

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: P392510

Luminaire Tested: **MWL-2-22-23-UNV-L940-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392510
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-2-22-23-UNV-L940-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

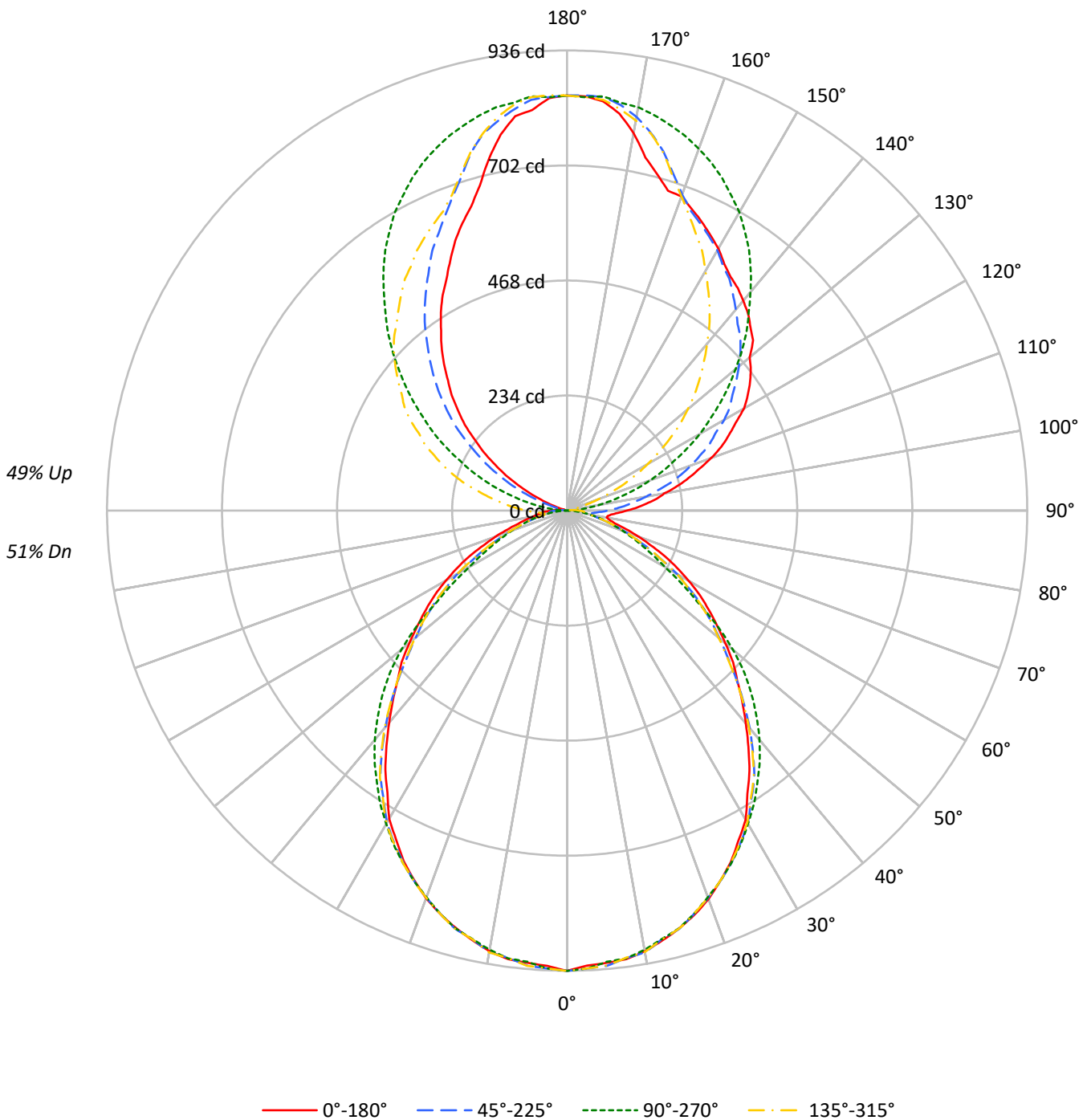
Lumens per Lamp: N/A
Luminaire Lumens: 4143.6 lumens
Efficiency: N/A
Efficacy: 92.6 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 44.743
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	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57	51
1	98	94	90	87	91	87	84	81	74	72	70	62	60	59	51	50	49	44
2	90	83	77	72	83	77	72	67	65	62	58	55	52	50	45	44	42	37
3	82	73	66	60	76	68	62	57	58	53	50	49	46	43	41	38	36	32
4	75	65	57	51	70	60	54	48	52	47	43	44	40	37	37	34	31	28
5	69	58	50	44	64	54	47	42	47	41	37	40	36	32	33	30	28	25
6	64	52	44	39	59	49	42	36	42	37	32	36	32	28	30	27	25	22
7	59	47	39	34	55	44	37	32	38	33	29	33	29	25	28	24	22	19
8	55	43	35	30	51	40	33	29	35	30	26	30	26	23	26	22	20	17
9	51	39	32	27	48	37	30	26	32	27	23	28	24	20	24	20	18	16
10	48	36	29	24	44	34	27	23	30	24	21	26	22	19	22	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	12093	12093	12093	12093
5°	11760	10985	11760	10985
10°	11514	10114	11514	10114
15°	11145	9276	11123	9276
20°	10744	8434	10720	8434
25°	10240	7683	10218	7683
30°	9670	6957	9639	6957
35°	8896	6258	8872	6258
40°	8115	5583	8082	5583
45°	7395	4854	7368	4854
50°	6760	4040	6732	4040
55°	6092	2999	6073	2999
60°	5406	2180	5397	2180
65°	4620	1632	4620	1632
70°	3704	1205	3720	1205
75°	2822	852	2872	852
80°	2786	525	2397	525
85°	3975	225	2279	225



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	88.0	2.1
10°-20°	247.7	6.0
20°-30°	363.4	8.8
30°-40°	412.2	9.9
40°-50°	384.5	9.3
50°-60°	300.7	7.3
60°-70°	186.5	4.5
70°-80°	90.6	2.2
80°-90°	51.8	1.2
90°-100°	69.3	1.7
100°-110°	130.2	3.1
110°-120°	224.4	5.4
120°-130°	305.3	7.4
130°-140°	347.9	8.4
140°-150°	347.1	8.4
150°-160°	302.3	7.3
160°-170°	212.5	5.1
170°-180°	79.1	1.9
0°-30°	699.1	16.9
0°-40°	1111.4	26.8
0°-60°	1796.6	43.4
0°-90°	2125.4	51.3
90°-120°	423.9	10.2
90°-150°	1424.2	34.4
90°-180°	2018.0	48.7
0°-180°	4143.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	936	936	936	936	936	
5°	924	921	924	921	924	88
15°	880	880	878	880	880	248
25°	788	790	787	790	788	362
35°	646	675	645	675	646	403
45°	489	531	487	531	489	379
55°	351	323	350	323	351	315
65°	219	168	219	168	219	216
75°	100	81	102	81	100	114
85°	91	19	52	19	91	73
90°	121	1	32	1	121	67
95°	162	24	21	24	162	141
105°	256	118	5	118	256	270
115°	363	241	84	241	363	360
125°	454	378	207	378	454	405
135°	527	516	332	516	527	407
145°	580	645	447	645	580	365
155°	648	746	562	746	648	299
165°	708	812	685	812	708	201
175°	836	846	818	846	836	78
180°	844	844	844	844	844	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	936.2	936.2	936.2	936.2	936.2	936.2	936.2	936.2	936.2	936.2	936.2
2.5°	926.2	936.5	932.2	932.0	932.0	931.3	932.2	936.5	926.9	936.5	932.2
5°	923.5	931.1	929.5	928.6	921.3	928.6	929.0	931.1	923.5	931.1	929.0
7.5°	920.5	924.4	918.0	920.4	918.6	919.8	917.4	923.8	920.5	923.8	917.4
10°	910.1	911.6	912.6	908.0	907.1	907.4	911.9	910.5	910.1	910.5	911.9
12.5°	895.8	897.1	892.8	895.5	892.2	895.5	892.8	895.9	894.6	895.9	892.8
15°	880.0	884.3	880.9	878.2	879.5	877.7	880.4	883.1	878.2	883.1	880.4
17.5°	861.8	863.4	860.0	859.4	859.4	859.4	859.4	862.7	860.0	862.7	859.4
20°	840.9	841.1	838.1	836.7	836.9	836.0	837.6	839.9	839.0	839.9	837.6
22.5°	814.7	819.3	815.3	817.5	815.1	816.9	814.8	818.1	813.5	818.1	814.8
25°	788.3	791.0	790.5	793.8	790.5	793.2	789.3	789.3	786.6	789.3	789.3
27.5°	755.5	759.1	763.1	766.1	765.0	765.6	762.0	757.4	753.8	757.4	762.0
30°	726.3	724.5	734.5	736.7	735.8	735.5	732.8	722.8	724.0	722.8	732.8
32.5°	682.6	688.1	697.2	707.6	707.3	706.4	695.4	685.7	680.2	685.7	695.4
35°	646.5	650.2	663.8	675.7	674.8	673.8	662.0	648.3	644.7	648.3	662.0
37.5°	605.5	606.4	621.0	641.0	643.5	639.2	619.2	604.6	603.7	604.6	619.2
40°	565.4	564.5	577.3	600.3	608.9	599.1	574.9	562.1	563.1	562.1	574.9
42.5°	527.2	523.5	532.0	562.1	570.6	560.9	530.3	521.1	524.8	521.1	530.3
45°	489.2	484.6	487.3	514.7	531.4	513.5	485.0	482.9	487.4	482.9	485.0
47.5°	458.2	446.3	443.6	466.8	489.5	466.1	441.2	444.6	456.5	444.6	441.2
50°	419.9	413.5	404.4	421.2	440.6	420.0	402.1	411.2	418.2	411.2	402.1
52.5°	384.4	381.7	368.4	375.6	384.1	374.5	366.5	379.3	382.7	379.3	366.5
55°	351.0	346.5	331.9	329.5	323.4	328.3	330.1	344.7	349.9	344.7	330.1
57.5°	320.1	313.7	293.6	285.7	275.2	284.5	291.8	311.9	318.9	311.9	291.8
60°	284.8	279.3	258.4	238.7	230.5	238.1	257.2	278.2	284.3	278.2	257.2
62.5°	252.0	242.9	217.4	198.6	196.2	198.0	216.2	241.7	251.5	241.7	216.2
65°	218.7	205.0	183.1	164.9	167.9	164.3	182.5	204.4	218.7	204.4	182.5
67.5°	183.1	171.3	152.2	135.1	142.4	135.1	151.5	170.6	183.1	170.6	151.5
70°	154.2	139.7	124.2	111.4	119.6	111.4	124.2	140.3	154.9	140.3	124.2
72.5°	125.1	112.3	99.6	91.4	97.2	90.8	99.6	113.0	126.3	113.0	99.6
75°	100.5	88.7	78.1	71.7	80.8	71.7	78.6	89.3	102.3	89.3	78.6
77.5°	87.9	73.7	58.9	57.1	64.4	57.1	59.5	72.0	85.6	72.0	59.5
80°	81.7	70.2	47.0	42.5	47.1	42.5	45.8	60.7	70.3	60.7	45.8
82.5°	83.2	74.3	46.9	30.7	33.4	30.7	39.7	52.8	60.6	52.8	39.7
85°	90.7	84.8	53.6	24.2	18.9	23.1	36.4	48.5	52.0	48.5	36.4
87.5°	104.0	101.4	66.3	27.7	4.6	19.4	32.3	44.2	42.6	44.2	32.3
90°	120.9	118.5	83.3	34.8	0.6	12.1	24.2	34.5	31.5	34.5	24.2
92.5°	142.5	138.1	100.7	46.8	9.6	5.7	19.1	27.9	25.8	27.9	19.1
95°	162.1	158.5	120.0	62.9	23.9	3.3	12.8	20.3	21.0	20.3	12.8
97.5°	183.8	178.9	139.8	84.3	43.2	8.0	8.1	15.1	16.9	15.1	8.1
100°	200.6	197.3	163.0	110.0	65.9	20.6	5.1	10.2	12.9	10.2	5.1
102.5°	229.1	221.0	187.4	134.4	90.3	37.8	9.8	6.6	7.5	6.6	9.8
105°	255.9	247.5	216.6	160.0	118.3	61.0	24.1	8.0	5.1	8.0	24.1
107.5°	281.5	275.6	242.8	186.2	148.1	87.9	44.4	23.0	14.6	23.0	44.4
110°	311.3	304.1	268.4	212.4	179.0	116.5	67.6	42.0	32.5	42.0	67.6



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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°	339.9	334.6	292.3	239.8	211.2	147.5	96.2	65.9	56.9	65.9	96.2
115°	362.9	359.0	319.6	265.4	241.0	182.6	127.8	93.8	84.0	93.8	127.8
117.5°	386.1	385.5	339.9	291.6	276.8	214.2	157.0	122.7	111.4	122.7	157.0
120°	415.3	410.5	368.8	318.8	311.6	248.5	190.1	155.0	143.6	155.0	190.1
122.5°	435.6	432.6	392.7	343.8	343.8	282.4	221.0	186.0	174.0	186.0	221.0
125°	454.0	452.8	410.5	368.8	378.4	314.1	255.7	219.8	206.7	219.8	255.7
127.5°	470.7	472.5	433.8	396.2	413.5	346.2	289.5	250.3	236.5	250.3	289.5
130°	485.0	491.0	455.8	421.3	446.9	381.3	320.0	280.6	271.7	280.6	320.0
132.5°	513.0	509.4	478.4	446.9	482.6	413.5	352.1	311.0	300.9	311.0	352.1
135°	527.3	528.5	498.1	468.9	516.0	445.7	382.6	342.0	331.9	342.0	382.6
137.5°	544.6	541.0	513.6	495.7	546.9	476.7	412.3	374.8	358.7	374.8	412.3
140°	557.0	556.5	533.8	519.6	580.4	507.0	442.7	404.5	389.7	404.5	442.7
142.5°	570.2	573.8	554.1	545.7	613.7	539.2	475.5	433.8	419.5	433.8	475.5
145°	580.0	587.8	575.3	578.5	645.2	575.0	505.0	462.7	447.2	462.7	505.0
147.5°	594.9	605.1	590.2	602.7	672.7	607.4	533.5	491.9	478.1	491.9	533.5
150°	615.2	620.0	611.0	633.9	700.6	641.7	562.8	519.9	506.2	519.9	562.8
152.5°	631.3	637.2	627.1	669.1	722.7	673.8	594.9	547.3	531.2	547.3	594.9
155°	648.0	650.3	643.2	703.1	745.9	705.5	620.6	577.6	562.1	577.6	620.6
157.5°	663.5	668.2	659.0	728.7	766.2	732.9	648.9	608.1	594.3	608.1	648.9
160°	680.1	680.1	684.0	758.5	782.9	756.7	679.9	641.4	622.4	641.4	679.9
162.5°	682.0	693.3	717.9	779.4	798.9	777.5	713.2	665.3	648.5	665.3	713.2
165°	708.1	717.4	756.1	797.8	811.5	796.0	754.3	703.6	684.9	703.6	754.3
167.5°	735.5	756.1	787.1	818.6	823.4	813.2	785.9	750.7	733.8	750.7	785.9
170°	779.4	797.8	813.2	826.4	832.9	827.0	805.5	788.3	776.9	788.3	805.5
172.5°	814.4	826.4	832.4	840.7	836.5	834.1	823.4	815.1	809.1	815.1	823.4
175°	835.6	838.9	844.2	842.2	845.8	839.2	838.9	843.0	817.7	843.0	838.9
177.5°	843.3	848.4	845.4	841.0	841.6	840.4	841.9	844.2	839.8	844.2	841.9
180°	844.2	844.2	844.2	844.2	844.2	844.2	844.2	844.2	844.2	844.2	844.2



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CATALOG NUMBER: MWL-2-22-23-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	936.2	936.2	936.2	936.2	936.2	936.2
2.5°	931.3	932.0	932.0	932.2	936.5	926.2
5°	928.6	921.3	928.6	929.5	931.1	923.5
7.5°	919.8	918.6	920.4	918.0	924.4	920.5
10°	907.4	907.1	908.0	912.6	911.6	910.1
12.5°	895.5	892.2	895.5	892.8	897.1	895.8
15°	877.7	879.5	878.2	880.9	884.3	880.0
17.5°	859.4	859.4	859.4	860.0	863.4	861.8
20°	836.0	836.9	836.7	838.1	841.1	840.9
22.5°	816.9	815.1	817.5	815.3	819.3	814.7
25°	793.2	790.5	793.8	790.5	791.0	788.3
27.5°	765.6	765.0	766.1	763.1	759.1	755.5
30°	735.5	735.8	736.7	734.5	724.5	726.3
32.5°	706.4	707.3	707.6	697.2	688.1	682.6
35°	673.8	674.8	675.7	663.8	650.2	646.5
37.5°	639.2	643.5	641.0	621.0	606.4	605.5
40°	599.1	608.9	600.3	577.3	564.5	565.4
42.5°	560.9	570.6	562.1	532.0	523.5	527.2
45°	513.5	531.4	514.7	487.3	484.6	489.2
47.5°	466.1	489.5	466.8	443.6	446.3	458.2
50°	420.0	440.6	421.2	404.4	413.5	419.9
52.5°	374.5	384.1	375.6	368.4	381.7	384.4
55°	328.3	323.4	329.5	331.9	346.5	351.0
57.5°	284.5	275.2	285.7	293.6	313.7	320.1
60°	238.1	230.5	238.7	258.4	279.3	284.8
62.5°	198.0	196.2	198.6	217.4	242.9	252.0
65°	164.3	167.9	164.9	183.1	205.0	218.7
67.5°	135.1	142.4	135.1	152.2	171.3	183.1
70°	111.4	119.6	111.4	124.2	139.7	154.2
72.5°	90.8	97.2	91.4	99.6	112.3	125.1
75°	71.7	80.8	71.7	78.1	88.7	100.5
77.5°	57.1	64.4	57.1	58.9	73.7	87.9
80°	42.5	47.1	42.5	47.0	70.2	81.7
82.5°	30.7	33.4	30.7	46.9	74.3	83.2
85°	23.1	18.9	24.2	53.6	84.8	90.7
87.5°	19.4	4.6	27.7	66.3	101.4	104.0
90°	12.1	0.6	34.8	83.3	118.5	120.9
92.5°	5.7	9.6	46.8	100.7	138.1	142.5
95°	3.3	23.9	62.9	120.0	158.5	162.1
97.5°	8.0	43.2	84.3	139.8	178.9	183.8
100°	20.6	65.9	110.0	163.0	197.3	200.6
102.5°	37.8	90.3	134.4	187.4	221.0	229.1
105°	61.0	118.3	160.0	216.6	247.5	255.9
107.5°	87.9	148.1	186.2	242.8	275.6	281.5
110°	116.5	179.0	212.4	268.4	304.1	311.3



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	147.5	211.2	239.8	292.3	334.6	339.9
115°	182.6	241.0	265.4	319.6	359.0	362.9
117.5°	214.2	276.8	291.6	339.9	385.5	386.1
120°	248.5	311.6	318.8	368.8	410.5	415.3
122.5°	282.4	343.8	343.8	392.7	432.6	435.6
125°	314.1	378.4	368.8	410.5	452.8	454.0
127.5°	346.2	413.5	396.2	433.8	472.5	470.7
130°	381.3	446.9	421.3	455.8	491.0	485.0
132.5°	413.5	482.6	446.9	478.4	509.4	513.0
135°	445.7	516.0	468.9	498.1	528.5	527.3
137.5°	476.7	546.9	495.7	513.6	541.0	544.6
140°	507.0	580.4	519.6	533.8	556.5	557.0
142.5°	539.2	613.7	545.7	554.1	573.8	570.2
145°	575.0	645.2	578.5	575.3	587.8	580.0
147.5°	607.4	672.7	602.7	590.2	605.1	594.9
150°	641.7	700.6	633.9	611.0	620.0	615.2
152.5°	673.8	722.7	669.1	627.1	637.2	631.3
155°	705.5	745.9	703.1	643.2	650.3	648.0
157.5°	732.9	766.2	728.7	659.0	668.2	663.5
160°	756.7	782.9	758.5	684.0	680.1	680.1
162.5°	777.5	798.9	779.4	717.9	693.3	682.0
165°	796.0	811.5	797.8	756.1	717.4	708.1
167.5°	813.2	823.4	818.6	787.1	756.1	735.5
170°	827.0	832.9	826.4	813.2	797.8	779.4
172.5°	834.1	836.5	840.7	832.4	826.4	814.4
175°	839.2	845.8	842.2	844.2	838.9	835.6
177.5°	840.4	841.6	841.0	845.4	848.4	843.3
180°	844.2	844.2	844.2	844.2	844.2	844.2

(END OF REPORT)