

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-L940-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-L940-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

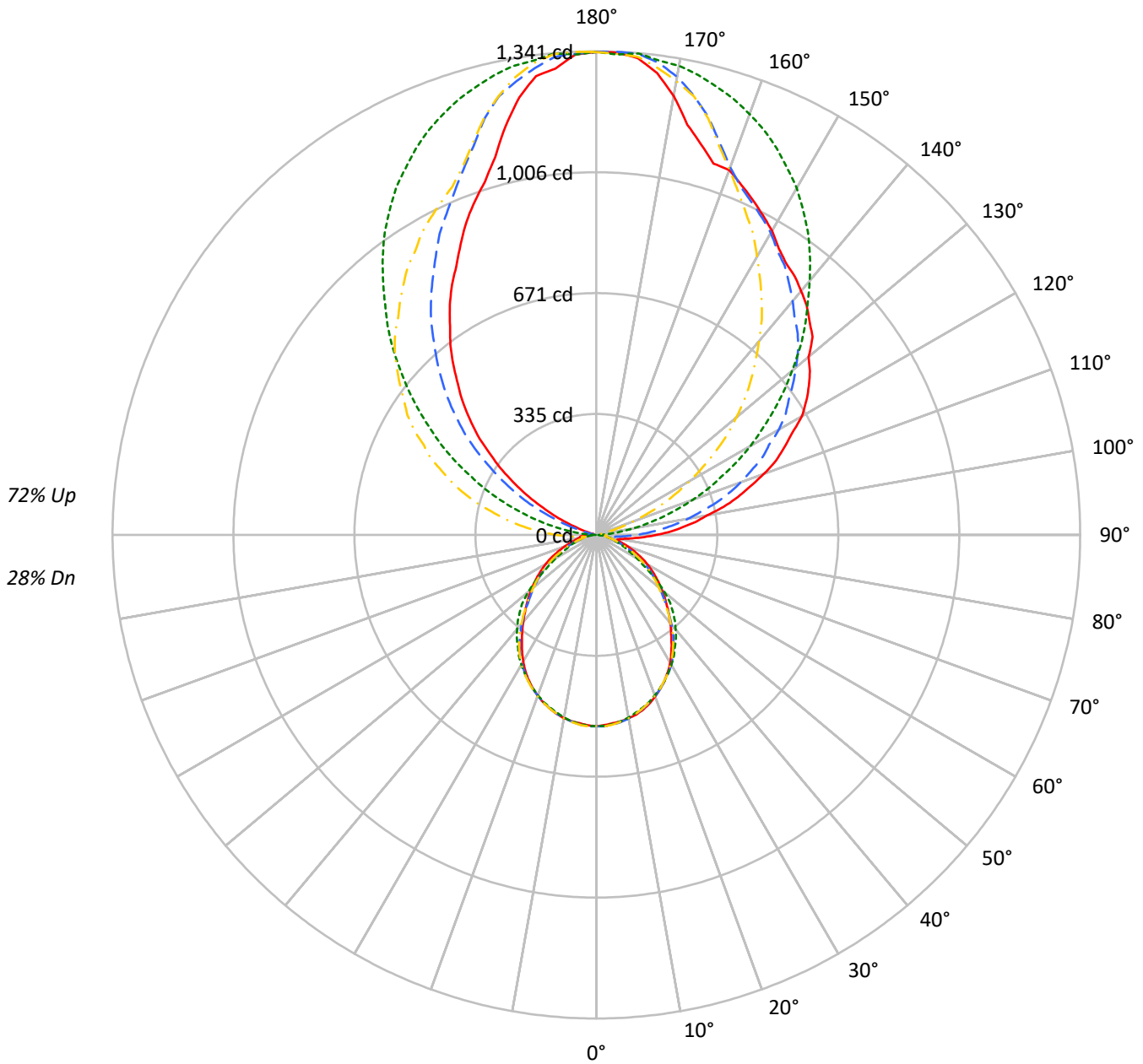
Lumens per Lamp: N/A
Luminaire Lumens: 4407.9 lumens
Efficiency: N/A
Efficacy: 80.7 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Indirect

Input Watts (W): 54.641
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°	6852	6852	6852	6852
5°	6674	6271	6674	6271
10°	6527	5732	6527	5732
15°	6350	5229	6315	5229
20°	6092	4767	6056	4767
25°	5803	4341	5766	4341
30°	5451	3930	5400	3930
35°	4994	3517	4955	3517
40°	4581	3134	4525	3134
45°	4175	2731	4133	2731
50°	3802	2257	3756	2257
55°	3466	1674	3433	1674
60°	3100	1225	3081	1225
65°	2658	895	2658	895
70°	2212	671	2234	671
75°	1741	481	1822	481
80°	2267	304	1657	304
85°	4558	130	1863	130



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	49.9	1.1
10°-20°	140.3	3.2
20°-30°	205.3	4.7
30°-40°	232.0	5.3
40°-50°	215.8	4.9
50°-60°	169.7	3.9
60°-70°	107.9	2.4
70°-80°	54.7	1.2
80°-90°	47.4	1.1
90°-100°	99.1	2.2
100°-110°	205.4	4.7
110°-120°	355.5	8.1
120°-130°	483.0	11.0
130°-140°	551.0	12.5
140°-150°	549.7	12.5
150°-160°	478.8	10.9
160°-170°	336.8	7.6
170°-180°	125.5	2.8
0°-30°	395.6	9.0
0°-40°	627.6	14.2
0°-60°	1013.2	23.0
0°-90°	1223.1	27.7
90°-120°	660.0	15.0
90°-150°	2243.7	50.9
90°-180°	3185.0	72.3
0°-180°	4407.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	530	530	530	530	530	
5°	524	526	524	526	524	50
15°	501	496	499	496	501	141
25°	447	447	444	447	447	205
35°	363	379	360	379	363	227
45°	276	299	273	299	276	214
55°	200	180	198	180	200	179
65°	126	92	126	92	126	126
75°	62	46	65	46	62	73
85°	104	11	42	11	104	78
90°	166	1	24	1	166	92
95°	239	38	15	38	239	211
105°	406	186	8	186	406	427
115°	574	382	132	382	574	570
125°	719	599	326	599	719	642
135°	836	817	525	817	836	645
145°	918	1023	707	1023	918	579
155°	1026	1183	889	1183	1026	473
165°	1121	1287	1084	1287	1121	318
175°	1326	1340	1298	1340	1326	124
180°	1339	1339	1339	1339	1339	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	530.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5
2.5°	527.7	529.5	531.4	530.5	529.6	529.6	531.4	529.5	528.6	529.5	531.4
5°	524.1	526.8	528.7	526.9	526.0	526.9	527.8	526.8	524.1	526.8	527.8
7.5°	521.3	523.2	523.2	522.3	521.4	521.4	522.2	522.2	521.3	522.2	522.2
10°	515.9	516.9	516.9	516.0	514.1	515.0	515.9	515.0	515.9	515.0	515.9
12.5°	510.5	509.6	507.7	506.8	504.9	506.8	507.7	507.7	508.6	507.7	507.7
15°	501.4	499.6	498.6	498.6	495.8	497.6	497.6	497.6	498.6	497.6	497.6
17.5°	490.4	488.6	487.6	486.7	485.8	486.7	486.7	487.6	487.6	487.6	486.7
20°	476.8	476.8	475.8	474.0	473.0	473.0	474.9	474.9	474.0	474.9	474.9
22.5°	462.2	462.2	462.1	462.1	460.3	461.2	461.2	460.3	460.3	460.3	461.2
25°	446.7	446.7	447.6	447.5	446.6	446.6	445.7	443.9	443.9	443.9	445.7
27.5°	428.5	429.4	432.1	433.0	431.1	432.0	430.2	426.6	425.7	426.6	430.2
30°	409.4	411.2	415.7	417.6	415.6	415.6	412.9	408.4	405.6	408.4	412.9
32.5°	386.6	389.3	395.7	400.2	399.2	398.3	392.9	385.6	382.8	385.6	392.9
35°	362.9	365.6	373.8	381.1	379.2	378.3	371.0	362.8	360.1	362.8	371.0
37.5°	340.1	341.0	350.1	361.1	361.9	358.2	347.3	338.2	337.3	338.2	347.3
40°	319.2	317.3	323.7	339.1	341.8	337.3	319.9	313.5	315.3	313.5	319.9
42.5°	297.3	294.6	298.1	315.4	321.8	313.6	295.3	290.7	293.5	290.7	295.3
45°	276.2	273.5	272.6	289.9	299.0	288.1	268.9	270.7	273.4	270.7	268.9
47.5°	257.1	252.6	249.8	262.6	277.2	261.7	246.1	249.7	254.3	249.7	246.1
50°	236.2	234.3	228.9	236.2	246.2	234.2	225.1	230.6	233.3	230.6	225.1
52.5°	218.8	216.1	207.9	211.6	215.2	209.6	205.1	212.4	216.0	212.4	205.1
55°	199.7	197.9	187.9	187.0	180.5	185.0	185.0	195.1	197.8	195.1	185.0
57.5°	181.5	179.7	168.7	161.4	151.3	159.5	165.9	176.8	179.6	176.8	165.9
60°	163.3	161.4	147.8	136.8	129.5	135.8	145.9	159.5	162.3	159.5	145.9
62.5°	146.0	142.3	126.8	113.1	108.5	112.2	124.9	140.4	145.0	140.4	124.9
65°	125.8	121.3	106.7	94.8	92.1	93.9	105.8	120.4	125.8	120.4	105.8
67.5°	108.5	102.1	90.3	78.4	79.4	78.4	89.4	101.2	108.5	101.2	89.4
70°	92.1	83.9	73.0	64.8	66.6	64.8	73.0	84.8	93.0	84.8	73.0
72.5°	76.6	67.5	59.3	52.9	54.7	51.9	59.3	68.4	78.5	68.4	59.3
75°	62.0	54.8	45.6	41.9	45.6	41.9	46.6	55.7	64.9	55.7	46.6
77.5°	59.6	48.5	35.5	32.8	36.4	32.8	36.5	45.6	55.8	45.6	36.5
80°	66.5	54.5	30.2	25.5	27.3	25.5	28.3	39.4	48.6	39.4	28.3
82.5°	81.1	69.8	37.0	18.2	19.1	18.2	25.7	35.7	45.1	35.7	25.7
85°	104.0	94.6	55.1	16.6	10.9	14.7	27.6	36.8	42.5	36.8	27.6
87.5°	133.5	125.9	79.8	28.0	2.7	14.8	25.9	35.1	36.1	35.1	25.9
90°	165.8	158.3	111.2	45.1	0.9	9.2	17.5	24.8	24.0	24.8	17.5
92.5°	204.7	195.2	143.4	70.8	15.1	5.6	13.8	20.2	19.3	20.2	13.8
95°	238.9	234.2	180.4	98.4	37.8	3.8	10.1	14.7	14.7	14.7	10.1
97.5°	277.8	272.1	218.4	132.5	67.1	11.4	9.3	12.0	12.9	12.0	9.3
100°	311.0	309.2	258.3	173.1	103.1	31.3	7.6	12.1	13.0	12.1	7.6
102.5°	362.3	350.0	296.2	211.9	141.9	58.7	14.2	9.4	10.3	9.4	14.2
105°	405.9	392.6	342.5	252.6	186.4	95.6	36.9	12.3	7.6	12.3	36.9
107.5°	446.5	437.1	385.0	294.3	233.7	138.1	70.0	35.9	22.7	35.9	70.0
110°	493.9	482.5	425.8	336.8	282.9	184.5	106.9	66.2	51.0	66.2	106.9



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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°	539.3	530.8	463.6	380.3	334.9	233.7	152.3	104.0	89.8	104.0	152.3
115°	574.3	569.5	507.1	421.0	382.2	289.5	202.4	148.5	131.5	148.5	202.4
117.5°	611.2	610.3	539.3	462.7	439.0	339.7	248.8	193.0	175.0	193.0	248.8
120°	657.5	650.0	583.7	504.3	492.9	392.6	299.9	244.1	226.1	244.1	299.9
122.5°	689.7	685.0	621.6	544.0	544.0	446.5	349.1	293.3	274.3	293.3	349.1
125°	719.0	717.1	650.0	583.7	598.9	496.7	404.0	347.2	326.4	347.2	404.0
127.5°	745.6	748.4	686.9	627.3	654.7	547.8	457.9	395.5	373.7	395.5	457.9
130°	768.2	777.7	721.9	667.0	707.7	603.6	506.2	443.7	429.5	443.7	506.2
132.5°	812.7	807.1	757.9	707.7	764.5	654.7	557.2	492.0	475.9	492.0	557.2
135°	835.5	837.3	789.1	742.7	817.4	705.8	605.5	541.2	525.1	541.2	605.5
137.5°	862.9	857.2	813.7	785.3	866.6	755.0	652.8	593.2	567.7	593.2	652.8
140°	882.8	881.8	845.9	823.2	919.7	803.3	701.1	640.5	616.9	640.5	701.1
142.5°	903.5	909.3	878.0	864.8	972.6	854.3	753.1	686.9	664.2	686.9	753.1
145°	917.8	930.1	910.2	916.8	1022.8	911.1	798.6	731.3	706.7	731.3	798.6
147.5°	941.4	957.5	933.9	953.7	1066.4	961.3	844.0	777.7	755.9	777.7	844.0
150°	973.6	981.2	967.0	1004.9	1110.8	1017.2	890.3	822.2	800.4	822.2	890.3
152.5°	999.1	1008.6	992.6	1060.6	1145.8	1068.2	941.4	865.7	840.2	865.7	941.4
155°	1025.6	1029.5	1018.1	1114.5	1182.7	1118.4	982.1	914.0	889.4	914.0	982.1
157.5°	1050.2	1057.8	1044.6	1155.3	1214.9	1161.8	1028.4	962.2	940.4	962.2	1028.4
160°	1076.7	1076.7	1084.3	1202.6	1241.4	1199.7	1077.6	1015.2	984.9	1015.2	1077.6
162.5°	1079.6	1097.5	1138.2	1235.6	1266.9	1232.8	1130.7	1053.0	1026.5	1053.0	1130.7
165°	1121.2	1137.2	1198.7	1265.0	1286.7	1262.1	1195.9	1115.6	1084.3	1115.6	1195.9
167.5°	1164.8	1198.7	1247.9	1298.1	1305.7	1289.6	1246.1	1190.3	1161.8	1190.3	1246.1
170°	1235.6	1265.0	1289.6	1310.4	1320.8	1311.3	1277.3	1249.8	1231.9	1249.8	1277.3
172.5°	1291.5	1310.4	1319.9	1333.1	1326.5	1322.7	1305.7	1292.5	1283.0	1292.5	1305.7
175°	1326.5	1330.3	1338.8	1334.1	1339.8	1329.4	1330.3	1336.9	1298.1	1336.9	1330.3
177.5°	1338.8	1345.4	1340.7	1332.2	1333.1	1331.2	1335.0	1338.8	1333.1	1338.8	1335.0
180°	1338.8	1338.8	1338.8	1338.8	1338.8	1338.8	1338.8	1338.8	1338.8	1338.8	1338.8



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CATALOG NUMBER: MWL-2-35-13-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	530.5	530.5	530.5	530.5	530.5	530.5
2.5°	529.6	529.6	530.5	531.4	529.5	527.7
5°	526.9	526.0	526.9	528.7	526.8	524.1
7.5°	521.4	521.4	522.3	523.2	523.2	521.3
10°	515.0	514.1	516.0	516.9	516.9	515.9
12.5°	506.8	504.9	506.8	507.7	509.6	510.5
15°	497.6	495.8	498.6	498.6	499.6	501.4
17.5°	486.7	485.8	486.7	487.6	488.6	490.4
20°	473.0	473.0	474.0	475.8	476.8	476.8
22.5°	461.2	460.3	462.1	462.1	462.2	462.2
25°	446.6	446.6	447.5	447.6	446.7	446.7
27.5°	432.0	431.1	433.0	432.1	429.4	428.5
30°	415.6	415.6	417.6	415.7	411.2	409.4
32.5°	398.3	399.2	400.2	395.7	389.3	386.6
35°	378.3	379.2	381.1	373.8	365.6	362.9
37.5°	358.2	361.9	361.1	350.1	341.0	340.1
40°	337.3	341.8	339.1	323.7	317.3	319.2
42.5°	313.6	321.8	315.4	298.1	294.6	297.3
45°	288.1	299.0	289.9	272.6	273.5	276.2
47.5°	261.7	277.2	262.6	249.8	252.6	257.1
50°	234.2	246.2	236.2	228.9	234.3	236.2
52.5°	209.6	215.2	211.6	207.9	216.1	218.8
55°	185.0	180.5	187.0	187.9	197.9	199.7
57.5°	159.5	151.3	161.4	168.7	179.7	181.5
60°	135.8	129.5	136.8	147.8	161.4	163.3
62.5°	112.2	108.5	113.1	126.8	142.3	146.0
65°	93.9	92.1	94.8	106.7	121.3	125.8
67.5°	78.4	79.4	78.4	90.3	102.1	108.5
70°	64.8	66.6	64.8	73.0	83.9	92.1
72.5°	51.9	54.7	52.9	59.3	67.5	76.6
75°	41.9	45.6	41.9	45.6	54.8	62.0
77.5°	32.8	36.4	32.8	35.5	48.5	59.6
80°	25.5	27.3	25.5	30.2	54.5	66.5
82.5°	18.2	19.1	18.2	37.0	69.8	81.1
85°	14.7	10.9	16.6	55.1	94.6	104.0
87.5°	14.8	2.7	28.0	79.8	125.9	133.5
90°	9.2	0.9	45.1	111.2	158.3	165.8
92.5°	5.6	15.1	70.8	143.4	195.2	204.7
95°	3.8	37.8	98.4	180.4	234.2	238.9
97.5°	11.4	67.1	132.5	218.4	272.1	277.8
100°	31.3	103.1	173.1	258.3	309.2	311.0
102.5°	58.7	141.9	211.9	296.2	350.0	362.3
105°	95.6	186.4	252.6	342.5	392.6	405.9
107.5°	138.1	233.7	294.3	385.0	437.1	446.5
110°	184.5	282.9	336.8	425.8	482.5	493.9



TEST NUMBER: P392534

CATALOG NUMBER: MWL-2-35-13-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	233.7	334.9	380.3	463.6	530.8	539.3
115°	289.5	382.2	421.0	507.1	569.5	574.3
117.5°	339.7	439.0	462.7	539.3	610.3	611.2
120°	392.6	492.9	504.3	583.7	650.0	657.5
122.5°	446.5	544.0	544.0	621.6	685.0	689.7
125°	496.7	598.9	583.7	650.0	717.1	719.0
127.5°	547.8	654.7	627.3	686.9	748.4	745.6
130°	603.6	707.7	667.0	721.9	777.7	768.2
132.5°	654.7	764.5	707.7	757.9	807.1	812.7
135°	705.8	817.4	742.7	789.1	837.3	835.5
137.5°	755.0	866.6	785.3	813.7	857.2	862.9
140°	803.3	919.7	823.2	845.9	881.8	882.8
142.5°	854.3	972.6	864.8	878.0	909.3	903.5
145°	911.1	1022.8	916.8	910.2	930.1	917.8
147.5°	961.3	1066.4	953.7	933.9	957.5	941.4
150°	1017.2	1110.8	1004.9	967.0	981.2	973.6
152.5°	1068.2	1145.8	1060.6	992.6	1008.6	999.1
155°	1118.4	1182.7	1114.5	1018.1	1029.5	1025.6
157.5°	1161.8	1214.9	1155.3	1044.6	1057.8	1050.2
160°	1199.7	1241.4	1202.6	1084.3	1076.7	1076.7
162.5°	1232.8	1266.9	1235.6	1138.2	1097.5	1079.6
165°	1262.1	1286.7	1265.0	1198.7	1137.2	1121.2
167.5°	1289.6	1305.7	1298.1	1247.9	1198.7	1164.8
170°	1311.3	1320.8	1310.4	1289.6	1265.0	1235.6
172.5°	1322.7	1326.5	1333.1	1319.9	1310.4	1291.5
175°	1329.4	1339.8	1334.1	1338.8	1330.3	1326.5
177.5°	1331.2	1333.1	1332.2	1340.7	1345.4	1338.8
180°	1338.8	1338.8	1338.8	1338.8	1338.8	1338.8

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