

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: METALUX

Report Number: P192489

Luminaire Tested: **4WSL-LD2-35-UPL15-UNV-L830-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192489
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P28105)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 4WSL-LD2-35-UPL15-UNV-L830-CD1-U
Description: 4FT Linear Wavestream System, 15% Uplight, L830
Light Source: (238) 3000K CCT, 80 CRI LEDS
EL236N0119D830
Ballast/Driver: OSRAM
OT30W

Summary

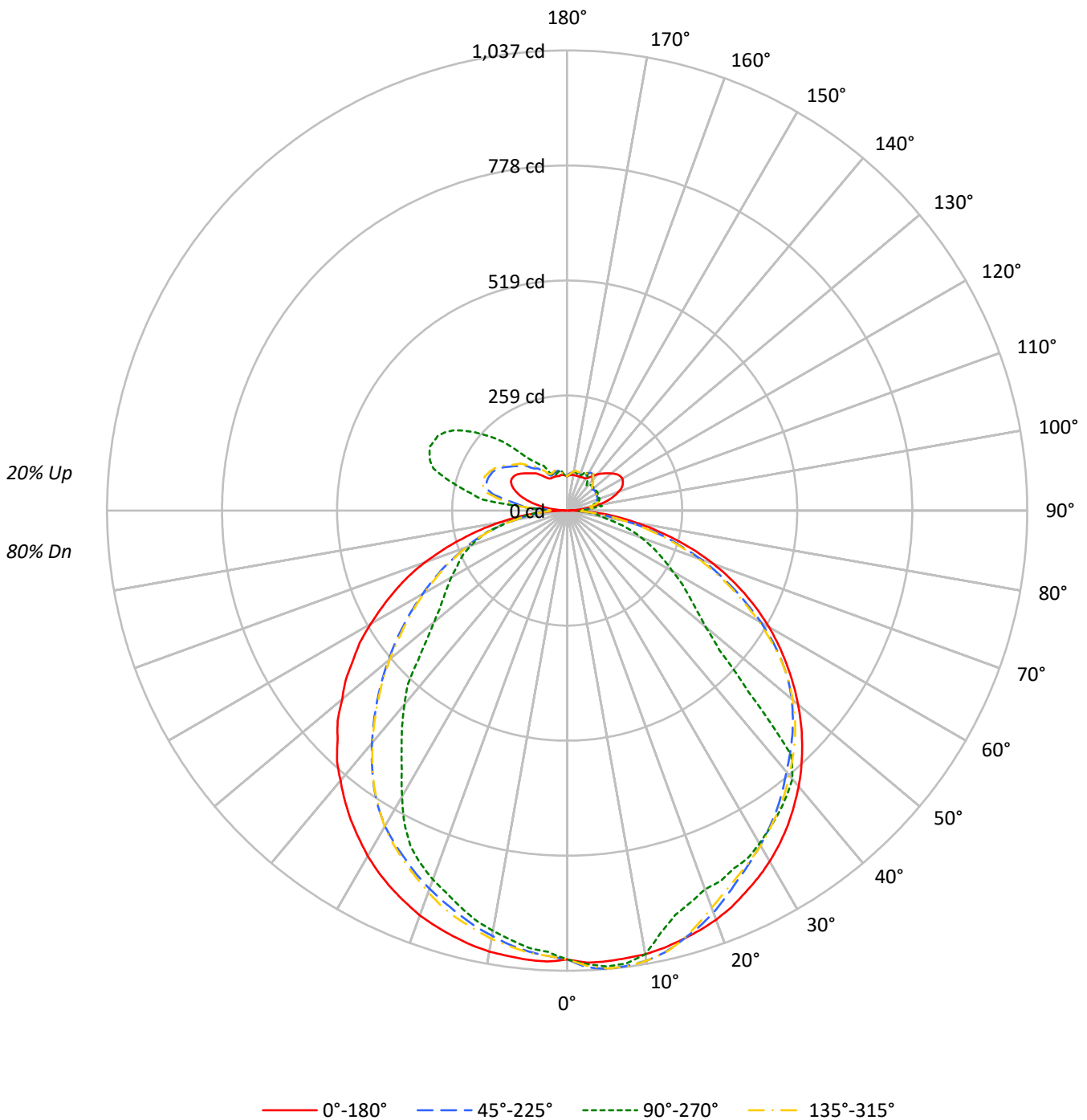
Lumens per Lamp: N/A
Luminaire Lumens: 3580.0 lumens
Efficiency: N/A
Efficacy: 117.0 lumens/watt
Spacing Criteria (0/90/45): 1.32 / 1.19 / 1.35
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 30.6
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				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	114	114	114	114	109	109	109	109	100	100	100	91	91	91	83	83	83	80
1	104	99	95	91	99	95	91	88	87	84	81	80	77	75	73	71	70	66
2	94	86	80	74	90	83	77	72	76	71	67	70	66	62	64	61	58	55
3	86	76	68	62	82	73	66	60	67	61	56	61	57	53	56	53	49	46
4	79	67	59	52	75	64	57	51	59	53	48	55	49	45	50	46	42	40
5	72	60	51	45	69	58	50	44	53	46	41	49	43	39	45	41	37	34
6	67	54	45	39	64	52	44	38	48	41	36	44	39	34	41	36	32	30
7	62	49	40	34	59	47	39	33	44	37	32	40	35	30	38	33	29	26
8	58	44	36	30	55	43	35	30	40	33	28	37	31	27	34	29	26	24
9	54	41	33	27	51	39	32	27	37	30	26	34	28	24	32	27	23	21
10	50	37	30	25	48	36	29	24	34	27	23	32	26	22	30	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	5731	5731	5731	5731
5°	5799	5865	5779	5627
10°	5839	5839	5806	5532
15°	5872	5531	5824	5429
20°	5917	5475	5853	5335
25°	5938	5561	5866	5219
30°	5972	5668	5880	4870
35°	5992	5751	5879	4498
40°	6004	5840	5875	4217
45°	6002	4643	5862	3796
50°	5988	3583	5835	3450
55°	5965	3304	5816	3349
60°	5947	3118	5790	3422
65°	5901	3020	5745	3580
70°	5809	2943	5655	3828
75°	5542	2797	5365	4067
80°	5191	2538	5041	4055
85°	5207	3322	4830	4830



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	96.3	2.7
10°-20°	273.2	7.6
20°-30°	412.8	11.5
30°-40°	496.9	13.9
40°-50°	505.3	14.1
50°-60°	439.8	12.3
60°-70°	343.1	9.6
70°-80°	212.1	5.9
80°-90°	74.6	2.1
90°-100°	70.3	2.0
100°-110°	136.0	3.8
110°-120°	148.8	4.2
120°-130°	130.5	3.6
130°-140°	97.8	2.7
140°-150°	66.9	1.9
150°-160°	42.6	1.2
160°-170°	24.9	0.7
170°-180°	8.0	0.2
0°-30°	782.3	21.9
0°-40°	1279.2	35.7
0°-60°	2224.3	62.1
0°-90°	2854.1	79.7
90°-120°	355.1	9.9
90°-150°	650.3	18.2
90°-180°	726.0	20.3
0°-180°	3580.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1012	1012	1012	1012	1012	
5°	1020	1031	1016	990	1020	97
15°	1001	943	993	926	1001	283
25°	950	890	938	835	950	438
35°	866	832	850	650	866	542
45°	749	580	732	474	749	578
55°	604	334	589	339	604	540
65°	440	225	429	267	440	435
75°	253	128	245	186	253	268
85°	80	51	74	74	80	80
90°	1	32	1	51	1	6
95°	31	53	24	107	31	33
105°	100	66	96	284	100	104
115°	138	76	138	341	138	135
125°	140	79	140	315	140	125
135°	118	79	118	230	118	92
145°	93	79	95	137	93	59
155°	82	95	81	94	82	38
165°	81	86	80	87	81	23
175°	80	84	80	81	80	8
180°	78	78	78	78	78	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1011.6	1011.6	1011.6	1011.6	1011.6	1011.6	1011.6	1011.6	1011.6	1011.6	1011.6
2.5°	1019.7	1015.1	1030.2	1031.3	1023.2	1026.7	1026.7	1013.9	1017.4	1002.3	1004.6
5°	1019.7	1020.9	1037.1	1036.0	1031.3	1032.5	1036.0	1019.7	1016.2	995.3	997.6
7.5°	1017.4	1023.2	1034.8	1033.6	1029.0	1030.2	1036.0	1022.0	1012.7	988.3	987.2
10°	1015.1	1020.9	1030.2	1024.3	1015.1	1018.5	1030.2	1020.9	1009.2	980.2	973.2
12.5°	1009.2	1015.1	1019.7	990.7	974.4	988.3	1020.9	1015.1	1002.3	968.6	959.3
15°	1001.1	1008.1	1002.3	961.6	943.0	955.8	1002.3	1006.9	993.0	953.5	941.9
17.5°	991.8	1000.0	984.9	939.6	925.6	931.4	977.9	996.5	982.5	938.4	924.5
20°	981.4	990.7	964.0	916.3	908.2	912.9	952.3	984.9	970.9	922.1	907.0
22.5°	967.4	977.9	939.6	900.1	903.6	900.1	929.1	969.8	954.7	904.7	887.3
25°	950.0	961.6	915.2	886.1	889.6	888.5	909.4	950.0	938.4	883.8	865.2
27.5°	932.6	944.2	893.1	876.8	882.7	875.7	890.8	929.1	919.8	861.8	844.3
30°	912.9	925.6	871.0	860.6	866.4	861.8	872.2	908.2	898.9	838.5	821.1
32.5°	890.8	903.6	847.8	840.8	849.0	843.2	850.1	885.0	874.5	813.0	792.1
35°	866.4	879.2	823.4	823.4	831.6	824.6	828.1	861.8	850.1	787.4	759.5
37.5°	839.7	853.6	796.7	802.5	811.8	804.8	804.8	837.4	823.4	759.5	722.4
40°	811.8	826.9	768.8	781.6	789.7	781.6	779.3	811.8	794.4	731.7	684.1
42.5°	781.6	797.9	743.3	758.4	747.9	758.4	752.6	785.1	767.7	701.5	644.6
45°	749.1	770.0	717.7	708.4	579.5	701.5	725.9	757.2	731.7	672.4	605.1
47.5°	715.4	737.5	689.9	622.5	465.7	615.5	696.8	727.0	701.5	641.1	565.6
50°	679.4	705.0	660.8	548.2	406.5	541.2	664.3	695.7	662.0	607.4	526.1
52.5°	642.2	670.1	628.3	484.3	367.0	477.3	629.5	662.0	629.5	571.4	487.8
55°	603.9	633.0	590.0	425.1	334.5	423.9	588.8	626.0	588.8	535.4	449.5
57.5°	565.6	598.1	549.3	382.1	306.6	376.3	543.5	588.8	554.0	498.2	412.3
60°	524.9	555.1	505.2	335.6	275.2	334.5	498.2	550.5	511.0	459.9	376.3
62.5°	483.1	516.8	457.6	295.0	249.7	293.8	449.5	507.5	469.2	420.4	341.4
65°	440.2	472.7	412.3	262.5	225.3	260.2	404.2	463.4	428.6	380.9	308.9
67.5°	396.0	426.2	367.0	231.1	200.9	228.8	357.7	416.9	386.7	340.3	274.1
70°	350.7	378.6	320.5	200.9	177.7	199.8	312.4	369.3	341.4	298.5	242.7
72.5°	303.1	328.7	271.8	171.9	153.3	170.7	264.8	320.5	291.5	254.3	214.9
75°	253.2	277.6	226.5	142.9	127.8	141.7	219.5	268.3	245.1	213.7	182.3
77.5°	205.6	230.0	180.0	110.3	97.6	108.0	171.9	219.5	199.8	173.0	148.7
80°	159.1	178.9	132.4	82.5	77.8	82.5	128.9	168.4	154.5	135.9	116.1
82.5°	117.3	128.9	89.4	67.4	67.4	67.4	87.1	119.6	113.8	101.0	88.3
85°	80.1	80.1	60.4	51.1	51.1	51.1	59.2	70.8	74.3	67.4	67.4
87.5°	33.7	34.8	31.4	27.9	26.7	27.9	30.2	29.0	29.0	32.5	40.6
90°	1.2	15.1	25.6	31.4	32.5	30.2	23.2	13.9	1.2	19.7	36.0
92.5°	8.1	32.5	30.2	39.5	40.6	37.2	31.4	25.6	4.6	36.0	38.3
95°	31.4	38.3	59.2	60.4	53.4	51.1	58.1	36.0	24.4	48.8	97.6
97.5°	49.9	58.1	53.4	69.7	79.0	69.7	55.7	55.7	46.5	75.5	113.8
100°	68.5	61.6	54.6	60.4	69.7	61.6	52.3	61.6	65.0	88.3	139.4
102.5°	85.9	68.5	68.5	59.2	60.4	58.1	66.2	67.4	81.3	99.9	171.9
105°	99.9	70.8	72.0	67.4	66.2	67.4	72.0	72.0	96.4	110.3	187.0
107.5°	112.7	73.2	70.8	74.3	75.5	74.3	70.8	73.2	110.3	117.3	190.5
110°	123.1	74.3	72.0	74.3	77.8	74.3	72.0	75.5	121.9	124.3	192.8



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CATALOG NUMBER: 4WSL-LD2-35-UPL15-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	132.4	75.5	74.3	73.2	76.7	73.2	74.3	77.8	131.2	127.8	192.8
115°	138.2	76.7	74.3	74.3	75.5	74.3	75.5	79.0	138.2	128.9	190.5
117.5°	141.7	79.0	75.5	76.7	77.8	76.7	75.5	81.3	142.9	133.6	189.3
120°	144.0	87.1	75.5	77.8	79.0	77.8	75.5	88.3	144.0	135.9	184.7
122.5°	142.9	90.6	76.7	77.8	80.1	77.8	76.7	91.7	142.9	134.7	178.9
125°	140.5	94.1	76.7	76.7	79.0	77.8	77.8	94.1	140.5	132.4	170.7
127.5°	135.9	102.2	76.7	77.8	77.8	77.8	77.8	101.0	135.9	133.6	162.6
130°	130.1	108.0	74.3	79.0	77.8	80.1	76.7	108.0	130.1	130.1	155.6
132.5°	124.3	110.3	74.3	79.0	79.0	80.1	75.5	110.3	124.3	125.4	148.7
135°	118.5	112.7	79.0	77.8	79.0	79.0	80.1	112.7	118.5	120.8	144.0
137.5°	112.7	113.8	84.8	74.3	77.8	75.5	87.1	113.8	113.8	113.8	137.0
140°	106.8	112.7	89.4	72.0	73.2	74.3	91.7	113.8	109.2	110.3	125.4
142.5°	99.9	109.2	92.9	77.8	72.0	80.1	95.2	112.7	102.2	106.8	119.6
145°	92.9	105.7	99.9	85.9	79.0	89.4	103.4	109.2	95.2	104.5	116.1
147.5°	87.1	99.9	101.0	90.6	87.1	94.1	104.5	104.5	88.3	99.9	108.0
150°	83.6	94.1	97.6	94.1	90.6	98.7	102.2	96.4	83.6	96.4	101.0
152.5°	82.5	89.4	89.4	98.7	97.6	103.4	94.1	91.7	81.3	92.9	91.7
155°	82.5	88.3	85.9	90.6	95.2	95.2	89.4	89.4	81.3	92.9	87.1
157.5°	81.3	89.4	85.9	84.8	87.1	89.4	89.4	90.6	81.3	90.6	87.1
160°	81.3	90.6	87.1	83.6	84.8	88.3	90.6	90.6	81.3	90.6	88.3
162.5°	81.3	88.3	88.3	84.8	84.8	89.4	90.6	89.4	81.3	88.3	90.6
165°	81.3	88.3	89.4	87.1	85.9	91.7	90.6	87.1	80.1	87.1	91.7
167.5°	81.3	85.9	90.6	88.3	88.3	91.7	91.7	85.9	80.1	83.6	91.7
170°	81.3	84.8	89.4	88.3	89.4	92.9	89.4	84.8	81.3	82.5	88.3
172.5°	81.3	82.5	87.1	88.3	88.3	90.6	87.1	82.5	81.3	80.1	84.8
175°	80.1	82.5	84.8	84.8	83.6	87.1	83.6	81.3	80.1	79.0	81.3
177.5°	79.0	80.1	82.5	82.5	80.1	82.5	80.1	79.0	79.0	77.8	80.1
180°	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8



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CATALOG NUMBER: 4WSL-LD2-35-UPL15-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1011.6	1011.6	1011.6	1011.6	1011.6	1011.6
2.5°	1003.4	995.3	997.6	1004.6	1003.4	1019.7
5°	993.0	989.5	989.5	1000.0	998.8	1019.7
7.5°	981.4	975.6	979.1	990.7	994.2	1017.4
10°	966.3	961.6	962.8	980.2	986.0	1015.1
12.5°	951.2	946.5	950.0	966.3	974.4	1009.2
15°	933.8	925.6	934.9	952.3	962.8	1001.1
17.5°	912.9	903.6	912.9	936.1	948.9	991.8
20°	894.3	885.0	890.8	915.2	932.6	981.4
22.5°	873.4	861.8	866.4	893.1	915.2	967.4
25°	850.1	835.0	842.0	871.0	895.4	950.0
27.5°	819.9	794.4	811.8	847.8	871.0	932.6
30°	778.1	744.5	772.3	822.3	849.0	912.9
32.5°	729.4	693.4	723.5	790.9	823.4	890.8
35°	681.7	650.4	678.3	758.4	797.9	866.4
37.5°	639.9	610.9	636.4	721.2	770.0	839.7
40°	597.0	570.2	595.8	681.7	742.1	811.8
42.5°	557.5	531.9	556.3	642.2	711.9	781.6
45°	515.7	473.8	513.3	601.6	679.4	749.1
47.5°	471.5	427.4	468.0	562.1	646.9	715.4
50°	430.9	391.4	428.6	521.5	612.1	679.4
52.5°	394.9	361.2	393.7	480.8	576.0	642.2
55°	361.2	339.1	362.4	443.7	542.4	603.9
57.5°	334.5	319.4	335.6	407.6	505.2	565.6
60°	311.3	302.0	312.4	371.6	465.7	524.9
62.5°	285.7	282.2	285.7	336.8	427.4	483.1
65°	263.6	267.1	263.6	305.4	386.7	440.2
67.5°	242.7	250.9	243.9	271.8	346.1	396.0
70°	219.5	231.1	220.7	241.6	304.3	350.7
72.5°	195.1	209.1	195.1	212.5	260.2	303.1
75°	169.6	185.8	170.7	181.2	218.3	253.2
77.5°	141.7	152.1	144.0	147.5	177.7	205.6
80°	112.7	124.3	113.8	116.1	140.5	159.1
82.5°	94.1	102.2	95.2	88.3	104.5	117.3
85°	69.7	74.3	72.0	68.5	72.0	80.1
87.5°	43.0	45.3	43.0	43.0	37.2	33.7
90°	47.6	51.1	47.6	37.2	20.9	1.2
92.5°	48.8	53.4	48.8	40.6	39.5	8.1
95°	109.2	106.8	116.1	105.7	60.4	31.4
97.5°	169.6	194.0	175.4	126.6	81.3	49.9
100°	195.1	218.3	203.2	157.9	92.9	68.5
102.5°	225.3	250.9	234.6	184.7	104.5	85.9
105°	262.5	284.5	270.6	195.1	115.0	99.9
107.5°	282.2	315.9	288.0	199.8	121.9	112.7
110°	292.7	328.7	302.0	200.9	127.8	123.1



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	300.8	335.6	307.8	200.9	130.1	132.4
115°	300.8	341.4	307.8	197.4	133.6	138.2
117.5°	300.8	338.0	307.8	194.0	138.2	141.7
120°	290.3	336.8	299.6	189.3	139.4	144.0
122.5°	282.2	327.5	288.0	183.5	139.4	142.9
125°	267.1	314.7	274.1	176.5	137.0	140.5
127.5°	250.9	296.2	256.7	168.4	138.2	135.9
130°	235.8	275.2	239.2	160.3	133.6	130.1
132.5°	216.0	252.0	219.5	154.5	128.9	124.3
135°	197.4	230.0	202.1	149.8	123.1	118.5
137.5°	177.7	206.7	182.3	140.5	117.3	112.7
140°	154.5	177.7	159.1	130.1	113.8	106.8
142.5°	139.4	152.1	144.0	125.4	109.2	99.9
145°	130.1	137.0	133.6	120.8	106.8	92.9
147.5°	120.8	127.8	124.3	111.5	101.0	87.1
150°	117.3	117.3	121.9	103.4	97.6	83.6
152.5°	104.5	113.8	109.2	94.1	95.2	82.5
155°	89.4	94.1	94.1	90.6	95.2	82.5
157.5°	83.6	87.1	88.3	90.6	92.9	81.3
160°	83.6	84.8	88.3	91.7	91.7	81.3
162.5°	85.9	84.8	90.6	94.1	89.4	81.3
165°	88.3	87.1	92.9	95.2	87.1	81.3
167.5°	90.6	90.6	95.2	94.1	84.8	81.3
170°	90.6	92.9	95.2	90.6	83.6	81.3
172.5°	87.1	88.3	90.6	84.8	80.1	81.3
175°	82.5	81.3	84.8	81.3	80.1	80.1
177.5°	80.1	76.7	80.1	79.0	77.8	79.0
180°	77.8	77.8	77.8	77.8	77.8	77.8

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