°	594.2	590.0	554.0	517.5	558.9	478.7	407.5	359.7	348.0	359.7	407.5
135°	610.8	612.2	576.9	543.0	597.6	516.1	442.7	395.7	384.0	395.7	442.7
137.5°	630.9	626.7	594.9	574.1	633.6	552.0	477.3	433.7	415.1	433.7	477.3
140°	645.3	644.7	618.4	601.8	672.3	587.3	512.6	468.3	451.0	468.3	512.6
142.5°	660.6	664.7	641.9	632.3	711.0	624.6	550.6	502.2	485.6	502.2	550.6
145°	670.9	679.9	665.4	670.2	747.7	666.1	583.8	534.7	516.7	534.7	583.8
147.5°	688.3	700.0	682.7	697.2	779.5	702.7	617.1	568.6	552.7	568.6	617.1
150°	711.8	717.3	707.0	734.5	812.0	743.5	651.0	601.1	585.2	601.1	651.0
152.5°	730.5	737.3	725.6	775.4	837.6	780.9	688.3	632.9	614.2	632.9	688.3
155°	749.7	752.6	744.3	814.8	864.6	817.5	718.0	668.2	650.2	668.2	718.0
157.5°	767.8	773.3	763.6	844.5	888.1	849.3	751.9	703.4	687.5	703.4	751.9
160°	787.1	787.1	792.6	879.1	907.4	877.0	787.9	742.2	720.1	742.2	787.9
162.5°	789.2	802.3	832.1	903.3	926.1	901.3	826.6	769.8	750.5	769.8	826.6
165°	819.6	831.4	876.4	924.8	940.6	922.7	874.2	815.5	792.6	815.5	874.2
167.5°	851.4	876.4	912.3	948.9	954.5	942.7	910.9	870.1	849.3	870.1	910.9
170°	903.3	924.8	942.7	957.9	965.6	958.7	933.8	913.7	900.5	913.7	933.8
172.5°	944.1	957.9	964.9	974.5	969.7	967.0	954.5	944.9	937.8	944.9	954.5
175°	969.7	972.5	978.7	975.2	979.4	971.7	972.5	977.4	948.9	977.4	972.5
177.5°	978.7	983.5	980.0	973.8	974.5	973.1	975.9	978.7	974.5	978.7	975.9
180°	978.7	978.7	978.7	978.7	978.7	978.7	978.7	978.7	978.7	978.7	978.7



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CATALOG NUMBER: MWL-2-28-13-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	477.8	477.8	477.8	477.8	477.8	477.8
2.5°	476.7	476.6	477.5	478.4	477.0	475.6
5°	474.2	473.4	474.2	475.9	474.5	472.4
7.5°	469.5	469.3	470.2	471.2	471.2	469.7
10°	463.8	462.9	464.6	465.3	465.3	464.6
12.5°	456.5	455.0	456.5	457.2	458.8	459.4
15°	448.4	446.7	449.1	449.1	449.8	451.2
17.5°	438.5	437.7	438.5	439.2	439.9	441.3
20°	426.3	426.3	427.0	428.5	429.1	429.0
22.5°	415.6	414.8	416.3	416.1	415.9	415.9
25°	402.5	402.5	403.1	402.9	401.9	401.9
27.5°	389.2	388.5	389.8	388.9	386.3	385.5
30°	374.4	374.5	375.7	373.9	369.8	368.2
32.5°	358.7	359.5	360.1	355.8	350.1	347.6
35°	340.8	341.6	342.9	336.3	328.9	326.4
37.5°	322.7	325.8	324.7	314.9	306.7	305.9
40°	303.8	307.7	305.1	291.0	285.3	287.0
42.5°	282.4	289.7	283.7	268.1	264.8	267.2
45°	259.4	269.1	260.7	245.0	245.9	248.4
47.5°	235.5	249.4	236.2	224.5	227.0	231.1
50°	211.0	221.5	212.4	205.6	210.5	212.2
52.5°	188.8	193.6	190.1	186.8	194.1	196.5
55°	166.7	162.5	168.1	168.8	177.8	179.4
57.5°	143.7	136.1	145.1	151.4	161.4	163.0
60°	122.3	116.4	122.9	132.7	145.1	146.7
62.5°	100.9	97.6	101.5	113.8	127.8	131.1
65°	84.4	82.9	85.1	95.8	109.0	113.1
67.5°	70.4	71.3	70.4	81.0	91.7	97.5
70°	58.1	59.8	58.1	65.5	75.4	82.9
72.5°	46.8	49.2	47.5	53.2	60.6	68.9
75°	37.7	40.9	37.7	40.9	49.1	55.6
77.5°	29.4	32.8	29.4	31.9	42.8	52.1
80°	22.9	24.5	22.9	26.7	45.9	55.6
82.5°	16.3	17.1	16.3	30.8	56.2	64.9
85°	12.9	9.7	14.4	43.6	73.6	80.6
87.5°	12.5	2.5	22.2	61.1	96.0	101.3
90°	8.0	0.6	34.3	83.6	119.0	124.2
92.5°	4.7	11.1	52.4	106.6	145.5	152.2
95°	2.8	27.6	71.9	133.1	173.4	176.6
97.5°	8.3	49.1	96.8	160.3	200.3	204.6
100°	22.9	75.4	126.5	188.9	226.8	228.3
102.5°	42.9	103.7	155.0	216.4	256.1	265.2
105°	69.8	136.3	184.6	250.3	287.1	296.8
107.5°	101.0	170.8	215.0	281.6	319.6	326.6
110°	135.0	206.7	246.3	311.3	352.8	361.1



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	171.0	244.9	278.1	339.0	388.1	394.4
115°	211.8	279.6	307.9	370.8	416.5	419.9
117.5°	248.4	320.9	338.3	394.4	446.2	446.9
120°	287.1	360.5	368.8	426.8	475.3	480.8
122.5°	326.6	397.8	397.8	454.4	500.8	504.3
125°	363.2	438.0	426.8	475.3	524.3	525.7
127.5°	400.5	478.7	458.7	502.2	547.1	545.1
130°	441.4	517.5	487.7	527.8	568.6	561.7
132.5°	478.7	558.9	517.5	554.0	590.0	594.2
135°	516.1	597.6	543.0	576.9	612.2	610.8
137.5°	552.0	633.6	574.1	594.9	626.7	630.9
140°	587.3	672.3	601.8	618.4	644.7	645.3
142.5°	624.6	711.0	632.3	641.9	664.7	660.6
145°	666.1	747.7	670.2	665.4	679.9	670.9
147.5°	702.7	779.5	697.2	682.7	700.0	688.3
150°	743.5	812.0	734.5	707.0	717.3	711.8
152.5°	780.9	837.6	775.4	725.6	737.3	730.5
155°	817.5	864.6	814.8	744.3	752.6	749.7
157.5°	849.3	888.1	844.5	763.6	773.3	767.8
160°	877.0	907.4	879.1	792.6	787.1	787.1
162.5°	901.3	926.1	903.3	832.1	802.3	789.2
165°	922.7	940.6	924.8	876.4	831.4	819.6
167.5°	942.7	954.5	948.9	912.3	876.4	851.4
170°	958.7	965.6	957.9	942.7	924.8	903.3
172.5°	967.0	969.7	974.5	964.9	957.9	944.1
175°	971.7	979.4	975.2	978.7	972.5	969.7
177.5°	973.1	974.5	973.8	980.0	983.5	978.7
180°	978.7	978.7	978.7	978.7	978.7	978.7

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