

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: P392509

Luminaire Tested: **MWL-2-22-23-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392509
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-L935-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

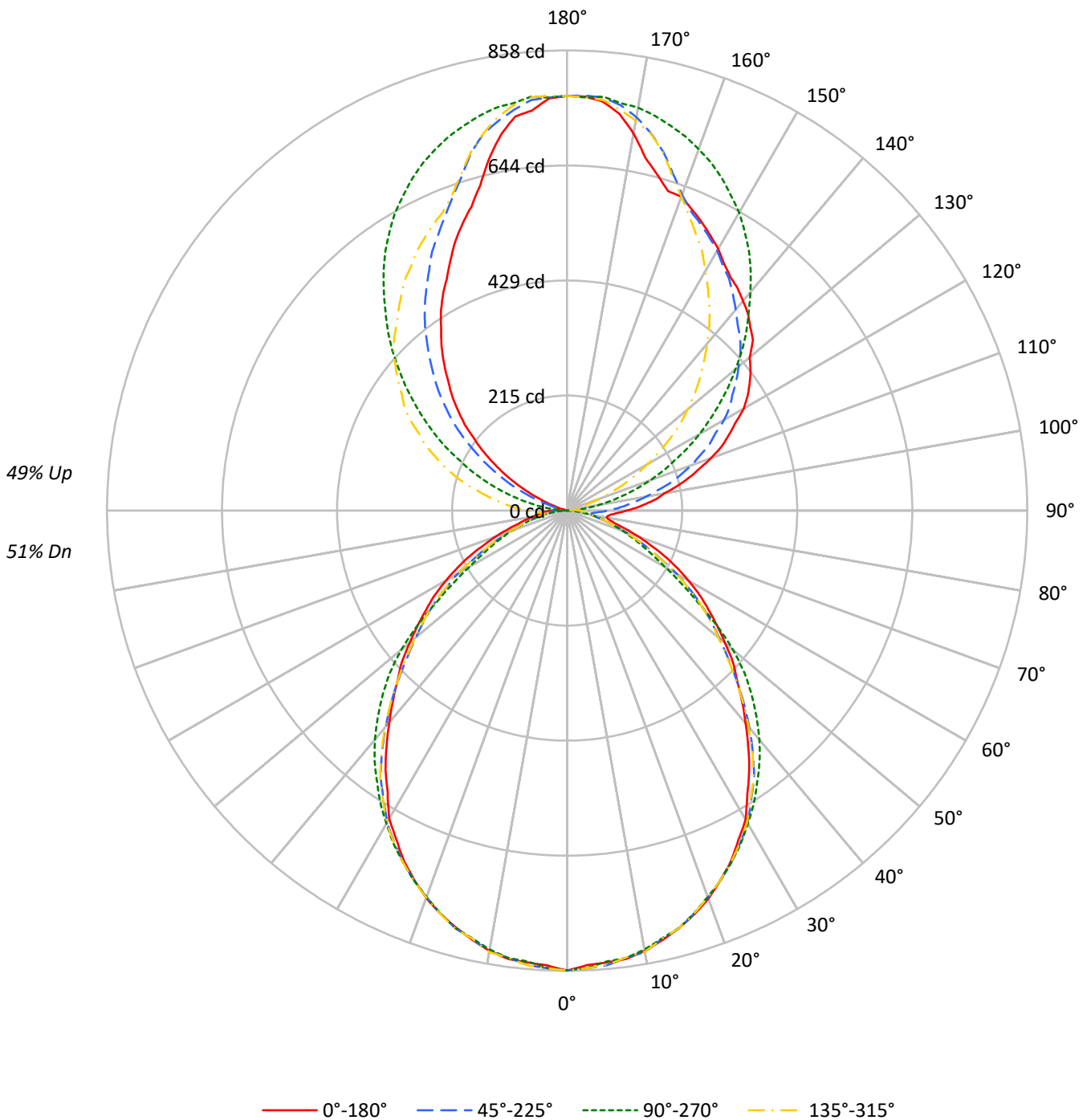
Lumens per Lamp: N/A
Luminaire Lumens: 3795.0 lumens
Efficiency: N/A
Efficacy: 84.8 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

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°	11076	11076	11076	11076
5°	10770	10061	10770	10061
10°	10546	9263	10546	9263
15°	10208	8495	10187	8495
20°	9839	7725	9818	7725
25°	9379	7037	9357	7037
30°	8856	6372	8828	6372
35°	8148	5732	8126	5732
40°	7432	5113	7402	5113
45°	6773	4446	6750	4446
50°	6191	3700	6166	3700
55°	5580	2747	5561	2747
60°	4953	1997	4941	1997
65°	4231	1495	4231	1495
70°	3394	1105	3408	1105
75°	2586	780	2631	780
80°	2550	481	2199	481
85°	3642	206	2086	206



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	80.6	2.1
10°-20°	226.9	6.0
20°-30°	332.8	8.8
30°-40°	377.6	9.9
40°-50°	352.2	9.3
50°-60°	275.4	7.3
60°-70°	170.8	4.5
70°-80°	82.9	2.2
80°-90°	47.4	1.2
90°-100°	63.5	1.7
100°-110°	119.2	3.1
110°-120°	205.5	5.4
120°-130°	279.6	7.4
130°-140°	318.7	8.4
140°-150°	317.9	8.4
150°-160°	276.8	7.3
160°-170°	194.6	5.1
170°-180°	72.5	1.9
0°-30°	640.3	16.9
0°-40°	1017.9	26.8
0°-60°	1645.5	43.4
0°-90°	1946.7	51.3
90°-120°	388.2	10.2
90°-150°	1304.4	34.4
90°-180°	1848.0	48.7
0°-180°	3795.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	858	858	858	858	858	
5°	846	844	846	844	846	80
15°	806	806	804	806	806	227
25°	722	724	720	724	722	332
35°	592	618	590	618	592	369
45°	448	487	446	487	448	347
55°	322	296	320	296	322	288
65°	200	154	200	154	200	198
75°	92	74	94	74	92	104
85°	83	17	48	17	83	67
90°	111	1	29	1	111	61
95°	148	22	19	22	148	129
105°	234	108	5	108	234	247
115°	332	221	77	221	332	329
125°	416	346	189	346	416	371
135°	483	472	304	472	483	373
145°	531	591	410	591	531	335
155°	594	683	515	683	594	274
165°	649	743	627	743	649	184
175°	765	775	749	775	765	71
180°	773	773	773	773	773	



TEST NUMBER: P392509

CATALOG NUMBER: MWL-2-22-23-UNV-L935-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	857.5	857.5	857.5	857.5	857.5	857.5	857.5	857.5	857.5	857.5	857.5
2.5°	848.3	857.7	853.8	853.6	853.6	853.0	853.8	857.7	848.9	857.7	853.8
5°	845.8	852.7	851.3	850.5	843.8	850.5	850.8	852.7	845.8	852.7	850.8
7.5°	843.1	846.7	840.8	843.0	841.3	842.4	840.2	846.1	843.1	846.1	840.2
10°	833.6	834.9	835.8	831.7	830.8	831.1	835.2	833.9	833.6	833.9	835.2
12.5°	820.4	821.6	817.7	820.2	817.2	820.2	817.7	820.5	819.3	820.5	817.7
15°	806.0	809.9	806.8	804.3	805.5	803.8	806.3	808.9	804.3	808.9	806.3
17.5°	789.3	790.8	787.7	787.1	787.1	787.1	787.1	790.2	787.7	790.2	787.1
20°	770.1	770.4	767.6	766.3	766.5	765.7	767.1	769.3	768.4	769.3	767.1
22.5°	746.1	750.4	746.8	748.7	746.5	748.1	746.2	749.3	745.1	749.3	746.2
25°	722.0	724.5	724.0	727.1	724.0	726.5	722.9	722.9	720.3	722.9	722.9
27.5°	692.0	695.2	698.9	701.7	700.6	701.2	697.8	693.7	690.3	693.7	697.8
30°	665.2	663.6	672.7	674.7	673.9	673.7	671.2	662.0	663.1	662.0	671.2
32.5°	625.2	630.2	638.5	648.0	647.8	646.9	636.9	628.0	623.0	628.0	636.9
35°	592.1	595.5	608.0	618.9	618.0	617.1	606.4	593.8	590.5	593.8	606.4
37.5°	554.6	555.4	568.7	587.1	589.4	585.5	567.1	553.7	552.9	553.7	567.1
40°	517.8	517.0	528.7	549.8	557.7	548.7	526.5	514.9	515.7	514.9	526.5
42.5°	482.8	479.5	487.3	514.8	522.7	513.7	485.6	477.3	480.6	477.3	485.6
45°	448.0	443.9	446.4	471.4	486.8	470.3	444.2	442.2	446.5	442.2	444.2
47.5°	419.6	408.8	406.3	427.5	448.4	426.9	404.1	407.2	418.1	407.2	404.1
50°	384.6	378.7	370.4	385.8	403.6	384.7	368.3	376.6	383.0	376.6	368.3
52.5°	352.1	349.6	337.4	344.0	351.8	343.0	335.7	347.4	350.5	347.4	335.7
55°	321.5	317.4	304.0	301.8	296.2	300.6	302.4	315.6	320.4	315.6	302.4
57.5°	293.1	287.3	269.0	261.7	252.0	260.6	267.2	285.6	292.1	285.6	267.2
60°	260.9	255.8	236.7	218.7	211.2	218.1	235.6	254.7	260.3	254.7	235.6
62.5°	230.8	222.5	199.1	181.9	179.7	181.3	198.0	221.4	230.3	221.4	198.0
65°	200.3	187.8	167.7	151.0	153.8	150.5	167.1	187.2	200.3	187.2	167.1
67.5°	167.7	156.9	139.4	123.7	130.4	123.7	138.8	156.3	167.7	156.3	138.8
70°	141.3	127.9	113.7	102.1	109.6	102.1	113.7	128.5	141.9	128.5	113.7
72.5°	114.6	102.9	91.2	83.7	89.1	83.2	91.2	103.5	115.6	103.5	91.2
75°	92.1	81.2	71.5	65.7	74.0	65.7	72.1	81.8	93.7	81.8	72.1
77.5°	80.5	67.5	54.0	52.3	59.0	52.3	54.4	65.9	78.4	65.9	54.4
80°	74.8	64.4	43.1	39.0	43.1	39.0	41.9	55.6	64.5	55.6	41.9
82.5°	76.2	68.0	43.0	28.1	30.6	28.1	36.4	48.3	55.5	48.3	36.4
85°	83.1	77.7	49.1	22.2	17.3	21.1	33.3	44.4	47.6	44.4	33.3
87.5°	95.3	92.8	60.7	25.4	4.1	17.8	29.6	40.5	39.1	40.5	29.6
90°	110.7	108.6	76.3	31.8	0.6	11.1	22.2	31.7	28.9	31.7	22.2
92.5°	130.5	126.5	92.2	42.9	8.8	5.3	17.5	25.5	23.6	25.5	17.5
95°	148.4	145.2	109.9	57.6	21.8	3.0	11.6	18.6	19.2	18.6	11.6
97.5°	168.4	163.9	128.0	77.2	39.5	7.3	7.4	13.9	15.5	13.9	7.4
100°	183.7	180.8	149.3	100.7	60.3	18.9	4.7	9.3	11.8	9.3	4.7
102.5°	209.9	202.4	171.6	123.0	82.7	34.6	9.0	6.0	6.8	6.0	9.0
105°	234.4	226.7	198.4	146.5	108.3	55.9	22.1	7.3	4.7	7.3	22.1
107.5°	257.8	252.4	222.4	170.6	135.6	80.5	40.6	21.1	13.4	21.1	40.6
110°	285.1	278.5	245.8	194.5	164.0	106.7	62.0	38.5	29.8	38.5	62.0



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CATALOG NUMBER: MWL-2-22-23-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	311.3	306.4	267.7	219.6	193.5	135.1	88.1	60.3	52.1	60.3	88.1
115°	332.4	328.8	292.7	243.1	220.7	167.2	117.1	85.9	77.0	85.9	117.1
117.5°	353.6	353.1	311.3	267.1	253.5	196.2	143.8	112.4	102.1	112.4	143.8
120°	380.4	376.0	337.8	292.0	285.4	227.5	174.0	141.9	131.5	141.9	174.0
122.5°	398.9	396.2	359.7	314.9	314.9	258.7	202.4	170.3	159.4	170.3	202.4
125°	415.8	414.7	376.0	337.8	346.5	287.6	234.2	201.3	189.3	201.3	234.2
127.5°	431.1	432.7	397.3	362.9	378.7	317.1	265.2	229.2	216.6	229.2	265.2
130°	444.2	449.7	417.5	385.9	409.3	349.2	293.0	257.0	248.9	257.0	293.0
132.5°	469.8	466.6	438.2	409.3	442.0	378.7	322.6	284.8	275.6	284.8	322.6
135°	483.0	484.1	456.2	429.5	472.5	408.2	350.4	313.2	304.0	313.2	350.4
137.5°	498.8	495.5	470.4	454.1	500.9	436.6	377.6	343.3	328.5	343.3	377.6
140°	510.1	509.7	488.9	475.9	531.5	464.4	405.5	370.5	356.9	370.5	405.5
142.5°	522.2	525.5	507.6	499.9	562.1	493.8	435.5	397.3	384.2	397.3	435.5
145°	531.2	538.3	526.9	529.9	591.0	526.6	462.5	423.8	409.5	423.8	462.5
147.5°	544.9	554.2	540.5	552.0	616.1	556.3	488.7	450.5	437.9	450.5	488.7
150°	563.4	567.9	559.6	580.6	641.7	587.7	515.4	476.1	463.6	476.1	515.4
152.5°	578.2	583.6	574.3	612.8	661.9	617.1	544.9	501.3	486.5	501.3	544.9
155°	593.5	595.7	589.1	644.0	683.2	646.1	568.4	529.0	514.9	529.0	568.4
157.5°	607.7	612.0	603.6	667.4	701.8	671.2	594.3	556.9	544.3	556.9	594.3
160°	622.9	622.9	626.5	694.7	717.1	693.0	622.7	587.5	570.0	587.5	622.7
162.5°	624.6	634.9	657.5	713.8	731.7	712.2	653.2	609.3	593.9	609.3	653.2
165°	648.6	657.0	692.5	730.6	743.2	729.1	690.8	644.4	627.2	644.4	690.8
167.5°	673.7	692.5	720.9	749.8	754.1	744.9	719.8	687.6	672.1	687.6	719.8
170°	713.8	730.6	744.9	756.8	762.9	757.5	737.8	722.0	711.5	722.0	737.8
172.5°	745.9	756.8	762.4	770.0	766.1	763.9	754.1	746.5	741.1	746.5	754.1
175°	765.3	768.3	773.2	771.3	774.6	768.6	768.3	772.1	748.9	772.1	768.3
177.5°	772.4	777.0	774.3	770.3	770.8	769.7	771.0	773.2	769.1	773.2	771.0
180°	773.2	773.2	773.2	773.2	773.2	773.2	773.2	773.2	773.2	773.2	773.2



TEST NUMBER: P392509

CATALOG NUMBER: MWL-2-22-23-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	857.5	857.5	857.5	857.5	857.5	857.5
2.5°	853.0	853.6	853.6	853.8	857.7	848.3
5°	850.5	843.8	850.5	851.3	852.7	845.8
7.5°	842.4	841.3	843.0	840.8	846.7	843.1
10°	831.1	830.8	831.7	835.8	834.9	833.6
12.5°	820.2	817.2	820.2	817.7	821.6	820.4
15°	803.8	805.5	804.3	806.8	809.9	806.0
17.5°	787.1	787.1	787.1	787.7	790.8	789.3
20°	765.7	766.5	766.3	767.6	770.4	770.1
22.5°	748.1	746.5	748.7	746.8	750.4	746.1
25°	726.5	724.0	727.1	724.0	724.5	722.0
27.5°	701.2	700.6	701.7	698.9	695.2	692.0
30°	673.7	673.9	674.7	672.7	663.6	665.2
32.5°	646.9	647.8	648.0	638.5	630.2	625.2
35°	617.1	618.0	618.9	608.0	595.5	592.1
37.5°	585.5	589.4	587.1	568.7	555.4	554.6
40°	548.7	557.7	549.8	528.7	517.0	517.8
42.5°	513.7	522.7	514.8	487.3	479.5	482.8
45°	470.3	486.8	471.4	446.4	443.9	448.0
47.5°	426.9	448.4	427.5	406.3	408.8	419.6
50°	384.7	403.6	385.8	370.4	378.7	384.6
52.5°	343.0	351.8	344.0	337.4	349.6	352.1
55°	300.6	296.2	301.8	304.0	317.4	321.5
57.5°	260.6	252.0	261.7	269.0	287.3	293.1
60°	218.1	211.2	218.7	236.7	255.8	260.9
62.5°	181.3	179.7	181.9	199.1	222.5	230.8
65°	150.5	153.8	151.0	167.7	187.8	200.3
67.5°	123.7	130.4	123.7	139.4	156.9	167.7
70°	102.1	109.6	102.1	113.7	127.9	141.3
72.5°	83.2	89.1	83.7	91.2	102.9	114.6
75°	65.7	74.0	65.7	71.5	81.2	92.1
77.5°	52.3	59.0	52.3	54.0	67.5	80.5
80°	39.0	43.1	39.0	43.1	64.4	74.8
82.5°	28.1	30.6	28.1	43.0	68.0	76.2
85°	21.1	17.3	22.2	49.1	77.7	83.1
87.5°	17.8	4.1	25.4	60.7	92.8	95.3
90°	11.1	0.6	31.8	76.3	108.6	110.7
92.5°	5.3	8.8	42.9	92.2	126.5	130.5
95°	3.0	21.8	57.6	109.9	145.2	148.4
97.5°	7.3	39.5	77.2	128.0	163.9	168.4
100°	18.9	60.3	100.7	149.3	180.8	183.7
102.5°	34.6	82.7	123.0	171.6	202.4	209.9
105°	55.9	108.3	146.5	198.4	226.7	234.4
107.5°	80.5	135.6	170.6	222.4	252.4	257.8
110°	106.7	164.0	194.5	245.8	278.5	285.1



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	135.1	193.5	219.6	267.7	306.4	311.3
115°	167.2	220.7	243.1	292.7	328.8	332.4
117.5°	196.2	253.5	267.1	311.3	353.1	353.6
120°	227.5	285.4	292.0	337.8	376.0	380.4
122.5°	258.7	314.9	314.9	359.7	396.2	398.9
125°	287.6	346.5	337.8	376.0	414.7	415.8
127.5°	317.1	378.7	362.9	397.3	432.7	431.1
130°	349.2	409.3	385.9	417.5	449.7	444.2
132.5°	378.7	442.0	409.3	438.2	466.6	469.8
135°	408.2	472.5	429.5	456.2	484.1	483.0
137.5°	436.6	500.9	454.1	470.4	495.5	498.8
140°	464.4	531.5	475.9	488.9	509.7	510.1
142.5°	493.8	562.1	499.9	507.6	525.5	522.2
145°	526.6	591.0	529.9	526.9	538.3	531.2
147.5°	556.3	616.1	552.0	540.5	554.2	544.9
150°	587.7	641.7	580.6	559.6	567.9	563.4
152.5°	617.1	661.9	612.8	574.3	583.6	578.2
155°	646.1	683.2	644.0	589.1	595.7	593.5
157.5°	671.2	701.8	667.4	603.6	612.0	607.7
160°	693.0	717.1	694.7	626.5	622.9	622.9
162.5°	712.2	731.7	713.8	657.5	634.9	624.6
165°	729.1	743.2	730.6	692.5	657.0	648.6
167.5°	744.9	754.1	749.8	720.9	692.5	673.7
170°	757.5	762.9	756.8	744.9	730.6	713.8
172.5°	763.9	766.1	770.0	762.4	756.8	745.9
175°	768.6	774.6	771.3	773.2	768.3	765.3
177.5°	769.7	770.8	770.3	774.3	777.0	772.4
180°	773.2	773.2	773.2	773.2	773.2	773.2

(END OF REPORT)