

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: P392521

Luminaire Tested: **MWL-2-28-17-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392521
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-2-28-17-UNV-L835-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

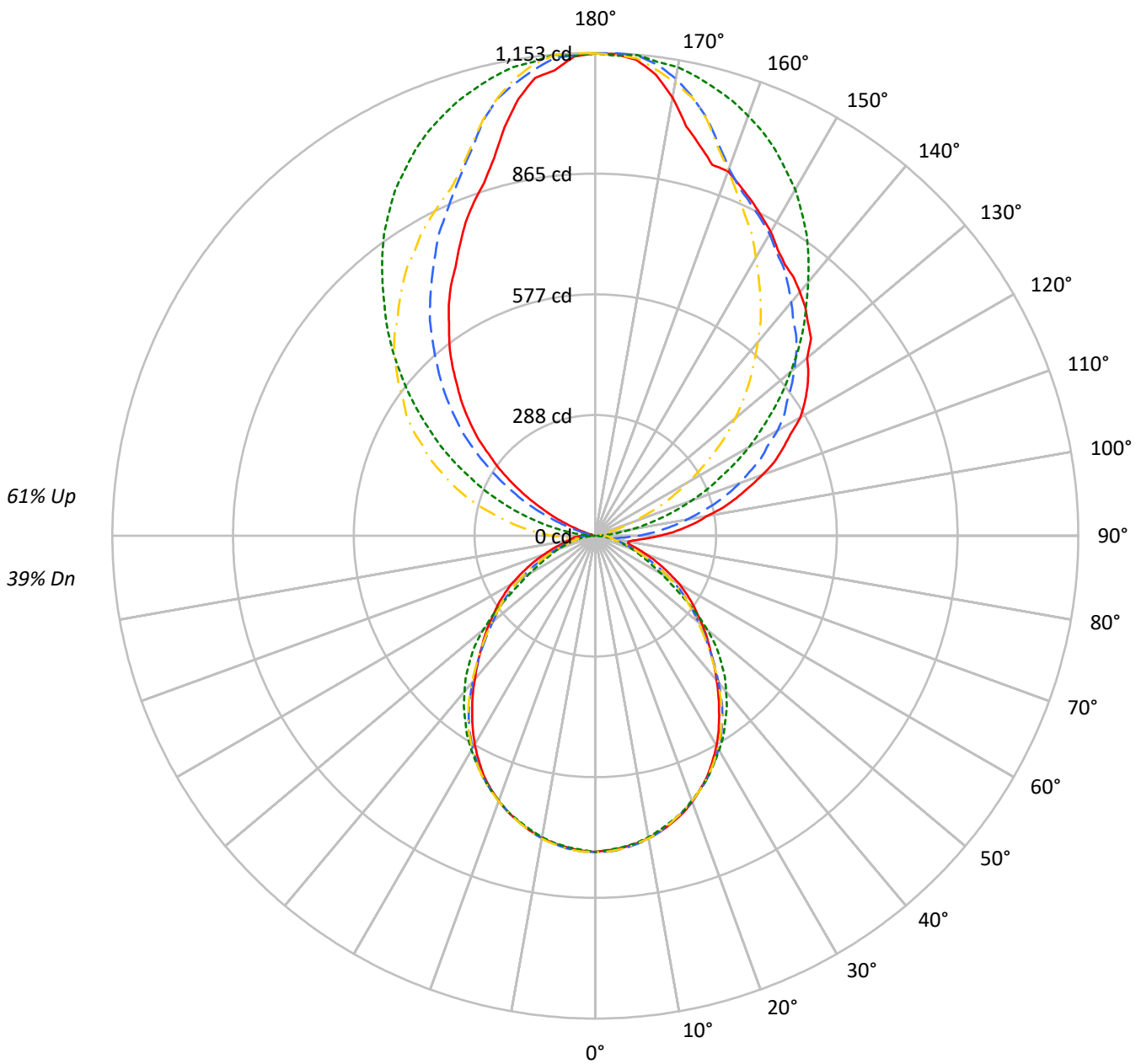
Lumens per Lamp: N/A
Luminaire Lumens: 4462.0 lumens
Efficiency: N/A
Efficacy: 90.3 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Indirect

Input Watts (W): 49.4
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	0
RCR																		
0	104	104	104	104	95	95	95	95	77	77	77	61	61	61	46	46	46	39
1	95	91	87	84	86	83	80	77	68	65	63	53	52	51	40	39	39	33
2	87	80	74	69	79	73	68	63	59	56	53	47	45	43	36	34	33	28
3	80	70	63	58	72	64	58	53	53	48	45	42	39	36	32	30	28	24
4	73	62	55	49	66	57	51	45	47	42	38	38	34	31	29	27	25	21
5	67	56	48	42	61	51	44	39	42	37	33	34	30	27	26	24	22	18
6	62	50	42	37	56	46	39	34	38	33	29	31	27	24	24	21	19	16
7	57	45	37	32	52	41	35	30	34	29	26	28	24	21	22	19	17	14
8	53	41	33	28	48	38	31	26	31	26	23	26	22	19	20	17	15	13
9	49	37	30	25	45	34	28	24	29	24	20	24	20	17	19	16	14	12
10	46	34	27	23	42	32	25	21	27	22	18	22	18	16	17	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	9752	9752	9752	9752
5°	9521	8896	9521	8896
10°	9272	8148	9272	8148
15°	8984	7435	8951	7435
20°	8642	6785	8610	6785
25°	8223	6178	8192	6178
30°	7706	5589	7663	5589
35°	7090	5016	7057	5016
40°	6464	4451	6418	4451
45°	5876	3870	5838	3870
50°	5385	3203	5346	3203
55°	4920	2371	4891	2371
60°	4412	1723	4397	1723
65°	3748	1275	3748	1275
70°	3082	952	3101	952
75°	2490	671	2558	671
80°	2728	439	2199	439
85°	4620	193	2301	193



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	71.0	1.6
10°-20°	199.3	4.5
20°-30°	291.6	6.5
30°-40°	329.3	7.4
40°-50°	305.7	6.9
50°-60°	240.3	5.4
60°-70°	152.1	3.4
70°-80°	76.4	1.7
80°-90°	52.9	1.2
90°-100°	89.5	2.0
100°-110°	177.1	4.0
110°-120°	305.7	6.9
120°-130°	415.2	9.3
130°-140°	473.7	10.6
140°-150°	472.9	10.6
150°-160°	411.8	9.2
160°-170°	289.6	6.5
170°-180°	107.9	2.4
0°-30°	561.9	12.6
0°-40°	891.2	20.0
0°-60°	1437.3	32.2
0°-90°	1718.6	38.5
90°-120°	572.3	12.8
90°-150°	1934.0	43.3
90°-180°	2743.0	61.5
0°-180°	4462.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	755	755	755	755	755	
5°	748	746	748	746	748	71
15°	709	705	707	705	709	200
25°	633	636	631	636	633	290
35°	515	541	513	541	515	322
45°	389	424	386	424	389	301
55°	284	256	282	256	284	253
65°	177	131	177	131	177	177
75°	89	64	91	64	89	100
85°	105	16	52	16	105	81
90°	153	1	31	1	153	84
95°	212	32	20	32	212	186
105°	349	161	7	161	349	368
115°	494	329	113	329	494	490
125°	618	515	281	515	618	552
135°	718	703	451	703	718	554
145°	790	879	608	879	790	498
155°	882	1016	765	1016	882	407
165°	964	1106	933	1106	964	274
175°	1140	1152	1116	1152	1140	106
180°	1152	1152	1152	1152	1152	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0	755.0
2.5°	751.6	753.2	754.8	752.8	750.8	751.9	754.8	753.2	752.4	753.2	754.8
5°	747.7	749.3	750.9	748.0	746.1	748.0	750.2	749.3	747.7	749.3	750.2
7.5°	741.7	743.4	743.4	742.2	740.3	741.5	742.5	742.5	741.7	742.5	742.5
10°	732.9	734.7	734.7	732.8	730.8	731.9	733.8	733.0	732.9	733.0	733.8
12.5°	722.9	723.1	722.2	720.3	718.5	720.3	722.2	721.4	721.2	721.4	722.2
15°	709.3	708.6	707.7	706.7	705.0	706.0	706.9	706.9	706.7	706.9	706.9
17.5°	694.8	693.1	692.2	692.4	691.5	692.4	691.5	692.2	692.2	692.2	691.5
20°	676.4	676.5	674.8	675.0	673.3	674.3	674.1	674.8	673.9	674.8	674.1
22.5°	655.2	656.2	656.5	655.7	654.9	654.9	655.7	654.5	653.6	654.5	655.7
25°	633.0	633.9	636.1	635.4	635.6	634.6	634.4	631.5	630.6	631.5	634.4
27.5°	605.9	609.8	612.9	613.9	613.4	613.2	611.2	607.4	603.5	607.4	611.2
30°	578.8	581.7	587.5	592.6	591.1	590.9	585.1	579.3	575.6	579.3	585.1
32.5°	547.9	551.8	560.5	567.4	568.7	565.8	558.1	548.6	544.7	548.6	558.1
35°	515.2	517.2	529.7	539.4	540.8	537.0	527.3	514.7	512.8	514.7	527.3
37.5°	483.3	482.3	494.9	512.3	515.5	509.9	492.5	479.9	480.9	479.9	492.5
40°	450.4	448.5	458.2	480.5	485.5	479.0	454.9	445.2	447.2	445.2	454.9
42.5°	419.5	417.6	421.5	447.6	457.5	446.1	419.1	414.3	416.2	414.3	419.1
45°	388.7	385.8	386.7	409.9	423.7	408.4	383.5	383.3	386.2	383.3	383.5
47.5°	361.6	356.8	353.9	370.5	390.8	369.7	350.7	354.3	359.2	354.3	350.7
50°	334.5	329.7	322.0	333.7	349.4	332.1	318.8	326.5	332.1	326.5	318.8
52.5°	307.4	304.5	293.1	298.9	304.0	297.3	290.7	301.4	305.0	301.4	290.7
55°	283.5	279.6	266.1	263.4	255.7	261.7	263.7	277.2	281.8	277.2	263.7
57.5°	257.4	255.4	239.0	227.6	214.2	225.9	236.6	253.0	255.7	253.0	236.6
60°	232.4	227.6	208.3	191.9	182.2	191.1	206.6	225.9	231.6	225.9	206.6
62.5°	203.4	200.5	179.2	159.0	154.4	158.3	177.6	198.9	202.5	198.9	177.6
65°	177.4	171.6	150.3	132.9	131.2	132.2	149.6	170.8	177.4	170.8	149.6
67.5°	153.2	143.6	125.2	109.9	110.9	109.9	124.4	142.8	153.2	142.8	124.4
70°	128.3	117.7	103.2	90.6	94.5	90.6	103.2	118.4	129.1	118.4	103.2
72.5°	108.0	95.4	83.8	74.2	77.2	73.3	83.8	96.2	109.6	96.2	83.8
75°	88.7	76.1	65.6	58.8	63.6	58.8	66.4	76.9	91.1	76.9	66.4
77.5°	79.7	65.7	50.1	47.2	51.0	47.2	51.0	63.3	76.4	63.3	51.0
80°	80.0	66.5	41.0	35.6	39.4	35.6	39.3	53.6	64.5	53.6	39.3
82.5°	88.9	77.6	45.0	24.9	26.9	24.9	35.2	48.3	57.9	48.3	35.2
85°	105.4	95.2	58.0	21.7	16.2	20.0	34.4	45.7	52.5	45.7	34.4
87.5°	126.8	120.6	76.7	30.0	3.9	18.6	30.4	42.4	43.1	42.4	30.4
90°	152.8	147.5	102.1	43.1	0.8	12.3	21.7	32.9	30.8	32.9	21.7
92.5°	183.7	176.8	129.3	62.6	13.1	6.5	17.9	26.5	24.4	26.5	17.9
95°	212.5	208.6	159.4	85.6	32.5	4.3	13.1	20.0	19.8	20.0	13.1
97.5°	243.4	239.4	189.4	113.8	57.7	9.8	9.7	15.9	15.9	15.9	9.7
100°	270.3	268.6	222.1	148.8	88.7	26.9	6.7	13.2	14.2	13.2	6.7
102.5°	312.8	301.2	255.4	182.1	121.9	50.4	13.1	8.4	10.3	8.4	13.1
105°	348.9	337.5	295.3	218.0	161.2	83.1	32.7	10.7	6.7	10.7	32.7
107.5°	383.9	375.8	331.0	253.8	201.8	119.7	60.3	31.0	19.6	31.0	60.3
110°	424.5	414.8	366.0	289.6	244.0	158.7	92.0	57.0	44.1	57.0	92.0



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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°	463.6	456.2	398.5	327.0	287.9	201.0	131.0	89.6	77.3	89.6	131.0
115°	493.7	489.6	435.9	362.0	328.6	249.0	174.1	127.8	113.1	127.8	174.1
117.5°	525.4	524.6	463.6	397.8	377.4	292.0	214.0	166.0	150.5	166.0	214.0
120°	565.2	558.7	501.8	433.5	423.8	337.5	257.9	209.9	194.4	209.9	257.9
122.5°	592.9	588.8	534.3	467.7	467.7	383.9	300.2	252.1	235.9	252.1	300.2
125°	618.1	616.4	558.7	501.8	514.8	426.9	347.3	298.6	280.7	298.6	347.3
127.5°	640.8	643.2	590.4	539.2	562.8	470.9	393.7	340.0	321.3	340.0	393.7
130°	660.3	668.5	620.5	573.3	608.3	518.9	435.1	381.4	369.2	381.4	435.1
132.5°	698.5	693.7	651.3	608.3	657.1	562.8	479.1	422.9	409.1	422.9	479.1
135°	718.1	719.7	678.2	638.4	702.6	606.7	520.4	465.2	451.4	465.2	520.4
137.5°	741.6	736.7	699.3	674.9	744.8	648.9	561.1	509.9	488.0	509.9	561.1
140°	759.6	758.9	727.9	707.5	790.4	690.4	603.6	551.6	531.2	551.6	603.6
142.5°	777.5	782.4	755.6	743.3	835.9	734.3	648.3	591.4	571.9	591.4	648.3
145°	789.7	800.3	783.2	788.9	879.0	784.1	687.3	629.6	608.4	629.6	687.3
147.5°	810.1	823.9	803.5	820.6	916.5	827.1	726.4	669.4	650.8	669.4	726.4
150°	837.8	844.2	832.0	864.5	954.6	875.1	766.2	707.6	689.0	707.6	766.2
152.5°	859.7	867.8	854.0	912.5	984.7	919.1	810.1	745.0	723.1	745.0	810.1
155°	882.4	885.7	875.9	958.9	1016.4	962.1	845.0	786.5	765.3	786.5	845.0
157.5°	903.6	910.1	898.7	993.8	1044.1	999.5	884.8	828.0	809.2	828.0	884.8
160°	926.3	926.3	932.8	1033.5	1066.8	1031.0	927.2	873.5	847.5	873.5	927.2
162.5°	928.7	944.2	979.2	1062.0	1088.7	1059.5	972.7	906.0	883.3	906.0	972.7
165°	964.5	978.3	1031.2	1087.2	1105.9	1084.7	1028.8	959.7	932.8	959.7	1028.8
167.5°	1001.9	1031.2	1072.5	1115.6	1122.1	1108.3	1070.9	1023.9	999.5	1023.9	1070.9
170°	1062.0	1088.2	1108.3	1127.1	1136.1	1128.0	1097.7	1075.1	1058.7	1075.1	1097.7
172.5°	1109.9	1126.2	1134.3	1146.7	1140.9	1137.8	1122.1	1110.8	1102.6	1110.8	1122.1
175°	1140.0	1143.3	1151.6	1147.5	1152.4	1143.4	1144.2	1149.0	1115.6	1149.0	1144.2
177.5°	1150.6	1156.2	1153.1	1145.9	1146.7	1145.0	1148.3	1150.6	1145.7	1150.6	1148.3
180°	1151.6	1151.6	1151.6	1151.6	1151.6	1151.6	1151.6	1151.6	1151.6	1151.6	1151.6



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	755.0	755.0	755.0	755.0	755.0	755.0
2.5°	751.9	750.8	752.8	754.8	753.2	751.6
5°	748.0	746.1	748.0	750.9	749.3	747.7
7.5°	741.5	740.3	742.2	743.4	743.4	741.7
10°	731.9	730.8	732.8	734.7	734.7	732.9
12.5°	720.3	718.5	720.3	722.2	723.1	722.9
15°	706.0	705.0	706.7	707.7	708.6	709.3
17.5°	692.4	691.5	692.4	692.2	693.1	694.8
20°	674.3	673.3	675.0	674.8	676.5	676.4
22.5°	654.9	654.9	655.7	656.5	656.2	655.2
25°	634.6	635.6	635.4	636.1	633.9	633.0
27.5°	613.2	613.4	613.9	612.9	609.8	605.9
30°	590.9	591.1	592.6	587.5	581.7	578.8
32.5°	565.8	568.7	567.4	560.5	551.8	547.9
35°	537.0	540.8	539.4	529.7	517.2	515.2
37.5°	509.9	515.5	512.3	494.9	482.3	483.3
40°	479.0	485.5	480.5	458.2	448.5	450.4
42.5°	446.1	457.5	447.6	421.5	417.6	419.5
45°	408.4	423.7	409.9	386.7	385.8	388.7
47.5°	369.7	390.8	370.5	353.9	356.8	361.6
50°	332.1	349.4	333.7	322.0	329.7	334.5
52.5°	297.3	304.0	298.9	293.1	304.5	307.4
55°	261.7	255.7	263.4	266.1	279.6	283.5
57.5°	225.9	214.2	227.6	239.0	255.4	257.4
60°	191.1	182.2	191.9	208.3	227.6	232.4
62.5°	158.3	154.4	159.0	179.2	200.5	203.4
65°	132.2	131.2	132.9	150.3	171.6	177.4
67.5°	109.9	110.9	109.9	125.2	143.6	153.2
70°	90.6	94.5	90.6	103.2	117.7	128.3
72.5°	73.3	77.2	74.2	83.8	95.4	108.0
75°	58.8	63.6	58.8	65.6	76.1	88.7
77.5°	47.2	51.0	47.2	50.1	65.7	79.7
80°	35.6	39.4	35.6	41.0	66.5	80.0
82.5°	24.9	26.9	24.9	45.0	77.6	88.9
85°	20.0	16.2	21.7	58.0	95.2	105.4
87.5°	18.6	3.9	30.0	76.7	120.6	126.8
90°	12.3	0.8	43.1	102.1	147.5	152.8
92.5°	6.5	13.1	62.6	129.3	176.8	183.7
95°	4.3	32.5	85.6	159.4	208.6	212.5
97.5°	9.8	57.7	113.8	189.4	239.4	243.4
100°	26.9	88.7	148.8	222.1	268.6	270.3
102.5°	50.4	121.9	182.1	255.4	301.2	312.8
105°	83.1	161.2	218.0	295.3	337.5	348.9
107.5°	119.7	201.8	253.8	331.0	375.8	383.9
110°	158.7	244.0	289.6	366.0	414.8	424.5



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	201.0	287.9	327.0	398.5	456.2	463.6
115°	249.0	328.6	362.0	435.9	489.6	493.7
117.5°	292.0	377.4	397.8	463.6	524.6	525.4
120°	337.5	423.8	433.5	501.8	558.7	565.2
122.5°	383.9	467.7	467.7	534.3	588.8	592.9
125°	426.9	514.8	501.8	558.7	616.4	618.1
127.5°	470.9	562.8	539.2	590.4	643.2	640.8
130°	518.9	608.3	573.3	620.5	668.5	660.3
132.5°	562.8	657.1	608.3	651.3	693.7	698.5
135°	606.7	702.6	638.4	678.2	719.7	718.1
137.5°	648.9	744.8	674.9	699.3	736.7	741.6
140°	690.4	790.4	707.5	727.9	758.9	759.6
142.5°	734.3	835.9	743.3	755.6	782.4	777.5
145°	784.1	879.0	788.9	783.2	800.3	789.7
147.5°	827.1	916.5	820.6	803.5	823.9	810.1
150°	875.1	954.6	864.5	832.0	844.2	837.8
152.5°	919.1	984.7	912.5	854.0	867.8	859.7
155°	962.1	1016.4	958.9	875.9	885.7	882.4
157.5°	999.5	1044.1	993.8	898.7	910.1	903.6
160°	1031.0	1066.8	1033.5	932.8	926.3	926.3
162.5°	1059.5	1088.7	1062.0	979.2	944.2	928.7
165°	1084.7	1105.9	1087.2	1031.2	978.3	964.5
167.5°	1108.3	1122.1	1115.6	1072.5	1031.2	1001.9
170°	1128.0	1136.1	1127.1	1108.3	1088.2	1062.0
172.5°	1137.8	1140.9	1146.7	1134.3	1126.2	1109.9
175°	1143.4	1152.4	1147.5	1151.6	1143.3	1140.0
177.5°	1145.0	1146.7	1145.9	1153.1	1156.2	1150.6
180°	1151.6	1151.6	1151.6	1151.6	1151.6	1151.6

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