

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: P382226

Luminaire Tested: **MWL-2-35-13-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P382226
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-2-35-13-UNV-L830-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4518.0 lumens
Efficiency: N/A
Efficacy: 83.5 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

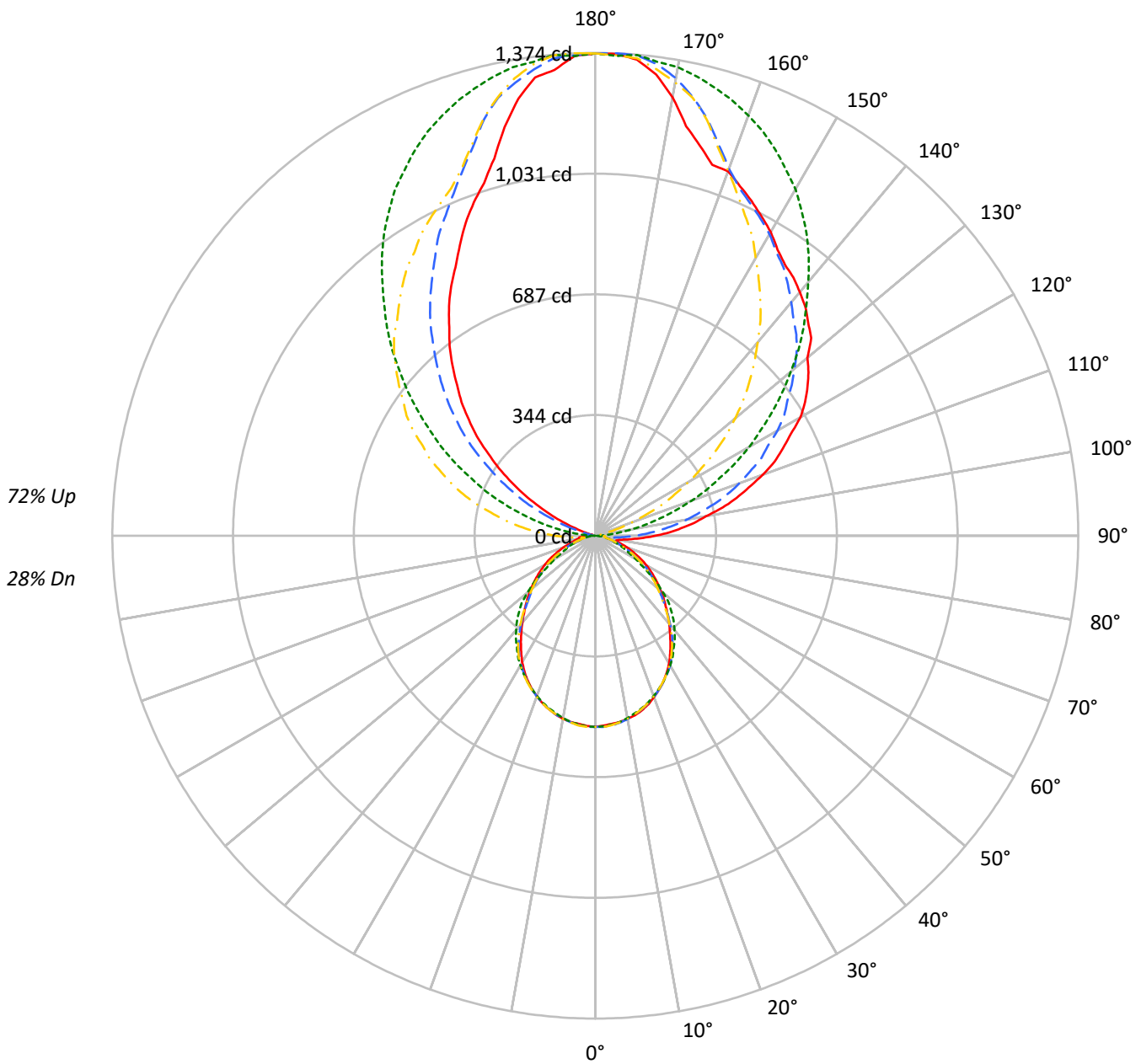
Input Watts (W): 54.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10	0	
RCR																						
0	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36	28				
1	93	89	85	81	83	79	76	73	62	60	58	46	45	44	31	31	30	23				
2	85	78	72	67	75	70	65	60	55	51	48	41	39	37	28	27	26	20				
3	77	68	61	56	69	61	55	51	48	44	41	36	33	31	25	23	22	17				
4	71	60	53	47	63	54	48	43	43	38	35	32	29	27	22	21	19	15				
5	65	54	46	40	58	48	42	37	38	34	30	29	26	23	20	18	17	13				
6	60	48	40	35	53	43	37	32	35	30	26	26	23	20	18	16	15	12				
7	55	43	36	30	49	39	33	28	31	26	23	24	21	18	17	15	13	10				
8	51	39	32	27	46	36	29	25	28	24	20	22	18	16	15	13	12	9				
9	47	36	29	24	42	32	26	22	26	21	18	20	17	14	14	12	11	8				
10	44	33	26	21	40	30	24	20	24	19	16	18	15	13	13	11	10	8				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	7024	7024	7024	7024
5°	6841	6428	6841	6428
10°	6689	5876	6689	5876
15°	6509	5360	6472	5360
20°	6244	4887	6207	4887
25°	5948	4450	5910	4450
30°	5586	4028	5536	4028
35°	5119	3605	5079	3605
40°	4695	3213	4639	3213
45°	4280	2799	4236	2799
50°	3897	2313	3851	2313
55°	3553	1716	3518	1716
60°	3176	1255	3157	1255
65°	2725	918	2725	918
70°	2267	688	2289	688
75°	1786	493	1867	493
80°	2325	312	1698	312
85°	4672	134	1911	134



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	51.2	1.1
10°-20°	143.8	3.2
20°-30°	210.5	4.7
30°-40°	237.8	5.3
40°-50°	221.2	4.9
50°-60°	174.0	3.9
60°-70°	110.6	2.4
70°-80°	56.0	1.2
80°-90°	48.5	1.1
90°-100°	101.6	2.2
100°-110°	210.6	4.7
110°-120°	364.4	8.1
120°-130°	495.1	11.0
130°-140°	564.8	12.5
140°-150°	563.4	12.5
150°-160°	490.7	10.9
160°-170°	345.2	7.6
170°-180°	128.6	2.8
0°-30°	405.5	9.0
0°-40°	643.3	14.2
0°-60°	1038.5	23.0
0°-90°	1253.7	27.7
90°-120°	676.5	15.0
90°-150°	2299.8	50.9
90°-180°	3264.0	72.2
0°-180°	4518.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	544	544	544	544	544	
5°	537	539	537	539	537	51
15°	514	508	511	508	514	145
25°	458	458	455	458	458	210
35°	372	389	369	389	372	233
45°	283	306	280	306	283	219
55°	205	185	203	185	205	183
65°	129	94	129	94	129	129
75°	64	47	66	47	64	75
85°	107	11	44	11	107	80
90°	170	1	25	1	170	94
95°	245	39	15	39	245	216
105°	416	191	8	191	416	438
115°	589	392	135	392	589	584
125°	737	614	334	614	737	658
135°	856	838	538	838	856	661
145°	941	1048	724	1048	941	593
155°	1051	1212	912	1212	1051	485
165°	1149	1319	1111	1319	1149	326
175°	1360	1373	1331	1373	1360	127
180°	1372	1372	1372	1372	1372	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	543.8	543.8	543.8	543.8	543.8	543.8	543.8	543.8	543.8	543.8	543.8
2.5°	540.9	542.8	544.7	543.8	542.8	542.8	544.7	542.8	541.8	542.8	544.7
5°	537.2	540.0	541.9	540.0	539.1	540.0	541.0	540.0	537.2	540.0	541.0
7.5°	534.4	536.3	536.3	535.4	534.4	534.4	535.3	535.3	534.4	535.3	535.3
10°	528.7	529.8	529.8	528.8	527.0	527.8	528.7	527.8	528.7	527.8	528.7
12.5°	523.2	522.3	520.3	519.4	517.5	519.4	520.3	520.3	521.3	520.3	520.3
15°	513.9	512.0	511.0	511.0	508.2	510.1	510.1	510.1	511.0	510.1	510.1
17.5°	502.7	500.8	499.8	498.9	497.9	498.9	498.9	499.8	499.8	499.8	498.9
20°	488.7	488.7	487.7	485.8	484.9	484.9	486.7	486.7	485.8	486.7	486.7
22.5°	473.7	473.7	473.7	473.7	471.8	472.7	472.7	471.8	471.8	471.8	472.7
25°	457.9	457.9	458.8	458.7	457.8	457.8	456.8	455.0	455.0	455.0	456.8
27.5°	439.2	440.1	442.9	443.8	441.9	442.8	441.0	437.2	436.3	437.2	441.0
30°	419.6	421.4	426.1	428.0	426.0	426.0	423.2	418.6	415.8	418.6	423.2
32.5°	396.2	399.0	405.6	410.2	409.2	408.3	402.7	395.2	392.4	395.2	402.7
35°	372.0	374.8	383.2	390.6	388.7	387.7	380.3	371.9	369.1	371.9	380.3
37.5°	348.6	349.5	358.9	370.1	370.9	367.2	356.0	346.6	345.7	346.6	356.0
40°	327.1	325.3	331.8	347.6	350.4	345.7	327.9	321.3	323.2	321.3	327.9
42.5°	304.7	301.9	305.6	323.3	329.8	321.4	302.7	298.0	300.8	298.0	302.7
45°	283.1	280.3	279.4	297.2	306.5	295.3	275.6	277.4	280.2	277.4	275.6
47.5°	263.5	258.9	256.1	269.1	284.1	268.2	252.2	256.0	260.6	256.0	252.2
50°	242.1	240.2	234.6	242.1	252.3	240.1	230.8	236.4	239.2	236.4	230.8
52.5°	224.3	221.5	213.1	216.8	220.6	214.9	210.2	217.7	221.4	217.7	210.2
55°	204.7	202.8	192.6	191.6	185.0	189.7	189.7	199.9	202.7	199.9	189.7
57.5°	186.0	184.2	172.9	165.5	155.1	163.5	170.1	181.3	184.1	181.3	170.1
60°	167.3	165.5	151.5	140.2	132.7	139.2	149.5	163.5	166.3	163.5	149.5
62.5°	149.6	145.9	130.0	115.9	111.2	115.0	128.0	143.9	148.6	143.9	128.0
65°	129.0	124.3	109.4	97.2	94.4	96.3	108.4	123.4	129.0	123.4	108.4
67.5°	111.2	104.7	92.5	80.4	81.3	80.4	91.6	103.8	111.2	103.8	91.6
70°	94.4	86.0	74.8	66.4	68.3	66.4	74.8	86.9	95.3	86.9	74.8
72.5°	78.5	69.2	60.8	54.3	56.0	53.2	60.8	70.1	80.5	70.1	60.8
75°	63.6	56.1	46.7	43.0	46.7	43.0	47.7	57.1	66.5	57.1	47.7
77.5°	61.1	49.7	36.4	33.6	37.4	33.6	37.4	46.8	57.2	46.8	37.4
80°	68.2	55.8	31.0	26.1	28.0	26.1	29.0	40.3	49.8	40.3	29.0
82.5°	83.1	71.5	37.9	18.7	19.6	18.7	26.3	36.6	46.2	36.6	26.3
85°	106.6	96.9	56.5	17.0	11.2	15.0	28.3	37.7	43.6	37.7	28.3
87.5°	136.8	129.1	81.8	28.7	2.8	15.1	26.5	36.0	37.0	36.0	26.5
90°	170.0	162.2	113.9	46.2	0.9	9.4	17.9	25.4	24.6	25.4	17.9
92.5°	209.8	200.1	147.0	72.6	15.5	5.7	14.1	20.7	19.8	20.7	14.1
95°	244.9	240.0	184.9	100.9	38.8	3.9	10.4	15.0	15.0	15.0	10.4
97.5°	284.7	278.9	223.8	135.8	68.8	11.7	9.5	12.3	13.3	12.3	9.5
100°	318.8	317.0	264.7	177.4	105.7	32.0	7.8	12.4	13.4	12.4	7.8
102.5°	371.3	358.8	303.6	217.2	145.5	60.1	14.6	9.6	10.6	9.6	14.6
105°	416.0	402.4	351.0	259.0	191.1	98.0	37.8	12.6	7.8	12.6	37.8
107.5°	457.7	448.0	394.6	301.6	239.5	141.6	71.7	36.8	23.3	36.8	71.7
110°	506.2	494.6	436.4	345.2	290.0	189.1	109.5	67.9	52.3	67.9	109.5



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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°	552.7	544.1	475.1	389.8	343.3	239.5	156.1	106.6	92.1	106.6	156.1
115°	588.6	583.8	519.8	431.5	391.8	296.7	207.5	152.2	134.8	152.2	207.5
117.5°	626.4	625.5	552.7	474.2	449.9	348.1	255.0	197.8	179.4	197.8	255.0
120°	674.0	666.2	598.3	516.9	505.2	402.4	307.4	250.2	231.8	250.2	307.4
122.5°	706.9	702.1	637.2	557.6	557.6	457.7	357.9	300.6	281.2	300.6	357.9
125°	737.0	735.0	666.2	598.3	613.8	509.1	414.1	355.9	334.5	355.9	414.1
127.5°	764.2	767.1	704.0	643.0	671.1	561.5	469.4	405.4	383.1	405.4	469.4
130°	787.4	797.1	739.9	683.7	725.4	618.7	518.8	454.8	440.2	454.8	518.8
132.5°	833.0	827.2	776.8	725.4	783.6	671.1	571.1	504.3	487.8	504.3	571.1
135°	856.3	858.2	808.8	761.3	837.9	723.5	620.6	554.7	538.2	554.7	620.6
137.5°	884.5	878.6	834.0	804.9	888.3	773.9	669.1	608.0	581.9	608.0	669.1
140°	904.8	903.8	867.0	843.7	942.6	823.4	718.6	656.5	632.3	656.5	718.6
142.5°	926.1	932.0	900.0	886.4	996.9	875.7	771.9	704.0	680.8	704.0	771.9
145°	940.7	953.3	932.9	939.7	1048.3	933.9	818.5	749.6	724.4	749.6	818.5
147.5°	965.0	981.4	957.2	977.6	1093.0	985.3	865.0	797.1	774.8	797.1	865.0
150°	997.9	1005.7	991.1	1029.9	1138.6	1042.6	912.6	842.7	820.4	842.7	912.6
152.5°	1024.1	1033.8	1017.3	1087.1	1174.4	1094.9	965.0	887.3	861.2	887.3	965.0
155°	1051.2	1055.2	1043.5	1142.4	1212.2	1146.3	1006.6	936.8	911.6	936.8	1006.6
157.5°	1076.5	1084.2	1070.7	1184.1	1245.2	1190.9	1054.1	986.2	963.9	986.2	1054.1
160°	1103.6	1103.6	1111.4	1232.6	1272.4	1229.7	1104.6	1040.6	1009.5	1040.6	1104.6
162.5°	1106.5	1124.9	1166.7	1266.5	1298.5	1263.6	1158.9	1079.3	1052.2	1079.3	1158.9
165°	1149.2	1165.6	1228.7	1296.6	1318.9	1293.7	1225.8	1143.4	1111.4	1143.4	1225.8
167.5°	1193.8	1228.7	1279.1	1330.6	1338.3	1321.8	1277.2	1220.0	1190.9	1220.0	1277.2
170°	1266.5	1296.6	1321.8	1343.2	1353.8	1344.1	1309.2	1281.1	1262.7	1281.1	1309.2
172.5°	1323.7	1343.2	1352.9	1366.4	1359.6	1355.8	1338.3	1324.8	1315.1	1324.8	1338.3
175°	1359.6	1363.5	1372.2	1367.4	1373.2	1362.6	1363.5	1370.3	1330.6	1370.3	1363.5
177.5°	1372.2	1379.0	1374.2	1365.5	1366.4	1364.5	1368.4	1372.2	1366.4	1372.2	1368.4
180°	1372.2	1372.2	1372.2	1372.2	1372.2	1372.2	1372.2	1372.2	1372.2	1372.2	1372.2



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	543.8	543.8	543.8	543.8	543.8	543.8
2.5°	542.8	542.8	543.8	544.7	542.8	540.9
5°	540.0	539.1	540.0	541.9	540.0	537.2
7.5°	534.4	534.4	535.4	536.3	536.3	534.4
10°	527.8	527.0	528.8	529.8	529.8	528.7
12.5°	519.4	517.5	519.4	520.3	522.3	523.2
15°	510.1	508.2	511.0	511.0	512.0	513.9
17.5°	498.9	497.9	498.9	499.8	500.8	502.7
20°	484.9	484.9	485.8	487.7	488.7	488.7
22.5°	472.7	471.8	473.7	473.7	473.7	473.7
25°	457.8	457.8	458.7	458.8	457.9	457.9
27.5°	442.8	441.9	443.8	442.9	440.1	439.2
30°	426.0	426.0	428.0	426.1	421.4	419.6
32.5°	408.3	409.2	410.2	405.6	399.0	396.2
35°	387.7	388.7	390.6	383.2	374.8	372.0
37.5°	367.2	370.9	370.1	358.9	349.5	348.6
40°	345.7	350.4	347.6	331.8	325.3	327.1
42.5°	321.4	329.8	323.3	305.6	301.9	304.7
45°	295.3	306.5	297.2	279.4	280.3	283.1
47.5°	268.2	284.1	269.1	256.1	258.9	263.5
50°	240.1	252.3	242.1	234.6	240.2	242.1
52.5°	214.9	220.6	216.8	213.1	221.5	224.3
55°	189.7	185.0	191.6	192.6	202.8	204.7
57.5°	163.5	155.1	165.5	172.9	184.2	186.0
60°	139.2	132.7	140.2	151.5	165.5	167.3
62.5°	115.0	111.2	115.9	130.0	145.9	149.6
65°	96.3	94.4	97.2	109.4	124.3	129.0
67.5°	80.4	81.3	80.4	92.5	104.7	111.2
70°	66.4	68.3	66.4	74.8	86.0	94.4
72.5°	53.2	56.0	54.3	60.8	69.2	78.5
75°	43.0	46.7	43.0	46.7	56.1	63.6
77.5°	33.6	37.4	33.6	36.4	49.7	61.1
80°	26.1	28.0	26.1	31.0	55.8	68.2
82.5°	18.7	19.6	18.7	37.9	71.5	83.1
85°	15.0	11.2	17.0	56.5	96.9	106.6
87.5°	15.1	2.8	28.7	81.8	129.1	136.8
90°	9.4	0.9	46.2	113.9	162.2	170.0
92.5°	5.7	15.5	72.6	147.0	200.1	209.8
95°	3.9	38.8	100.9	184.9	240.0	244.9
97.5°	11.7	68.8	135.8	223.8	278.9	284.7
100°	32.0	105.7	177.4	264.7	317.0	318.8
102.5°	60.1	145.5	217.2	303.6	358.8	371.3
105°	98.0	191.1	259.0	351.0	402.4	416.0
107.5°	141.6	239.5	301.6	394.6	448.0	457.7
110°	189.1	290.0	345.2	436.4	494.6	506.2



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	239.5	343.3	389.8	475.1	544.1	552.7
115°	296.7	391.8	431.5	519.8	583.8	588.6
117.5°	348.1	449.9	474.2	552.7	625.5	626.4
120°	402.4	505.2	516.9	598.3	666.2	674.0
122.5°	457.7	557.6	557.6	637.2	702.1	706.9
125°	509.1	613.8	598.3	666.2	735.0	737.0
127.5°	561.5	671.1	643.0	704.0	767.1	764.2
130°	618.7	725.4	683.7	739.9	797.1	787.4
132.5°	671.1	783.6	725.4	776.8	827.2	833.0
135°	723.5	837.9	761.3	808.8	858.2	856.3
137.5°	773.9	888.3	804.9	834.0	878.6	884.5
140°	823.4	942.6	843.7	867.0	903.8	904.8
142.5°	875.7	996.9	886.4	900.0	932.0	926.1
145°	933.9	1048.3	939.7	932.9	953.3	940.7
147.5°	985.3	1093.0	977.6	957.2	981.4	965.0
150°	1042.6	1138.6	1029.9	991.1	1005.7	997.9
152.5°	1094.9	1174.4	1087.1	1017.3	1033.8	1024.1
155°	1146.3	1212.2	1142.4	1043.5	1055.2	1051.2
157.5°	1190.9	1245.2	1184.1	1070.7	1084.2	1076.5
160°	1229.7	1272.4	1232.6	1111.4	1103.6	1103.6
162.5°	1263.6	1298.5	1266.5	1166.7	1124.9	1106.5
165°	1293.7	1318.9	1296.6	1228.7	1165.6	1149.2
167.5°	1321.8	1338.3	1330.6	1279.1	1228.7	1193.8
170°	1344.1	1353.8	1343.2	1321.8	1296.6	1266.5
172.5°	1355.8	1359.6	1366.4	1352.9	1343.2	1323.7
175°	1362.6	1373.2	1367.4	1372.2	1363.5	1359.6
177.5°	1364.5	1366.4	1365.5	1374.2	1379.0	1372.2
180°	1372.2	1372.2	1372.2	1372.2	1372.2	1372.2

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