

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: P392540

Luminaire Tested: **MWL-2-35-23-UNV-L940-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392540  
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-2-35-23-UNV-L940-EDD  
Description: MWL 2FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

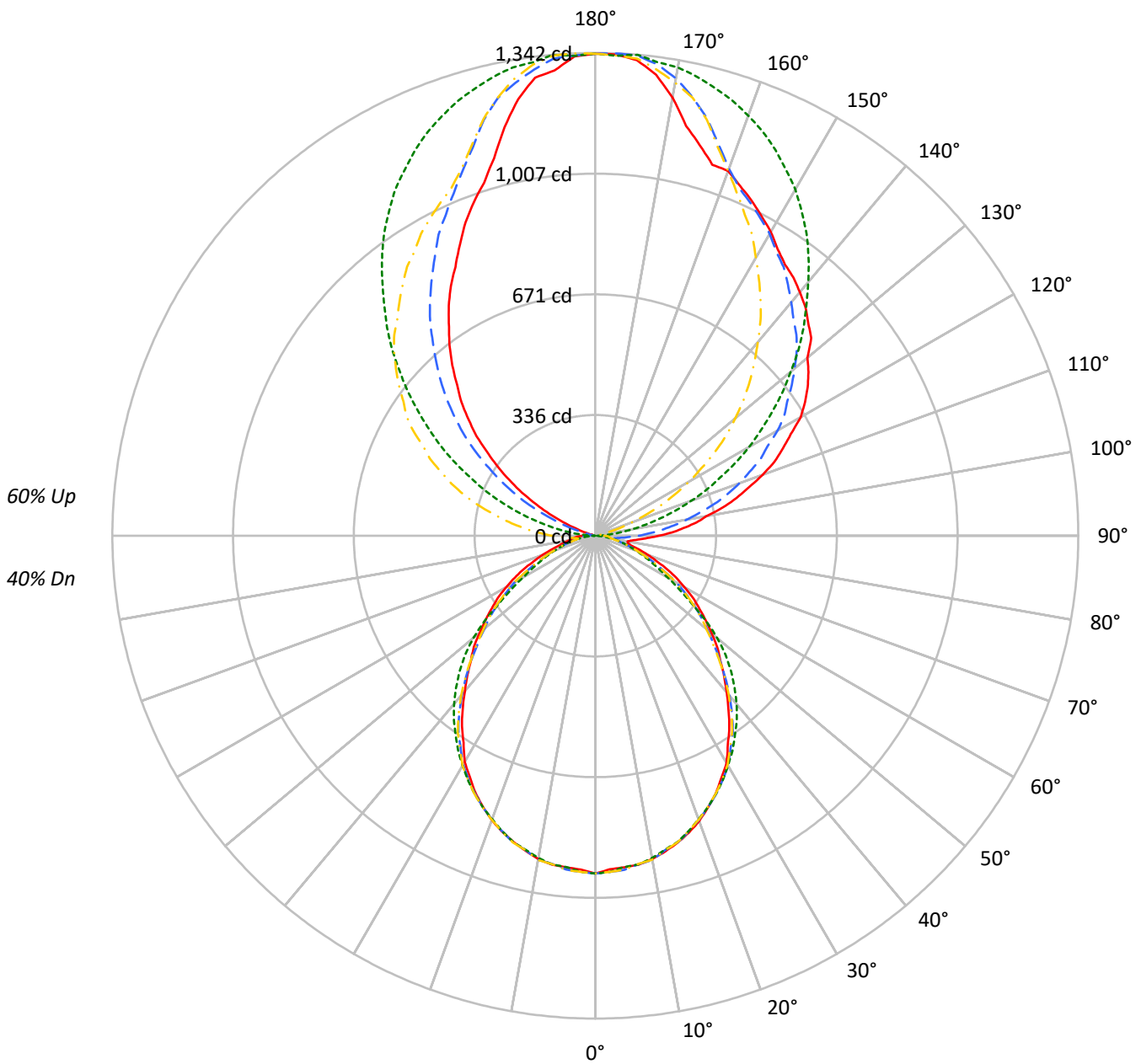
Lumens per Lamp: N/A  
Luminaire Lumens: 5335.3 lumens  
Efficiency: N/A  
Efficacy: 81.4 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 65.549  
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: P392540  
CATALOG NUMBER: MWL-2-35-23-UNV-L940-EDD

### 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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47	40
1	96	92	88	84	87	83	80	77	68	66	64	55	53	52	42	41	40	34
2	87	80	74	69	79	73	68	64	60	57	54	48	46	44	37	36	34	29
3	80	71	64	58	73	65	59	54	53	49	45	43	40	37	33	31	29	25
4	73	63	55	49	66	58	51	46	48	43	39	38	35	32	30	28	26	22
5	67	56	48	42	61	51	45	39	43	38	34	35	31	28	27	25	23	19
6	62	50	42	37	56	46	39	34	39	33	29	31	28	25	25	22	20	17
7	57	45	38	32	52	42	35	30	35	30	26	29	25	22	23	20	18	15
8	53	41	34	29	48	38	31	27	32	27	23	26	22	20	21	18	16	14
9	50	38	30	25	45	35	28	24	29	24	21	24	20	18	19	16	14	12
10	46	35	27	23	42	32	26	21	27	22	19	22	19	16	18	15	13	11

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

	0°	90°	180°	270°
0°	12125	12125	12125	12125
5°	11778	11018	11778	11018
10°	11540	10142	11540	10142
15°	11185	9294	11149	9294
20°	10784	8449	10747	8449
25°	10276	7697	10240	7697
30°	9708	6972	9658	6972
35°	8931	6271	8892	6271
40°	8151	5598	8096	5598
45°	7427	4870	7383	4870
50°	6793	4053	6748	4053
55°	6123	3009	6090	3009
60°	5435	2189	5416	2189
65°	4641	1639	4641	1639
70°	3723	1213	3744	1213
75°	2841	855	2920	855
80°	3106	529	2496	529
85°	5238	228	2542	228



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	88.2	1.7
10°-20°	248.3	4.7
20°-30°	364.3	6.8
30°-40°	413.5	7.8
40°-50°	385.8	7.2
50°-60°	301.8	5.7
60°-70°	187.4	3.5
70°-80°	91.6	1.7
80°-90°	61.3	1.1
90°-100°	103.3	1.9
100°-110°	206.0	3.9
110°-120°	355.7	6.7
120°-130°	483.8	9.1
130°-140°	551.7	10.3
140°-150°	550.5	10.3
150°-160°	479.4	9.0
160°-170°	337.1	6.3
170°-180°	125.6	2.4
0°-30°	700.9	13.1
0°-40°	1114.4	20.9
0°-60°	1801.9	33.8
0°-90°	2142.2	40.2
90°-120°	665.0	12.5
90°-150°	2251.0	42.2
90°-180°	3193.0	59.8
0°-180°	5335.3	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	939	939	939	939	939	
5°	925	924	925	924	925	88
15°	883	881	880	881	883	249
25°	791	792	788	792	791	363
35°	649	676	646	676	649	405
45°	491	533	488	533	491	381
55°	353	324	351	324	353	316
65°	220	169	220	169	220	217
75°	101	81	104	81	101	117
85°	120	19	58	19	120	92
90°	176	1	34	1	176	97
95°	246	38	22	38	246	216
105°	406	187	8	187	406	427
115°	575	382	132	382	575	570
125°	720	600	327	600	720	643
135°	836	818	526	818	836	646
145°	920	1024	709	1024	920	580
155°	1027	1184	891	1184	1027	474
165°	1123	1288	1086	1288	1123	319
175°	1326	1342	1298	1342	1326	124
180°	1340	1340	1340	1340	1340	



TEST NUMBER: P392540

CATALOG NUMBER: MWL-2-35-23-UNV-L940-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	938.7	938.7	938.7	938.7	938.7	938.7	938.7	938.7	938.7	938.7	938.7
2.5°	927.7	938.6	935.1	935.1	935.1	934.2	935.1	938.6	928.6	938.6	935.1
5°	924.9	933.1	932.3	931.4	924.1	931.4	931.4	933.1	924.9	933.1	931.4
7.5°	922.2	926.9	920.5	923.2	921.4	922.3	919.5	925.9	922.2	925.9	919.5
10°	912.2	914.1	915.0	910.5	909.6	909.5	914.0	912.2	912.2	912.2	914.0
12.5°	898.6	899.5	894.9	897.6	894.0	897.6	894.9	897.6	896.7	897.6	894.9
15°	883.1	886.8	883.0	880.3	881.2	879.4	882.1	884.9	880.3	884.9	882.1
17.5°	864.9	865.8	862.1	861.2	861.2	861.2	861.2	864.8	862.1	864.8	861.2
20°	844.0	844.0	840.2	838.4	838.4	837.5	839.3	842.0	841.1	842.0	839.3
22.5°	817.5	822.1	817.4	819.3	816.5	818.4	816.5	820.2	815.6	820.2	816.5
25°	791.1	793.8	792.9	795.6	791.9	794.7	791.0	791.0	788.3	791.0	791.0
27.5°	758.3	762.0	765.6	768.2	766.4	767.3	763.7	759.1	755.5	759.1	763.7
30°	729.2	727.3	737.4	739.2	737.3	737.3	734.5	724.5	725.4	724.5	734.5
32.5°	685.4	690.9	700.0	710.0	709.0	708.1	697.2	687.2	681.7	687.2	697.2
35°	649.0	652.6	666.3	678.1	676.2	675.3	663.5	649.8	646.2	649.8	663.5
37.5°	608.0	608.9	623.5	643.5	645.2	640.7	620.6	606.1	605.2	606.1	620.6
40°	567.9	567.0	579.7	602.4	610.6	600.6	575.9	563.2	564.1	563.2	575.9
42.5°	529.6	526.0	534.1	564.2	572.4	562.3	531.3	522.2	525.8	522.2	531.3
45°	491.3	486.7	489.4	516.8	533.2	515.0	485.7	483.9	488.4	483.9	485.7
47.5°	460.3	448.4	445.7	468.5	491.3	467.6	442.0	445.6	457.5	445.6	442.0
50°	422.0	415.6	406.5	422.9	442.1	421.0	402.8	411.9	419.2	411.9	402.8
52.5°	386.5	383.8	370.1	377.4	385.6	375.5	367.3	380.0	383.7	380.0	367.3
55°	352.8	348.2	333.6	330.9	324.4	329.0	330.8	345.4	350.9	345.4	330.8
57.5°	321.8	315.4	295.4	287.2	276.2	285.3	292.6	312.6	319.9	312.6	292.6
60°	286.3	280.8	259.8	239.7	231.5	238.8	257.9	278.9	285.3	278.9	257.9
62.5°	253.5	244.4	218.8	199.6	196.9	198.7	216.9	242.4	252.5	242.4	216.9
65°	219.7	206.0	184.1	165.9	168.6	165.0	183.2	205.1	219.7	205.1	183.2
67.5°	184.1	172.3	153.2	135.8	143.1	135.8	152.2	171.4	184.1	171.4	152.2
70°	155.0	140.4	124.9	112.2	120.4	112.2	124.9	141.3	155.9	141.3	124.9
72.5°	125.8	113.1	100.3	92.1	97.5	91.1	100.3	114.0	127.7	114.0	100.3
75°	101.2	89.4	78.4	72.0	81.1	72.0	79.4	90.3	104.0	90.3	79.4
77.5°	91.5	75.8	59.2	57.4	64.7	57.4	60.2	73.0	87.6	73.0	60.2
80°	91.1	77.3	48.5	42.8	47.4	42.8	46.6	62.1	73.2	62.1	46.6
82.5°	101.1	88.9	52.5	31.0	33.7	31.0	41.2	54.8	65.1	54.8	41.2
85°	119.5	110.1	67.0	25.7	19.1	23.8	39.5	52.3	58.0	52.3	39.5
87.5°	145.3	139.6	89.8	34.3	4.6	21.1	35.9	48.7	47.9	48.7	35.9
90°	175.8	170.1	119.4	48.7	0.9	12.8	25.7	36.6	34.0	36.6	25.7
92.5°	212.9	204.4	149.8	71.7	15.1	6.5	20.1	29.3	27.5	29.3	20.1
95°	246.2	240.5	184.0	99.3	37.8	4.7	13.8	21.0	22.0	21.0	13.8
97.5°	283.3	276.7	219.3	133.4	68.1	12.3	10.2	16.6	18.4	16.6	10.2
100°	313.8	310.1	258.3	174.0	104.0	32.2	7.6	13.0	15.8	13.0	7.6
102.5°	362.3	350.0	297.1	212.8	142.9	59.6	15.1	9.4	10.3	9.4	15.1
105°	405.9	392.6	343.4	253.6	187.3	96.5	37.8	12.3	7.6	12.3	37.8
107.5°	446.5	437.1	385.0	295.2	234.6	139.0	70.0	35.9	22.7	35.9	70.0
110°	493.9	482.5	425.8	336.8	283.8	184.5	106.9	66.2	51.0	66.2	106.9



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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°	539.3	530.8	463.6	380.3	334.9	233.7	152.3	104.0	89.8	104.0	152.3
115°	575.2	569.5	507.1	421.0	382.2	289.5	202.4	148.5	132.4	148.5	202.4
117.5°	612.1	611.2	539.3	462.7	439.0	339.7	248.8	193.9	175.9	193.9	248.8
120°	658.5	650.9	584.7	505.2	493.8	393.5	300.8	245.0	227.0	245.0	300.8
122.5°	690.6	685.9	622.6	544.9	544.9	447.4	350.0	294.2	275.2	294.2	350.0
125°	720.0	718.0	650.9	584.7	599.8	497.6	404.9	348.1	327.3	348.1	404.9
127.5°	746.5	749.3	687.8	628.2	655.6	548.8	458.8	396.4	374.6	396.4	458.8
130°	769.2	778.6	722.8	667.9	708.7	604.5	507.1	444.6	430.4	444.6	507.1
132.5°	813.6	808.0	758.8	708.7	765.4	655.6	558.1	492.9	476.8	492.9	558.1
135°	836.4	838.2	790.0	743.6	818.4	706.7	606.4	542.1	526.0	542.1	606.4
137.5°	863.8	858.1	814.6	786.2	867.5	755.9	653.7	594.1	568.6	594.1	653.7
140°	883.7	882.7	846.8	824.1	920.6	804.2	702.0	641.4	617.8	641.4	702.0
142.5°	904.4	910.2	878.9	865.7	973.5	855.2	754.0	687.8	665.1	687.8	754.0
145°	919.6	931.9	912.0	917.8	1023.7	912.0	800.4	733.2	708.6	733.2	800.4
147.5°	943.3	959.3	935.7	955.6	1067.3	963.1	845.8	779.5	757.8	779.5	845.8
150°	975.4	983.0	968.8	1005.8	1111.7	1018.1	892.1	824.0	802.2	824.0	892.1
152.5°	1000.9	1010.4	994.4	1061.5	1146.7	1069.1	943.3	867.5	842.0	867.5	943.3
155°	1027.4	1031.3	1019.9	1115.5	1183.6	1119.3	983.9	915.8	891.2	915.8	983.9
157.5°	1052.0	1059.6	1045.5	1156.2	1215.8	1162.7	1029.4	964.0	942.3	964.0	1029.4
160°	1078.6	1078.6	1085.2	1203.5	1242.3	1200.6	1078.6	1017.1	986.7	1017.1	1078.6
162.5°	1081.4	1099.3	1139.1	1236.5	1267.8	1233.7	1131.6	1054.9	1028.4	1054.9	1131.6
165°	1123.0	1138.1	1199.6	1265.9	1287.7	1263.1	1196.8	1116.5	1086.1	1116.5	1196.8
167.5°	1166.6	1199.6	1248.8	1299.0	1306.6	1290.5	1247.0	1191.2	1163.7	1191.2	1247.0
170°	1236.5	1265.9	1290.5	1311.3	1321.7	1312.3	1278.2	1250.8	1232.8	1250.8	1278.2
172.5°	1292.4	1311.3	1320.8	1334.0	1327.4	1323.6	1306.6	1293.4	1283.9	1293.4	1306.6
175°	1326.5	1331.2	1339.7	1335.9	1341.6	1331.2	1331.2	1337.9	1298.1	1337.9	1331.2
177.5°	1338.8	1346.3	1341.6	1334.0	1334.9	1333.0	1335.9	1339.7	1333.1	1339.7	1335.9
180°	1339.7	1339.7	1339.7	1339.7	1339.7	1339.7	1339.7	1339.7	1339.7	1339.7	1339.7



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CATALOG NUMBER: MWL-2-35-23-UNV-L940-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	938.7	938.7	938.7	938.7	938.7	938.7
2.5°	934.2	935.1	935.1	935.1	938.6	927.7
5°	931.4	924.1	931.4	932.3	933.1	924.9
7.5°	922.3	921.4	923.2	920.5	926.9	922.2
10°	909.5	909.6	910.5	915.0	914.1	912.2
12.5°	897.6	894.0	897.6	894.9	899.5	898.6
15°	879.4	881.2	880.3	883.0	886.8	883.1
17.5°	861.2	861.2	861.2	862.1	865.8	864.9
20°	837.5	838.4	838.4	840.2	844.0	844.0
22.5°	818.4	816.5	819.3	817.4	822.1	817.5
25°	794.7	791.9	795.6	792.9	793.8	791.1
27.5°	767.3	766.4	768.2	765.6	762.0	758.3
30°	737.3	737.3	739.2	737.4	727.3	729.2
32.5°	708.1	709.0	710.0	700.0	690.9	685.4
35°	675.3	676.2	678.1	666.3	652.6	649.0
37.5°	640.7	645.2	643.5	623.5	608.9	608.0
40°	600.6	610.6	602.4	579.7	567.0	567.9
42.5°	562.3	572.4	564.2	534.1	526.0	529.6
45°	515.0	533.2	516.8	489.4	486.7	491.3
47.5°	467.6	491.3	468.5	445.7	448.4	460.3
50°	421.0	442.1	422.9	406.5	415.6	422.0
52.5°	375.5	385.6	377.4	370.1	383.8	386.5
55°	329.0	324.4	330.9	333.6	348.2	352.8
57.5°	285.3	276.2	287.2	295.4	315.4	321.8
60°	238.8	231.5	239.7	259.8	280.8	286.3
62.5°	198.7	196.9	199.6	218.8	244.4	253.5
65°	165.0	168.6	165.9	184.1	206.0	219.7
67.5°	135.8	143.1	135.8	153.2	172.3	184.1
70°	112.2	120.4	112.2	124.9	140.4	155.0
72.5°	91.1	97.5	92.1	100.3	113.1	125.8
75°	72.0	81.1	72.0	78.4	89.4	101.2
77.5°	57.4	64.7	57.4	59.2	75.8	91.5
80°	42.8	47.4	42.8	48.5	77.3	91.1
82.5°	31.0	33.7	31.0	52.5	88.9	101.1
85°	23.8	19.1	25.7	67.0	110.1	119.5
87.5°	21.1	4.6	34.3	89.8	139.6	145.3
90°	12.8	0.9	48.7	119.4	170.1	175.8
92.5°	6.5	15.1	71.7	149.8	204.4	212.9
95°	4.7	37.8	99.3	184.0	240.5	246.2
97.5°	12.3	68.1	133.4	219.3	276.7	283.3
100°	32.2	104.0	174.0	258.3	310.1	313.8
102.5°	59.6	142.9	212.8	297.1	350.0	362.3
105°	96.5	187.3	253.6	343.4	392.6	405.9
107.5°	139.0	234.6	295.2	385.0	437.1	446.5
110°	184.5	283.8	336.8	425.8	482.5	493.9





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	233.7	334.9	380.3	463.6	530.8	539.3
115°	289.5	382.2	421.0	507.1	569.5	575.2
117.5°	339.7	439.0	462.7	539.3	611.2	612.1
120°	393.5	493.8	505.2	584.7	650.9	658.5
122.5°	447.4	544.9	544.9	622.6	685.9	690.6
125°	497.6	599.8	584.7	650.9	718.0	720.0
127.5°	548.8	655.6	628.2	687.8	749.3	746.5
130°	604.5	708.7	667.9	722.8	778.6	769.2
132.5°	655.6	765.4	708.7	758.8	808.0	813.6
135°	706.7	818.4	743.6	790.0	838.2	836.4
137.5°	755.9	867.5	786.2	814.6	858.1	863.8
140°	804.2	920.6	824.1	846.8	882.7	883.7
142.5°	855.2	973.5	865.7	878.9	910.2	904.4
145°	912.0	1023.7	917.8	912.0	931.9	919.6
147.5°	963.1	1067.3	955.6	935.7	959.3	943.3
150°	1018.1	1111.7	1005.8	968.8	983.0	975.4
152.5°	1069.1	1146.7	1061.5	994.4	1010.4	1000.9
155°	1119.3	1183.6	1115.5	1019.9	1031.3	1027.4
157.5°	1162.7	1215.8	1156.2	1045.5	1059.6	1052.0
160°	1200.6	1242.3	1203.5	1085.2	1078.6	1078.6
162.5°	1233.7	1267.8	1236.5	1139.1	1099.3	1081.4
165°	1263.1	1287.7	1265.9	1199.6	1138.1	1123.0
167.5°	1290.5	1306.6	1299.0	1248.8	1199.6	1166.6
170°	1312.3	1321.7	1311.3	1290.5	1265.9	1236.5
172.5°	1323.6	1327.4	1334.0	1320.8	1311.3	1292.4
175°	1331.2	1341.6	1335.9	1339.7	1331.2	1326.5
177.5°	1333.0	1334.9	1334.0	1341.6	1346.3	1338.8
180°	1339.7	1339.7	1339.7	1339.7	1339.7	1339.7

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