

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: P392512

Luminaire Tested: **MWL-2-22-31-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392512
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-2-22-31-UNV-L935-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

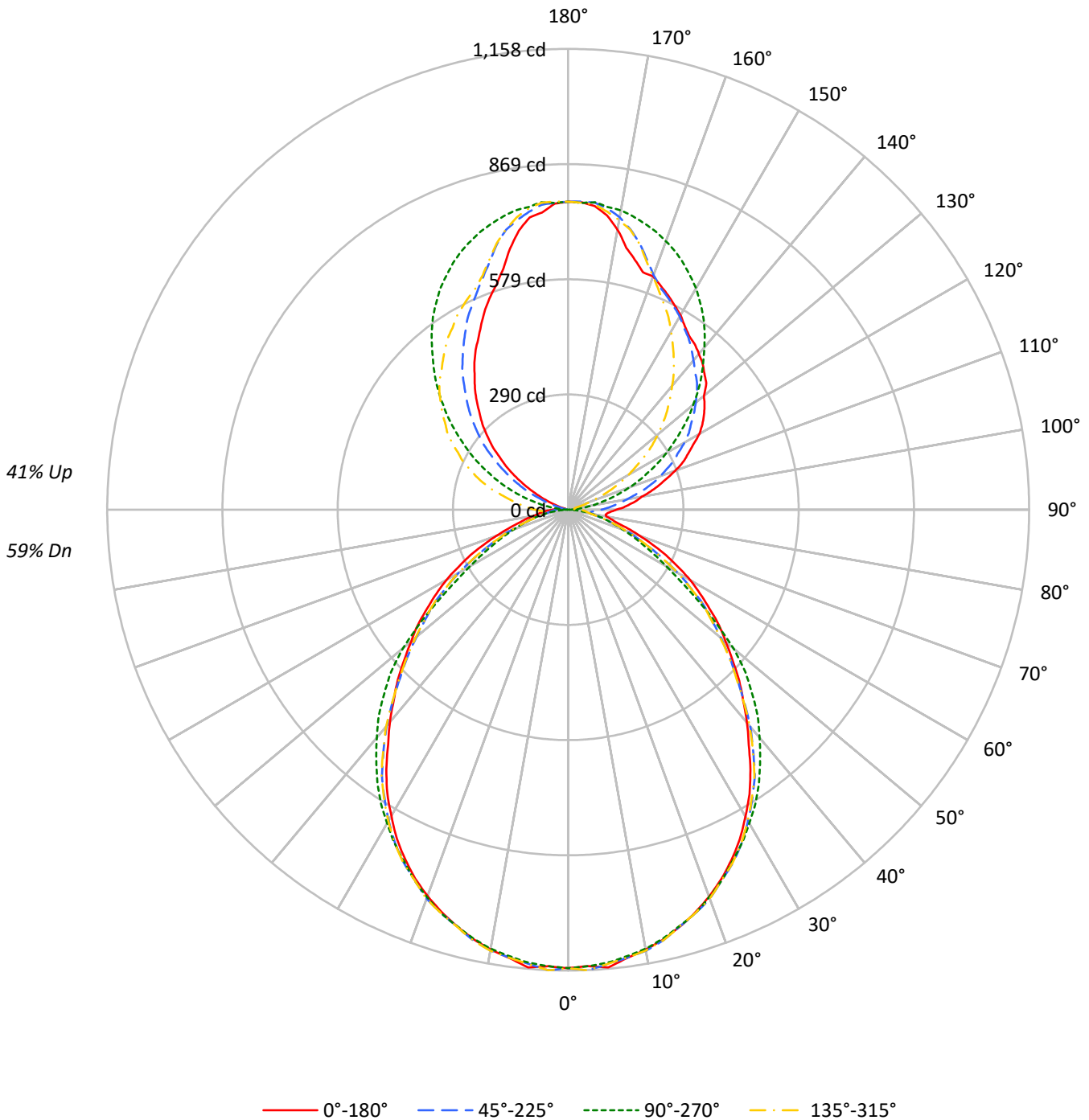
Lumens per Lamp: N/A
Luminaire Lumens: 4477.6 lumens
Efficiency: N/A
Efficacy: 81.5 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 54.944
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
RC	80									50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64	59
1	100	96	92	89	93	90	86	83	78	75	73	67	65	64	57	56	55	50
2	91	84	78	73	85	79	74	69	69	65	61	59	56	54	51	49	47	43
3	84	74	67	62	78	70	63	58	61	56	52	53	49	46	45	43	40	37
4	77	66	58	53	72	62	55	50	55	49	45	48	43	40	41	38	35	32
5	71	59	51	45	66	56	49	43	49	43	39	43	38	35	37	34	31	28
6	65	53	45	40	61	50	43	38	44	39	34	39	34	31	34	30	27	25
7	61	48	40	35	56	46	39	33	40	35	30	36	31	27	31	27	25	22
8	56	44	36	31	53	42	35	30	37	31	27	33	28	25	29	25	22	20
9	53	40	33	28	49	38	31	27	34	28	24	30	26	22	26	23	20	18
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	25	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	14880	14880	14880	14880
5°	14701	13622	14701	13622
10°	14197	12491	14197	12491
15°	13738	11417	13715	11417
20°	13219	10440	13197	10440
25°	12608	9478	12587	9478
30°	11856	8605	11826	8605
35°	10984	7751	10961	7751
40°	10031	6857	9999	6857
45°	9182	5970	9158	5970
50°	8313	4962	8287	4962
55°	7520	3684	7501	3684
60°	6726	2690	6716	2690
65°	5729	1997	5729	1997
70°	4595	1482	4609	1482
75°	3543	1036	3591	1036
80°	3318	658	2966	658
85°	4339	275	2783	275



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	108.6	2.4
10°-20°	305.7	6.8
20°-30°	448.2	10.0
30°-40°	508.4	11.4
40°-50°	474.4	10.6
50°-60°	372.1	8.3
60°-70°	232.2	5.2
70°-80°	112.4	2.5
80°-90°	59.6	1.3
90°-100°	67.8	1.5
100°-110°	119.8	2.7
110°-120°	206.1	4.6
120°-130°	280.0	6.3
130°-140°	319.3	7.1
140°-150°	318.4	7.1
150°-160°	277.2	6.2
160°-170°	194.9	4.4
170°-180°	72.5	1.6
0°-30°	862.6	19.3
0°-40°	1371.0	30.6
0°-60°	2217.5	49.5
0°-90°	2621.6	58.6
90°-120°	393.7	8.8
90°-150°	1311.3	29.3
90°-180°	1856.0	41.5
0°-180°	4477.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1152	1152	1152	1152	1152	
5°	1154	1142	1154	1142	1154	109
15°	1085	1082	1083	1082	1085	306
25°	971	975	969	975	971	446
35°	798	836	796	836	798	498
45°	607	654	606	654	607	468
55°	433	397	432	397	433	389
65°	271	206	271	206	271	268
75°	126	98	128	98	126	142
85°	99	23	64	23	99	81
90°	121	1	39	1	121	67
95°	155	23	26	23	155	134
105°	235	108	6	108	235	249
115°	332	222	77	222	332	330
125°	417	346	190	346	417	372
135°	484	473	305	473	484	373
145°	531	592	410	592	531	335
155°	594	684	516	684	594	274
165°	649	744	628	744	649	184
175°	766	775	750	775	766	71
180°	774	774	774	774	774	



TEST NUMBER: P392512

CATALOG NUMBER: MWL-2-22-31-UNV-L935-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1152.0	1152.0	1152.0	1152.0	1152.0	1152.0	1152.0	1152.0	1152.0	1152.0	1152.0
2.5°	1147.8	1154.7	1158.4	1147.2	1148.1	1146.6	1158.4	1154.7	1148.4	1154.7	1158.4
5°	1154.5	1146.4	1145.8	1145.0	1142.5	1145.0	1145.3	1146.4	1154.5	1146.4	1145.3
7.5°	1135.9	1141.1	1135.3	1134.1	1131.6	1133.6	1134.7	1140.6	1135.9	1140.6	1134.7
10°	1122.2	1126.1	1125.3	1119.4	1120.3	1118.8	1124.7	1125.0	1122.2	1125.0	1124.7
12.5°	1105.7	1108.6	1108.0	1101.3	1103.3	1101.3	1108.0	1107.5	1104.7	1107.5	1108.0
15°	1084.7	1084.4	1083.8	1081.3	1082.5	1080.8	1083.3	1083.3	1082.9	1083.3	1083.3
17.5°	1061.3	1063.5	1062.9	1063.3	1063.3	1063.3	1062.5	1062.9	1059.6	1062.9	1062.5
20°	1034.6	1039.0	1040.4	1035.7	1036.0	1035.1	1040.0	1037.9	1032.9	1037.9	1040.0
22.5°	1004.8	1005.6	1007.9	1001.6	1008.5	1001.0	1007.3	1004.6	1003.7	1004.6	1007.3
25°	970.6	971.5	979.3	975.7	975.1	975.1	978.2	969.8	969.0	969.8	978.2
27.5°	933.8	933.8	944.2	941.2	945.0	940.6	943.1	932.3	932.3	932.3	943.1
30°	890.5	898.0	903.8	915.9	910.0	914.8	902.2	896.4	888.3	896.4	902.2
32.5°	847.9	852.1	860.5	869.1	875.6	868.1	858.8	850.0	845.7	850.0	858.8
35°	798.2	798.2	817.4	833.2	835.7	831.6	815.7	796.5	796.5	796.5	815.7
37.5°	744.8	746.5	763.1	787.3	792.1	785.7	761.5	744.8	743.1	744.8	761.5
40°	698.9	695.6	711.4	742.5	747.9	741.5	709.2	693.4	696.7	693.4	709.2
42.5°	650.5	645.5	653.3	691.6	704.5	690.6	651.7	643.3	648.3	643.3	651.7
45°	607.4	597.4	599.0	634.9	653.6	633.8	596.9	595.7	605.8	595.7	596.9
47.5°	559.8	556.5	549.8	573.5	603.5	572.9	547.6	554.8	558.2	554.8	547.6
50°	516.4	509.7	499.7	519.3	541.2	518.2	497.5	507.6	514.8	507.6	497.5
52.5°	478.0	472.2	453.4	465.0	469.4	463.9	451.6	470.0	476.4	470.0	451.6
55°	433.3	432.5	413.2	407.7	397.2	406.6	411.6	430.8	432.2	430.8	411.6
57.5°	393.2	391.6	364.1	354.3	334.6	353.2	362.4	389.9	392.2	389.9	362.4
60°	354.3	348.4	318.4	294.5	284.5	294.0	317.3	347.4	353.8	347.4	317.3
62.5°	310.9	307.5	270.9	245.3	243.1	244.7	269.7	306.5	310.4	306.5	269.7
65°	271.2	258.7	227.8	204.4	205.5	203.8	227.2	258.1	271.2	258.1	227.2
67.5°	228.7	216.1	189.4	168.0	174.7	168.0	188.8	215.6	228.7	215.6	188.8
70°	191.3	174.7	154.6	137.1	147.1	137.1	154.6	175.3	191.9	175.3	154.6
72.5°	157.1	139.6	124.6	112.1	120.7	111.6	124.6	140.2	158.2	140.2	124.6
75°	126.2	110.4	96.6	89.8	98.2	89.8	97.1	111.0	127.9	111.0	97.1
77.5°	110.5	91.7	73.2	69.8	79.8	69.8	73.7	90.1	108.4	90.1	73.7
80°	97.3	84.4	58.1	52.3	59.0	52.3	57.0	75.6	87.0	75.6	57.0
82.5°	94.6	85.5	55.5	37.3	40.6	37.3	48.9	65.8	73.9	65.8	48.9
85°	99.0	92.7	59.1	29.7	23.1	28.6	43.3	59.4	63.5	59.4	43.3
87.5°	107.8	105.4	69.1	31.2	6.6	23.6	38.0	53.0	51.6	53.0	38.0
90°	120.7	119.4	82.9	36.1	1.4	15.3	28.9	42.5	38.9	42.5	28.9
92.5°	139.7	135.6	98.0	45.4	9.6	7.8	23.4	34.7	32.8	34.7	23.4
95°	155.1	151.9	114.9	57.6	22.7	3.0	16.7	25.3	25.9	25.3	16.7
97.5°	173.3	168.9	129.7	77.1	39.5	7.3	9.1	18.9	20.5	18.9	9.1
100°	187.1	184.1	149.3	100.7	60.3	18.9	4.7	12.7	15.2	12.7	4.7
102.5°	212.4	203.3	171.6	123.0	82.7	34.6	9.0	6.8	9.3	6.8	9.0
105°	235.2	227.5	198.4	146.5	108.3	55.9	22.1	8.2	5.5	8.2	22.1
107.5°	258.7	253.3	223.2	170.6	135.6	80.5	41.5	21.8	14.2	21.8	41.5
110°	286.0	279.3	246.6	194.5	164.0	106.7	62.7	39.3	30.6	39.3	62.7



TEST NUMBER: P392512

CATALOG NUMBER: MWL-2-22-31-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	312.1	307.2	268.5	220.5	193.4	135.9	89.0	61.2	53.0	61.2	89.0
115°	332.3	329.6	293.6	243.9	221.5	168.1	117.9	86.8	77.0	86.8	117.9
117.5°	353.6	353.0	312.1	267.9	254.3	197.0	144.6	112.4	102.1	112.4	144.6
120°	380.4	376.0	337.7	291.9	285.4	227.5	174.0	141.9	131.5	141.9	174.0
122.5°	399.8	396.2	359.7	314.8	314.8	258.7	202.4	170.3	160.2	170.3	202.4
125°	416.6	415.6	376.8	337.7	346.5	287.6	235.0	202.2	190.2	202.2	235.0
127.5°	431.9	433.5	398.1	363.7	379.6	317.9	266.0	230.0	217.5	230.0	266.0
130°	445.0	450.5	418.2	386.7	410.1	350.0	293.9	257.8	249.6	257.8	293.9
132.5°	470.7	467.3	439.0	410.1	442.8	379.6	323.3	285.7	276.5	285.7	323.3
135°	483.8	484.9	457.0	430.3	473.4	409.0	351.2	314.1	304.8	314.1	351.2
137.5°	499.5	496.3	471.2	454.8	501.7	437.4	378.4	344.1	329.4	344.1	378.4
140°	511.0	510.5	489.7	476.7	532.3	465.2	406.3	371.3	357.7	371.3	406.3
142.5°	523.0	526.4	508.3	500.7	562.9	494.6	436.3	398.1	385.0	398.1	436.3
145°	531.2	539.1	526.9	530.7	591.8	527.4	462.5	424.5	409.5	424.5	462.5
147.5°	545.7	554.9	541.4	552.0	616.9	556.3	489.4	451.3	438.7	451.3	489.4
150°	564.3	568.7	560.4	581.4	642.5	588.5	516.3	476.9	464.4	476.9	516.3
152.5°	579.0	584.4	575.1	613.6	662.7	617.9	545.7	502.0	487.3	502.0	545.7
155°	594.3	596.4	590.0	644.8	683.9	646.9	569.2	529.8	515.7	529.8	569.2
157.5°	608.4	612.8	604.4	668.2	702.6	672.0	595.1	557.7	545.1	557.7	595.1
160°	623.7	623.7	627.2	695.5	717.8	693.8	623.4	588.2	570.8	588.2	623.4
162.5°	625.4	635.7	658.3	714.6	732.5	712.9	654.0	610.2	594.8	610.2	654.0
165°	649.3	657.9	693.3	731.5	744.1	729.8	691.6	645.3	628.0	645.3	691.6
167.5°	674.4	693.3	721.6	750.6	754.9	745.6	720.6	688.4	672.9	688.4	720.6
170°	714.6	731.5	745.6	757.6	763.7	758.2	738.6	722.8	712.3	722.8	738.6
172.5°	745.9	757.6	763.1	770.7	766.9	764.7	754.9	747.3	741.1	747.3	754.9
175°	766.1	769.2	774.0	772.1	775.4	769.4	769.2	772.9	749.7	772.9	769.2
177.5°	773.2	777.0	775.1	771.1	771.6	770.5	771.9	773.2	769.9	773.2	771.9
180°	774.0	774.0	774.0	774.0	774.0	774.0	774.0	774.0	774.0	774.0	774.0



TEST NUMBER: P392512

CATALOG NUMBER: MWL-2-22-31-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1152.0	1152.0	1152.0	1152.0	1152.0	1152.0
2.5°	1146.6	1148.1	1147.2	1158.4	1154.7	1147.8
5°	1145.0	1142.5	1145.0	1145.8	1146.4	1154.5
7.5°	1133.6	1131.6	1134.1	1135.3	1141.1	1135.9
10°	1118.8	1120.3	1119.4	1125.3	1126.1	1122.2
12.5°	1101.3	1103.3	1101.3	1108.0	1108.6	1105.7
15°	1080.8	1082.5	1081.3	1083.8	1084.4	1084.7
17.5°	1063.3	1063.3	1063.3	1062.9	1063.5	1061.3
20°	1035.1	1036.0	1035.7	1040.4	1039.0	1034.6
22.5°	1001.0	1008.5	1001.6	1007.9	1005.6	1004.8
25°	975.1	975.1	975.7	979.3	971.5	970.6
27.5°	940.6	945.0	941.2	944.2	933.8	933.8
30°	914.8	910.0	915.9	903.8	898.0	890.5
32.5°	868.1	875.6	869.1	860.5	852.1	847.9
35°	831.6	835.7	833.2	817.4	798.2	798.2
37.5°	785.7	792.1	787.3	763.1	746.5	744.8
40°	741.5	747.9	742.5	711.4	695.6	698.9
42.5°	690.6	704.5	691.6	653.3	645.5	650.5
45°	633.8	653.6	634.9	599.0	597.4	607.4
47.5°	572.9	603.5	573.5	549.8	556.5	559.8
50°	518.2	541.2	519.3	499.7	509.7	516.4
52.5°	463.9	469.4	465.0	453.4	472.2	478.0
55°	406.6	397.2	407.7	413.2	432.5	433.3
57.5°	353.2	334.6	354.3	364.1	391.6	393.2
60°	294.0	284.5	294.5	318.4	348.4	354.3
62.5°	244.7	243.1	245.3	270.9	307.5	310.9
65°	203.8	205.5	204.4	227.8	258.7	271.2
67.5°	168.0	174.7	168.0	189.4	216.1	228.7
70°	137.1	147.1	137.1	154.6	174.7	191.3
72.5°	111.6	120.7	112.1	124.6	139.6	157.1
75°	89.8	98.2	89.8	96.6	110.4	126.2
77.5°	69.8	79.8	69.8	73.2	91.7	110.5
80°	52.3	59.0	52.3	58.1	84.4	97.3
82.5°	37.3	40.6	37.3	55.5	85.5	94.6
85°	28.6	23.1	29.7	59.1	92.7	99.0
87.5°	23.6	6.6	31.2	69.1	105.4	107.8
90°	15.3	1.4	36.1	82.9	119.4	120.7
92.5°	7.8	9.6	45.4	98.0	135.6	139.7
95°	3.0	22.7	57.6	114.9	151.9	155.1
97.5°	7.3	39.5	77.1	129.7	168.9	173.3
100°	18.9	60.3	100.7	149.3	184.1	187.1
102.5°	34.6	82.7	123.0	171.6	203.3	212.4
105°	55.9	108.3	146.5	198.4	227.5	235.2
107.5°	80.5	135.6	170.6	223.2	253.3	258.7
110°	106.7	164.0	194.5	246.6	279.3	286.0



TEST NUMBER: P392512

CATALOG NUMBER: MWL-2-22-31-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	135.9	193.4	220.5	268.5	307.2	312.1
115°	168.1	221.5	243.9	293.6	329.6	332.3
117.5°	197.0	254.3	267.9	312.1	353.0	353.6
120°	227.5	285.4	291.9	337.7	376.0	380.4
122.5°	258.7	314.8	314.8	359.7	396.2	399.8
125°	287.6	346.5	337.7	376.8	415.6	416.6
127.5°	317.9	379.6	363.7	398.1	433.5	431.9
130°	350.0	410.1	386.7	418.2	450.5	445.0
132.5°	379.6	442.8	410.1	439.0	467.3	470.7
135°	409.0	473.4	430.3	457.0	484.9	483.8
137.5°	437.4	501.7	454.8	471.2	496.3	499.5
140°	465.2	532.3	476.7	489.7	510.5	511.0
142.5°	494.6	562.9	500.7	508.3	526.4	523.0
145°	527.4	591.8	530.7	526.9	539.1	531.2
147.5°	556.3	616.9	552.0	541.4	554.9	545.7
150°	588.5	642.5	581.4	560.4	568.7	564.3
152.5°	617.9	662.7	613.6	575.1	584.4	579.0
155°	646.9	683.9	644.8	590.0	596.4	594.3
157.5°	672.0	702.6	668.2	604.4	612.8	608.4
160°	693.8	717.8	695.5	627.2	623.7	623.7
162.5°	712.9	732.5	714.6	658.3	635.7	625.4
165°	729.8	744.1	731.5	693.3	657.9	649.3
167.5°	745.6	754.9	750.6	721.6	693.3	674.4
170°	758.2	763.7	757.6	745.6	731.5	714.6
172.5°	764.7	766.9	770.7	763.1	757.6	745.9
175°	769.4	775.4	772.1	774.0	769.2	766.1
177.5°	770.5	771.6	771.1	775.1	777.0	773.2
180°	774.0	774.0	774.0	774.0	774.0	774.0

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