

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: P382187

Luminaire Tested: **MWL-2-13-17-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P382187
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-L830-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

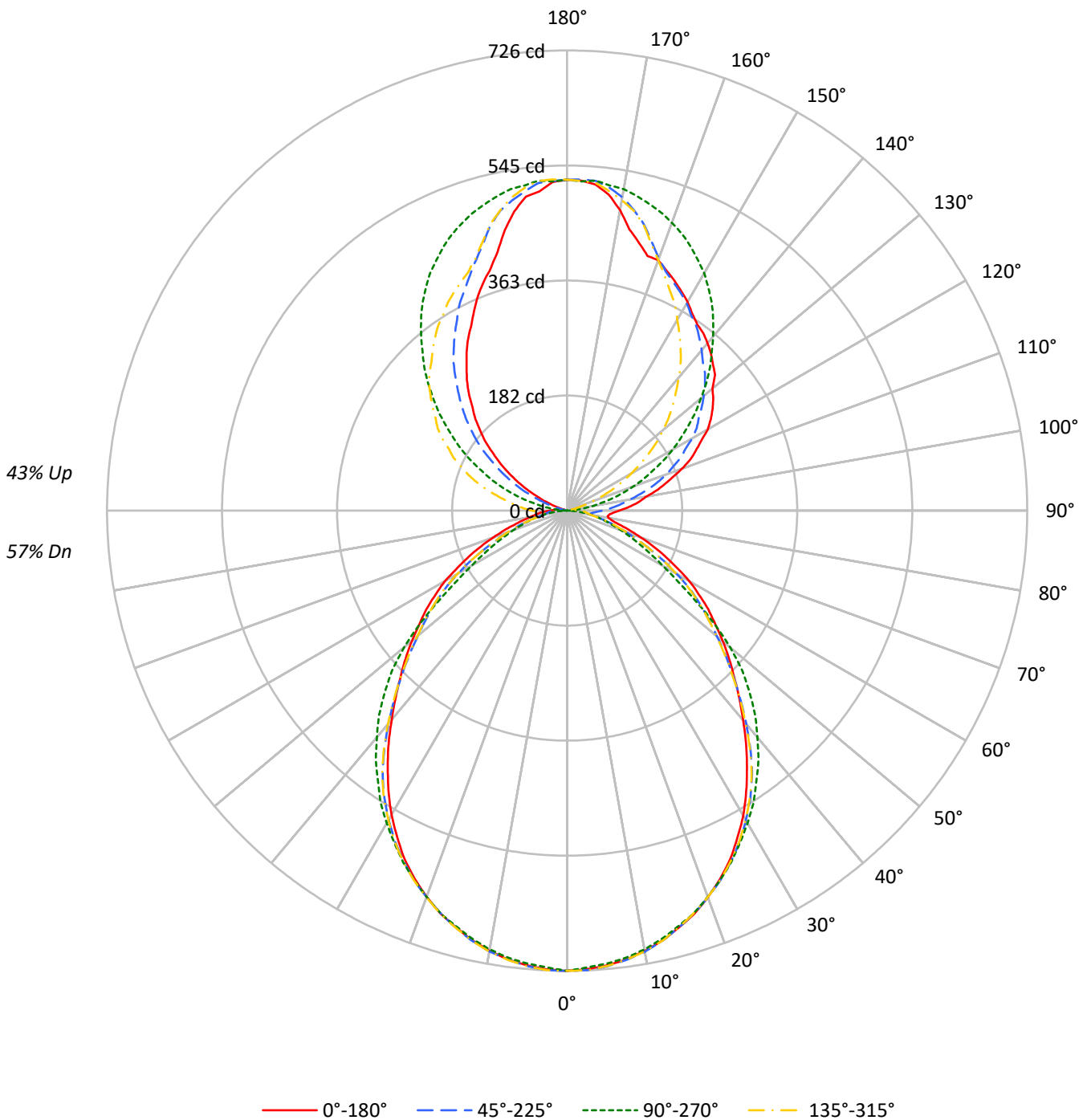
Lumens per Lamp: N/A
Luminaire Lumens: 2890.0 lumens
Efficiency: N/A
Efficacy: 101.4 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 28.5
Input Voltage (V): NR
Input Current (A_{in}): 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°	9380	9380	9380	9380
5°	9174	8552	9174	8552
10°	8923	7837	8923	7837
15°	8626	7159	8614	7159
20°	8297	6535	8283	6535
25°	7898	5949	7884	5949
30°	7398	5382	7378	5382
35°	6808	4828	6791	4828
40°	6202	4280	6180	4280
45°	5637	3718	5621	3718
50°	5161	3079	5143	3079
55°	4716	2279	4703	2279
60°	4229	1653	4222	1653
65°	3593	1224	3593	1224
70°	2957	911	2964	911
75°	2381	644	2412	644
80°	2247	420	2012	420
85°	2959	182	1911	182



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.3	2.4
10°-20°	191.8	6.6
20°-30°	280.5	9.7
30°-40°	316.5	11.0
40°-50°	293.8	10.2
50°-60°	230.8	8.0
60°-70°	145.8	5.0
70°-80°	72.6	2.5
80°-90°	39.7	1.4
90°-100°	46.0	1.6
100°-110°	80.9	2.8
110°-120°	138.8	4.8
120°-130°	188.3	6.5
130°-140°	214.7	7.4
140°-150°	214.5	7.4
150°-160°	186.8	6.5
160°-170°	131.3	4.5
170°-180°	48.9	1.7
0°-30°	540.6	18.7
0°-40°	857.2	29.7
0°-60°	1381.8	47.8
0°-90°	1639.9	56.7
90°-120°	265.6	9.2
90°-150°	883.2	30.6
90°-180°	1250.0	43.3
0°-180°	2890.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	726	726	726	726	726	
5°	720	717	720	717	720	68
15°	681	679	680	679	681	192
25°	608	612	607	612	608	279
35°	495	521	494	521	495	309
45°	373	407	372	407	373	289
55°	272	246	271	246	272	242
65°	170	126	170	126	170	169
75°	85	61	86	61	85	94
85°	68	15	44	15	68	55
90°	82	0	27	0	82	45
95°	105	15	18	15	105	90
105°	158	73	4	73	158	168
115°	224	149	52	149	224	222
125°	280	233	127	233	280	250
135°	325	318	205	318	325	251
145°	358	398	276	398	358	226
155°	400	460	347	460	400	185
165°	437	501	423	501	437	124
175°	516	522	505	522	516	48
180°	522	522	522	522	522	



TEST NUMBER: P382187

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	726.2	726.2	726.2	726.2	726.2	726.2	726.2	726.2	726.2	726.2	726.2
2.5°	724.2	724.9	725.7	723.1	721.3	722.9	725.7	724.9	724.5	724.9	725.7
5°	720.4	721.2	721.9	719.1	717.3	719.1	721.5	721.2	720.4	721.2	721.5
7.5°	714.3	715.0	715.0	713.5	711.6	713.1	714.6	714.6	714.3	714.6	714.6
10°	705.3	706.6	706.6	704.7	702.9	704.4	706.2	705.9	705.3	705.9	706.2
12.5°	694.8	695.4	695.0	693.2	691.9	693.2	695.0	694.7	694.1	694.7	695.0
15°	681.1	681.4	681.0	680.1	678.8	679.7	680.7	680.7	680.1	680.7	680.7
17.5°	667.1	666.5	666.1	666.6	665.7	666.6	665.7	666.1	666.1	666.1	665.7
20°	649.4	650.0	649.3	649.8	648.5	649.5	648.9	649.3	648.3	649.3	648.9
22.5°	629.5	630.4	631.5	631.2	630.8	630.8	631.2	629.7	628.7	629.7	631.2
25°	608.0	608.9	611.4	611.6	612.1	611.2	610.6	607.8	606.9	607.8	610.6
27.5°	581.9	585.6	589.0	590.5	590.6	590.1	588.2	584.5	580.7	584.5	588.2
30°	555.7	558.5	564.1	569.4	569.2	568.6	563.0	557.4	554.2	557.4	563.0
32.5°	525.8	529.6	538.0	545.1	547.1	544.3	536.9	528.1	524.4	528.1	536.9
35°	494.7	496.5	508.7	518.0	520.6	516.9	507.5	495.4	493.5	495.4	507.5
37.5°	463.9	462.9	475.1	491.9	495.8	490.7	473.9	461.8	462.7	461.8	473.9
40°	432.1	430.2	439.6	461.6	466.8	460.9	438.1	428.7	430.6	428.7	438.1
42.5°	402.2	400.4	404.7	429.9	439.8	429.1	403.5	398.9	400.7	398.9	403.5
45°	372.9	370.1	371.0	393.5	407.1	392.7	369.5	369.0	371.8	369.0	369.5
47.5°	346.8	342.1	339.3	355.7	375.3	355.4	337.8	341.0	345.6	341.0	337.8
50°	320.6	316.0	308.5	320.3	335.8	319.5	307.0	314.5	319.5	314.5	307.0
52.5°	294.5	291.7	281.0	286.6	291.9	285.9	279.9	290.2	293.4	290.2	279.9
55°	271.7	268.0	254.9	252.7	245.7	251.9	253.8	266.8	271.0	266.8	253.8
57.5°	246.5	244.6	228.8	218.1	205.6	217.4	227.6	243.5	245.7	243.5	227.6
60°	222.8	218.1	199.4	184.1	174.8	183.7	198.7	217.4	222.4	217.4	198.7
62.5°	194.8	192.0	171.4	152.4	148.3	152.0	170.7	191.2	194.4	191.2	170.7
65°	170.1	164.5	144.0	127.2	125.9	126.8	143.6	164.1	170.1	164.1	143.6
67.5°	146.8	137.4	119.7	105.3	106.3	105.3	119.3	137.1	146.8	137.1	119.3
70°	123.1	112.8	98.8	86.6	90.4	86.6	98.8	113.2	123.4	113.2	98.8
72.5°	103.5	91.3	80.1	70.8	74.1	70.4	80.1	91.7	104.2	91.7	80.1
75°	84.8	72.6	62.9	56.4	61.1	56.4	63.3	73.0	85.9	73.0	63.3
77.5°	72.7	61.1	48.0	45.2	48.9	45.2	48.4	59.9	71.3	59.9	48.4
80°	65.9	55.9	37.9	34.0	37.7	34.0	37.2	50.0	59.0	50.0	37.2
82.5°	64.5	57.4	36.7	23.7	25.6	23.7	32.3	44.3	50.5	44.3	32.3
85°	67.5	62.0	40.1	19.2	15.3	18.5	29.4	39.5	43.6	39.5	29.4
87.5°	73.3	70.9	46.1	21.0	3.7	15.9	25.1	35.6	35.4	35.6	25.1
90°	82.1	81.1	55.6	25.0	0.4	11.0	19.2	29.3	26.9	29.3	19.2
92.5°	93.6	92.0	66.5	30.8	5.9	5.4	16.1	23.9	21.5	23.9	16.1
95°	105.1	103.8	77.6	39.2	14.8	2.4	11.4	18.5	17.9	18.5	11.4
97.5°	116.6	114.7	88.1	51.5	26.1	4.4	6.9	13.6	13.6	13.6	6.9
100°	126.3	125.0	101.0	67.3	40.1	12.1	3.5	9.5	10.5	9.5	3.5
102.5°	143.5	137.3	116.1	82.4	55.2	22.8	6.4	4.9	6.7	4.9	6.4
105°	158.4	153.2	134.1	99.2	73.4	38.1	15.3	5.3	3.5	5.3	15.3
107.5°	174.2	170.5	150.3	115.3	91.8	54.6	27.8	14.6	9.4	14.6	27.8
110°	192.6	188.1	166.1	131.6	110.9	72.3	42.1	26.3	20.4	26.3	42.1



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CATALOG NUMBER: MWL-2-13-17-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	210.3	206.9	180.9	148.5	130.8	91.4	59.8	41.0	35.5	41.0	59.8
115°	223.9	222.0	197.8	164.2	149.2	113.2	79.3	58.4	51.7	58.4	79.3
117.5°	238.2	237.8	210.3	180.5	171.2	132.7	97.3	75.6	68.6	75.6	97.3
120°	256.2	253.3	227.5	196.6	192.2	153.2	117.2	95.5	88.5	95.5	117.2
122.5°	268.7	266.9	242.3	212.1	212.1	174.2	136.3	114.6	107.3	114.6	136.3
125°	280.1	279.4	253.3	227.5	233.4	193.7	157.6	135.6	127.4	135.6	157.6
127.5°	290.5	291.6	267.6	244.4	255.2	213.5	178.6	154.3	145.8	154.3	178.6
130°	299.2	303.0	281.2	259.9	275.7	235.3	197.4	173.1	167.6	173.1	197.4
132.5°	316.5	314.4	295.2	275.7	297.8	255.2	217.3	191.9	185.6	191.9	217.3
135°	325.4	326.1	307.4	289.3	318.4	275.0	236.0	211.0	204.8	211.0	236.0
137.5°	336.0	333.9	316.9	305.9	337.5	294.1	254.4	231.2	221.3	231.2	254.4
140°	344.7	344.3	330.3	320.6	358.2	312.9	274.1	250.5	241.4	250.5	274.1
142.5°	352.8	355.0	342.8	336.8	378.7	332.8	294.3	268.5	259.7	268.5	294.3
145°	358.3	363.1	355.4	358.0	398.2	355.7	311.9	285.9	276.3	285.9	311.9
147.5°	367.5	373.8	364.6	372.4	415.1	375.2	329.7	303.9	295.4	303.9	329.7
150°	380.0	383.0	377.5	392.1	432.5	397.0	347.7	321.2	312.7	321.2	347.7
152.5°	390.0	393.6	387.4	413.9	446.0	416.8	367.5	338.1	328.2	338.1	367.5
155°	400.3	401.8	397.3	434.8	460.4	436.3	383.4	356.9	347.3	356.9	383.4
157.5°	409.8	412.8	407.6	450.7	472.9	453.2	401.4	375.6	367.1	375.6	401.4
160°	420.2	420.2	423.0	468.1	483.2	467.0	420.5	396.3	384.5	396.3	420.5
162.5°	421.3	428.2	444.1	481.0	493.2	479.9	441.1	410.9	400.6	410.9	441.1
165°	437.4	443.7	467.6	492.4	500.8	491.3	466.5	435.2	423.0	435.2	466.5
167.5°	454.3	467.6	485.8	505.3	508.2	501.9	485.0	464.3	453.2	464.3	485.0
170°	481.0	493.4	501.9	511.0	515.0	511.4	497.2	487.5	479.5	487.5	497.2
172.5°	502.7	510.1	513.7	519.8	517.3	515.8	508.2	503.1	499.4	503.1	508.2
175°	516.3	517.8	522.0	520.2	522.4	518.4	518.8	520.3	505.3	520.3	518.8
177.5°	521.1	523.7	522.8	519.5	519.8	519.1	520.5	521.1	518.8	521.1	520.5
180°	522.0	522.0	522.0	522.0	522.0	522.0	522.0	522.0	522.0	522.0	522.0



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CATALOG NUMBER: MWL-2-13-17-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	726.2	726.2	726.2	726.2	726.2	726.2
2.5°	722.9	721.3	723.1	725.7	724.9	724.2
5°	719.1	717.3	719.1	721.9	721.2	720.4
7.5°	713.1	711.6	713.5	715.0	715.0	714.3
10°	704.4	702.9	704.7	706.6	706.6	705.3
12.5°	693.2	691.9	693.2	695.0	695.4	694.8
15°	679.7	678.8	680.1	681.0	681.4	681.1
17.5°	666.6	665.7	666.6	666.1	666.5	667.1
20°	649.5	648.5	649.8	649.3	650.0	649.4
22.5°	630.8	630.8	631.2	631.5	630.4	629.5
25°	611.2	612.1	611.6	611.4	608.9	608.0
27.5°	590.1	590.6	590.5	589.0	585.6	581.9
30°	568.6	569.2	569.4	564.1	558.5	555.7
32.5°	544.3	547.1	545.1	538.0	529.6	525.8
35°	516.9	520.6	518.0	508.7	496.5	494.7
37.5°	490.7	495.8	491.9	475.1	462.9	463.9
40°	460.9	466.8	461.6	439.6	430.2	432.1
42.5°	429.1	439.8	429.9	404.7	400.4	402.2
45°	392.7	407.1	393.5	371.0	370.1	372.9
47.5°	355.4	375.3	355.7	339.3	342.1	346.8
50°	319.5	335.8	320.3	308.5	316.0	320.6
52.5°	285.9	291.9	286.6	281.0	291.7	294.5
55°	251.9	245.7	252.7	254.9	268.0	271.7
57.5°	217.4	205.6	218.1	228.8	244.6	246.5
60°	183.7	174.8	184.1	199.4	218.1	222.8
62.5°	152.0	148.3	152.4	171.4	192.0	194.8
65°	126.8	125.9	127.2	144.0	164.5	170.1
67.5°	105.3	106.3	105.3	119.7	137.4	146.8
70°	86.6	90.4	86.6	98.8	112.8	123.1
72.5°	70.4	74.1	70.8	80.1	91.3	103.5
75°	56.4	61.1	56.4	62.9	72.6	84.8
77.5°	45.2	48.9	45.2	48.0	61.1	72.7
80°	34.0	37.7	34.0	37.9	55.9	65.9
82.5°	23.7	25.6	23.7	36.7	57.4	64.5
85°	18.5	15.3	19.2	40.1	62.0	67.5
87.5°	15.9	3.7	21.0	46.1	70.9	73.3
90°	11.0	0.4	25.0	55.6	81.1	82.1
92.5°	5.4	5.9	30.8	66.5	92.0	93.6
95°	2.4	14.8	39.2	77.6	103.8	105.1
97.5°	4.4	26.1	51.5	88.1	114.7	116.6
100°	12.1	40.1	67.3	101.0	125.0	126.3
102.5°	22.8	55.2	82.4	116.1	137.3	143.5
105°	38.1	73.4	99.2	134.1	153.2	158.4
107.5°	54.6	91.8	115.3	150.3	170.5	174.2
110°	72.3	110.9	131.6	166.1	188.1	192.6



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CATALOG NUMBER: MWL-2-13-17-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	91.4	130.8	148.5	180.9	206.9	210.3
115°	113.2	149.2	164.2	197.8	222.0	223.9
117.5°	132.7	171.2	180.5	210.3	237.8	238.2
120°	153.2	192.2	196.6	227.5	253.3	256.2
122.5°	174.2	212.1	212.1	242.3	266.9	268.7
125°	193.7	233.4	227.5	253.3	279.4	280.1
127.5°	213.5	255.2	244.4	267.6	291.6	290.5
130°	235.3	275.7	259.9	281.2	303.0	299.2
132.5°	255.2	297.8	275.7	295.2	314.4	316.5
135°	275.0	318.4	289.3	307.4	326.1	325.4
137.5°	294.1	337.5	305.9	316.9	333.9	336.0
140°	312.9	358.2	320.6	330.3	344.3	344.7
142.5°	332.8	378.7	336.8	342.8	355.0	352.8
145°	355.7	398.2	358.0	355.4	363.1	358.3
147.5°	375.2	415.1	372.4	364.6	373.8	367.5
150°	397.0	432.5	392.1	377.5	383.0	380.0
152.5°	416.8	446.0	413.9	387.4	393.6	390.0
155°	436.3	460.4	434.8	397.3	401.8	400.3
157.5°	453.2	472.9	450.7	407.6	412.8	409.8
160°	467.0	483.2	468.1	423.0	420.2	420.2
162.5°	479.9	493.2	481.0	444.1	428.2	421.3
165°	491.3	500.8	492.4	467.6	443.7	437.4
167.5°	501.9	508.2	505.3	485.8	467.6	454.3
170°	511.4	515.0	511.0	501.9	493.4	481.0
172.5°	515.8	517.3	519.8	513.7	510.1	502.7
175°	518.4	522.4	520.2	522.0	517.8	516.3
177.5°	519.1	519.8	519.5	522.8	523.7	521.1
180°	522.0	522.0	522.0	522.0	522.0	522.0

(END OF REPORT)