

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: P392539

Luminaire Tested: **MWL-2-35-23-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392539
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-L835-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

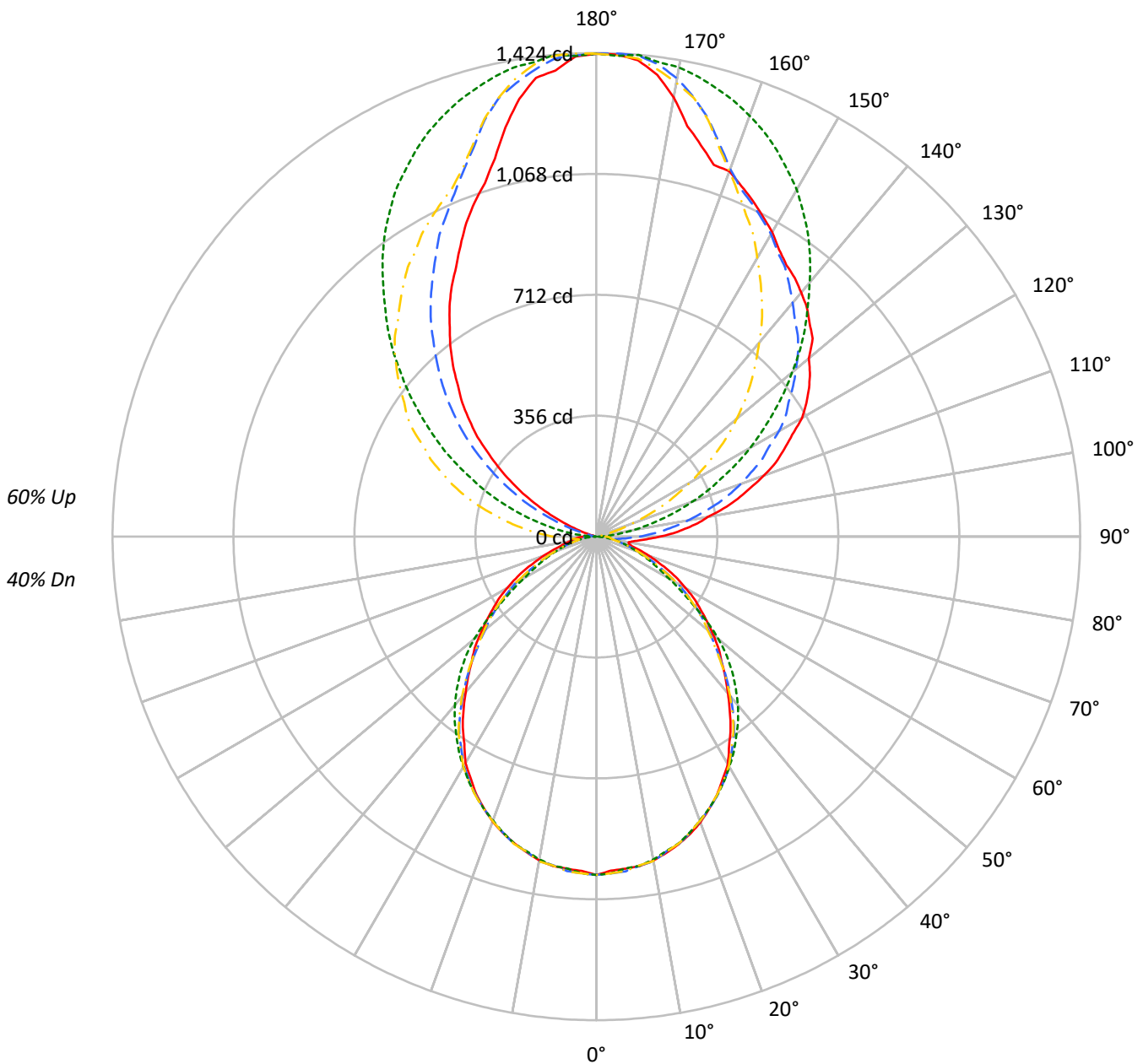
Lumens per Lamp: N/A
Luminaire Lumens: 5662.0 lumens
Efficiency: N/A
Efficacy: 87.2 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 64.9
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	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°	12868	12868	12868	12868
5°	12500	11693	12500	11693
10°	12248	10762	12248	10762
15°	11870	9863	11832	9863
20°	11443	8966	11405	8966
25°	10906	8168	10867	8168
30°	10302	7398	10249	7398
35°	9477	6655	9436	6655
40°	8650	5941	8591	5941
45°	7881	5168	7835	5168
50°	7210	4301	7162	4301
55°	6498	3193	6462	3193
60°	5767	2323	5746	2323
65°	4924	1740	4924	1740
70°	3951	1287	3973	1287
75°	3015	908	3100	908
80°	3297	561	2646	561
85°	5562	242	2700	242



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	93.6	1.7
10°-20°	263.5	4.7
20°-30°	386.7	6.8
30°-40°	438.8	7.7
40°-50°	409.4	7.2
50°-60°	320.3	5.7
60°-70°	198.9	3.5
70°-80°	97.2	1.7
80°-90°	65.1	1.1
90°-100°	109.6	1.9
100°-110°	218.6	3.9
110°-120°	377.5	6.7
120°-130°	513.5	9.1
130°-140°	585.5	10.3
140°-150°	584.2	10.3
150°-160°	508.8	9.0
160°-170°	357.8	6.3
170°-180°	133.2	2.4
0°-30°	743.8	13.1
0°-40°	1182.6	20.9
0°-60°	1912.3	33.8
0°-90°	2273.4	40.2
90°-120°	705.7	12.5
90°-150°	2388.8	42.2
90°-180°	3389.0	59.9
0°-180°	5662.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	996	996	996	996	996	
5°	982	981	982	981	982	93
15°	937	935	934	935	937	264
25°	840	840	837	840	840	386
35°	689	718	686	718	689	430
45°	521	566	518	566	521	404
55°	374	344	372	344	374	336
65°	233	179	233	179	233	230
75°	107	86	110	86	107	124
85°	127	20	62	20	127	98
90°	187	1	36	1	187	103
95°	261	40	23	40	261	229
105°	431	199	8	199	431	454
115°	610	406	140	406	610	605
125°	764	636	347	636	764	682
135°	888	868	558	868	888	685
145°	976	1086	752	1086	976	615
155°	1090	1256	946	1256	1090	503
165°	1192	1366	1153	1366	1192	338
175°	1408	1424	1378	1424	1408	131
180°	1422	1422	1422	1422	1422	



TEST NUMBER: P392539

CATALOG NUMBER: MWL-2-35-23-UNV-L835-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	996.2	996.2	996.2	996.2	996.2	996.2	996.2	996.2	996.2	996.2	996.2
2.5°	984.5	996.1	992.3	992.3	992.3	991.4	992.3	996.1	985.5	996.1	992.3
5°	981.6	990.3	989.4	988.5	980.7	988.5	988.5	990.3	981.6	990.3	988.5
7.5°	978.7	983.6	976.8	979.7	977.8	978.8	975.8	982.6	978.7	982.6	975.8
10°	968.1	970.1	971.0	966.2	965.2	965.1	970.0	968.1	968.1	968.1	970.0
12.5°	953.6	954.6	949.7	952.6	948.7	952.6	949.7	952.6	951.6	952.6	949.7
15°	937.2	941.1	937.1	934.2	935.2	933.2	936.1	939.0	934.2	939.0	936.1
17.5°	917.9	918.8	914.9	913.9	913.9	913.9	913.9	917.8	914.9	917.8	913.9
20°	895.6	895.6	891.7	889.7	889.7	888.8	890.7	893.6	892.6	893.6	890.7
22.5°	867.6	872.4	867.5	869.4	866.5	868.5	866.5	870.4	865.6	870.4	866.5
25°	839.6	842.5	841.5	844.3	840.4	843.3	839.5	839.5	836.6	839.5	839.5
27.5°	804.7	808.6	812.5	815.3	813.3	814.3	810.4	805.6	801.7	805.6	810.4
30°	773.8	771.9	782.5	784.4	782.4	782.4	779.5	768.9	769.8	768.9	779.5
32.5°	727.4	733.2	742.9	753.5	752.4	751.5	739.9	729.2	723.4	729.2	739.9
35°	688.7	692.6	707.1	719.7	717.6	716.7	704.1	689.6	685.7	689.6	704.1
37.5°	645.2	646.2	661.6	682.9	684.8	679.9	658.6	643.2	642.2	643.2	658.6
40°	602.7	601.7	615.2	639.3	648.0	637.4	611.2	597.6	598.6	597.6	611.2
42.5°	562.1	558.2	566.8	598.7	607.4	596.8	563.8	554.1	558.0	554.1	563.8
45°	521.3	516.5	519.4	548.4	565.8	546.5	515.4	513.5	518.3	513.5	515.4
47.5°	488.5	475.9	473.0	497.2	521.3	496.2	469.0	472.9	485.5	472.9	469.0
50°	447.9	441.1	431.4	448.8	469.1	446.8	427.5	437.1	444.9	437.1	427.5
52.5°	410.2	407.3	392.8	400.5	409.2	398.5	389.8	403.3	407.2	403.3	389.8
55°	374.4	369.5	354.1	351.2	344.3	349.1	351.1	366.5	372.3	366.5	351.1
57.5°	341.5	334.7	313.5	304.8	293.1	302.7	310.5	331.7	339.5	331.7	310.5
60°	303.8	298.0	275.8	254.4	245.7	253.4	273.7	296.0	302.7	296.0	273.7
62.5°	269.0	259.3	232.2	211.8	208.9	210.9	230.2	257.3	267.9	257.3	230.2
65°	233.1	218.6	195.4	176.1	179.0	175.1	194.4	217.6	233.1	217.6	194.4
67.5°	195.4	182.8	162.5	144.2	151.9	144.2	161.6	181.9	195.4	181.9	161.6
70°	164.5	149.0	132.6	119.0	127.7	119.0	132.6	150.0	165.4	150.0	132.6
72.5°	133.5	120.0	106.5	97.8	103.5	96.7	106.5	121.0	135.6	121.0	106.5
75°	107.4	94.9	83.2	76.4	86.1	76.4	84.2	95.8	110.4	95.8	84.2
77.5°	97.1	80.4	62.8	60.9	68.6	60.9	63.9	77.4	93.0	77.4	63.9
80°	96.7	82.0	51.4	45.4	50.3	45.4	49.4	65.9	77.6	65.9	49.4
82.5°	107.3	94.4	55.7	32.9	35.8	32.9	43.7	58.2	69.1	58.2	43.7
85°	126.9	116.8	71.1	27.3	20.3	25.2	41.9	55.5	61.6	55.5	41.9
87.5°	154.2	148.1	95.3	36.5	4.8	22.4	38.1	51.7	50.9	51.7	38.1
90°	186.6	180.5	126.7	51.7	1.0	13.6	27.3	38.9	36.1	38.9	27.3
92.5°	226.0	216.9	159.0	76.1	16.1	6.9	21.4	31.1	29.2	31.1	21.4
95°	261.3	255.3	195.3	105.4	40.1	5.0	14.6	22.3	23.3	22.3	14.6
97.5°	300.6	293.6	232.7	141.6	72.2	13.1	10.8	17.6	19.5	17.6	10.8
100°	333.0	329.1	274.1	184.7	110.4	34.1	8.0	13.8	16.7	13.8	8.0
102.5°	384.4	371.5	315.3	225.9	151.6	63.2	16.1	10.0	10.9	10.0	16.1
105°	430.7	416.6	364.4	269.1	198.8	102.4	40.1	13.1	8.0	13.1	40.1
107.5°	473.9	463.8	408.6	313.3	249.0	147.5	74.3	38.1	24.1	38.1	74.3
110°	524.2	512.1	451.8	357.5	301.2	195.8	113.4	70.3	54.1	70.3	113.4



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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°	572.3	563.3	492.0	403.6	355.4	248.0	161.7	110.4	95.3	110.4	161.7
115°	610.4	604.4	538.2	446.8	405.6	307.2	214.8	157.6	140.5	157.6	214.8
117.5°	649.6	648.6	572.3	491.0	465.8	360.5	264.1	205.8	186.7	205.8	264.1
120°	698.8	690.7	620.5	536.1	524.1	417.6	319.3	260.0	240.9	260.0	319.3
122.5°	732.9	727.9	660.7	578.3	578.3	474.8	371.5	312.2	292.1	312.2	371.5
125°	764.0	762.0	690.7	620.5	636.5	528.1	429.7	369.4	347.3	369.4	429.7
127.5°	792.2	795.2	729.9	666.7	695.8	582.4	486.9	420.7	397.6	420.7	486.9
130°	816.2	826.3	767.0	708.8	752.0	641.5	538.2	471.8	456.8	471.8	538.2
132.5°	863.4	857.4	805.2	752.0	812.3	695.8	592.3	523.1	506.0	523.1	592.3
135°	887.6	889.5	838.4	789.2	868.5	750.0	643.6	575.3	558.2	575.3	643.6
137.5°	916.7	910.6	864.5	834.3	920.7	802.2	693.7	630.5	603.4	630.5	693.7
140°	937.8	936.7	898.6	874.6	976.9	853.5	745.0	680.7	655.6	680.7	745.0
142.5°	959.8	965.9	932.8	918.7	1033.1	907.6	800.2	729.9	705.8	729.9	800.2
145°	975.9	988.9	967.9	973.9	1086.4	967.9	849.4	778.1	752.0	778.1	849.4
147.5°	1001.0	1018.0	993.0	1014.1	1132.6	1022.1	897.6	827.3	804.2	827.3	897.6
150°	1035.2	1043.2	1028.1	1067.3	1179.8	1080.4	946.8	874.5	851.3	874.5	946.8
152.5°	1062.2	1072.3	1055.3	1126.5	1216.9	1134.5	1001.0	920.7	893.6	920.7	1001.0
155°	1090.4	1094.4	1082.3	1183.8	1256.1	1187.8	1044.1	971.9	945.8	971.9	1044.1
157.5°	1116.5	1124.5	1109.5	1227.0	1290.2	1233.9	1092.4	1023.1	1000.0	1023.1	1092.4
160°	1144.6	1144.6	1151.7	1277.2	1318.4	1274.2	1144.6	1079.3	1047.1	1079.3	1144.6
162.5°	1147.6	1166.6	1208.9	1312.3	1345.4	1309.3	1200.9	1119.5	1091.3	1119.5	1200.9
165°	1191.8	1207.8	1273.1	1343.4	1366.5	1340.4	1270.1	1184.8	1152.6	1184.8	1270.1
167.5°	1238.0	1273.1	1325.3	1378.6	1386.6	1369.5	1323.4	1264.1	1234.9	1264.1	1323.4
170°	1312.3	1343.4	1369.5	1391.6	1402.7	1392.6	1356.4	1327.3	1308.3	1327.3	1356.4
172.5°	1371.5	1391.6	1401.7	1415.7	1408.7	1404.7	1386.6	1372.6	1362.5	1372.6	1386.6
175°	1407.7	1412.7	1421.7	1417.8	1423.7	1412.7	1412.7	1419.8	1377.6	1419.8	1412.7
177.5°	1420.7	1428.8	1423.7	1415.7	1416.7	1414.7	1417.8	1421.7	1414.8	1421.7	1417.8
180°	1421.7	1421.7	1421.7	1421.7	1421.7	1421.7	1421.7	1421.7	1421.7	1421.7	1421.7



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CATALOG NUMBER: MWL-2-35-23-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	996.2	996.2	996.2	996.2	996.2	996.2
2.5°	991.4	992.3	992.3	992.3	996.1	984.5
5°	988.5	980.7	988.5	989.4	990.3	981.6
7.5°	978.8	977.8	979.7	976.8	983.6	978.7
10°	965.1	965.2	966.2	971.0	970.1	968.1
12.5°	952.6	948.7	952.6	949.7	954.6	953.6
15°	933.2	935.2	934.2	937.1	941.1	937.2
17.5°	913.9	913.9	913.9	914.9	918.8	917.9
20°	888.8	889.7	889.7	891.7	895.6	895.6
22.5°	868.5	866.5	869.4	867.5	872.4	867.6
25°	843.3	840.4	844.3	841.5	842.5	839.6
27.5°	814.3	813.3	815.3	812.5	808.6	804.7
30°	782.4	782.4	784.4	782.5	771.9	773.8
32.5°	751.5	752.4	753.5	742.9	733.2	727.4
35°	716.7	717.6	719.7	707.1	692.6	688.7
37.5°	679.9	684.8	682.9	661.6	646.2	645.2
40°	637.4	648.0	639.3	615.2	601.7	602.7
42.5°	596.8	607.4	598.7	566.8	558.2	562.1
45°	546.5	565.8	548.4	519.4	516.5	521.3
47.5°	496.2	521.3	497.2	473.0	475.9	488.5
50°	446.8	469.1	448.8	431.4	441.1	447.9
52.5°	398.5	409.2	400.5	392.8	407.3	410.2
55°	349.1	344.3	351.2	354.1	369.5	374.4
57.5°	302.7	293.1	304.8	313.5	334.7	341.5
60°	253.4	245.7	254.4	275.8	298.0	303.8
62.5°	210.9	208.9	211.8	232.2	259.3	269.0
65°	175.1	179.0	176.1	195.4	218.6	233.1
67.5°	144.2	151.9	144.2	162.5	182.8	195.4
70°	119.0	127.7	119.0	132.6	149.0	164.5
72.5°	96.7	103.5	97.8	106.5	120.0	133.5
75°	76.4	86.1	76.4	83.2	94.9	107.4
77.5°	60.9	68.6	60.9	62.8	80.4	97.1
80°	45.4	50.3	45.4	51.4	82.0	96.7
82.5°	32.9	35.8	32.9	55.7	94.4	107.3
85°	25.2	20.3	27.3	71.1	116.8	126.9
87.5°	22.4	4.8	36.5	95.3	148.1	154.2
90°	13.6	1.0	51.7	126.7	180.5	186.6
92.5°	6.9	16.1	76.1	159.0	216.9	226.0
95°	5.0	40.1	105.4	195.3	255.3	261.3
97.5°	13.1	72.2	141.6	232.7	293.6	300.6
100°	34.1	110.4	184.7	274.1	329.1	333.0
102.5°	63.2	151.6	225.9	315.3	371.5	384.4
105°	102.4	198.8	269.1	364.4	416.6	430.7
107.5°	147.5	249.0	313.3	408.6	463.8	473.9
110°	195.8	301.2	357.5	451.8	512.1	524.2



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	248.0	355.4	403.6	492.0	563.3	572.3
115°	307.2	405.6	446.8	538.2	604.4	610.4
117.5°	360.5	465.8	491.0	572.3	648.6	649.6
120°	417.6	524.1	536.1	620.5	690.7	698.8
122.5°	474.8	578.3	578.3	660.7	727.9	732.9
125°	528.1	636.5	620.5	690.7	762.0	764.0
127.5°	582.4	695.8	666.7	729.9	795.2	792.2
130°	641.5	752.0	708.8	767.0	826.3	816.2
132.5°	695.8	812.3	752.0	805.2	857.4	863.4
135°	750.0	868.5	789.2	838.4	889.5	887.6
137.5°	802.2	920.7	834.3	864.5	910.6	916.7
140°	853.5	976.9	874.6	898.6	936.7	937.8
142.5°	907.6	1033.1	918.7	932.8	965.9	959.8
145°	967.9	1086.4	973.9	967.9	988.9	975.9
147.5°	1022.1	1132.6	1014.1	993.0	1018.0	1001.0
150°	1080.4	1179.8	1067.3	1028.1	1043.2	1035.2
152.5°	1134.5	1216.9	1126.5	1055.3	1072.3	1062.2
155°	1187.8	1256.1	1183.8	1082.3	1094.4	1090.4
157.5°	1233.9	1290.2	1227.0	1109.5	1124.5	1116.5
160°	1274.2	1318.4	1277.2	1151.7	1144.6	1144.6
162.5°	1309.3	1345.4	1312.3	1208.9	1166.6	1147.6
165°	1340.4	1366.5	1343.4	1273.1	1207.8	1191.8
167.5°	1369.5	1386.6	1378.6	1325.3	1273.1	1238.0
170°	1392.6	1402.7	1391.6	1369.5	1343.4	1312.3
172.5°	1404.7	1408.7	1415.7	1401.7	1391.6	1371.5
175°	1412.7	1423.7	1417.8	1421.7	1412.7	1407.7
177.5°	1414.7	1416.7	1415.7	1423.7	1428.8	1420.7
180°	1421.7	1421.7	1421.7	1421.7	1421.7	1421.7

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