

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: P392496

Luminaire Tested: **MWL-2-18-31-UNV-L930-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392496
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-2-18-31-UNV-L930-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

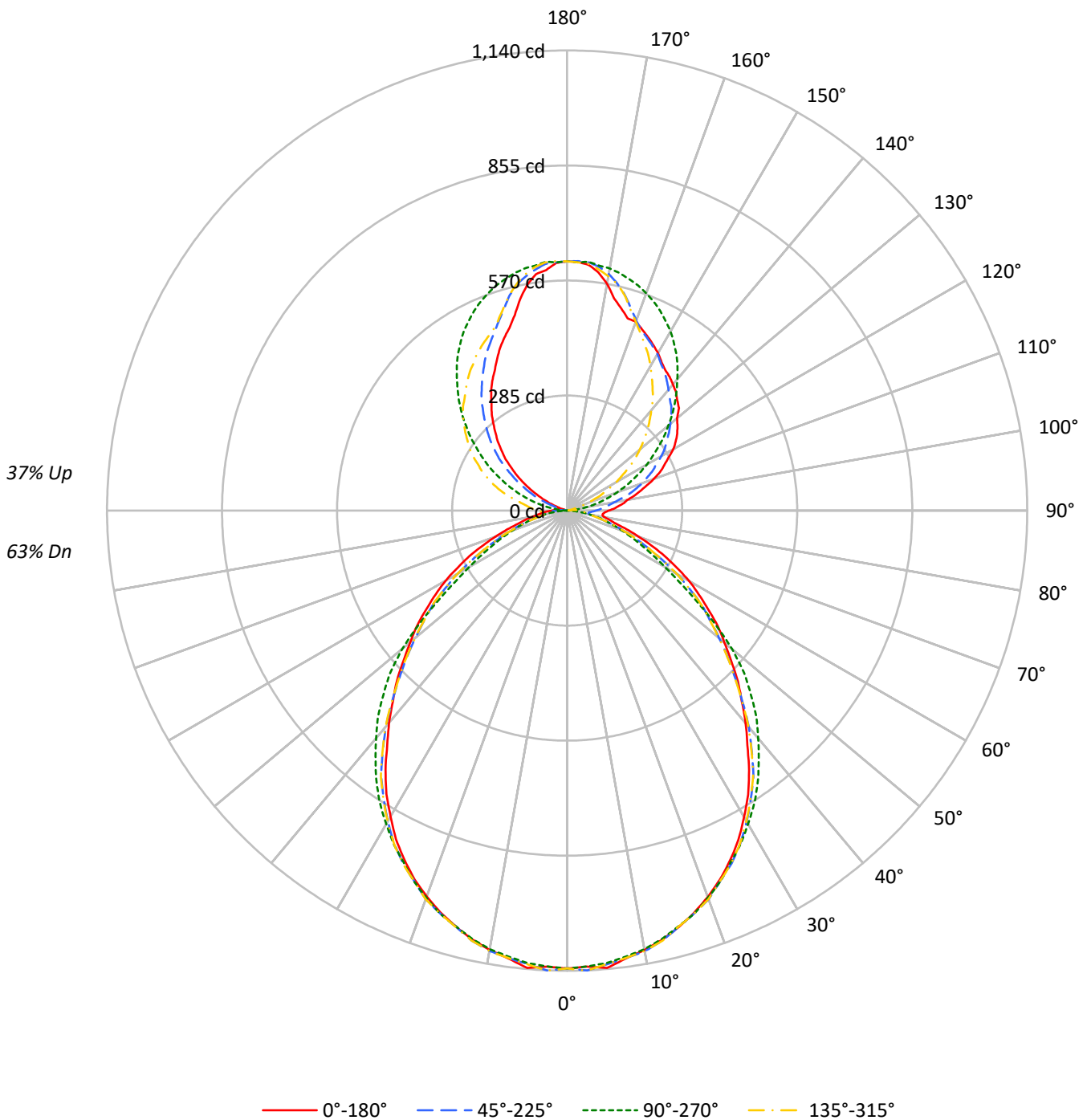
Lumens per Lamp: N/A
Luminaire Lumens: 4062.6 lumens
Efficiency: N/A
Efficacy: 81.4 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 49.894
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: P392496
CATALOG NUMBER: MWL-2-18-31-UNV-L930-EDD

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	50	30	10	0		
RCR																										
0	110	110	110	110	104	104	104	104	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	59	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	49	49	46	43	40								
4	78	67	59	53	73	63	56	51	56	51	46	50	46	42	44	41	38	35								
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	33	36	32	30	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	36	31	38	32	28	34	30	26	31	27	24	22								
9	53	41	34	29	50	39	32	28	35	30	26	32	27	24	28	24	22	20								
10	50	38	31	26	47	36	29	25	33	27	23	29	25	21	26	23	20	18								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	14651	14651	14651	14651
5°	14481	13412	14481	13412
10°	13982	12301	13982	12301
15°	13525	11242	13508	11242
20°	13014	10283	12997	10283
25°	12412	9335	12396	9335
30°	11671	8475	11648	8475
35°	10813	7634	10794	7634
40°	9873	6752	9849	6752
45°	9039	5877	9019	5877
50°	8183	4886	8162	4886
55°	7400	3626	7385	3626
60°	6619	2648	6612	2648
65°	5638	1966	5638	1966
70°	4523	1459	4535	1459
75°	3487	1019	3524	1019
80°	3178	646	2895	646
85°	3905	269	2665	269



TEST NUMBER: P392496

CATALOG NUMBER: MWL-2-18-31-UNV-L930-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	107.0	2.6
10°-20°	301.1	7.4
20°-30°	441.4	10.9
30°-40°	500.6	12.3
40°-50°	467.1	11.5
50°-60°	366.3	9.0
60°-70°	228.6	5.6
70°-80°	110.4	2.7
80°-90°	55.9	1.4
90°-100°	56.9	1.4
100°-110°	95.9	2.4
110°-120°	164.6	4.1
120°-130°	223.5	5.5
130°-140°	254.9	6.3
140°-150°	254.1	6.3
150°-160°	221.2	5.4
160°-170°	155.5	3.8
170°-180°	57.9	1.4
0°-30°	849.4	20.9
0°-40°	1350.1	33.2
0°-60°	2183.5	53.7
0°-90°	2578.4	63.5
90°-120°	317.3	7.8
90°-150°	1049.7	25.8
90°-180°	1484.0	36.5
0°-180°	4062.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1134	1134	1134	1134	1134	
5°	1137	1125	1137	1125	1137	107
15°	1068	1066	1066	1066	1068	301
25°	956	960	954	960	956	439
35°	786	823	784	823	786	490
45°	598	644	597	644	598	460
55°	426	391	426	391	426	383
65°	267	202	267	202	267	264
75°	124	97	126	97	124	139
85°	89	23	61	23	89	74
90°	103	1	38	1	103	57
95°	128	18	25	18	128	110
105°	188	86	5	86	188	199
115°	265	177	62	177	265	263
125°	333	276	152	276	333	297
135°	386	378	243	378	386	298
145°	424	472	327	472	424	267
155°	474	546	412	546	474	219
165°	518	594	501	594	518	147
175°	611	619	598	619	611	57
180°	617	617	617	617	617	



TEST NUMBER: P392496

CATALOG NUMBER: MWL-2-18-31-UNV-L930-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1134.3	1134.3	1134.3	1134.3	1134.3	1134.3	1134.3	1134.3	1134.3	1134.3	1134.3
2.5°	1130.7	1137.3	1140.5	1129.5	1130.4	1129.1	1140.5	1137.3	1131.0	1137.3	1140.5
5°	1137.2	1129.1	1128.2	1127.4	1124.9	1127.4	1127.8	1129.1	1137.2	1129.1	1127.8
7.5°	1118.7	1123.7	1118.0	1116.7	1114.3	1116.3	1117.5	1123.3	1118.7	1123.3	1117.5
10°	1105.2	1108.9	1108.1	1102.3	1103.2	1101.9	1107.7	1108.0	1105.2	1108.0	1107.7
12.5°	1088.7	1091.6	1091.2	1084.7	1086.6	1084.7	1091.2	1090.8	1087.9	1090.8	1091.2
15°	1067.9	1067.8	1067.3	1064.9	1066.0	1064.4	1066.9	1066.9	1066.5	1066.9	1066.9
17.5°	1044.9	1047.3	1046.8	1047.2	1047.2	1047.2	1046.3	1046.8	1043.6	1046.8	1046.3
20°	1018.6	1023.0	1024.6	1020.1	1020.4	1019.6	1024.1	1022.2	1017.2	1022.2	1024.1
22.5°	989.2	990.1	992.6	986.3	993.3	985.9	992.1	989.2	988.4	989.2	992.1
25°	955.5	956.4	964.2	960.8	960.4	960.4	963.3	955.1	954.3	955.1	963.3
27.5°	919.4	919.4	929.6	926.8	930.8	926.3	928.8	918.1	918.1	918.1	928.8
30°	876.6	884.0	889.7	901.7	896.3	900.8	888.5	882.7	874.9	882.7	888.5
32.5°	834.7	838.8	847.0	855.7	862.2	854.8	845.7	837.1	833.0	837.1	845.7
35°	785.8	785.8	804.7	820.3	823.1	819.0	803.4	784.4	784.4	784.4	803.4
37.5°	733.2	734.8	751.2	775.1	779.9	773.8	749.9	733.5	731.9	733.5	749.9
40°	687.9	684.7	700.3	731.1	736.4	730.2	698.5	682.9	686.2	682.9	698.5
42.5°	640.2	635.3	643.1	681.0	693.6	680.0	641.8	633.6	638.5	633.6	641.8
45°	597.9	588.0	589.7	625.1	643.5	624.1	588.0	586.8	596.6	586.8	588.0
47.5°	551.0	547.8	541.2	564.5	594.2	564.1	539.5	546.4	549.7	546.4	539.5
50°	508.3	501.7	491.8	511.0	532.9	510.2	490.1	499.9	507.0	499.9	490.1
52.5°	470.5	464.7	446.1	457.6	462.2	456.8	444.9	463.0	469.1	463.0	444.9
55°	426.4	425.5	406.7	401.3	391.0	400.5	405.5	424.3	425.5	424.3	405.5
57.5°	386.9	385.3	358.2	348.7	329.4	347.9	357.0	384.1	386.1	384.1	357.0
60°	348.7	343.0	313.4	289.9	280.0	289.5	312.5	342.1	348.3	342.1	312.5
62.5°	306.0	302.6	266.4	241.4	239.3	241.0	265.6	301.8	305.5	301.8	265.6
65°	266.9	254.6	224.2	201.1	202.3	200.7	223.7	254.1	266.9	254.1	223.7
67.5°	225.0	212.6	186.3	165.4	172.0	165.4	185.9	212.2	225.0	212.2	185.9
70°	188.3	172.0	152.2	134.9	144.8	134.9	152.2	172.3	188.8	172.3	152.2
72.5°	154.6	137.4	122.6	110.2	118.8	109.8	122.6	137.8	155.5	137.8	122.6
75°	124.2	108.7	95.0	88.4	96.6	88.4	95.4	109.0	125.5	109.0	95.4
77.5°	107.9	89.8	71.9	68.7	78.5	68.7	72.5	88.5	106.2	88.5	72.5
80°	93.2	81.1	56.8	51.4	57.9	51.4	56.0	74.1	84.9	74.1	56.0
82.5°	88.0	79.9	53.0	36.6	39.9	36.6	47.8	64.3	71.4	64.3	47.8
85°	89.1	83.9	54.3	28.9	22.6	28.0	41.7	57.4	60.8	57.4	41.7
87.5°	94.0	92.6	61.2	28.9	6.6	22.7	36.5	50.9	49.2	50.9	36.5
90°	102.8	102.6	71.1	31.4	1.2	14.9	28.0	41.3	37.6	41.3	28.0
92.5°	117.0	114.3	82.3	37.5	7.8	7.5	22.7	33.8	31.7	33.8	22.7
95°	128.2	125.6	94.4	46.1	18.2	2.6	16.1	24.7	25.2	24.7	16.1
97.5°	141.6	137.8	104.5	61.7	31.7	6.0	8.4	18.1	19.8	18.1	8.4
100°	151.2	148.3	119.1	80.4	48.3	15.2	3.9	11.7	14.2	11.7	3.9
102.5°	170.2	162.5	137.0	98.3	66.0	27.8	7.3	5.9	8.4	5.9	7.3
105°	187.8	181.7	158.3	116.9	86.5	44.7	17.8	6.9	4.7	6.9	17.8
107.5°	206.5	202.1	178.2	136.0	108.3	64.3	33.4	17.8	11.7	17.8	33.4
110°	228.2	222.9	196.9	155.2	130.9	85.1	50.3	31.7	24.7	31.7	50.3



TEST NUMBER: P392496

CATALOG NUMBER: MWL-2-18-31-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	249.1	245.2	214.3	176.0	154.4	108.7	71.2	49.0	42.5	49.0	71.2
115°	265.1	263.0	234.3	194.8	177.0	134.3	94.3	69.5	61.6	69.5	94.3
117.5°	282.2	281.7	249.1	213.9	203.0	157.3	115.6	90.0	81.6	90.0	115.6
120°	303.5	300.0	269.5	233.0	227.9	181.7	139.0	113.4	105.1	113.4	139.0
122.5°	319.1	316.0	287.0	251.3	251.3	206.5	161.7	135.9	128.2	135.9	161.7
125°	332.6	331.7	300.9	269.5	276.5	229.5	187.7	161.7	152.2	161.7	187.7
127.5°	344.7	346.0	317.8	290.4	303.0	253.8	212.6	183.8	173.8	183.8	212.6
130°	355.2	359.5	333.9	308.6	327.3	279.5	234.7	206.0	199.4	206.0	234.7
132.5°	375.6	373.1	350.4	327.3	353.4	303.0	258.2	228.1	220.7	228.1	258.2
135°	386.0	386.9	364.7	343.4	377.8	326.5	280.4	250.8	243.4	250.8	280.4
137.5°	398.7	396.0	376.1	363.0	400.5	349.1	302.1	274.7	262.9	274.7	302.1
140°	407.8	407.4	390.9	380.5	424.8	371.3	324.3	296.5	285.5	296.5	324.3
142.5°	417.4	420.0	405.6	399.5	449.1	394.7	348.2	317.8	307.3	317.8	348.2
145°	424.0	430.3	420.4	423.4	472.2	420.9	369.1	339.1	326.9	339.1	369.1
147.5°	435.6	443.0	432.1	440.4	492.2	443.9	390.8	360.4	350.4	360.4	390.8
150°	450.4	453.9	447.4	463.8	512.6	469.6	412.1	380.7	370.8	380.7	412.1
152.5°	462.1	466.4	459.0	489.6	528.7	493.1	435.6	400.8	389.1	400.8	435.6
155°	474.3	476.1	470.8	514.4	545.7	516.1	454.2	422.9	411.6	422.9	454.2
157.5°	485.6	489.0	482.2	533.1	560.4	536.0	474.8	445.2	435.2	445.2	474.8
160°	497.7	497.7	500.5	554.8	572.7	553.5	497.4	469.5	455.6	469.5	497.4
162.5°	499.1	507.3	525.2	570.0	584.3	568.7	521.8	486.9	474.8	486.9	521.8
165°	518.3	524.8	553.1	583.5	593.5	582.2	551.8	514.7	501.3	514.7	551.8
167.5°	538.2	553.1	575.7	598.7	602.2	594.8	574.8	549.2	536.9	549.2	574.8
170°	570.0	583.5	594.8	604.4	609.1	604.8	589.2	576.6	568.3	576.6	589.2
172.5°	594.9	604.4	608.8	614.9	611.8	610.0	602.2	596.1	590.9	596.1	602.2
175°	611.0	613.5	617.4	616.1	618.7	614.0	613.5	616.5	597.9	616.5	613.5
177.5°	616.5	619.6	618.3	615.2	615.6	614.8	615.6	616.5	614.1	616.5	615.6
180°	617.4	617.4	617.4	617.4	617.4	617.4	617.4	617.4	617.4	617.4	617.4



TEST NUMBER: P392496

CATALOG NUMBER: MWL-2-18-31-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1134.3	1134.3	1134.3	1134.3	1134.3	1134.3
2.5°	1129.1	1130.4	1129.5	1140.5	1137.3	1130.7
5°	1127.4	1124.9	1127.4	1128.2	1129.1	1137.2
7.5°	1116.3	1114.3	1116.7	1118.0	1123.7	1118.7
10°	1101.9	1103.2	1102.3	1108.1	1108.9	1105.2
12.5°	1084.7	1086.6	1084.7	1091.2	1091.6	1088.7
15°	1064.4	1066.0	1064.9	1067.3	1067.8	1067.9
17.5°	1047.2	1047.2	1047.2	1046.8	1047.3	1044.9
20°	1019.6	1020.4	1020.1	1024.6	1023.0	1018.6
22.5°	985.9	993.3	986.3	992.6	990.1	989.2
25°	960.4	960.4	960.8	964.2	956.4	955.5
27.5°	926.3	930.8	926.8	929.6	919.4	919.4
30°	900.8	896.3	901.7	889.7	884.0	876.6
32.5°	854.8	862.2	855.7	847.0	838.8	834.7
35°	819.0	823.1	820.3	804.7	785.8	785.8
37.5°	773.8	779.9	775.1	751.2	734.8	733.2
40°	730.2	736.4	731.1	700.3	684.7	687.9
42.5°	680.0	693.6	681.0	643.1	635.3	640.2
45°	624.1	643.5	625.1	589.7	588.0	597.9
47.5°	564.1	594.2	564.5	541.2	547.8	551.0
50°	510.2	532.9	511.0	491.8	501.7	508.3
52.5°	456.8	462.2	457.6	446.1	464.7	470.5
55°	400.5	391.0	401.3	406.7	425.5	426.4
57.5°	347.9	329.4	348.7	358.2	385.3	386.9
60°	289.5	280.0	289.9	313.4	343.0	348.7
62.5°	241.0	239.3	241.4	266.4	302.6	306.0
65°	200.7	202.3	201.1	224.2	254.6	266.9
67.5°	165.4	172.0	165.4	186.3	212.6	225.0
70°	134.9	144.8	134.9	152.2	172.0	188.3
72.5°	109.8	118.8	110.2	122.6	137.4	154.6
75°	88.4	96.6	88.4	95.0	108.7	124.2
77.5°	68.7	78.5	68.7	71.9	89.8	107.9
80°	51.4	57.9	51.4	56.8	81.1	93.2
82.5°	36.6	39.9	36.6	53.0	79.9	88.0
85°	28.0	22.6	28.9	54.3	83.9	89.1
87.5°	22.7	6.6	28.9	61.2	92.6	94.0
90°	14.9	1.2	31.4	71.1	102.6	102.8
92.5°	7.5	7.8	37.5	82.3	114.3	117.0
95°	2.6	18.2	46.1	94.4	125.6	128.2
97.5°	6.0	31.7	61.7	104.5	137.8	141.6
100°	15.2	48.3	80.4	119.1	148.3	151.2
102.5°	27.8	66.0	98.3	137.0	162.5	170.2
105°	44.7	86.5	116.9	158.3	181.7	187.8
107.5°	64.3	108.3	136.0	178.2	202.1	206.5
110°	85.1	130.9	155.2	196.9	222.9	228.2



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CATALOG NUMBER: MWL-2-18-31-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	108.7	154.4	176.0	214.3	245.2	249.1
115°	134.3	177.0	194.8	234.3	263.0	265.1
117.5°	157.3	203.0	213.9	249.1	281.7	282.2
120°	181.7	227.9	233.0	269.5	300.0	303.5
122.5°	206.5	251.3	251.3	287.0	316.0	319.1
125°	229.5	276.5	269.5	300.9	331.7	332.6
127.5°	253.8	303.0	290.4	317.8	346.0	344.7
130°	279.5	327.3	308.6	333.9	359.5	355.2
132.5°	303.0	353.4	327.3	350.4	373.1	375.6
135°	326.5	377.8	343.4	364.7	386.9	386.0
137.5°	349.1	400.5	363.0	376.1	396.0	398.7
140°	371.3	424.8	380.5	390.9	407.4	407.8
142.5°	394.7	449.1	399.5	405.6	420.0	417.4
145°	420.9	472.2	423.4	420.4	430.3	424.0
147.5°	443.9	492.2	440.4	432.1	443.0	435.6
150°	469.6	512.6	463.8	447.4	453.9	450.4
152.5°	493.1	528.7	489.6	459.0	466.4	462.1
155°	516.1	545.7	514.4	470.8	476.1	474.3
157.5°	536.0	560.4	533.1	482.2	489.0	485.6
160°	553.5	572.7	554.8	500.5	497.7	497.7
162.5°	568.7	584.3	570.0	525.2	507.3	499.1
165°	582.2	593.5	583.5	553.1	524.8	518.3
167.5°	594.8	602.2	598.7	575.7	553.1	538.2
170°	604.8	609.1	604.4	594.8	583.5	570.0
172.5°	610.0	611.8	614.9	608.8	604.4	594.9
175°	614.0	618.7	616.1	617.4	613.5	611.0
177.5°	614.8	615.6	615.2	618.3	619.6	616.5
180°	617.4	617.4	617.4	617.4	617.4	617.4

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