

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: P392514

Luminaire Tested: **MWL-2-22-38-UNV-L930-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392514
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-2-22-38-UNV-L930-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4993.3 lumens
Efficiency: N/A
Efficacy: 77.4 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

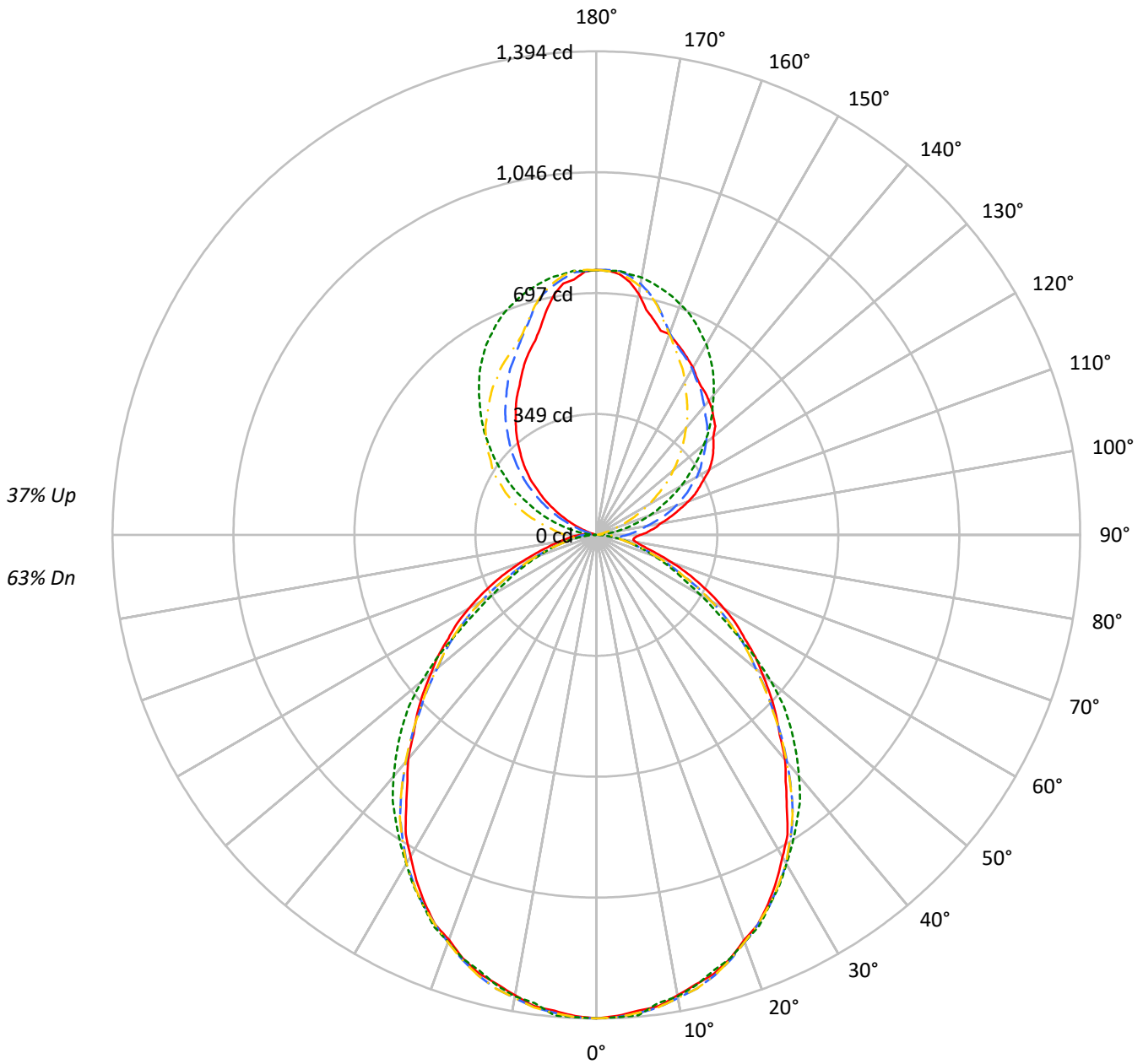
Input Watts (W): 64.539
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot



— 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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68	63
1	101	97	93	90	95	91	88	85	80	78	75	70	68	67	61	60	58	54
2	93	85	79	74	87	80	75	70	71	67	63	62	59	57	54	52	50	46
3	85	75	68	62	79	71	65	60	63	58	54	56	52	48	49	46	43	40
4	78	67	59	53	73	63	56	51	56	51	46	50	46	42	44	40	38	34
5	72	60	52	46	67	57	50	44	51	45	40	45	40	37	40	36	33	30
6	66	54	46	40	62	51	44	39	46	40	36	41	36	32	36	32	29	27
7	61	49	41	36	58	47	39	34	42	36	32	37	33	29	33	29	26	24
8	57	45	37	32	54	43	35	31	38	32	28	34	29	26	31	27	24	22
9	53	41	34	28	50	39	32	27	35	29	25	32	27	23	28	24	22	19
10	50	38	31	26	47	36	29	25	33	27	23	29	25	21	26	22	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	17999	17999	17999	17999
5°	17535	16572	17535	16572
10°	17050	15060	17050	15060
15°	16589	13714	16569	13714
20°	15885	12576	15864	12576
25°	15223	11458	15204	11458
30°	14277	10354	14249	10354
35°	13155	9339	13133	9339
40°	12139	8326	12109	8326
45°	11063	7250	11039	7250
50°	10045	6021	10021	6021
55°	9053	4469	9035	4469
60°	8064	3281	8055	3281
65°	6826	2440	6826	2440
70°	5515	1785	5531	1785
75°	4279	1255	4324	1255
80°	3887	795	3539	795
85°	4778	330	3248	330



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	131.0	2.6
10°-20°	368.6	7.4
20°-30°	540.7	10.8
30°-40°	613.1	12.3
40°-50°	572.3	11.5
50°-60°	449.5	9.0
60°-70°	279.8	5.6
70°-80°	135.4	2.7
80°-90°	68.3	1.4
90°-100°	69.9	1.4
100°-110°	118.4	2.4
110°-120°	203.4	4.1
120°-130°	276.3	5.5
130°-140°	315.2	6.3
140°-150°	314.2	6.3
150°-160°	273.5	5.5
160°-170°	192.2	3.8
170°-180°	71.5	1.4
0°-30°	1040.4	20.8
0°-40°	1653.5	33.1
0°-60°	2675.2	53.6
0°-90°	3158.7	63.3
90°-120°	391.7	7.8
90°-150°	1297.3	26.0
90°-180°	1835.0	36.7
0°-180°	4993.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1394	1394	1394	1394	1394	
5°	1377	1390	1377	1390	1377	131
15°	1310	1300	1308	1300	1310	368
25°	1172	1179	1170	1179	1172	538
35°	956	1007	954	1007	956	599
45°	732	794	730	794	732	564
55°	522	482	521	482	522	470
65°	323	251	323	251	323	322
75°	152	119	154	119	152	169
85°	109	28	74	28	109	90
90°	126	1	46	1	126	70
95°	158	22	30	22	158	136
105°	232	107	6	107	232	246
115°	328	218	77	218	328	325
125°	411	342	187	342	411	367
135°	478	467	301	467	478	369
145°	524	584	404	584	524	331
155°	586	675	509	675	586	270
165°	641	733	620	733	641	182
175°	755	764	739	764	755	70
180°	764	764	764	764	764	



TEST NUMBER: P392514

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1393.5	1393.5	1393.5	1393.5	1393.5	1393.5	1393.5	1393.5	1393.5	1393.5	1393.5
2.5°	1387.8	1384.7	1391.5	1387.1	1391.3	1386.5	1391.5	1384.7	1388.3	1384.7	1391.5
5°	1377.0	1380.5	1383.3	1380.8	1389.9	1380.8	1382.8	1380.5	1377.0	1380.5	1382.8
7.5°	1370.2	1372.9	1373.8	1370.1	1361.1	1369.6	1373.1	1372.3	1370.2	1372.3	1373.1
10°	1347.7	1358.1	1355.6	1352.4	1350.7	1351.7	1355.1	1357.0	1347.7	1357.0	1355.1
12.5°	1326.6	1329.3	1339.4	1332.0	1329.1	1332.0	1339.4	1328.2	1325.5	1328.2	1339.4
15°	1309.8	1307.1	1314.8	1306.6	1300.3	1306.0	1314.3	1306.0	1308.2	1306.0	1314.3
17.5°	1281.0	1276.7	1284.4	1283.9	1280.6	1283.9	1283.9	1276.1	1279.5	1276.1	1283.9
20°	1243.3	1250.9	1249.8	1251.8	1247.9	1251.2	1249.3	1249.8	1241.6	1249.8	1249.3
22.5°	1215.5	1213.9	1215.3	1218.1	1222.4	1217.5	1214.8	1212.8	1214.5	1212.8	1214.8
25°	1171.9	1169.5	1179.7	1177.8	1178.8	1177.2	1178.6	1167.9	1170.4	1167.9	1178.6
27.5°	1124.2	1122.6	1137.7	1140.4	1141.0	1140.0	1136.6	1121.1	1122.7	1121.1	1136.6
30°	1072.4	1076.6	1093.8	1095.8	1095.0	1094.7	1092.3	1075.0	1070.3	1075.0	1092.3
32.5°	1024.7	1021.5	1040.4	1053.9	1051.9	1052.8	1038.8	1019.4	1022.6	1019.4	1038.8
35°	956.0	960.1	987.2	1003.7	1007.0	1002.1	985.6	958.5	954.4	958.5	985.6
37.5°	896.0	899.3	921.4	954.4	964.0	952.7	919.9	897.6	894.3	897.6	919.9
40°	845.8	835.9	854.9	893.8	908.1	892.7	852.8	833.8	843.7	833.8	852.8
42.5°	781.7	777.6	789.4	832.1	852.1	831.0	787.8	775.5	779.5	775.5	787.8
45°	731.8	720.2	721.9	765.5	793.8	764.5	719.7	718.7	730.2	718.7	719.7
47.5°	678.3	663.5	661.9	697.5	732.9	697.0	659.8	662.0	676.8	662.0	659.8
50°	624.0	616.6	600.2	626.0	656.7	625.0	598.0	614.5	622.5	614.5	598.0
52.5°	577.2	567.3	548.7	564.3	572.9	563.3	547.1	565.2	575.6	565.2	547.1
55°	521.6	517.5	496.1	497.1	481.9	496.1	494.5	515.8	520.6	515.8	494.5
57.5°	478.0	472.2	440.2	425.6	406.2	424.6	438.6	470.6	477.0	470.6	438.6
60°	424.8	418.2	382.8	356.9	347.0	356.3	381.8	417.2	424.3	417.2	381.8
62.5°	374.7	367.3	329.4	296.0	292.1	295.5	328.3	366.2	374.1	366.2	328.3
65°	323.1	310.8	273.0	245.0	251.0	244.4	272.4	310.3	323.1	310.3	272.4
67.5°	277.1	258.2	229.5	203.4	212.4	203.4	228.8	257.6	277.1	257.6	228.8
70°	229.6	209.1	188.5	167.2	177.1	167.2	188.5	209.6	230.3	209.6	188.5
72.5°	187.7	168.8	151.5	136.7	145.3	136.2	151.5	169.4	188.8	169.4	151.5
75°	152.4	131.8	117.4	108.3	119.0	108.3	117.8	132.4	154.0	132.4	117.8
77.5°	129.5	110.1	87.7	84.4	94.3	84.4	88.2	108.6	127.4	108.6	88.2
80°	114.0	99.6	69.6	63.0	71.3	63.0	68.5	91.0	103.8	91.0	68.5
82.5°	107.2	97.5	64.5	44.2	47.5	44.2	58.0	78.0	86.7	78.0	58.0
85°	109.0	102.0	67.3	35.0	27.7	34.0	51.7	69.2	74.1	69.2	51.7
87.5°	115.3	113.8	75.5	35.7	8.2	28.2	44.8	62.1	59.9	62.1	44.8
90°	126.4	125.9	88.3	38.8	1.4	18.3	35.0	50.1	45.7	50.1	35.0
92.5°	144.2	140.3	101.5	45.5	9.4	8.5	28.0	40.8	38.9	40.8	28.0
95°	157.8	155.4	115.7	56.7	22.4	3.0	18.9	30.6	30.5	30.6	18.9
97.5°	174.9	169.8	129.4	76.1	39.0	7.2	10.6	21.8	24.3	21.8	10.6
100°	186.8	182.3	147.9	99.2	59.4	18.6	5.5	13.3	17.4	13.3	5.5
102.5°	209.3	201.1	169.1	121.3	81.4	34.2	8.9	7.6	9.2	7.6	8.9
105°	231.8	224.3	196.3	144.4	106.7	55.1	22.6	8.1	5.5	8.1	22.6
107.5°	254.9	249.5	219.9	168.9	133.7	80.2	40.9	21.6	14.0	21.6	40.9
110°	281.8	275.3	243.1	192.5	162.4	106.0	61.8	38.7	30.2	38.7	61.8



TEST NUMBER: P392514

CATALOG NUMBER: MWL-2-22-38-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	307.6	302.8	264.6	217.2	191.4	133.9	87.7	60.3	52.2	60.3	87.7
115°	328.3	324.8	289.2	240.4	218.4	165.6	116.2	85.5	76.6	85.5	116.2
117.5°	349.3	348.8	308.4	264.1	250.7	194.2	143.3	111.6	101.4	111.6	143.3
120°	375.6	371.4	333.7	288.5	282.0	225.1	172.3	140.7	130.4	140.7	172.3
122.5°	393.9	391.3	355.2	311.1	311.1	255.7	200.3	168.6	157.9	168.6	200.3
125°	410.6	409.5	371.4	333.7	342.3	284.3	231.6	199.3	187.4	199.3	231.6
127.5°	425.6	427.3	392.4	358.5	374.0	313.3	262.1	226.7	214.3	226.7	262.1
130°	439.4	443.9	412.3	381.1	404.1	345.0	289.6	254.1	246.9	254.1	289.6
132.5°	464.6	461.4	432.6	404.9	437.3	374.9	318.7	282.4	273.2	282.4	318.7
135°	477.6	478.6	451.2	424.8	467.3	403.9	346.9	310.4	301.2	310.4	346.9
137.5°	493.2	489.9	465.2	449.1	495.3	431.9	373.8	340.0	325.3	340.0	373.8
140°	504.4	503.9	483.4	470.6	525.5	459.3	401.2	366.7	353.3	366.7	401.2
142.5°	516.2	519.5	501.8	494.2	555.5	488.3	430.8	393.1	380.2	393.1	430.8
145°	524.3	531.3	520.0	523.8	584.0	520.6	456.6	418.4	404.4	418.4	456.6
147.5°	537.8	546.9	533.5	544.8	608.8	549.1	482.3	444.7	432.3	444.7	482.3
150°	556.8	561.2	553.0	573.8	634.0	580.8	509.5	470.9	458.5	470.9	509.5
152.5°	571.4	576.7	567.7	605.5	653.9	609.8	538.6	495.6	481.0	495.6	538.6
155°	586.5	588.6	581.4	636.2	674.9	638.4	560.9	523.0	509.0	523.0	560.9
157.5°	600.4	604.7	596.5	659.3	693.2	663.1	587.3	550.5	538.1	550.5	587.3
160°	615.5	615.5	618.9	686.2	707.4	684.6	615.2	580.5	563.3	580.5	615.2
162.5°	617.1	626.5	649.6	705.0	721.9	703.4	645.3	601.3	586.9	601.3	645.3
165°	640.7	649.1	684.1	721.7	733.3	720.1	682.4	636.7	619.8	636.7	682.4
167.5°	664.7	684.1	712.1	739.6	743.9	734.8	711.0	679.2	663.1	679.2	711.0
170°	705.0	721.7	734.8	747.5	753.4	748.1	727.8	713.1	702.8	713.1	727.8
172.5°	735.9	747.5	752.0	760.4	756.6	754.5	743.9	737.2	731.1	737.2	743.9
175°	754.9	758.0	763.6	760.9	764.2	758.3	758.8	761.7	738.8	761.7	758.8
177.5°	762.8	766.6	764.6	760.8	761.2	760.1	761.5	762.8	759.5	762.8	761.5
180°	763.6	763.6	763.6	763.6	763.6	763.6	763.6	763.6	763.6	763.6	763.6



TEST NUMBER: P392514

CATALOG NUMBER: MWL-2-22-38-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1393.5	1393.5	1393.5	1393.5	1393.5	1393.5
2.5°	1386.5	1391.3	1387.1	1391.5	1384.7	1387.8
5°	1380.8	1389.9	1380.8	1383.3	1380.5	1377.0
7.5°	1369.6	1361.1	1370.1	1373.8	1372.9	1370.2
10°	1351.7	1350.7	1352.4	1355.6	1358.1	1347.7
12.5°	1332.0	1329.1	1332.0	1339.4	1329.3	1326.6
15°	1306.0	1300.3	1306.6	1314.8	1307.1	1309.8
17.5°	1283.9	1280.6	1283.9	1284.4	1276.7	1281.0
20°	1251.2	1247.9	1251.8	1249.8	1250.9	1243.3
22.5°	1217.5	1222.4	1218.1	1215.3	1213.9	1215.5
25°	1177.2	1178.8	1177.8	1179.7	1169.5	1171.9
27.5°	1140.0	1141.0	1140.4	1137.7	1122.6	1124.2
30°	1094.7	1095.0	1095.8	1093.8	1076.6	1072.4
32.5°	1052.8	1051.9	1053.9	1040.4	1021.5	1024.7
35°	1002.1	1007.0	1003.7	987.2	960.1	956.0
37.5°	952.7	964.0	954.4	921.4	899.3	896.0
40°	892.7	908.1	893.8	854.9	835.9	845.8
42.5°	831.0	852.1	832.1	789.4	777.6	781.7
45°	764.5	793.8	765.5	721.9	720.2	731.8
47.5°	697.0	732.9	697.5	661.9	663.5	678.3
50°	625.0	656.7	626.0	600.2	616.6	624.0
52.5°	563.3	572.9	564.3	548.7	567.3	577.2
55°	496.1	481.9	497.1	496.1	517.5	521.6
57.5°	424.6	406.2	425.6	440.2	472.2	478.0
60°	356.3	347.0	356.9	382.8	418.2	424.8
62.5°	295.5	292.1	296.0	329.4	367.3	374.7
65°	244.4	251.0	245.0	273.0	310.8	323.1
67.5°	203.4	212.4	203.4	229.5	258.2	277.1
70°	167.2	177.1	167.2	188.5	209.1	229.6
72.5°	136.2	145.3	136.7	151.5	168.8	187.7
75°	108.3	119.0	108.3	117.4	131.8	152.4
77.5°	84.4	94.3	84.4	87.7	110.1	129.5
80°	63.0	71.3	63.0	69.6	99.6	114.0
82.5°	44.2	47.5	44.2	64.5	97.5	107.2
85°	34.0	27.7	35.0	67.3	102.0	109.0
87.5°	28.2	8.2	35.7	75.5	113.8	115.3
90°	18.3	1.4	38.8	88.3	125.9	126.4
92.5°	8.5	9.4	45.5	101.5	140.3	144.2
95°	3.0	22.4	56.7	115.7	155.4	157.8
97.5°	7.2	39.0	76.1	129.4	169.8	174.9
100°	18.6	59.4	99.2	147.9	182.3	186.8
102.5°	34.2	81.4	121.3	169.1	201.1	209.3
105°	55.1	106.7	144.4	196.3	224.3	231.8
107.5°	80.2	133.7	168.9	219.9	249.5	254.9
110°	106.0	162.4	192.5	243.1	275.3	281.8



TEST NUMBER: P392514

CATALOG NUMBER: MWL-2-22-38-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	133.9	191.4	217.2	264.6	302.8	307.6
115°	165.6	218.4	240.4	289.2	324.8	328.3
117.5°	194.2	250.7	264.1	308.4	348.8	349.3
120°	225.1	282.0	288.5	333.7	371.4	375.6
122.5°	255.7	311.1	311.1	355.2	391.3	393.9
125°	284.3	342.3	333.7	371.4	409.5	410.6
127.5°	313.3	374.0	358.5	392.4	427.3	425.6
130°	345.0	404.1	381.1	412.3	443.9	439.4
132.5°	374.9	437.3	404.9	432.6	461.4	464.6
135°	403.9	467.3	424.8	451.2	478.6	477.6
137.5°	431.9	495.3	449.1	465.2	489.9	493.2
140°	459.3	525.5	470.6	483.4	503.9	504.4
142.5°	488.3	555.5	494.2	501.8	519.5	516.2
145°	520.6	584.0	523.8	520.0	531.3	524.3
147.5°	549.1	608.8	544.8	533.5	546.9	537.8
150°	580.8	634.0	573.8	553.0	561.2	556.8
152.5°	609.8	653.9	605.5	567.7	576.7	571.4
155°	638.4	674.9	636.2	581.4	588.6	586.5
157.5°	663.1	693.2	659.3	596.5	604.7	600.4
160°	684.6	707.4	686.2	618.9	615.5	615.5
162.5°	703.4	721.9	705.0	649.6	626.5	617.1
165°	720.1	733.3	721.7	684.1	649.1	640.7
167.5°	734.8	743.9	739.6	712.1	684.1	664.7
170°	748.1	753.4	747.5	734.8	721.7	705.0
172.5°	754.5	756.6	760.4	752.0	747.5	735.9
175°	758.3	764.2	760.9	763.6	758.0	754.9
177.5°	760.1	761.2	760.8	764.6	766.6	762.8
180°	763.6	763.6	763.6	763.6	763.6	763.6

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