

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: P392521

Luminaire Tested: **MWL-2-28-17-UNV-L935-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392521  
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-2-28-17-UNV-L935-EDD  
Description: MWL 2FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

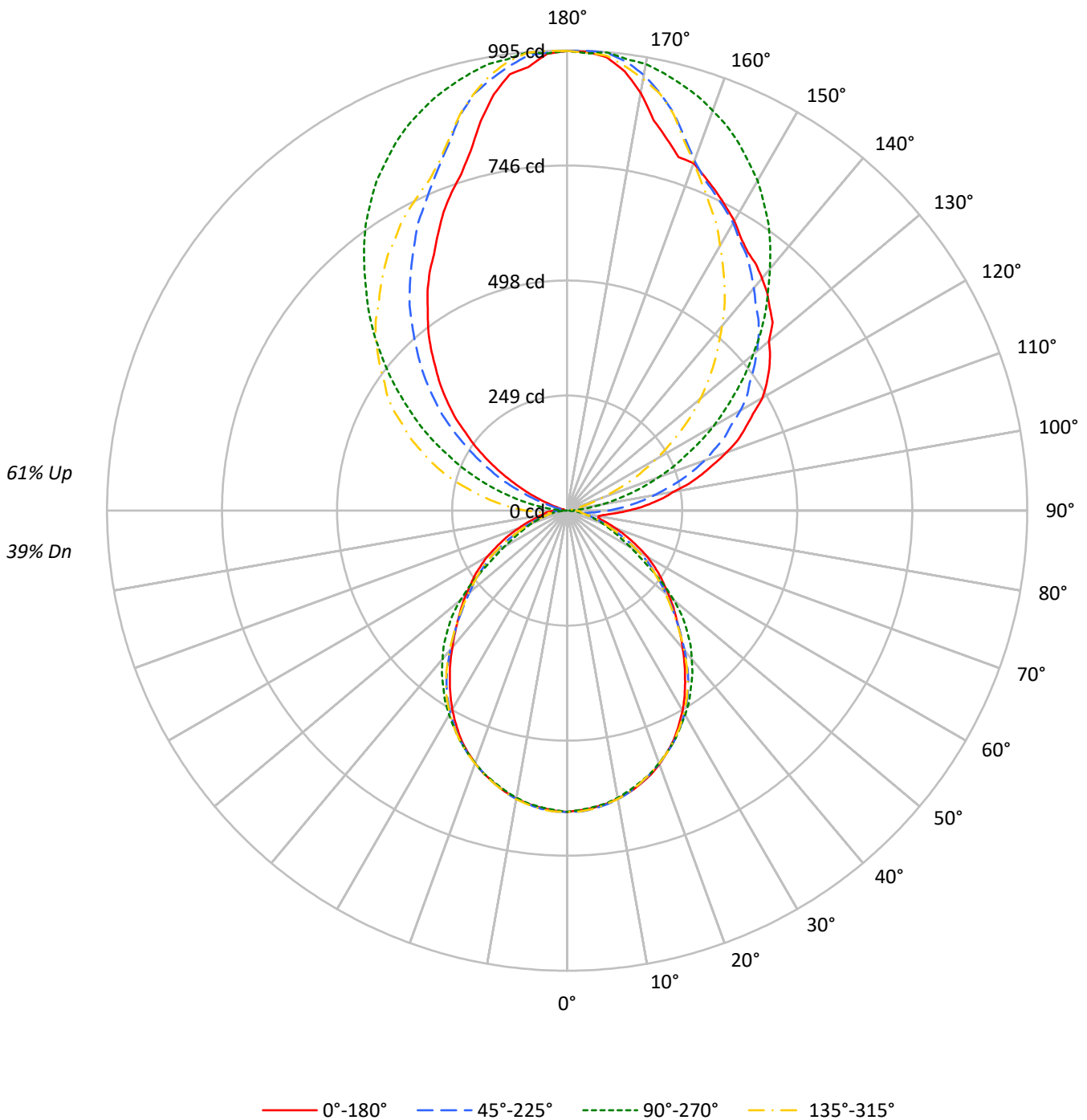
Lumens per Lamp: N/A  
Luminaire Lumens: 3850.2 lumens  
Efficiency: N/A  
Efficacy: 77.2 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')  
CIE Type: Semi-Indirect

Input Watts (W): 49.894  
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





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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	104	104	104	104	95	95	95	95	77	77	77	61	61	61	46	46	46	39
1	95	91	87	84	86	83	80	77	68	65	63	53	52	51	40	39	39	33
2	87	80	74	69	79	73	68	63	59	56	53	47	45	43	36	34	33	28
3	80	70	63	58	72	64	58	53	53	48	45	42	39	36	32	30	28	24
4	73	62	55	49	66	57	51	45	47	42	38	38	34	31	29	27	25	21
5	67	56	48	42	61	51	44	39	42	37	33	34	30	27	26	24	22	18
6	62	50	42	37	56	46	39	34	38	33	29	31	27	24	24	21	19	16
7	57	45	37	32	52	41	35	30	34	29	26	28	24	21	22	19	17	14
8	53	41	33	28	48	38	31	26	31	26	23	26	22	19	20	17	15	13
9	49	37	30	25	45	34	28	24	29	24	20	24	20	17	19	16	14	12
10	46	34	27	23	42	32	25	21	27	22	18	22	18	16	17	15	13	11

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	8415	8415	8415	8415
5°	8216	7676	8216	7676
10°	8001	7031	8001	7031
15°	7752	6415	7723	6415
20°	7458	5855	7430	5855
25°	7095	5331	7068	5331
30°	6649	4823	6613	4823
35°	6118	4328	6089	4328
40°	5579	3841	5539	3841
45°	5070	3339	5039	3339
50°	4646	2764	4614	2764
55°	4245	2046	4221	2046
60°	3806	1486	3793	1486
65°	3234	1100	3234	1100
70°	2659	821	2676	821
75°	2148	579	2207	579
80°	2353	379	1899	379
85°	3984	167	1986	167



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	61.2	1.6
10°-20°	172.0	4.5
20°-30°	251.6	6.5
30°-40°	284.1	7.4
40°-50°	263.8	6.9
50°-60°	207.4	5.4
60°-70°	131.2	3.4
70°-80°	65.9	1.7
80°-90°	45.7	1.2
90°-100°	77.2	2.0
100°-110°	152.9	4.0
110°-120°	263.7	6.9
120°-130°	358.3	9.3
130°-140°	408.7	10.6
140°-150°	408.1	10.6
150°-160°	355.4	9.2
160°-170°	249.9	6.5
170°-180°	93.1	2.4
0°-30°	484.9	12.6
0°-40°	769.0	20.0
0°-60°	1240.2	32.2
0°-90°	1483.0	38.5
90°-120°	493.8	12.8
90°-150°	1668.9	43.3
90°-180°	2367.0	61.5
0°-180°	3850.2	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	652	652	652	652	652	
5°	645	644	645	644	645	61
15°	612	608	610	608	612	172
25°	546	548	544	548	546	251
35°	445	467	442	467	445	278
45°	335	366	333	366	335	260
55°	245	221	243	221	245	218
65°	153	113	153	113	153	152
75°	76	55	79	55	76	87
85°	91	14	45	14	91	70
90°	132	1	27	1	132	73
95°	183	28	17	28	183	160
105°	301	139	6	139	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	758	525	758	681	430
155°	761	877	660	877	761	351
165°	832	954	805	954	832	236
175°	984	994	963	994	984	92
180°	994	994	994	994	994	



TEST NUMBER: P392521

CATALOG NUMBER: MWL-2-28-17-UNV-L935-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	651.5	651.5	651.5	651.5	651.5	651.5	651.5	651.5	651.5	651.5	651.5
2.5°	648.6	649.9	651.3	649.6	647.9	648.8	651.3	649.9	649.2	649.9	651.3
5°	645.2	646.6	648.0	645.4	643.8	645.4	647.3	646.6	645.2	646.6	647.3
7.5°	640.0	641.5	641.5	640.4	638.8	639.8	640.7	640.7	640.0	640.7	640.7
10°	632.4	634.0	634.0	632.3	630.6	631.6	633.2	632.5	632.4	632.5	633.2
12.5°	623.8	624.0	623.2	621.5	620.0	621.5	623.2	622.5	622.3	622.5	623.2
15°	612.1	611.5	610.7	609.8	608.3	609.2	610.0	610.0	609.8	610.0	610.0
17.5°	599.5	598.1	597.3	597.5	596.7	597.5	596.7	597.3	597.3	597.3	596.7
20°	583.7	583.8	582.3	582.5	581.0	581.9	581.7	582.3	581.5	582.3	581.7
22.5°	565.4	566.2	566.5	565.8	565.1	565.1	565.8	564.8	564.0	564.8	565.8
25°	546.2	547.0	548.9	548.3	548.5	547.6	547.4	544.9	544.1	544.9	547.4
27.5°	522.8	526.2	528.9	529.7	529.3	529.1	527.4	524.1	520.8	524.1	527.4
30°	499.4	501.9	507.0	511.4	510.1	509.9	504.9	499.9	496.7	499.9	504.9
32.5°	472.8	476.1	483.7	489.6	490.7	488.2	481.6	473.4	470.0	473.4	481.6
35°	444.6	446.3	457.1	465.4	466.7	463.4	455.0	444.1	442.5	444.1	455.0
37.5°	417.0	416.2	427.0	442.1	444.8	440.0	425.0	414.1	415.0	414.1	425.0
40°	388.7	387.0	395.4	414.6	418.9	413.3	392.5	384.2	385.9	384.2	392.5
42.5°	362.0	360.3	363.7	386.2	394.8	384.9	361.6	357.5	359.1	357.5	361.6
45°	335.4	332.9	333.7	353.7	365.6	352.4	330.9	330.7	333.3	330.7	330.9
47.5°	312.0	307.9	305.4	319.7	337.2	319.0	302.6	305.7	310.0	305.7	302.6
50°	288.6	284.5	277.9	287.9	301.5	286.6	275.1	281.7	286.6	281.7	275.1
52.5°	265.3	262.8	252.9	257.9	262.3	256.5	250.8	260.1	263.2	260.1	250.8
55°	244.6	241.3	229.6	227.3	220.6	225.8	227.5	239.2	243.2	239.2	227.5
57.5°	222.1	220.4	206.2	196.4	184.8	194.9	204.2	218.3	220.6	218.3	204.2
60°	200.5	196.4	179.7	165.6	157.2	164.9	178.3	194.9	199.8	194.9	178.3
62.5°	175.5	173.0	154.6	137.2	133.2	136.6	153.3	171.6	174.7	171.6	153.3
65°	153.1	148.1	129.7	114.7	113.2	114.1	129.1	147.4	153.1	147.4	129.1
67.5°	132.2	123.9	108.0	94.8	95.7	94.8	107.3	123.2	132.2	123.2	107.3
70°	110.7	101.6	89.1	78.2	81.5	78.2	89.1	102.2	111.4	102.2	89.1
72.5°	93.2	82.3	72.3	64.0	66.6	63.3	72.3	83.0	94.6	83.0	72.3
75°	76.5	65.7	56.6	50.7	54.9	50.7	57.3	66.4	78.6	66.4	57.3
77.5°	68.8	56.7	43.2	40.7	44.0	40.7	44.0	54.6	65.9	54.6	44.0
80°	69.0	57.4	35.4	30.7	34.0	30.7	33.9	46.3	55.7	46.3	33.9
82.5°	76.7	67.0	38.8	21.5	23.2	21.5	30.4	41.7	50.0	41.7	30.4
85°	90.9	82.1	50.0	18.7	14.0	17.3	29.7	39.4	45.3	39.4	29.7
87.5°	109.4	104.1	66.2	25.9	3.4	16.0	26.2	36.6	37.2	36.6	26.2
90°	131.9	127.3	88.1	37.2	0.7	10.6	18.7	28.4	26.6	28.4	18.7
92.5°	158.5	152.6	111.6	54.0	11.3	5.6	15.4	22.9	21.1	22.9	15.4
95°	183.4	180.0	137.5	73.9	28.0	3.7	11.3	17.3	17.1	17.3	11.3
97.5°	210.0	206.6	163.4	98.2	49.8	8.5	8.4	13.7	13.7	13.7	8.4
100°	233.2	231.8	191.7	128.4	76.5	23.2	5.8	11.4	12.3	11.4	5.8
102.5°	269.9	259.9	220.4	157.1	105.2	43.5	11.3	7.2	8.9	7.2	11.3
105°	301.1	291.2	254.8	188.1	139.1	71.7	28.2	9.2	5.8	9.2	28.2
107.5°	331.3	324.3	285.6	219.0	174.1	103.3	52.0	26.7	16.9	26.7	52.0
110°	366.3	357.9	315.8	249.9	210.5	136.9	79.4	49.2	38.1	49.2	79.4



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CATALOG NUMBER: MWL-2-28-17-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	66.7	77.3	113.0
115°	426.0	422.5	376.1	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	482.1	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	217.5	203.6	217.5	259.0
125°	533.4	531.9	482.1	433.0	444.2	368.4	299.7	257.7	242.2	257.7	299.7
127.5°	552.9	555.0	509.5	465.3	485.6	406.3	339.7	293.4	277.2	293.4	339.7
130°	569.8	576.8	535.4	494.7	524.9	447.8	375.4	329.1	318.6	329.1	375.4
132.5°	602.7	598.6	562.0	524.9	567.0	485.6	413.4	364.9	353.0	364.9	413.4
135°	619.6	621.0	585.2	550.9	606.3	523.5	449.1	401.4	389.5	401.4	449.1
137.5°	639.9	635.7	603.4	582.4	642.7	559.9	484.2	440.0	421.1	440.0	484.2
140°	655.5	654.9	628.1	610.5	682.0	595.7	520.8	476.0	458.4	476.0	520.8
142.5°	670.9	675.1	652.0	641.4	721.3	633.6	559.4	510.3	493.5	510.3	559.4
145°	681.4	690.6	675.8	680.7	758.5	676.6	593.1	543.3	525.0	543.3	593.1
147.5°	699.0	710.9	693.3	708.1	790.8	713.7	626.8	577.6	561.6	577.6	626.8
150°	722.9	728.5	717.9	746.0	823.7	755.1	661.2	610.6	594.5	610.6	661.2
152.5°	741.8	748.8	736.9	787.4	849.7	793.1	699.0	642.9	624.0	642.9	699.0
155°	761.4	764.3	755.8	827.4	877.1	830.2	729.2	678.7	660.4	678.7	729.2
157.5°	779.7	785.3	775.5	857.6	901.0	862.5	763.5	714.5	698.3	714.5	763.5
160°	799.3	799.3	804.9	891.8	920.5	889.6	800.1	753.7	731.3	753.7	800.1
162.5°	801.4	814.8	845.0	916.4	939.4	914.2	839.3	781.8	762.2	781.8	839.3
165°	832.3	844.2	889.8	938.1	954.3	936.0	887.8	828.1	804.9	828.1	887.8
167.5°	864.5	889.8	925.5	962.7	968.3	956.4	924.1	883.5	862.5	883.5	924.1
170°	916.4	939.0	956.4	972.6	980.3	973.4	947.2	927.7	913.6	927.7	947.2
172.5°	957.7	971.8	978.8	989.5	984.5	981.8	968.3	958.5	951.4	958.5	968.3
175°	983.7	986.6	993.7	990.2	994.4	986.6	987.3	991.5	962.7	991.5	987.3
177.5°	992.9	997.7	995.0	988.8	989.5	988.0	990.9	992.9	988.6	992.9	990.9
180°	993.7	993.7	993.7	993.7	993.7	993.7	993.7	993.7	993.7	993.7	993.7



TEST NUMBER: P392521

CATALOG NUMBER: MWL-2-28-17-UNV-L935-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	651.5	651.5	651.5	651.5	651.5	651.5
2.5°	648.8	647.9	649.6	651.3	649.9	648.6
5°	645.4	643.8	645.4	648.0	646.6	645.2
7.5°	639.8	638.8	640.4	641.5	641.5	640.0
10°	631.6	630.6	632.3	634.0	634.0	632.4
12.5°	621.5	620.0	621.5	623.2	624.0	623.8
15°	609.2	608.3	609.8	610.7	611.5	612.1
17.5°	597.5	596.7	597.5	597.3	598.1	599.5
20°	581.9	581.0	582.5	582.3	583.8	583.7
22.5°	565.1	565.1	565.8	566.5	566.2	565.4
25°	547.6	548.5	548.3	548.9	547.0	546.2
27.5°	529.1	529.3	529.7	528.9	526.2	522.8
30°	509.9	510.1	511.4	507.0	501.9	499.4
32.5°	488.2	490.7	489.6	483.7	476.1	472.8
35°	463.4	466.7	465.4	457.1	446.3	444.6
37.5°	440.0	444.8	442.1	427.0	416.2	417.0
40°	413.3	418.9	414.6	395.4	387.0	388.7
42.5°	384.9	394.8	386.2	363.7	360.3	362.0
45°	352.4	365.6	353.7	333.7	332.9	335.4
47.5°	319.0	337.2	319.7	305.4	307.9	312.0
50°	286.6	301.5	287.9	277.9	284.5	288.6
52.5°	256.5	262.3	257.9	252.9	262.8	265.3
55°	225.8	220.6	227.3	229.6	241.3	244.6
57.5°	194.9	184.8	196.4	206.2	220.4	222.1
60°	164.9	157.2	165.6	179.7	196.4	200.5
62.5°	136.6	133.2	137.2	154.6	173.0	175.5
65°	114.1	113.2	114.7	129.7	148.1	153.1
67.5°	94.8	95.7	94.8	108.0	123.9	132.2
70°	78.2	81.5	78.2	89.1	101.6	110.7
72.5°	63.3	66.6	64.0	72.3	82.3	93.2
75°	50.7	54.9	50.7	56.6	65.7	76.5
77.5°	40.7	44.0	40.7	43.2	56.7	68.8
80°	30.7	34.0	30.7	35.4	57.4	69.0
82.5°	21.5	23.2	21.5	38.8	67.0	76.7
85°	17.3	14.0	18.7	50.0	82.1	90.9
87.5°	16.0	3.4	25.9	66.2	104.1	109.4
90°	10.6	0.7	37.2	88.1	127.3	131.9
92.5°	5.6	11.3	54.0	111.6	152.6	158.5
95°	3.7	28.0	73.9	137.5	180.0	183.4
97.5°	8.5	49.8	98.2	163.4	206.6	210.0
100°	23.2	76.5	128.4	191.7	231.8	233.2
102.5°	43.5	105.2	157.1	220.4	259.9	269.9
105°	71.7	139.1	188.1	254.8	291.2	301.1
107.5°	103.3	174.1	219.0	285.6	324.3	331.3
110°	136.9	210.5	249.9	315.8	357.9	366.3





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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	376.1	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	482.1	487.7
122.5°	331.3	403.6	403.6	461.0	508.1	511.6
125°	368.4	444.2	433.0	482.1	531.9	533.4
127.5°	406.3	485.6	465.3	509.5	555.0	552.9
130°	447.8	524.9	494.7	535.4	576.8	569.8
132.5°	485.6	567.0	524.9	562.0	598.6	602.7
135°	523.5	606.3	550.9	585.2	621.0	619.6
137.5°	559.9	642.7	582.4	603.4	635.7	639.9
140°	595.7	682.0	610.5	628.1	654.9	655.5
142.5°	633.6	721.3	641.4	652.0	675.1	670.9
145°	676.6	758.5	680.7	675.8	690.6	681.4
147.5°	713.7	790.8	708.1	693.3	710.9	699.0
150°	755.1	823.7	746.0	717.9	728.5	722.9
152.5°	793.1	849.7	787.4	736.9	748.8	741.8
155°	830.2	877.1	827.4	755.8	764.3	761.4
157.5°	862.5	901.0	857.6	775.5	785.3	779.7
160°	889.6	920.5	891.8	804.9	799.3	799.3
162.5°	914.2	939.4	916.4	845.0	814.8	801.4
165°	936.0	954.3	938.1	889.8	844.2	832.3
167.5°	956.4	968.3	962.7	925.5	889.8	864.5
170°	973.4	980.3	972.6	956.4	939.0	916.4
172.5°	981.8	984.5	989.5	978.8	971.8	957.7
175°	986.6	994.4	990.2	993.7	986.6	983.7
177.5°	988.0	989.5	988.8	995.0	997.7	992.9
180°	993.7	993.7	993.7	993.7	993.7	993.7

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