

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: P392495

Luminaire Tested: **MWL-2-18-23-UNV-L840-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392495
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-2-18-23-UNV-L840-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

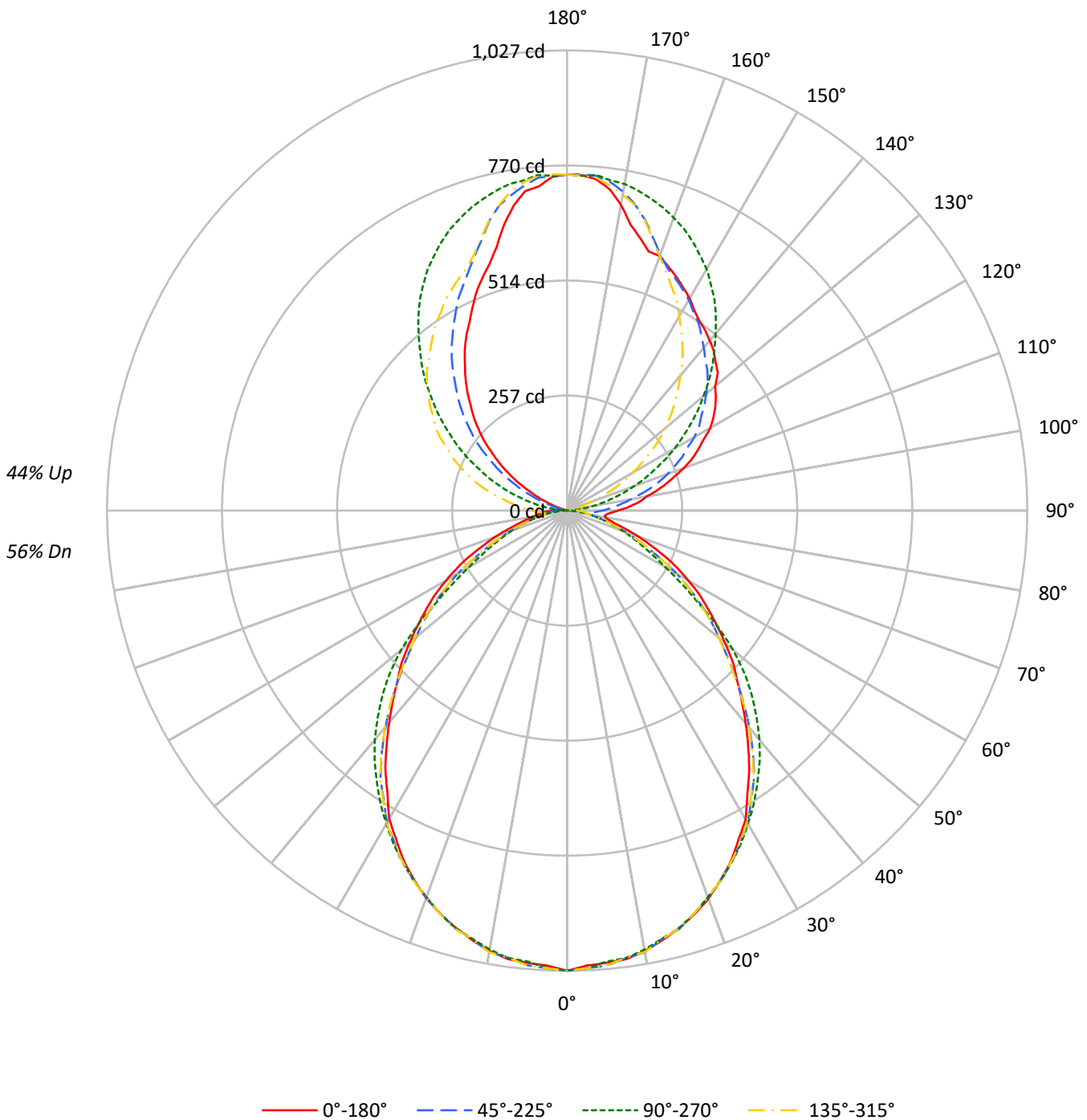
Lumens per Lamp: N/A
Luminaire Lumens: 4122.9 lumens
Efficiency: N/A
Efficacy: 104.9 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 39.3
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	56
1	100	95	91	88	92	89	86	83	77	74	72	66	64	62	55	54	53	48
2	91	84	78	73	85	78	73	69	68	64	60	58	55	53	49	47	45	41
3	83	74	67	61	77	69	63	58	60	55	51	52	48	45	44	41	39	35
4	77	66	58	52	71	62	55	50	54	48	44	47	42	39	40	37	34	31
5	70	59	51	45	65	55	48	43	48	43	38	42	38	34	36	33	30	27
6	65	53	45	39	60	50	43	37	44	38	34	38	34	30	33	29	27	24
7	60	48	40	35	56	45	38	33	40	34	30	35	30	27	30	27	24	21
8	56	44	36	31	52	41	34	29	36	31	27	32	27	24	28	24	21	19
9	52	40	33	28	49	38	31	26	34	28	24	29	25	22	26	22	19	17
10	49	37	30	25	46	35	28	24	31	26	22	27	23	20	24	20	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	13262	13262	13262	13262
5°	12901	12045	12901	12045
10°	12628	11091	12628	11091
15°	12220	10173	12199	10173
20°	11778	9252	11757	9252
25°	11226	8428	11205	8428
30°	10600	7632	10572	7632
35°	9752	6864	9730	6864
40°	8894	6121	8864	6121
45°	8106	5321	8082	5321
50°	7408	4429	7383	4429
55°	6675	3289	6658	3289
60°	5925	2389	5915	2389
65°	5062	1789	5062	1789
70°	4061	1321	4073	1321
75°	3091	933	3133	933
80°	2943	574	2598	574
85°	3918	244	2411	244



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	96.5	2.3
10°-20°	271.7	6.6
20°-30°	398.5	9.7
30°-40°	452.0	11.0
40°-50°	421.6	10.2
50°-60°	329.6	8.0
60°-70°	204.4	5.0
70°-80°	99.0	2.4
80°-90°	53.4	1.3
90°-100°	64.0	1.6
100°-110°	115.9	2.8
110°-120°	199.5	4.8
120°-130°	271.4	6.6
130°-140°	309.2	7.5
140°-150°	308.5	7.5
150°-160°	268.6	6.5
160°-170°	188.8	4.6
170°-180°	70.3	1.7
0°-30°	766.7	18.6
0°-40°	1218.7	29.6
0°-60°	1970.0	47.8
0°-90°	2326.8	56.4
90°-120°	379.3	9.2
90°-150°	1268.4	30.8
90°-180°	1796.0	43.6
0°-180°	4122.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1027	1027	1027	1027	1027	
5°	1013	1010	1013	1010	1013	96
15°	965	965	963	965	965	272
25°	864	867	863	867	864	397
35°	709	740	707	740	709	442
45°	536	583	535	583	536	416
55°	385	355	384	355	385	345
65°	240	184	240	184	240	237
75°	110	88	112	88	110	124
85°	89	20	55	20	89	73
90°	113	0	34	0	113	63
95°	148	21	23	21	148	128
105°	227	105	5	105	227	240
115°	322	214	75	214	322	320
125°	404	336	184	336	404	360
135°	468	458	295	458	468	362
145°	516	573	398	573	516	325
155°	576	663	500	663	576	266
165°	629	721	609	721	629	178
175°	742	752	726	752	742	69
180°	750	750	750	750	750	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1026.7	1026.7	1026.7	1026.7	1026.7	1026.7	1026.7	1026.7	1026.7	1026.7	1026.7
2.5°	1016.1	1027.2	1022.2	1021.8	1021.8	1021.2	1022.2	1027.2	1016.6	1027.2	1022.2
5°	1013.1	1021.2	1019.2	1018.2	1010.2	1018.2	1018.7	1021.2	1013.1	1021.2	1018.7
7.5°	1009.6	1013.7	1006.7	1009.2	1007.2	1008.7	1006.2	1013.2	1009.6	1013.2	1006.2
10°	998.2	999.7	1000.7	995.7	994.7	995.2	1000.2	998.6	998.2	998.6	1000.2
12.5°	982.2	983.7	979.2	982.2	978.6	982.2	979.2	982.6	981.2	982.6	979.2
15°	964.8	969.7	966.2	963.2	964.6	962.6	965.6	968.6	963.2	968.6	965.6
17.5°	944.8	946.7	943.2	942.6	942.6	942.6	942.6	946.2	943.2	946.2	942.6
20°	921.8	922.2	919.2	917.6	918.1	917.1	918.6	921.2	920.2	921.2	918.6
22.5°	893.2	898.2	894.2	896.6	894.1	896.1	893.6	897.2	892.2	897.2	893.6
25°	864.2	867.2	866.7	870.6	867.1	870.1	865.6	865.6	862.6	865.6	865.6
27.5°	828.2	832.2	836.7	840.2	839.1	839.6	835.6	830.6	826.6	830.6	835.6
30°	796.2	794.2	805.2	807.7	807.1	806.6	803.6	792.6	794.1	792.6	803.6
32.5°	748.2	754.2	764.2	775.7	775.6	774.6	762.6	752.1	746.1	752.1	762.6
35°	708.7	712.7	727.7	740.7	740.1	739.1	726.1	711.1	707.1	711.1	726.1
37.5°	663.7	664.7	680.7	702.7	705.6	701.1	679.1	663.1	662.1	663.1	679.1
40°	619.7	618.7	632.7	658.2	667.6	657.1	630.6	616.6	617.6	616.6	630.6
42.5°	577.7	573.7	583.2	616.2	625.6	615.1	581.6	571.6	575.6	571.6	581.6
45°	536.2	531.2	534.2	564.2	582.6	563.1	532.1	529.6	534.6	529.6	532.1
47.5°	502.2	489.2	486.2	511.6	536.6	511.1	484.1	487.6	500.6	487.6	484.1
50°	460.2	453.2	443.2	461.6	483.1	460.6	441.1	451.1	458.6	451.1	441.1
52.5°	421.2	418.2	403.6	411.6	421.1	410.6	402.1	416.1	419.6	416.1	402.1
55°	384.6	379.6	363.6	361.1	354.6	360.1	362.1	378.1	383.6	378.1	362.1
57.5°	350.6	343.6	321.6	313.1	301.6	312.1	320.1	342.1	349.6	342.1	320.1
60°	312.1	306.1	283.1	261.6	252.6	261.1	282.1	305.1	311.6	305.1	282.1
62.5°	276.1	266.1	238.1	217.6	215.1	217.1	237.1	265.1	275.6	265.1	237.1
65°	239.6	224.6	200.6	180.6	184.1	180.1	200.1	224.1	239.6	224.1	200.1
67.5°	200.6	187.6	166.6	148.1	156.1	148.1	166.1	187.1	200.6	187.1	166.1
70°	169.1	153.1	136.1	122.1	131.1	122.1	136.1	153.6	169.6	153.6	136.1
72.5°	137.1	123.1	109.1	100.1	106.5	99.5	109.1	123.6	138.1	123.6	109.1
75°	110.1	97.1	85.5	78.5	88.5	78.5	86.1	97.6	111.6	97.6	86.1
77.5°	95.3	80.2	64.5	62.5	70.5	62.5	65.1	78.6	93.2	78.6	65.1
80°	86.3	74.6	51.1	46.5	51.5	46.5	50.1	66.1	76.2	66.1	50.1
82.5°	85.0	76.2	49.5	33.5	36.5	33.5	43.1	57.2	64.9	57.2	43.1
85°	89.4	84.1	54.1	26.1	20.5	25.1	38.8	51.8	55.0	51.8	38.8
87.5°	99.4	97.7	64.4	28.1	5.0	20.6	34.3	46.9	44.9	46.9	34.3
90°	113.0	111.8	78.5	33.2	0.5	13.1	26.1	37.2	33.7	37.2	26.1
92.5°	131.3	128.0	93.1	42.6	8.5	6.1	20.6	30.1	27.6	30.1	20.6
95°	147.9	144.8	108.8	56.0	21.2	3.1	13.6	22.1	22.6	22.1	13.6
97.5°	166.2	161.6	125.1	75.1	38.6	7.3	8.2	16.1	18.1	16.1	8.2
100°	179.9	176.3	144.9	97.8	58.7	18.5	4.7	10.2	13.2	10.2	4.7
102.5°	204.0	196.7	166.6	119.5	80.3	33.8	8.9	6.2	7.2	6.2	8.9
105°	227.4	220.0	192.5	142.2	105.2	54.4	21.6	7.3	4.7	7.3	21.6
107.5°	250.1	244.8	215.8	165.5	131.7	78.2	39.6	20.6	13.2	20.6	39.6
110°	276.6	270.2	238.5	188.8	159.2	103.6	60.2	37.5	29.0	37.5	60.2



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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°	302.0	297.2	259.7	213.1	187.7	131.1	85.6	58.7	50.7	58.7	85.6
115°	322.5	318.9	284.0	235.9	214.2	162.3	113.7	83.5	75.0	83.5	113.7
117.5°	343.2	342.6	302.0	259.1	245.9	190.4	139.6	109.4	99.3	109.4	139.6
120°	369.1	364.9	327.8	283.4	277.1	221.0	169.1	137.9	127.9	137.9	169.1
122.5°	387.1	384.4	349.0	305.6	305.6	251.1	196.7	165.4	154.9	165.4	196.7
125°	403.5	402.4	364.9	327.8	336.3	279.2	227.3	195.6	184.0	195.6	227.3
127.5°	418.3	419.9	385.5	352.2	367.5	307.7	257.5	222.6	210.4	222.6	257.5
130°	431.0	436.3	405.1	374.4	397.1	338.9	284.5	249.6	241.6	249.6	284.5
132.5°	455.8	452.7	425.2	397.1	428.9	367.5	313.0	276.5	267.5	276.5	313.0
135°	468.5	469.6	442.6	416.7	458.5	396.1	340.0	304.0	295.0	304.0	340.0
137.5°	483.9	480.7	456.4	440.5	486.0	423.6	366.4	333.1	318.8	333.1	366.4
140°	495.0	494.5	474.4	461.7	515.6	450.6	393.4	359.6	346.3	359.6	393.4
142.5°	506.6	509.8	492.3	484.9	545.2	479.1	422.5	385.5	372.8	385.5	422.5
145°	515.6	522.4	511.3	514.0	573.3	510.9	448.9	411.4	397.6	411.4	448.9
147.5°	528.8	537.8	524.5	535.7	597.6	539.9	474.3	437.3	425.1	437.3	474.3
150°	546.8	551.0	543.1	563.2	622.5	570.1	500.2	462.1	450.0	462.1	500.2
152.5°	561.0	566.3	557.3	594.4	642.0	598.7	528.8	486.5	472.2	486.5	528.8
155°	575.9	578.0	571.6	624.6	662.7	626.7	551.5	513.4	499.7	513.4	551.5
157.5°	589.6	593.8	585.4	647.3	680.6	651.0	576.4	540.4	528.3	540.4	576.4
160°	604.4	604.4	607.7	673.8	695.5	672.2	604.0	570.0	553.1	570.0	604.0
162.5°	606.0	616.1	637.8	692.3	709.7	690.7	633.6	591.2	576.4	591.2	633.6
165°	629.3	637.3	671.7	708.7	720.8	707.1	670.1	625.1	608.7	625.1	670.1
167.5°	653.6	671.7	699.2	727.2	731.4	722.4	698.1	666.9	652.0	666.9	698.1
170°	692.3	708.7	722.4	734.1	739.9	734.6	715.6	700.2	690.2	700.2	715.6
172.5°	723.5	734.1	739.4	746.8	743.1	740.9	731.4	724.0	718.7	724.0	731.4
175°	742.1	745.2	749.9	748.3	751.5	745.7	745.2	748.9	726.2	748.9	745.2
177.5°	748.9	753.6	751.0	747.2	747.8	746.7	747.8	749.9	745.8	749.9	747.8
180°	749.9	749.9	749.9	749.9	749.9	749.9	749.9	749.9	749.9	749.9	749.9



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CATALOG NUMBER: MWL-2-18-23-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1026.7	1026.7	1026.7	1026.7	1026.7	1026.7
2.5°	1021.2	1021.8	1021.8	1022.2	1027.2	1016.1
5°	1018.2	1010.2	1018.2	1019.2	1021.2	1013.1
7.5°	1008.7	1007.2	1009.2	1006.7	1013.7	1009.6
10°	995.2	994.7	995.7	1000.7	999.7	998.2
12.5°	982.2	978.6	982.2	979.2	983.7	982.2
15°	962.6	964.6	963.2	966.2	969.7	964.8
17.5°	942.6	942.6	942.6	943.2	946.7	944.8
20°	917.1	918.1	917.6	919.2	922.2	921.8
22.5°	896.1	894.1	896.6	894.2	898.2	893.2
25°	870.1	867.1	870.6	866.7	867.2	864.2
27.5°	839.6	839.1	840.2	836.7	832.2	828.2
30°	806.6	807.1	807.7	805.2	794.2	796.2
32.5°	774.6	775.6	775.7	764.2	754.2	748.2
35°	739.1	740.1	740.7	727.7	712.7	708.7
37.5°	701.1	705.6	702.7	680.7	664.7	663.7
40°	657.1	667.6	658.2	632.7	618.7	619.7
42.5°	615.1	625.6	616.2	583.2	573.7	577.7
45°	563.1	582.6	564.2	534.2	531.2	536.2
47.5°	511.1	536.6	511.6	486.2	489.2	502.2
50°	460.6	483.1	461.6	443.2	453.2	460.2
52.5°	410.6	421.1	411.6	403.6	418.2	421.2
55°	360.1	354.6	361.1	363.6	379.6	384.6
57.5°	312.1	301.6	313.1	321.6	343.6	350.6
60°	261.1	252.6	261.6	283.1	306.1	312.1
62.5°	217.1	215.1	217.6	238.1	266.1	276.1
65°	180.1	184.1	180.6	200.6	224.6	239.6
67.5°	148.1	156.1	148.1	166.6	187.6	200.6
70°	122.1	131.1	122.1	136.1	153.1	169.1
72.5°	99.5	106.5	100.1	109.1	123.1	137.1
75°	78.5	88.5	78.5	85.5	97.1	110.1
77.5°	62.5	70.5	62.5	64.5	80.2	95.3
80°	46.5	51.5	46.5	51.1	74.6	86.3
82.5°	33.5	36.5	33.5	49.5	76.2	85.0
85°	25.1	20.5	26.1	54.1	84.1	89.4
87.5°	20.6	5.0	28.1	64.4	97.7	99.4
90°	13.1	0.5	33.2	78.5	111.8	113.0
92.5°	6.1	8.5	42.6	93.1	128.0	131.3
95°	3.1	21.2	56.0	108.8	144.8	147.9
97.5°	7.3	38.6	75.1	125.1	161.6	166.2
100°	18.5	58.7	97.8	144.9	176.3	179.9
102.5°	33.8	80.3	119.5	166.6	196.7	204.0
105°	54.4	105.2	142.2	192.5	220.0	227.4
107.5°	78.2	131.7	165.5	215.8	244.8	250.1
110°	103.6	159.2	188.8	238.5	270.2	276.6



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	131.1	187.7	213.1	259.7	297.2	302.0
115°	162.3	214.2	235.9	284.0	318.9	322.5
117.5°	190.4	245.9	259.1	302.0	342.6	343.2
120°	221.0	277.1	283.4	327.8	364.9	369.1
122.5°	251.1	305.6	305.6	349.0	384.4	387.1
125°	279.2	336.3	327.8	364.9	402.4	403.5
127.5°	307.7	367.5	352.2	385.5	419.9	418.3
130°	338.9	397.1	374.4	405.1	436.3	431.0
132.5°	367.5	428.9	397.1	425.2	452.7	455.8
135°	396.1	458.5	416.7	442.6	469.6	468.5
137.5°	423.6	486.0	440.5	456.4	480.7	483.9
140°	450.6	515.6	461.7	474.4	494.5	495.0
142.5°	479.1	545.2	484.9	492.3	509.8	506.6
145°	510.9	573.3	514.0	511.3	522.4	515.6
147.5°	539.9	597.6	535.7	524.5	537.8	528.8
150°	570.1	622.5	563.2	543.1	551.0	546.8
152.5°	598.7	642.0	594.4	557.3	566.3	561.0
155°	626.7	662.7	624.6	571.6	578.0	575.9
157.5°	651.0	680.6	647.3	585.4	593.8	589.6
160°	672.2	695.5	673.8	607.7	604.4	604.4
162.5°	690.7	709.7	692.3	637.8	616.1	606.0
165°	707.1	720.8	708.7	671.7	637.3	629.3
167.5°	722.4	731.4	727.2	699.2	671.7	653.6
170°	734.6	739.9	734.1	722.4	708.7	692.3
172.5°	740.9	743.1	746.8	739.4	734.1	723.5
175°	745.7	751.5	748.3	749.9	745.2	742.1
177.5°	746.7	747.8	747.2	751.0	753.6	748.9
180°	749.9	749.9	749.9	749.9	749.9	749.9

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