

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: P392476

Luminaire Tested: **MWL-2-13-17-UNV-L835-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392476  
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-2-13-17-UNV-L835-EDD  
Description: MWL 2FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2993.0 lumens  
Efficiency: N/A  
Efficacy: 105.0 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: General Diffuse

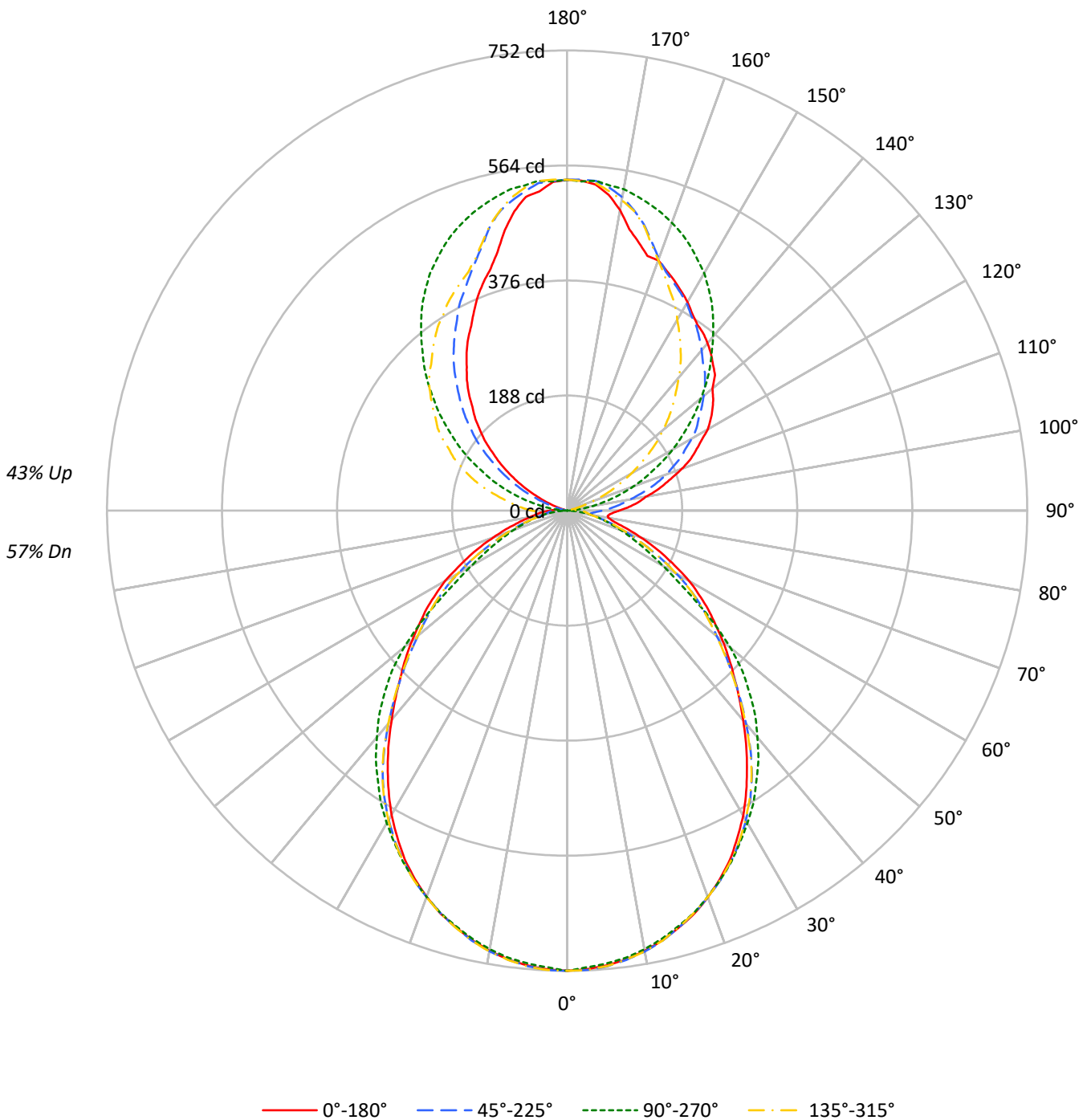
Input Watts (W): 28.5  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	57
1	100	95	91	88	93	89	86	83	77	74	72	66	64	62	56	54	53	48
2	91	84	78	73	85	78	73	69	68	64	60	58	55	53	49	47	46	41
3	83	74	67	61	77	69	63	58	60	55	51	52	48	45	44	42	39	35
4	77	66	58	52	71	62	55	49	54	49	44	47	42	39	40	37	34	31
5	70	59	51	45	65	55	48	43	48	43	38	42	38	34	36	33	30	27
6	65	53	45	39	60	50	43	37	44	38	34	38	34	30	33	29	27	24
7	60	48	40	35	56	45	38	33	40	34	30	35	30	27	30	27	24	21
8	56	44	36	31	52	41	34	29	37	31	27	32	27	24	28	24	22	19
9	52	40	33	28	49	38	31	26	34	28	24	30	25	22	26	22	20	17
10	49	37	30	25	46	35	28	24	31	26	22	27	23	20	24	20	18	16

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	9715	9715	9715	9715
5°	9501	8856	9501	8856
10°	9240	8116	9240	8116
15°	8934	7414	8920	7414
20°	8592	6768	8580	6768
25°	8180	6161	8164	6161
30°	7662	5574	7642	5574
35°	7050	5001	7033	5001
40°	6423	4433	6401	4433
45°	5838	3851	5820	3851
50°	5346	3188	5327	3188
55°	4884	2360	4870	2360
60°	4379	1711	4372	1711
65°	3722	1266	3722	1266
70°	3060	943	3070	943
75°	2465	667	2499	667
80°	2329	436	2083	436
85°	3064	190	1981	190



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	70.7	2.4
10°-20°	198.6	6.6
20°-30°	290.5	9.7
30°-40°	327.8	11.0
40°-50°	304.3	10.2
50°-60°	239.0	8.0
60°-70°	151.0	5.0
70°-80°	75.2	2.5
80°-90°	41.2	1.4
90°-100°	47.6	1.6
100°-110°	83.7	2.8
110°-120°	143.7	4.8
120°-130°	195.0	6.5
130°-140°	222.4	7.4
140°-150°	222.2	7.4
150°-160°	193.4	6.5
160°-170°	135.9	4.5
170°-180°	50.6	1.7
0°-30°	559.9	18.7
0°-40°	887.7	29.7
0°-60°	1431.0	47.8
0°-90°	1698.3	56.7
90°-120°	275.1	9.2
90°-150°	914.7	30.6
90°-180°	1295.0	43.3
0°-180°	2993.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	752	752	752	752	752	
5°	746	743	746	743	746	71
15°	705	703	704	703	705	199
25°	630	634	628	634	630	289
35°	512	539	511	539	512	320
45°	386	422	385	422	386	299
55°	281	254	281	254	281	251
65°	176	130	176	130	176	175
75°	88	63	89	63	88	97
85°	70	16	45	16	70	57
90°	85	0	28	0	85	47
95°	109	15	19	15	109	94
105°	164	76	4	76	164	174
115°	232	154	54	154	232	230
125°	290	242	132	242	290	259
135°	337	330	212	330	337	260
145°	371	412	286	412	371	234
155°	414	477	360	477	414	191
165°	453	519	438	519	453	128
175°	535	541	523	541	535	50
180°	541	541	541	541	541	



TEST NUMBER: P392476

CATALOG NUMBER: MWL-2-13-17-UNV-L835-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	752.1	752.1	752.1	752.1	752.1	752.1	752.1	752.1	752.1	752.1	752.1
2.5°	750.0	750.7	751.5	748.9	747.0	748.6	751.5	750.7	750.4	750.7	751.5
5°	746.1	746.9	747.6	744.7	742.8	744.7	747.3	746.9	746.1	746.9	747.3
7.5°	739.7	740.5	740.5	738.9	737.0	738.6	740.1	740.1	739.7	740.1	740.1
10°	730.4	731.8	731.8	729.9	727.9	729.5	731.4	731.0	730.4	731.0	731.4
12.5°	719.6	720.2	719.8	717.9	716.5	717.9	719.8	719.4	718.8	719.4	719.8
15°	705.4	705.7	705.3	704.3	703.0	703.9	704.9	704.9	704.3	704.9	704.9
17.5°	690.9	690.2	689.8	690.4	689.4	690.4	689.4	689.8	689.8	689.8	689.4
20°	672.5	673.2	672.4	673.0	671.6	672.6	672.0	672.4	671.5	672.4	672.0
22.5°	651.9	652.9	654.0	653.7	653.3	653.3	653.7	652.1	651.1	652.1	653.7
25°	629.7	630.6	633.2	633.4	633.9	633.0	632.4	629.5	628.5	629.5	632.4
27.5°	602.6	606.5	610.0	611.5	611.7	611.1	609.2	605.3	601.4	605.3	609.2
30°	575.5	578.4	584.2	589.6	589.5	588.9	583.1	577.3	574.0	577.3	583.1
32.5°	544.6	548.5	557.2	564.5	566.6	563.7	556.0	546.9	543.0	546.9	556.0
35°	512.3	514.2	526.8	536.5	539.2	535.3	525.6	513.1	511.1	513.1	525.6
37.5°	480.4	479.4	492.0	509.4	513.5	508.2	490.8	478.3	479.2	478.3	490.8
40°	447.5	445.6	455.2	478.1	483.5	477.3	453.7	444.0	446.0	444.0	453.7
42.5°	416.6	414.6	419.1	445.2	455.4	444.4	417.9	413.1	415.0	413.1	417.9
45°	386.2	383.3	384.3	407.5	421.6	406.7	382.7	382.1	385.0	382.1	382.7
47.5°	359.1	354.3	351.4	368.4	388.7	368.0	349.8	353.1	358.0	353.1	349.8
50°	332.1	327.2	319.5	331.7	347.7	330.9	317.9	325.7	330.9	325.7	317.9
52.5°	305.0	302.1	291.1	296.9	302.3	296.1	289.9	300.5	303.8	300.5	289.9
55°	281.4	277.5	264.0	261.7	254.5	260.9	262.8	276.4	280.6	276.4	262.8
57.5°	255.3	253.3	236.9	225.9	212.9	225.1	235.7	252.2	254.5	252.2	235.7
60°	230.7	225.9	206.5	190.7	181.0	190.3	205.8	225.1	230.3	225.1	205.8
62.5°	201.7	198.8	177.5	157.8	153.6	157.4	176.8	198.0	201.3	198.0	176.8
65°	176.2	170.4	149.1	131.7	130.3	131.3	148.7	170.0	176.2	170.0	148.7
67.5°	152.0	142.3	124.0	109.1	110.0	109.1	123.6	141.9	152.0	141.9	123.6
70°	127.4	116.8	102.3	89.7	93.6	89.7	102.3	117.2	127.8	117.2	102.3
72.5°	107.1	94.6	83.0	73.3	76.8	72.9	83.0	95.0	107.9	95.0	83.0
75°	87.8	75.2	65.2	58.4	63.2	58.4	65.6	75.6	89.0	75.6	65.6
77.5°	75.3	63.2	49.7	46.8	50.7	46.8	50.1	62.1	73.9	62.1	50.1
80°	68.3	57.9	39.3	35.2	39.1	35.2	38.5	51.8	61.1	51.8	38.5
82.5°	66.8	59.5	38.0	24.6	26.5	24.6	33.5	45.8	52.3	45.8	33.5
85°	69.9	64.2	41.6	19.9	15.9	19.1	30.5	40.9	45.2	40.9	30.5
87.5°	75.9	73.4	47.8	21.8	3.9	16.4	26.0	36.8	36.6	36.8	26.0
90°	85.0	84.0	57.6	25.9	0.4	11.4	19.9	30.4	27.8	30.4	19.9
92.5°	96.9	95.2	68.8	31.9	6.1	5.6	16.6	24.8	22.2	24.8	16.6
95°	108.9	107.5	80.4	40.6	15.3	2.5	11.8	19.1	18.6	19.1	11.8
97.5°	120.8	118.8	91.3	53.4	27.1	4.5	7.2	14.1	14.1	14.1	7.2
100°	130.8	129.5	104.6	69.7	41.5	12.6	3.7	9.9	10.8	9.9	3.7
102.5°	148.6	142.1	120.2	85.4	57.1	23.6	6.7	5.0	7.0	5.0	6.7
105°	164.0	158.7	138.9	102.7	76.0	39.5	15.9	5.5	3.7	5.5	15.9
107.5°	180.4	176.6	155.7	119.4	95.1	56.6	28.8	15.1	9.8	15.1	28.8
110°	199.5	194.8	172.0	136.2	114.9	74.8	43.6	27.3	21.2	27.3	43.6



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CATALOG NUMBER: MWL-2-13-17-UNV-L835-EDD

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	217.8	214.3	187.3	153.7	135.5	94.7	61.9	42.4	36.7	42.4	61.9
115°	231.9	229.9	204.8	170.1	154.5	117.2	82.1	60.4	53.6	60.4	82.1
117.5°	246.7	246.3	217.8	186.9	177.3	137.4	100.8	78.3	71.1	78.3	100.8
120°	265.3	262.3	235.6	203.6	199.1	158.7	121.4	98.9	91.7	98.9	121.4
122.5°	278.3	276.5	250.9	219.7	219.7	180.4	141.2	118.6	111.1	118.6	141.2
125°	290.1	289.4	262.3	235.6	241.7	200.6	163.2	140.4	132.0	140.4	163.2
127.5°	300.8	302.0	277.1	253.1	264.3	221.1	185.0	159.8	151.0	159.8	185.0
130°	309.9	313.8	291.2	269.2	285.5	243.7	204.4	179.3	173.6	179.3	204.4
132.5°	327.8	325.6	305.8	285.5	308.5	264.3	225.0	198.7	192.2	198.7	225.0
135°	337.0	337.8	318.3	299.7	329.7	284.8	244.4	218.5	212.1	218.5	244.4
137.5°	348.0	345.8	328.2	316.8	349.6	304.6	263.5	239.4	229.2	239.4	263.5
140°	357.0	356.6	342.1	332.1	370.9	324.0	283.9	259.4	250.0	259.4	283.9
142.5°	365.4	367.6	355.1	348.8	392.2	344.6	304.8	278.1	269.0	278.1	304.8
145°	371.1	376.0	368.0	370.7	412.4	368.4	323.1	296.1	286.1	296.1	323.1
147.5°	380.6	387.1	377.6	385.6	429.9	388.6	341.4	314.7	305.9	314.7	341.4
150°	393.6	396.6	390.9	406.1	447.9	411.1	360.1	332.6	323.8	332.6	360.1
152.5°	403.9	407.7	401.2	428.7	461.9	431.6	380.6	350.1	339.9	350.1	380.6
155°	414.5	416.1	411.4	450.3	476.8	451.9	397.0	369.6	359.7	369.6	397.0
157.5°	424.4	427.5	422.2	466.7	489.8	469.4	415.7	389.0	380.2	389.0	415.7
160°	435.1	435.1	438.1	484.8	500.4	483.7	435.5	410.4	398.2	410.4	435.5
162.5°	436.3	443.4	459.9	498.2	510.7	497.0	456.8	425.6	414.9	425.6	456.8
165°	453.0	459.5	484.3	510.0	518.7	508.8	483.1	450.7	438.1	450.7	483.1
167.5°	470.5	484.3	503.1	523.3	526.3	519.8	502.3	480.9	469.4	480.9	502.3
170°	498.2	510.9	519.8	529.2	533.4	529.6	514.9	504.8	496.6	504.8	514.9
172.5°	520.6	528.2	532.0	538.3	535.7	534.1	526.3	521.0	517.2	521.0	526.3
175°	534.7	536.3	540.6	538.7	541.0	536.9	537.2	538.9	523.3	538.9	537.2
177.5°	539.7	542.4	541.4	538.0	538.3	537.6	539.1	539.7	537.3	539.7	539.1
180°	540.6	540.6	540.6	540.6	540.6	540.6	540.6	540.6	540.6	540.6	540.6



TEST NUMBER: P392476

CATALOG NUMBER: MWL-2-13-17-UNV-L835-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	752.1	752.1	752.1	752.1	752.1	752.1
2.5°	748.6	747.0	748.9	751.5	750.7	750.0
5°	744.7	742.8	744.7	747.6	746.9	746.1
7.5°	738.6	737.0	738.9	740.5	740.5	739.7
10°	729.5	727.9	729.9	731.8	731.8	730.4
12.5°	717.9	716.5	717.9	719.8	720.2	719.6
15°	703.9	703.0	704.3	705.3	705.7	705.4
17.5°	690.4	689.4	690.4	689.8	690.2	690.9
20°	672.6	671.6	673.0	672.4	673.2	672.5
22.5°	653.3	653.3	653.7	654.0	652.9	651.9
25°	633.0	633.9	633.4	633.2	630.6	629.7
27.5°	611.1	611.7	611.5	610.0	606.5	602.6
30°	588.9	589.5	589.6	584.2	578.4	575.5
32.5°	563.7	566.6	564.5	557.2	548.5	544.6
35°	535.3	539.2	536.5	526.8	514.2	512.3
37.5°	508.2	513.5	509.4	492.0	479.4	480.4
40°	477.3	483.5	478.1	455.2	445.6	447.5
42.5°	444.4	455.4	445.2	419.1	414.6	416.6
45°	406.7	421.6	407.5	384.3	383.3	386.2
47.5°	368.0	388.7	368.4	351.4	354.3	359.1
50°	330.9	347.7	331.7	319.5	327.2	332.1
52.5°	296.1	302.3	296.9	291.1	302.1	305.0
55°	260.9	254.5	261.7	264.0	277.5	281.4
57.5°	225.1	212.9	225.9	236.9	253.3	255.3
60°	190.3	181.0	190.7	206.5	225.9	230.7
62.5°	157.4	153.6	157.8	177.5	198.8	201.7
65°	131.3	130.3	131.7	149.1	170.4	176.2
67.5°	109.1	110.0	109.1	124.0	142.3	152.0
70°	89.7	93.6	89.7	102.3	116.8	127.4
72.5°	72.9	76.8	73.3	83.0	94.6	107.1
75°	58.4	63.2	58.4	65.2	75.2	87.8
77.5°	46.8	50.7	46.8	49.7	63.2	75.3
80°	35.2	39.1	35.2	39.3	57.9	68.3
82.5°	24.6	26.5	24.6	38.0	59.5	66.8
85°	19.1	15.9	19.9	41.6	64.2	69.9
87.5°	16.4	3.9	21.8	47.8	73.4	75.9
90°	11.4	0.4	25.9	57.6	84.0	85.0
92.5°	5.6	6.1	31.9	68.8	95.2	96.9
95°	2.5	15.3	40.6	80.4	107.5	108.9
97.5°	4.5	27.1	53.4	91.3	118.8	120.8
100°	12.6	41.5	69.7	104.6	129.5	130.8
102.5°	23.6	57.1	85.4	120.2	142.1	148.6
105°	39.5	76.0	102.7	138.9	158.7	164.0
107.5°	56.6	95.1	119.4	155.7	176.6	180.4
110°	74.8	114.9	136.2	172.0	194.8	199.5





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	94.7	135.5	153.7	187.3	214.3	217.8
115°	117.2	154.5	170.1	204.8	229.9	231.9
117.5°	137.4	177.3	186.9	217.8	246.3	246.7
120°	158.7	199.1	203.6	235.6	262.3	265.3
122.5°	180.4	219.7	219.7	250.9	276.5	278.3
125°	200.6	241.7	235.6	262.3	289.4	290.1
127.5°	221.1	264.3	253.1	277.1	302.0	300.8
130°	243.7	285.5	269.2	291.2	313.8	309.9
132.5°	264.3	308.5	285.5	305.8	325.6	327.8
135°	284.8	329.7	299.7	318.3	337.8	337.0
137.5°	304.6	349.6	316.8	328.2	345.8	348.0
140°	324.0	370.9	332.1	342.1	356.6	357.0
142.5°	344.6	392.2	348.8	355.1	367.6	365.4
145°	368.4	412.4	370.7	368.0	376.0	371.1
147.5°	388.6	429.9	385.6	377.6	387.1	380.6
150°	411.1	447.9	406.1	390.9	396.6	393.6
152.5°	431.6	461.9	428.7	401.2	407.7	403.9
155°	451.9	476.8	450.3	411.4	416.1	414.5
157.5°	469.4	489.8	466.7	422.2	427.5	424.4
160°	483.7	500.4	484.8	438.1	435.1	435.1
162.5°	497.0	510.7	498.2	459.9	443.4	436.3
165°	508.8	518.7	510.0	484.3	459.5	453.0
167.5°	519.8	526.3	523.3	503.1	484.3	470.5
170°	529.6	533.4	529.2	519.8	510.9	498.2
172.5°	534.1	535.7	538.3	532.0	528.2	520.6
175°	536.9	541.0	538.7	540.6	536.3	534.7
177.5°	537.6	538.3	538.0	541.4	542.4	539.7
180°	540.6	540.6	540.6	540.6	540.6	540.6

(END OF REPORT)