

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: P392488

Luminaire Tested: **MWL-2-18-13-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392488
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-2-18-13-UNV-L835-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

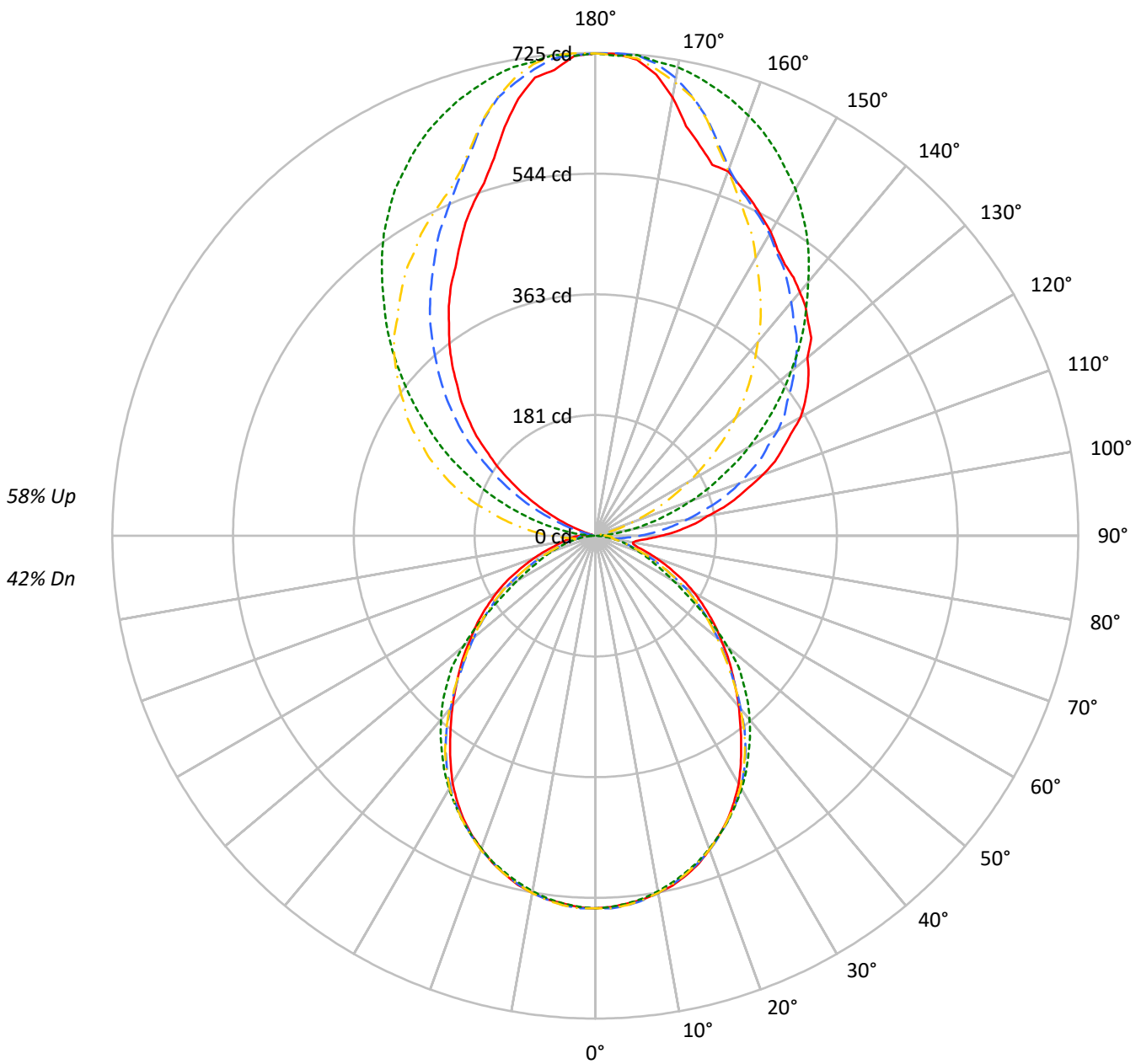
Lumens per Lamp: N/A
Luminaire Lumens: 3002.0 lumens
Efficiency: N/A
Efficacy: 105.3 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

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



— 0°-180° - - 45°-225° - · - · 90°-270° - · - · 135°-315°



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	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	50	30	10	50	30	10	0														
RCR																																						
0	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49	42																				
1	96	92	88	85	88	84	81	78	70	67	65	56	55	53	44	43	42	36																				
2	88	81	75	70	80	74	69	65	61	58	54	50	47	45	39	37	36	31																				
3	80	71	64	58	73	65	59	54	54	50	46	44	41	38	35	33	31	26																				
4	74	63	56	50	67	58	51	46	48	44	40	40	36	33	31	29	27	23																				
5	68	56	49	43	62	52	45	40	43	38	34	36	32	29	28	26	24	20																				
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	26	23	21	18																				
7	58	46	38	33	53	42	35	31	36	30	27	29	25	23	24	21	19	16																				
8	54	42	34	29	49	38	32	27	33	27	24	27	23	20	22	19	17	14																				
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	20	17	15	13																				
10	47	35	28	23	43	32	26	22	27	23	19	23	19	16	19	16	14	12																				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	7227	7227	7227	7227
5°	7056	6608	7056	6608
10°	6889	6044	6889	6044
15°	6683	5522	6663	5522
20°	6409	5038	6388	5038
25°	6107	4587	6086	4587
30°	5730	4151	5704	4151
35°	5251	3713	5231	3713
40°	4811	3302	4782	3302
45°	4387	2875	4364	2875
50°	3987	2376	3963	2376
55°	3634	1763	3617	1763
60°	3250	1285	3240	1285
65°	2791	941	2791	941
70°	2325	702	2337	702
75°	1822	505	1861	505
80°	1954	318	1623	318
85°	3068	132	1609	132



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	52.7	1.8
10°-20°	148.1	4.9
20°-30°	216.6	7.2
30°-40°	244.5	8.1
40°-50°	227.3	7.6
50°-60°	178.6	5.9
60°-70°	113.3	3.8
70°-80°	56.6	1.9
80°-90°	36.9	1.2
90°-100°	57.5	1.9
100°-110°	111.5	3.7
110°-120°	192.6	6.4
120°-130°	261.5	8.7
130°-140°	298.2	9.9
140°-150°	297.4	9.9
150°-160°	259.0	8.6
160°-170°	182.2	6.1
170°-180°	67.9	2.3
0°-30°	417.3	13.9
0°-40°	661.8	22.0
0°-60°	1067.6	35.6
0°-90°	1274.4	42.5
90°-120°	361.5	12.0
90°-150°	1218.6	40.6
90°-180°	1728.0	57.6
0°-180°	3002.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	560	560	560	560	560	
5°	554	554	554	554	554	53
15°	528	524	526	524	528	149
25°	470	472	468	472	470	216
35°	382	400	380	400	382	239
45°	290	315	289	315	290	224
55°	209	190	208	190	209	187
65°	132	97	132	97	132	132
75°	65	48	66	48	65	74
85°	70	11	37	11	70	55
90°	99	0	22	0	99	55
95°	135	20	14	20	135	118
105°	220	101	4	101	220	232
115°	311	207	72	207	311	308
125°	389	324	177	324	389	348
135°	452	442	284	442	452	349
145°	497	553	382	553	497	313
155°	555	640	481	640	555	256
165°	606	696	587	696	606	172
175°	718	725	702	725	718	67
180°	724	724	724	724	724	



TEST NUMBER: P392488

CATALOG NUMBER: MWL-2-18-13-UNV-L835-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	559.5	559.5	559.5	559.5	559.5	559.5	559.5	559.5	559.5	559.5	559.5
2.5°	558.0	559.0	560.0	558.6	557.7	558.0	560.0	559.0	558.4	559.0	560.0
5°	554.1	556.1	557.1	555.1	554.2	555.1	556.6	556.1	554.1	556.1	556.6
7.5°	550.7	551.8	551.8	550.3	549.3	549.8	551.3	551.3	550.7	551.3	551.3
10°	544.5	545.0	545.0	544.0	542.1	543.5	544.5	543.9	544.5	543.9	544.5
12.5°	537.7	537.3	535.8	534.8	533.3	534.8	535.8	536.2	536.8	536.2	535.8
15°	527.7	526.6	526.1	526.1	523.6	525.6	525.6	525.6	526.1	525.6	525.6
17.5°	516.1	515.0	514.5	514.0	513.0	514.0	514.0	514.5	514.5	514.5	514.0
20°	501.6	502.0	502.0	500.4	499.9	499.9	501.4	501.0	500.0	501.0	501.4
22.5°	486.5	486.5	487.5	487.9	486.4	487.4	486.9	485.5	485.5	485.5	486.9
25°	470.1	470.1	471.5	472.4	471.9	471.9	470.5	468.5	468.5	468.5	470.5
27.5°	450.7	451.7	455.1	456.5	455.5	456.0	454.0	450.2	449.2	450.2	454.0
30°	430.4	432.4	437.2	439.6	439.0	438.6	435.6	430.8	428.4	430.8	435.6
32.5°	406.3	409.2	415.9	421.2	421.1	420.2	414.4	407.1	404.2	407.1	414.4
35°	381.6	384.5	393.2	400.9	400.4	399.4	391.7	383.0	380.1	383.0	391.7
37.5°	357.4	358.4	368.1	379.7	381.5	378.1	366.5	356.9	355.9	356.9	366.5
40°	335.2	333.3	340.0	357.0	360.2	355.9	338.0	331.2	333.2	331.2	338.0
42.5°	312.0	309.1	313.4	331.8	339.0	330.7	311.9	307.1	310.0	307.1	311.9
45°	290.2	287.3	286.4	304.7	314.8	303.7	284.3	285.8	288.7	285.8	284.3
47.5°	269.9	265.1	262.2	276.1	291.6	275.6	260.2	263.6	268.4	263.6	260.2
50°	247.7	245.8	240.0	248.1	259.2	247.1	237.9	243.7	246.2	243.7	237.9
52.5°	229.3	226.4	218.1	222.0	226.3	221.0	216.7	224.4	227.8	224.4	216.7
55°	209.4	207.5	196.8	196.4	190.1	195.4	195.4	206.0	208.4	206.0	195.4
57.5°	190.1	188.1	176.5	169.3	159.1	168.3	175.1	186.7	189.1	186.7	175.1
60°	171.2	169.3	154.8	143.7	135.9	143.2	153.8	168.3	170.7	168.3	153.8
62.5°	152.9	149.0	132.6	118.5	114.2	118.0	131.6	148.0	152.4	148.0	131.6
65°	132.1	127.2	111.8	99.2	96.8	98.7	111.3	126.8	132.1	126.8	111.3
67.5°	113.7	106.9	94.4	82.3	83.2	82.3	93.9	106.4	113.7	106.4	93.9
70°	96.8	88.1	76.5	67.8	69.7	67.8	76.5	88.6	97.3	88.6	76.5
72.5°	80.3	70.7	62.0	55.2	57.5	54.6	62.0	71.2	81.3	71.2	62.0
75°	64.9	57.1	47.9	44.0	47.9	44.0	48.4	57.6	66.3	57.6	48.4
77.5°	58.3	48.5	37.2	34.3	38.2	34.3	37.8	47.0	56.3	47.0	37.8
80°	57.3	48.0	30.1	26.6	28.5	26.6	29.1	39.7	47.6	39.7	29.1
82.5°	60.9	53.4	31.4	18.9	19.8	18.9	25.2	35.0	41.5	35.0	25.2
85°	70.0	64.9	39.7	15.6	11.1	14.6	24.9	33.6	36.7	33.6	24.9
87.5°	83.5	80.0	51.6	20.4	2.9	13.1	22.5	30.8	30.8	30.8	22.5
90°	98.6	95.5	67.2	28.2	0.5	8.8	16.5	23.4	21.9	23.4	16.5
92.5°	118.2	114.1	83.2	40.2	8.2	4.9	13.1	19.4	18.0	19.4	13.1
95°	135.3	133.2	101.3	53.2	20.5	2.0	9.3	14.6	14.1	14.6	9.3
97.5°	154.9	151.4	120.0	71.6	36.4	6.1	7.0	10.7	11.7	10.7	7.0
100°	171.0	169.5	140.1	93.6	55.8	16.9	4.5	8.9	9.9	8.9	4.5
102.5°	197.2	190.2	160.1	114.6	76.7	31.7	7.6	6.0	7.0	6.0	7.6
105°	219.9	212.7	185.1	136.5	100.7	51.6	19.9	7.1	4.5	7.1	19.9
107.5°	241.8	236.7	208.6	159.0	126.4	74.6	38.3	19.9	12.8	19.9	38.3
110°	267.4	261.2	230.6	182.5	153.0	100.2	58.2	36.3	28.0	36.3	58.2



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CATALOG NUMBER: MWL-2-18-13-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	292.0	287.3	251.1	206.0	181.5	126.8	82.8	56.8	49.0	56.8	82.8
115°	310.8	308.3	274.6	228.1	207.1	156.9	109.9	80.7	71.5	80.7	109.9
117.5°	330.8	330.3	292.0	250.5	237.7	184.1	135.0	104.8	95.0	104.8	135.0
120°	355.9	351.8	316.0	273.0	266.9	212.7	162.5	132.4	122.7	132.4	162.5
122.5°	373.3	370.7	336.5	294.5	294.5	241.8	189.2	158.9	148.8	158.9	189.2
125°	389.1	388.1	351.8	316.0	324.2	269.0	218.8	188.1	176.9	188.1	218.8
127.5°	403.5	405.0	371.7	339.5	354.3	296.5	248.0	214.2	202.5	214.2	248.0
130°	415.7	420.9	390.7	361.0	383.0	326.7	274.1	240.4	232.6	240.4	274.1
132.5°	439.7	436.7	410.1	383.0	413.7	354.3	301.6	266.4	257.7	266.4	301.6
135°	452.0	453.1	426.9	401.9	442.3	382.0	327.8	292.9	284.2	292.9	327.8
137.5°	466.9	463.8	440.3	424.9	468.9	408.6	353.3	321.1	307.3	321.1	353.3
140°	477.6	477.1	457.7	445.4	497.5	434.7	379.4	346.7	333.8	346.7	379.4
142.5°	488.8	491.9	475.0	467.8	526.1	462.2	407.5	371.7	359.5	371.7	407.5
145°	496.6	503.1	492.4	496.0	553.3	493.0	432.1	395.8	382.5	395.8	432.1
147.5°	509.3	518.0	505.2	516.0	576.8	520.1	456.6	420.9	409.1	420.9	456.6
150°	526.7	530.8	523.1	543.5	600.9	550.2	481.7	444.8	433.1	444.8	481.7
152.5°	540.5	545.6	536.9	573.7	619.7	577.9	509.3	468.4	454.6	468.4	509.3
155°	554.9	556.9	550.7	602.9	639.7	604.9	531.3	494.4	481.2	494.4	531.3
157.5°	568.1	572.2	565.0	624.9	657.1	628.4	556.3	520.5	508.8	520.5	556.3
160°	582.4	582.4	586.6	650.5	671.5	648.9	583.0	549.2	532.8	549.2	583.0
162.5°	584.0	593.7	615.7	668.4	685.2	666.8	611.6	569.7	555.3	569.7	611.6
165°	606.5	615.2	648.4	684.2	695.9	682.7	646.9	603.4	586.6	603.4	646.9
167.5°	630.0	648.4	675.0	702.1	706.2	697.5	674.0	643.8	628.4	643.8	674.0
170°	668.4	684.2	697.5	708.8	714.4	709.3	690.9	676.0	666.3	676.0	690.9
172.5°	698.5	708.8	713.9	721.1	717.5	715.4	706.2	699.0	693.9	699.0	706.2
175°	717.5	719.5	724.1	721.5	724.6	719.0	719.5	723.1	702.1	723.1	719.5
177.5°	724.1	727.6	725.1	720.5	721.1	720.0	722.0	724.1	721.1	724.1	722.0
180°	724.1	724.1	724.1	724.1	724.1	724.1	724.1	724.1	724.1	724.1	724.1



TEST NUMBER: P392488

CATALOG NUMBER: MWL-2-18-13-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	559.5	559.5	559.5	559.5	559.5	559.5
2.5°	558.0	557.7	558.6	560.0	559.0	558.0
5°	555.1	554.2	555.1	557.1	556.1	554.1
7.5°	549.8	549.3	550.3	551.8	551.8	550.7
10°	543.5	542.1	544.0	545.0	545.0	544.5
12.5°	534.8	533.3	534.8	535.8	537.3	537.7
15°	525.6	523.6	526.1	526.1	526.6	527.7
17.5°	514.0	513.0	514.0	514.5	515.0	516.1
20°	499.9	499.9	500.4	502.0	502.0	501.6
22.5°	487.4	486.4	487.9	487.5	486.5	486.5
25°	471.9	471.9	472.4	471.5	470.1	470.1
27.5°	456.0	455.5	456.5	455.1	451.7	450.7
30°	438.6	439.0	439.6	437.2	432.4	430.4
32.5°	420.2	421.1	421.2	415.9	409.2	406.3
35°	399.4	400.4	400.9	393.2	384.5	381.6
37.5°	378.1	381.5	379.7	368.1	358.4	357.4
40°	355.9	360.2	357.0	340.0	333.3	335.2
42.5°	330.7	339.0	331.8	313.4	309.1	312.0
45°	303.7	314.8	304.7	286.4	287.3	290.2
47.5°	275.6	291.6	276.1	262.2	265.1	269.9
50°	247.1	259.2	248.1	240.0	245.8	247.7
52.5°	221.0	226.3	222.0	218.1	226.4	229.3
55°	195.4	190.1	196.4	196.8	207.5	209.4
57.5°	168.3	159.1	169.3	176.5	188.1	190.1
60°	143.2	135.9	143.7	154.8	169.3	171.2
62.5°	118.0	114.2	118.5	132.6	149.0	152.9
65°	98.7	96.8	99.2	111.8	127.2	132.1
67.5°	82.3	83.2	82.3	94.4	106.9	113.7
70°	67.8	69.7	67.8	76.5	88.1	96.8
72.5°	54.6	57.5	55.2	62.0	70.7	80.3
75°	44.0	47.9	44.0	47.9	57.1	64.9
77.5°	34.3	38.2	34.3	37.2	48.5	58.3
80°	26.6	28.5	26.6	30.1	48.0	57.3
82.5°	18.9	19.8	18.9	31.4	53.4	60.9
85°	14.6	11.1	15.6	39.7	64.9	70.0
87.5°	13.1	2.9	20.4	51.6	80.0	83.5
90°	8.8	0.5	28.2	67.2	95.5	98.6
92.5°	4.9	8.2	40.2	83.2	114.1	118.2
95°	2.0	20.5	53.2	101.3	133.2	135.3
97.5°	6.1	36.4	71.6	120.0	151.4	154.9
100°	16.9	55.8	93.6	140.1	169.5	171.0
102.5°	31.7	76.7	114.6	160.1	190.2	197.2
105°	51.6	100.7	136.5	185.1	212.7	219.9
107.5°	74.6	126.4	159.0	208.6	236.7	241.8
110°	100.2	153.0	182.5	230.6	261.2	267.4



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CATALOG NUMBER: MWL-2-18-13-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	126.8	181.5	206.0	251.1	287.3	292.0
115°	156.9	207.1	228.1	274.6	308.3	310.8
117.5°	184.1	237.7	250.5	292.0	330.3	330.8
120°	212.7	266.9	273.0	316.0	351.8	355.9
122.5°	241.8	294.5	294.5	336.5	370.7	373.3
125°	269.0	324.2	316.0	351.8	388.1	389.1
127.5°	296.5	354.3	339.5	371.7	405.0	403.5
130°	326.7	383.0	361.0	390.7	420.9	415.7
132.5°	354.3	413.7	383.0	410.1	436.7	439.7
135°	382.0	442.3	401.9	426.9	453.1	452.0
137.5°	408.6	468.9	424.9	440.3	463.8	466.9
140°	434.7	497.5	445.4	457.7	477.1	477.6
142.5°	462.2	526.1	467.8	475.0	491.9	488.8
145°	493.0	553.3	496.0	492.4	503.1	496.6
147.5°	520.1	576.8	516.0	505.2	518.0	509.3
150°	550.2	600.9	543.5	523.1	530.8	526.7
152.5°	577.9	619.7	573.7	536.9	545.6	540.5
155°	604.9	639.7	602.9	550.7	556.9	554.9
157.5°	628.4	657.1	624.9	565.0	572.2	568.1
160°	648.9	671.5	650.5	586.6	582.4	582.4
162.5°	666.8	685.2	668.4	615.7	593.7	584.0
165°	682.7	695.9	684.2	648.4	615.2	606.5
167.5°	697.5	706.2	702.1	675.0	648.4	630.0
170°	709.3	714.4	708.8	697.5	684.2	668.4
172.5°	715.4	717.5	721.1	713.9	708.8	698.5
175°	719.0	724.6	721.5	724.1	719.5	717.5
177.5°	720.0	721.1	720.5	725.1	727.6	724.1
180°	724.1	724.1	724.1	724.1	724.1	724.1

(END OF REPORT)