

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: P382229

Luminaire Tested: **MWL-2-35-17-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P382229
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-2-35-17-UNV-L830-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

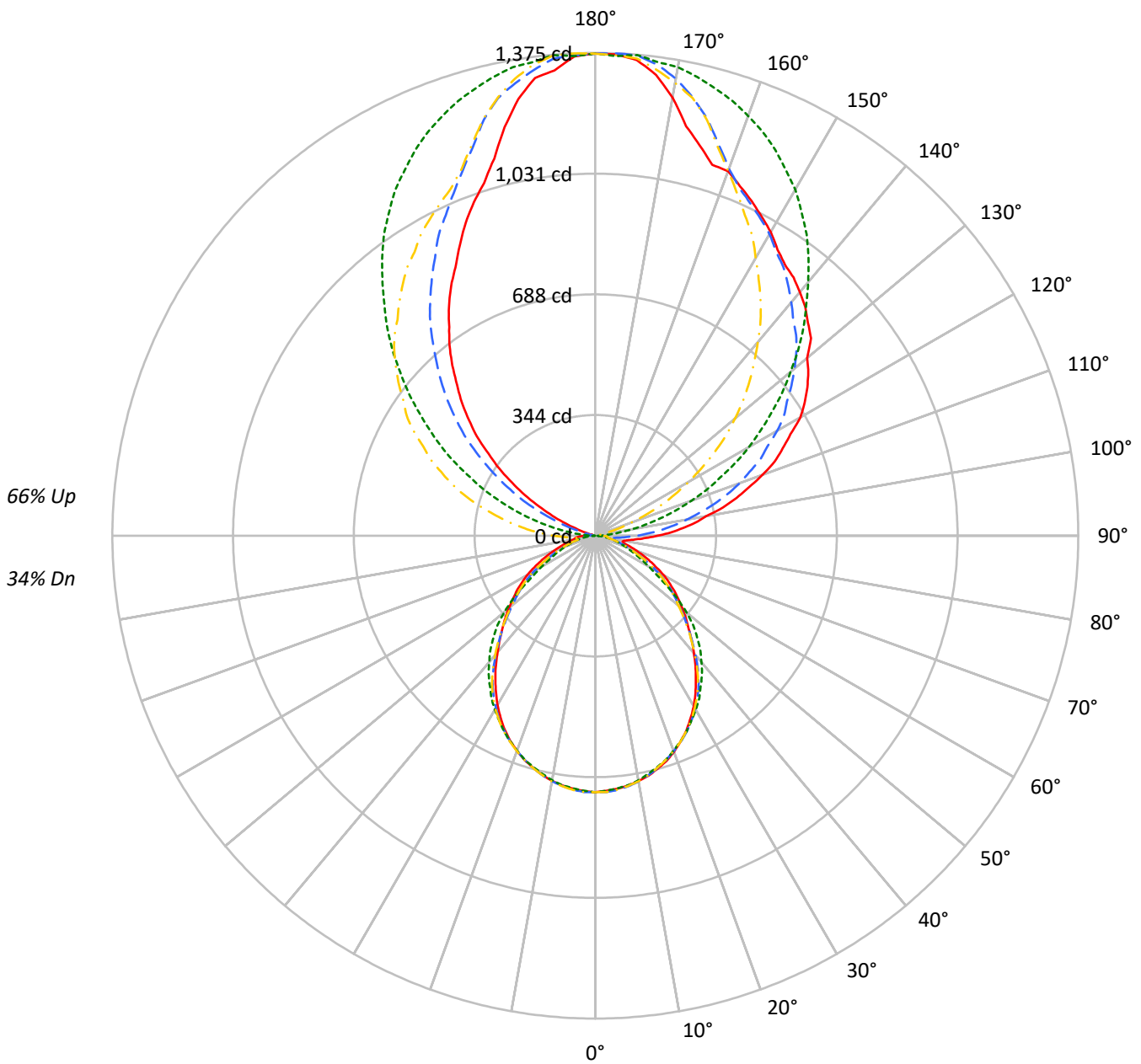
Lumens per Lamp: N/A
Luminaire Lumens: 4937.0 lumens
Efficiency: N/A
Efficacy: 84.0 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Indirect

Input Watts (W): 58.8
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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	34
1	94	90	86	83	85	81	78	75	65	63	61	50	49	48	36	36	35	29
2	86	79	73	68	77	71	66	62	57	54	51	44	42	40	32	31	30	24
3	79	69	62	57	71	63	57	52	51	47	43	39	37	34	29	27	26	21
4	72	62	54	48	65	56	49	44	45	41	37	35	32	29	26	24	22	18
5	66	55	47	41	59	50	43	38	40	36	32	32	28	26	24	21	20	16
6	61	49	41	36	55	45	38	33	36	31	28	29	25	22	21	19	17	14
7	56	44	37	31	51	40	34	29	33	28	24	26	23	20	20	17	15	13
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	16	14	11
9	48	37	29	25	44	34	27	23	28	23	19	22	18	16	17	14	13	10
10	45	34	27	22	41	31	25	20	25	21	17	20	17	14	15	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	9436	9436	9436	9436
5°	9205	8610	9205	8610
10°	8968	7884	8968	7884
15°	8696	7191	8659	7191
20°	8368	6561	8330	6561
25°	7960	5974	7923	5974
30°	7462	5406	7412	5406
35°	6865	4851	6825	4851
40°	6263	4308	6206	4308
45°	5692	3746	5648	3746
50°	5219	3101	5172	3101
55°	4768	2295	4735	2295
60°	4275	1670	4256	1670
65°	3631	1235	3631	1235
70°	2985	923	3007	923
75°	2415	650	2496	650
80°	2803	427	2175	427
85°	5124	190	2362	190



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.7	1.4
10°-20°	192.8	3.9
20°-30°	282.1	5.7
30°-40°	318.7	6.5
40°-50°	295.9	6.0
50°-60°	232.7	4.7
60°-70°	147.3	3.0
70°-80°	74.3	1.5
80°-90°	56.1	1.1
90°-100°	104.3	2.1
100°-110°	211.0	4.3
110°-120°	364.4	7.4
120°-130°	495.0	10.0
130°-140°	564.8	11.4
140°-150°	563.8	11.4
150°-160°	491.0	9.9
160°-170°	345.4	7.0
170°-180°	128.6	2.6
0°-30°	543.6	11.0
0°-40°	862.3	17.5
0°-60°	1391.0	28.2
0°-90°	1668.8	33.8
90°-120°	679.6	13.8
90°-150°	2303.3	46.7
90°-180°	3268.0	66.2
0°-180°	4937.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	730	730	730	730	730	
5°	723	722	723	722	723	69
15°	687	682	684	682	687	193
25°	613	615	610	615	613	281
35°	499	523	496	523	499	312
45°	376	410	374	410	376	292
55°	275	248	273	248	275	245
65°	172	127	172	127	172	171
75°	86	62	89	62	86	98
85°	117	16	54	16	117	89
90°	176	1	31	1	176	98
95°	250	39	20	39	250	219
105°	416	192	8	192	416	438
115°	589	392	135	392	589	584
125°	737	614	334	614	737	658
135°	856	838	538	838	856	661
145°	942	1048	725	1048	942	594
155°	1052	1212	912	1212	1052	485
165°	1150	1319	1112	1319	1150	326
175°	1360	1374	1330	1374	1360	127
180°	1373	1373	1373	1373	1373	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	730.5	730.5	730.5	730.5	730.5	730.5	730.5	730.5	730.5	730.5	730.5
2.5°	726.7	728.5	730.5	728.6	726.8	727.7	730.5	728.5	727.6	728.5	730.5
5°	722.9	724.8	726.8	724.0	722.1	724.0	725.8	724.8	722.9	724.8	725.8
7.5°	717.3	719.3	719.3	718.4	716.5	717.4	718.3	718.3	717.3	718.3	718.3
10°	708.9	710.9	710.9	709.0	707.1	708.0	709.9	708.9	708.9	708.9	709.9
12.5°	699.7	699.7	698.6	696.8	694.9	696.8	698.6	697.7	697.7	697.7	698.6
15°	686.6	685.7	684.6	683.7	681.8	682.8	683.7	683.7	683.7	683.7	683.7
17.5°	672.6	670.7	669.7	669.7	668.8	669.7	668.8	669.7	669.7	669.7	668.8
20°	654.9	654.9	652.9	652.9	651.0	652.0	652.0	652.9	652.0	652.9	652.0
22.5°	634.3	635.2	635.2	634.2	633.3	633.3	634.2	633.3	632.3	633.3	634.2
25°	612.8	613.8	615.6	614.6	614.6	613.7	613.7	610.9	609.9	610.9	613.7
27.5°	586.7	590.4	593.2	594.1	593.1	593.1	591.3	587.5	583.8	587.5	591.3
30°	560.5	563.3	568.9	573.6	571.7	571.7	566.1	560.4	556.7	560.4	566.1
32.5°	530.7	534.4	542.8	549.3	550.2	547.4	539.9	530.6	526.8	530.6	539.9
35°	498.9	500.8	512.9	522.3	523.1	519.4	510.0	497.9	496.0	497.9	510.0
37.5°	468.1	467.2	479.3	496.1	498.8	493.2	476.4	464.3	465.2	464.3	476.4
40°	436.4	434.5	443.8	465.2	469.9	463.3	439.9	430.6	432.4	430.6	439.9
42.5°	406.5	404.6	408.2	433.5	442.8	431.6	405.4	400.7	402.5	400.7	405.4
45°	376.5	373.7	374.6	397.0	410.1	395.2	370.8	370.8	373.6	370.8	370.8
47.5°	350.4	345.7	342.9	358.8	378.4	357.8	339.1	342.8	347.5	342.8	339.1
50°	324.2	319.5	312.1	323.3	338.2	321.3	308.2	315.7	321.3	315.7	308.2
52.5°	298.1	295.3	284.1	289.7	294.3	287.7	281.2	291.4	295.2	291.4	281.2
55°	274.7	271.0	257.9	255.1	247.5	253.1	255.0	268.1	272.8	268.1	255.0
57.5°	249.5	247.6	231.8	220.6	207.4	218.6	228.9	244.7	247.5	244.7	228.9
60°	225.2	220.6	201.9	185.9	176.6	185.0	199.9	218.6	224.2	218.6	199.9
62.5°	197.2	194.4	173.9	154.2	149.5	153.2	171.9	192.5	196.2	192.5	171.9
65°	171.9	166.3	145.8	129.0	127.1	128.0	144.8	165.4	171.9	165.4	144.8
67.5°	148.6	139.2	121.5	106.5	107.5	106.5	120.5	138.3	148.6	138.3	120.5
70°	124.3	114.0	100.0	87.9	91.6	87.9	100.0	114.9	125.2	114.9	100.0
72.5°	104.7	92.5	81.3	72.0	74.7	71.0	81.3	93.5	106.6	93.5	81.3
75°	86.0	73.9	63.5	57.0	61.6	57.0	64.5	74.8	88.9	74.8	64.5
77.5°	78.8	64.6	48.6	45.8	49.5	45.8	49.6	61.7	74.9	61.7	49.6
80°	82.2	68.0	40.3	34.5	38.3	34.5	38.4	52.5	63.8	52.5	38.4
82.5°	95.2	82.7	46.3	24.3	26.1	24.3	34.7	47.8	58.4	47.8	34.7
85°	116.9	105.3	63.0	21.7	15.9	19.7	34.8	46.1	53.9	46.1	34.8
87.5°	144.3	136.5	86.5	32.4	3.7	18.9	31.2	43.4	44.4	43.4	31.2
90°	176.5	169.7	117.7	49.0	0.9	12.2	21.7	32.9	31.1	32.9	21.7
92.5°	214.5	205.7	150.7	73.5	15.5	6.6	17.8	26.3	24.5	26.3	17.8
95°	249.5	244.6	187.7	101.8	38.8	4.9	13.2	19.7	19.7	19.7	13.2
97.5°	287.5	282.7	224.8	135.8	68.8	11.7	10.5	16.1	16.1	16.1	10.5
100°	320.7	318.8	264.7	177.4	105.7	32.0	7.8	14.3	15.2	14.3	7.8
102.5°	372.2	358.8	304.5	217.2	145.5	60.1	15.5	9.6	11.5	9.6	15.5
105°	416.0	402.4	351.9	259.9	192.0	98.9	38.8	12.6	7.8	12.6	38.8
107.5°	457.6	447.9	394.6	302.5	240.4	142.5	71.7	36.8	23.3	36.8	71.7
110°	506.2	494.5	436.4	345.2	290.9	189.1	109.5	67.9	52.3	67.9	109.5



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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°	552.7	544.0	475.1	389.8	343.3	239.5	156.1	106.6	92.1	106.6	156.1
115°	588.6	583.7	519.7	431.5	391.7	296.7	207.5	152.2	134.7	152.2	207.5
117.5°	626.4	625.4	552.7	474.2	449.9	348.1	255.0	197.8	179.4	197.8	255.0
120°	673.9	666.2	598.3	516.8	505.2	402.4	307.4	250.2	231.8	250.2	307.4
122.5°	706.9	702.0	637.1	557.6	557.6	457.6	357.8	300.6	281.2	300.6	357.8
125°	736.9	735.0	666.2	598.3	613.8	509.1	414.0	355.9	334.5	355.9	414.0
127.5°	764.1	767.0	704.0	642.9	671.0	561.5	469.3	405.4	383.0	405.4	469.3
130°	787.4	797.1	739.8	683.6	725.4	618.6	518.8	454.7	440.2	454.7	518.8
132.5°	832.9	827.1	776.7	725.4	783.5	671.0	571.1	504.2	487.7	504.2	571.1
135°	856.3	858.1	808.7	761.2	837.8	723.4	620.6	554.7	538.1	554.7	620.6
137.5°	884.4	878.5	834.0	804.8	888.2	773.8	669.0	608.0	581.8	608.0	669.0
140°	905.7	904.6	867.8	843.7	942.5	823.3	719.5	657.4	633.2	657.4	719.5
142.5°	927.0	932.8	900.8	886.3	996.8	875.6	772.8	704.9	681.7	704.9	772.8
145°	941.5	954.1	933.8	940.6	1048.3	934.7	819.4	750.5	725.3	750.5	819.4
147.5°	965.8	982.2	958.0	978.4	1092.9	986.2	865.9	798.0	775.7	798.0	865.9
150°	998.8	1006.5	991.9	1030.8	1138.5	1043.4	913.4	843.6	821.3	843.6	913.4
152.5°	1024.9	1034.6	1018.2	1087.9	1174.3	1095.7	965.8	888.2	862.1	888.2	965.8
155°	1052.1	1056.0	1044.3	1143.2	1212.1	1147.1	1007.4	937.7	912.5	937.7	1007.4
157.5°	1077.3	1085.0	1071.5	1185.0	1245.1	1191.7	1055.0	987.1	964.8	987.1	1055.0
160°	1104.5	1104.5	1112.2	1232.5	1272.3	1229.6	1105.4	1041.4	1010.3	1041.4	1105.4
162.5°	1107.4	1125.8	1167.5	1266.4	1298.4	1263.5	1159.7	1080.2	1053.0	1080.2	1159.7
165°	1150.0	1166.5	1229.5	1296.4	1318.8	1293.6	1226.6	1144.2	1112.2	1144.2	1226.6
167.5°	1194.7	1229.5	1279.0	1330.4	1338.2	1321.7	1277.1	1220.8	1191.7	1220.8	1277.1
170°	1266.4	1297.4	1321.7	1344.0	1354.6	1344.9	1309.1	1281.9	1262.6	1281.9	1309.1
172.5°	1323.6	1343.0	1352.8	1367.2	1360.4	1356.6	1338.2	1324.6	1314.9	1324.6	1338.2
175°	1359.5	1363.4	1373.0	1368.3	1374.0	1363.4	1364.3	1370.2	1330.4	1370.2	1364.3
177.5°	1372.1	1378.9	1375.0	1366.3	1367.2	1365.3	1369.2	1372.1	1366.3	1372.1	1369.2
180°	1373.0	1373.0	1373.0	1373.0	1373.0	1373.0	1373.0	1373.0	1373.0	1373.0	1373.0



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	730.5	730.5	730.5	730.5	730.5	730.5
2.5°	727.7	726.8	728.6	730.5	728.5	726.7
5°	724.0	722.1	724.0	726.8	724.8	722.9
7.5°	717.4	716.5	718.4	719.3	719.3	717.3
10°	708.0	707.1	709.0	710.9	710.9	708.9
12.5°	696.8	694.9	696.8	698.6	699.7	699.7
15°	682.8	681.8	683.7	684.6	685.7	686.6
17.5°	669.7	668.8	669.7	669.7	670.7	672.6
20°	652.0	651.0	652.9	652.9	654.9	654.9
22.5°	633.3	633.3	634.2	635.2	635.2	634.3
25°	613.7	614.6	614.6	615.6	613.8	612.8
27.5°	593.1	593.1	594.1	593.2	590.4	586.7
30°	571.7	571.7	573.6	568.9	563.3	560.5
32.5°	547.4	550.2	549.3	542.8	534.4	530.7
35°	519.4	523.1	522.3	512.9	500.8	498.9
37.5°	493.2	498.8	496.1	479.3	467.2	468.1
40°	463.3	469.9	465.2	443.8	434.5	436.4
42.5°	431.6	442.8	433.5	408.2	404.6	406.5
45°	395.2	410.1	397.0	374.6	373.7	376.5
47.5°	357.8	378.4	358.8	342.9	345.7	350.4
50°	321.3	338.2	323.3	312.1	319.5	324.2
52.5°	287.7	294.3	289.7	284.1	295.3	298.1
55°	253.1	247.5	255.1	257.9	271.0	274.7
57.5°	218.6	207.4	220.6	231.8	247.6	249.5
60°	185.0	176.6	185.9	201.9	220.6	225.2
62.5°	153.2	149.5	154.2	173.9	194.4	197.2
65°	128.0	127.1	129.0	145.8	166.3	171.9
67.5°	106.5	107.5	106.5	121.5	139.2	148.6
70°	87.9	91.6	87.9	100.0	114.0	124.3
72.5°	71.0	74.7	72.0	81.3	92.5	104.7
75°	57.0	61.6	57.0	63.5	73.9	86.0
77.5°	45.8	49.5	45.8	48.6	64.6	78.8
80°	34.5	38.3	34.5	40.3	68.0	82.2
82.5°	24.3	26.1	24.3	46.3	82.7	95.2
85°	19.7	15.9	21.7	63.0	105.3	116.9
87.5°	18.9	3.7	32.4	86.5	136.5	144.3
90°	12.2	0.9	49.0	117.7	169.7	176.5
92.5°	6.6	15.5	73.5	150.7	205.7	214.5
95°	4.9	38.8	101.8	187.7	244.6	249.5
97.5°	11.7	68.8	135.8	224.8	282.7	287.5
100°	32.0	105.7	177.4	264.7	318.8	320.7
102.5°	60.1	145.5	217.2	304.5	358.8	372.2
105°	98.9	192.0	259.9	351.9	402.4	416.0
107.5°	142.5	240.4	302.5	394.6	447.9	457.6
110°	189.1	290.9	345.2	436.4	494.5	506.2



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	239.5	343.3	389.8	475.1	544.0	552.7
115°	296.7	391.7	431.5	519.7	583.7	588.6
117.5°	348.1	449.9	474.2	552.7	625.4	626.4
120°	402.4	505.2	516.8	598.3	666.2	673.9
122.5°	457.6	557.6	557.6	637.1	702.0	706.9
125°	509.1	613.8	598.3	666.2	735.0	736.9
127.5°	561.5	671.0	642.9	704.0	767.0	764.1
130°	618.6	725.4	683.6	739.8	797.1	787.4
132.5°	671.0	783.5	725.4	776.7	827.1	832.9
135°	723.4	837.8	761.2	808.7	858.1	856.3
137.5°	773.8	888.2	804.8	834.0	878.5	884.4
140°	823.3	942.5	843.7	867.8	904.6	905.7
142.5°	875.6	996.8	886.3	900.8	932.8	927.0
145°	934.7	1048.3	940.6	933.8	954.1	941.5
147.5°	986.2	1092.9	978.4	958.0	982.2	965.8
150°	1043.4	1138.5	1030.8	991.9	1006.5	998.8
152.5°	1095.7	1174.3	1087.9	1018.2	1034.6	1024.9
155°	1147.1	1212.1	1143.2	1044.3	1056.0	1052.1
157.5°	1191.7	1245.1	1185.0	1071.5	1085.0	1077.3
160°	1229.6	1272.3	1232.5	1112.2	1104.5	1104.5
162.5°	1263.5	1298.4	1266.4	1167.5	1125.8	1107.4
165°	1293.6	1318.8	1296.4	1229.5	1166.5	1150.0
167.5°	1321.7	1338.2	1330.4	1279.0	1229.5	1194.7
170°	1344.9	1354.6	1344.0	1321.7	1297.4	1266.4
172.5°	1356.6	1360.4	1367.2	1352.8	1343.0	1323.6
175°	1363.4	1374.0	1368.3	1373.0	1363.4	1359.5
177.5°	1365.3	1367.2	1366.3	1375.0	1378.9	1372.1
180°	1373.0	1373.0	1373.0	1373.0	1373.0	1373.0

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