

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: P392534

Luminaire Tested: **MWL-2-35-13-UNV-L840-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392534
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-L840-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

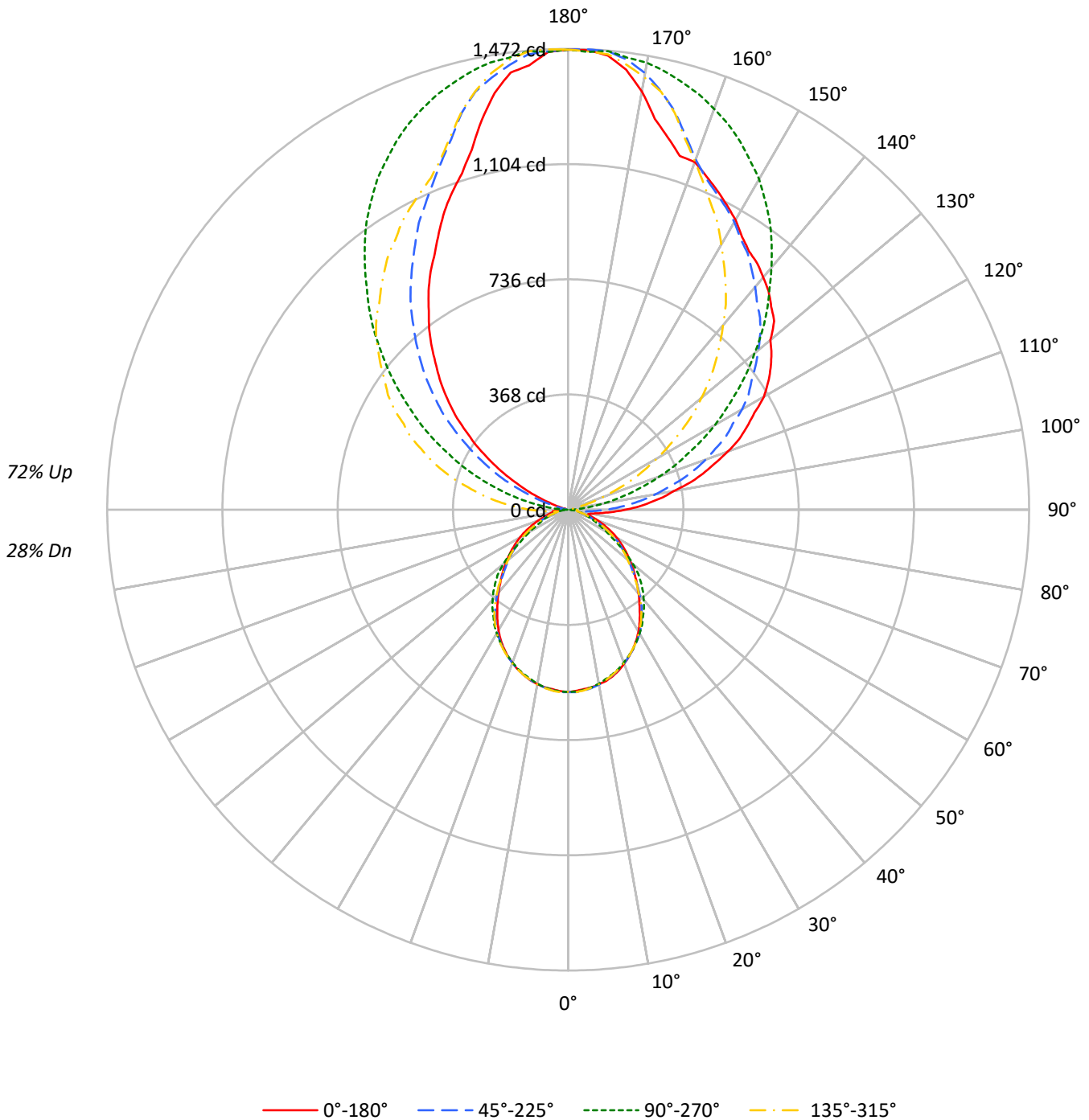
Lumens per Lamp: N/A
Luminaire Lumens: 4838.0 lumens
Efficiency: N/A
Efficacy: 89.4 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Indirect

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





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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°	7521	7521	7521	7521
5°	7325	6883	7325	6883
10°	7163	6292	7163	6292
15°	6970	5739	6930	5739
20°	6686	5232	6647	5232
25°	6369	4765	6329	4765
30°	5982	4314	5927	4314
35°	5481	3860	5438	3860
40°	5028	3440	4967	3440
45°	4584	2998	4537	2998
50°	4173	2477	4123	2477
55°	3804	1837	3768	1837
60°	3402	1344	3381	1344
65°	2917	983	2917	983
70°	2428	737	2452	737
75°	1912	527	1999	527
80°	2489	334	1817	334
85°	5005	143	2047	143



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	54.8	1.1
10°-20°	154.0	3.2
20°-30°	225.4	4.7
30°-40°	254.7	5.3
40°-50°	236.9	4.9
50°-60°	186.3	3.9
60°-70°	118.4	2.4
70°-80°	60.0	1.2
80°-90°	52.0	1.1
90°-100°	108.8	2.2
100°-110°	225.5	4.7
110°-120°	390.2	8.1
120°-130°	530.1	11.0
130°-140°	604.8	12.5
140°-150°	603.3	12.5
150°-160°	525.5	10.9
160°-170°	369.7	7.6
170°-180°	137.7	2.8
0°-30°	434.2	9.0
0°-40°	688.8	14.2
0°-60°	1112.0	23.0
0°-90°	1342.5	27.7
90°-120°	724.4	15.0
90°-150°	2462.7	50.9
90°-180°	3496.0	72.3
0°-180°	4838.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	582	582	582	582	582	
5°	575	577	575	577	575	55
15°	550	544	547	544	550	155
25°	490	490	487	490	490	225
35°	398	416	395	416	398	249
45°	303	328	300	328	303	235
55°	219	198	217	198	219	196
65°	138	101	138	101	138	138
75°	68	50	71	50	68	80
85°	114	12	47	12	114	85
90°	182	1	26	1	182	101
95°	262	42	16	42	262	231
105°	446	205	8	205	446	469
115°	630	420	144	420	630	625
125°	789	657	358	657	789	705
135°	917	897	576	897	917	708
145°	1007	1123	776	1123	1007	635
155°	1126	1298	976	1298	1126	519
165°	1231	1412	1190	1412	1231	349
175°	1456	1470	1425	1470	1456	136
180°	1469	1469	1469	1469	1469	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	582.3	582.3	582.3	582.3	582.3	582.3	582.3	582.3	582.3	582.3	582.3
2.5°	579.2	581.2	583.3	582.3	581.3	581.3	583.3	581.2	580.2	581.2	583.3
5°	575.2	578.2	580.3	578.3	577.3	578.3	579.3	578.2	575.2	578.2	579.3
7.5°	572.2	574.3	574.3	573.3	572.3	572.3	573.2	573.2	572.2	573.2	573.2
10°	566.2	567.3	567.3	566.3	564.3	565.2	566.2	565.2	566.2	565.2	566.2
12.5°	560.3	559.3	557.2	556.2	554.2	556.2	557.2	557.2	558.2	557.2	557.2
15°	550.3	548.3	547.2	547.2	544.2	546.2	546.2	546.2	547.2	546.2	546.2
17.5°	538.3	536.3	535.2	534.2	533.2	534.2	534.2	535.2	535.2	535.2	534.2
20°	523.3	523.3	522.2	520.2	519.2	519.2	521.2	521.2	520.2	521.2	521.2
22.5°	507.3	507.3	507.2	507.2	505.2	506.2	506.2	505.2	505.2	505.2	506.2
25°	490.3	490.3	491.3	491.2	490.2	490.2	489.2	487.2	487.2	487.2	489.2
27.5°	470.3	471.3	474.3	475.2	473.2	474.2	472.2	468.2	467.2	468.2	472.2
30°	449.3	451.3	456.3	458.3	456.2	456.2	453.2	448.2	445.2	448.2	453.2
32.5°	424.3	427.3	434.3	439.3	438.2	437.2	431.2	423.2	420.2	423.2	431.2
35°	398.3	401.3	410.3	418.3	416.2	415.2	407.2	398.2	395.2	398.2	407.2
37.5°	373.3	374.3	384.3	396.3	397.2	393.2	381.2	371.2	370.2	371.2	381.2
40°	350.3	348.3	355.3	372.2	375.2	370.2	351.1	344.1	346.1	344.1	351.1
42.5°	326.3	323.3	327.2	346.2	353.2	344.2	324.1	319.1	322.1	319.1	324.1
45°	303.2	300.2	299.2	318.2	328.2	316.2	295.1	297.1	300.1	297.1	295.1
47.5°	282.2	277.2	274.2	288.2	304.2	287.2	270.1	274.1	279.1	274.1	270.1
50°	259.2	257.2	251.2	259.2	270.2	257.1	247.1	253.1	256.1	253.1	247.1
52.5°	240.2	237.2	228.2	232.2	236.2	230.1	225.1	233.1	237.1	233.1	225.1
55°	219.2	217.2	206.2	205.2	198.1	203.1	203.1	214.1	217.1	214.1	203.1
57.5°	199.2	197.2	185.2	177.2	166.1	175.1	182.1	194.1	197.1	194.1	182.1
60°	179.2	177.2	162.2	150.1	142.1	149.1	160.1	175.1	178.1	175.1	160.1
62.5°	160.2	156.2	139.2	124.1	119.1	123.1	137.1	154.1	159.1	154.1	137.1
65°	138.1	133.1	117.1	104.1	101.1	103.1	116.1	132.1	138.1	132.1	116.1
67.5°	119.1	112.1	99.1	86.1	87.1	86.1	98.1	111.1	119.1	111.1	98.1
70°	101.1	92.1	80.1	71.1	73.1	71.1	80.1	93.1	102.1	93.1	80.1
72.5°	84.1	74.1	65.1	58.1	60.0	57.0	65.1	75.1	86.2	75.1	65.1
75°	68.1	60.1	50.0	46.0	50.0	46.0	51.1	61.1	71.2	61.1	51.1
77.5°	65.4	53.2	39.0	36.0	40.0	36.0	40.1	50.1	61.2	50.1	40.1
80°	73.0	59.8	33.2	28.0	30.0	28.0	31.1	43.2	53.3	43.2	31.1
82.5°	89.0	76.6	40.6	20.0	21.0	20.0	28.2	39.2	49.5	39.2	28.2
85°	114.2	103.8	60.5	18.2	12.0	16.1	30.3	40.4	46.7	40.4	30.3
87.5°	146.5	138.2	87.6	30.7	3.0	16.2	28.4	38.5	39.6	38.5	28.4
90°	182.0	173.7	122.0	49.5	1.0	10.1	19.2	27.2	26.3	27.2	19.2
92.5°	224.7	214.3	157.4	77.7	16.6	6.1	15.1	22.2	21.2	22.2	15.1
95°	262.2	257.0	198.0	108.0	41.5	4.2	11.1	16.1	16.1	16.1	11.1
97.5°	304.9	298.7	239.7	145.4	73.7	12.5	10.2	13.2	14.2	13.2	10.2
100°	341.4	339.4	283.5	190.0	113.2	34.3	8.3	13.3	14.3	13.3	8.3
102.5°	397.6	384.2	325.1	232.6	155.8	64.4	15.6	10.3	11.3	10.3	15.6
105°	445.5	430.9	375.9	277.3	204.6	104.9	40.5	13.5	8.3	13.5	40.5
107.5°	490.1	479.7	422.6	323.0	256.5	151.6	76.8	39.4	24.9	39.4	76.8
110°	542.1	529.6	467.3	369.7	310.5	202.5	117.3	72.7	56.0	72.7	117.3



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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°	591.9	582.6	508.8	417.4	367.6	256.5	167.2	114.2	98.6	114.2	167.2
115°	630.3	625.1	556.6	462.1	419.5	317.7	222.2	163.0	144.3	163.0	222.2
117.5°	670.8	669.8	591.9	507.8	481.8	372.8	273.1	211.8	192.1	211.8	273.1
120°	721.7	713.4	640.7	553.5	541.0	430.9	329.2	267.9	248.2	267.9	329.2
122.5°	757.0	751.8	682.3	597.1	597.1	490.1	383.2	321.9	301.1	321.9	383.2
125°	789.2	787.1	713.4	640.7	657.3	545.2	443.4	381.1	358.2	381.1	443.4
127.5°	818.3	821.4	753.9	688.5	718.6	601.3	502.6	434.1	410.2	434.1	502.6
130°	843.2	853.6	792.3	732.1	776.8	662.5	555.6	487.0	471.4	487.0	555.6
132.5°	892.0	885.8	831.8	776.8	839.1	718.6	611.6	540.0	522.3	540.0	611.6
135°	917.0	919.0	866.1	815.2	897.2	774.7	664.6	594.0	576.3	594.0	664.6
137.5°	947.1	940.8	893.1	861.9	951.2	828.7	716.5	651.1	623.1	651.1	716.5
140°	968.9	967.8	928.4	903.5	1009.4	881.7	769.5	703.0	677.1	703.0	769.5
142.5°	991.7	998.0	963.7	949.2	1067.5	937.7	826.6	753.9	729.0	753.9	826.6
145°	1007.3	1020.8	999.0	1006.3	1122.6	1000.0	876.5	802.7	775.7	802.7	876.5
147.5°	1033.3	1050.9	1025.0	1046.8	1170.4	1055.1	926.3	853.6	829.7	853.6	926.3
150°	1068.6	1076.9	1061.3	1102.9	1219.2	1116.4	977.2	902.4	878.5	902.4	977.2
152.5°	1096.6	1107.0	1089.4	1164.1	1257.6	1172.4	1033.3	950.2	922.2	950.2	1033.3
155°	1125.7	1129.9	1117.4	1223.3	1298.1	1227.5	1077.9	1003.2	976.2	1003.2	1077.9
157.5°	1152.7	1161.0	1146.5	1268.0	1333.4	1275.2	1128.8	1056.1	1032.2	1056.1	1128.8
160°	1181.8	1181.8	1190.1	1319.9	1362.5	1316.8	1182.8	1114.3	1081.0	1114.3	1182.8
162.5°	1184.9	1204.6	1249.3	1356.2	1390.5	1353.1	1241.0	1155.8	1126.7	1155.8	1241.0
165°	1230.6	1248.2	1315.7	1388.4	1412.3	1385.3	1312.6	1224.4	1190.1	1224.4	1312.6
167.5°	1278.4	1315.7	1369.7	1424.8	1433.1	1415.4	1367.7	1306.4	1275.2	1306.4	1367.7
170°	1356.2	1388.4	1415.4	1438.3	1449.7	1439.3	1401.9	1371.8	1352.1	1371.8	1401.9
172.5°	1417.5	1438.3	1448.7	1463.2	1455.9	1451.8	1433.1	1418.6	1408.2	1418.6	1433.1
175°	1455.9	1460.1	1469.4	1464.3	1470.5	1459.1	1460.1	1467.4	1424.8	1467.4	1460.1
177.5°	1469.4	1476.7	1471.5	1462.2	1463.2	1461.1	1465.3	1469.4	1463.2	1469.4	1465.3
180°	1469.4	1469.4	1469.4	1469.4	1469.4	1469.4	1469.4	1469.4	1469.4	1469.4	1469.4



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CATALOG NUMBER: MWL-2-35-13-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	582.3	582.3	582.3	582.3	582.3	582.3
2.5°	581.3	581.3	582.3	583.3	581.2	579.2
5°	578.3	577.3	578.3	580.3	578.2	575.2
7.5°	572.3	572.3	573.3	574.3	574.3	572.2
10°	565.2	564.3	566.3	567.3	567.3	566.2
12.5°	556.2	554.2	556.2	557.2	559.3	560.3
15°	546.2	544.2	547.2	547.2	548.3	550.3
17.5°	534.2	533.2	534.2	535.2	536.3	538.3
20°	519.2	519.2	520.2	522.2	523.3	523.3
22.5°	506.2	505.2	507.2	507.2	507.3	507.3
25°	490.2	490.2	491.2	491.3	490.3	490.3
27.5°	474.2	473.2	475.2	474.3	471.3	470.3
30°	456.2	456.2	458.3	456.3	451.3	449.3
32.5°	437.2	438.2	439.3	434.3	427.3	424.3
35°	415.2	416.2	418.3	410.3	401.3	398.3
37.5°	393.2	397.2	396.3	384.3	374.3	373.3
40°	370.2	375.2	372.2	355.3	348.3	350.3
42.5°	344.2	353.2	346.2	327.2	323.3	326.3
45°	316.2	328.2	318.2	299.2	300.2	303.2
47.5°	287.2	304.2	288.2	274.2	277.2	282.2
50°	257.1	270.2	259.2	251.2	257.2	259.2
52.5°	230.1	236.2	232.2	228.2	237.2	240.2
55°	203.1	198.1	205.2	206.2	217.2	219.2
57.5°	175.1	166.1	177.2	185.2	197.2	199.2
60°	149.1	142.1	150.1	162.2	177.2	179.2
62.5°	123.1	119.1	124.1	139.2	156.2	160.2
65°	103.1	101.1	104.1	117.1	133.1	138.1
67.5°	86.1	87.1	86.1	99.1	112.1	119.1
70°	71.1	73.1	71.1	80.1	92.1	101.1
72.5°	57.0	60.0	58.1	65.1	74.1	84.1
75°	46.0	50.0	46.0	50.0	60.1	68.1
77.5°	36.0	40.0	36.0	39.0	53.2	65.4
80°	28.0	30.0	28.0	33.2	59.8	73.0
82.5°	20.0	21.0	20.0	40.6	76.6	89.0
85°	16.1	12.0	18.2	60.5	103.8	114.2
87.5°	16.2	3.0	30.7	87.6	138.2	146.5
90°	10.1	1.0	49.5	122.0	173.7	182.0
92.5°	6.1	16.6	77.7	157.4	214.3	224.7
95°	4.2	41.5	108.0	198.0	257.0	262.2
97.5°	12.5	73.7	145.4	239.7	298.7	304.9
100°	34.3	113.2	190.0	283.5	339.4	341.4
102.5°	64.4	155.8	232.6	325.1	384.2	397.6
105°	104.9	204.6	277.3	375.9	430.9	445.5
107.5°	151.6	256.5	323.0	422.6	479.7	490.1
110°	202.5	310.5	369.7	467.3	529.6	542.1



TEST NUMBER: P392534

CATALOG NUMBER: MWL-2-35-13-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	256.5	367.6	417.4	508.8	582.6	591.9
115°	317.7	419.5	462.1	556.6	625.1	630.3
117.5°	372.8	481.8	507.8	591.9	669.8	670.8
120°	430.9	541.0	553.5	640.7	713.4	721.7
122.5°	490.1	597.1	597.1	682.3	751.8	757.0
125°	545.2	657.3	640.7	713.4	787.1	789.2
127.5°	601.3	718.6	688.5	753.9	821.4	818.3
130°	662.5	776.8	732.1	792.3	853.6	843.2
132.5°	718.6	839.1	776.8	831.8	885.8	892.0
135°	774.7	897.2	815.2	866.1	919.0	917.0
137.5°	828.7	951.2	861.9	893.1	940.8	947.1
140°	881.7	1009.4	903.5	928.4	967.8	968.9
142.5°	937.7	1067.5	949.2	963.7	998.0	991.7
145°	1000.0	1122.6	1006.3	999.0	1020.8	1007.3
147.5°	1055.1	1170.4	1046.8	1025.0	1050.9	1033.3
150°	1116.4	1219.2	1102.9	1061.3	1076.9	1068.6
152.5°	1172.4	1257.6	1164.1	1089.4	1107.0	1096.6
155°	1227.5	1298.1	1223.3	1117.4	1129.9	1125.7
157.5°	1275.2	1333.4	1268.0	1146.5	1161.0	1152.7
160°	1316.8	1362.5	1319.9	1190.1	1181.8	1181.8
162.5°	1353.1	1390.5	1356.2	1249.3	1204.6	1184.9
165°	1385.3	1412.3	1388.4	1315.7	1248.2	1230.6
167.5°	1415.4	1433.1	1424.8	1369.7	1315.7	1278.4
170°	1439.3	1449.7	1438.3	1415.4	1388.4	1356.2
172.5°	1451.8	1455.9	1463.2	1448.7	1438.3	1417.5
175°	1459.1	1470.5	1464.3	1469.4	1460.1	1455.9
177.5°	1461.1	1463.2	1462.2	1471.5	1476.7	1469.4
180°	1469.4	1469.4	1469.4	1469.4	1469.4	1469.4

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