

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: P392525

Luminaire Tested: **MWL-2-28-23-UNV-L940-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392525  
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-2-28-23-UNV-L940-EDD  
Description: MWL 2FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

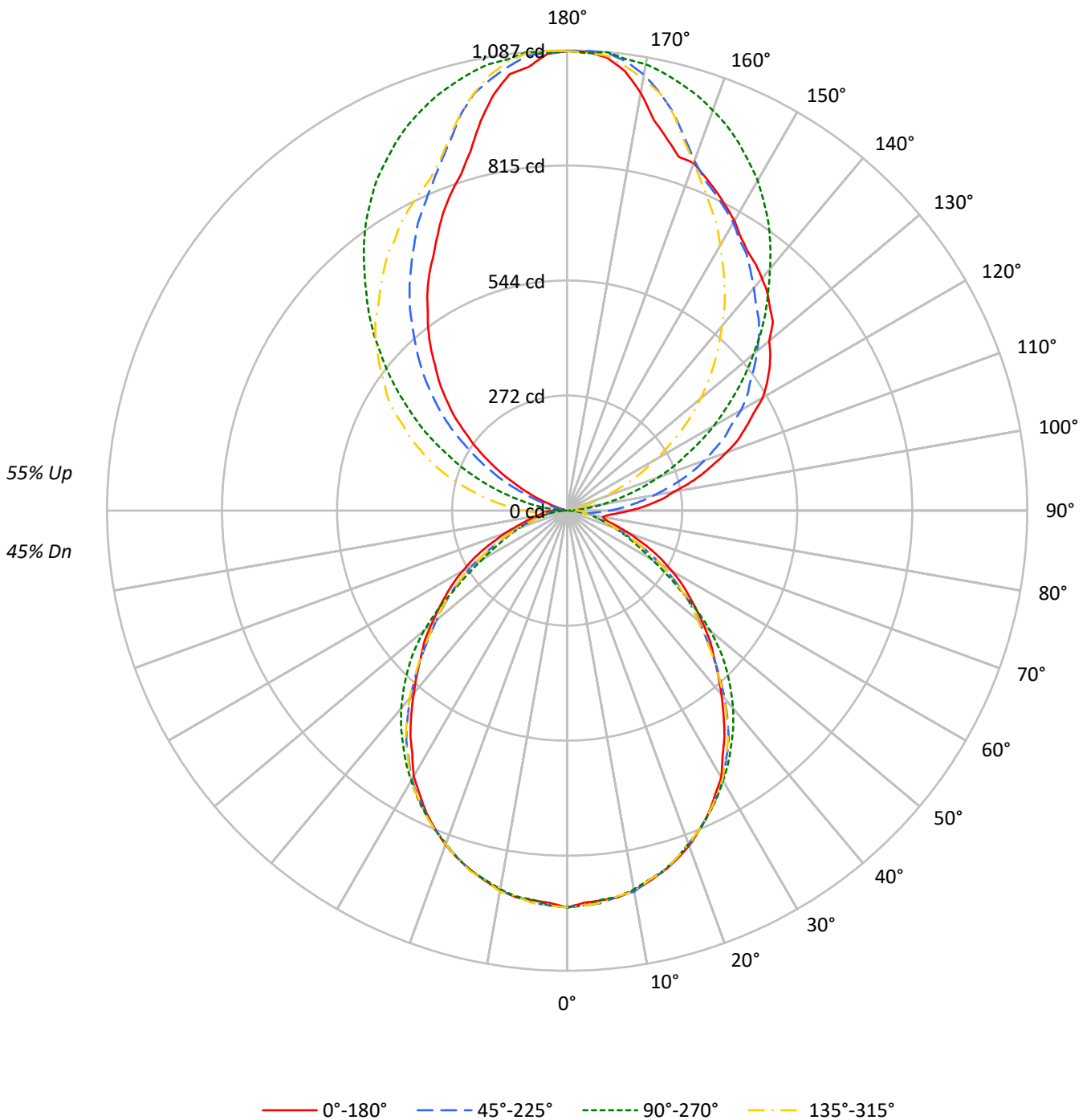
Lumens per Lamp: N/A  
Luminaire Lumens: 4723.0 lumens  
Efficiency: N/A  
Efficacy: 84.3 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 56.055  
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	50	30	10	0	
RCR																						
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45				
1	97	93	89	85	89	85	82	79	71	69	67	58	56	55	46	45	44	38				
2	89	81	75	70	81	75	70	65	63	59	56	51	49	46	41	39	38	33				
3	81	72	65	59	74	66	60	55	56	51	47	46	42	40	37	34	32	28				
4	74	64	56	50	68	59	52	47	50	45	41	41	37	34	33	30	28	25				
5	68	57	49	43	62	53	46	41	44	39	35	37	33	30	30	27	25	22				
6	63	51	43	38	58	47	40	35	40	35	31	33	29	26	27	24	22	19				
7	58	46	38	33	53	43	36	31	36	31	27	31	26	23	25	22	20	17				
8	54	42	34	29	50	39	32	28	33	28	24	28	24	21	23	20	18	15				
9	50	38	31	26	46	36	29	25	31	25	22	26	22	19	21	18	16	14				
10	47	35	28	23	43	33	26	22	28	23	20	24	20	17	20	17	15	13				

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

	0°	90°	180°	270°
0°	12108	12108	12108	12108
5°	11769	11001	11769	11001
10°	11527	10127	11527	10127
15°	11166	9284	11135	9284
20°	10763	8442	10733	8442
25°	10258	7690	10228	7690
30°	9688	6964	9648	6964
35°	8913	6265	8881	6265
40°	8132	5590	8088	5590
45°	7411	4862	7376	4862
50°	6776	4046	6740	4046
55°	6107	3004	6080	3004
60°	5420	2184	5405	2184
65°	4629	1636	4629	1636
70°	3713	1209	3730	1209
75°	2833	853	2895	853
80°	2943	526	2445	526
85°	4593	227	2406	227



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	88.1	1.9
10°-20°	248.0	5.3
20°-30°	363.9	7.7
30°-40°	412.8	8.7
40°-50°	385.1	8.2
50°-60°	301.2	6.4
60°-70°	187.0	4.0
70°-80°	91.0	1.9
80°-90°	56.4	1.2
90°-100°	85.8	1.8
100°-110°	167.0	3.5
110°-120°	288.3	6.1
120°-130°	392.1	8.3
130°-140°	447.0	9.5
140°-150°	446.0	9.4
150°-160°	388.4	8.2
160°-170°	273.1	5.8
170°-180°	101.7	2.2
0°-30°	700.0	14.8
0°-40°	1112.8	23.6
0°-60°	1799.1	38.1
0°-90°	2133.5	45.2
90°-120°	541.1	11.5
90°-150°	1826.3	38.7
90°-180°	2589.0	54.8
0°-180°	4723.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	937	937	937	937	937	
5°	924	923	924	923	924	88
15°	882	880	879	880	882	248
25°	790	791	787	791	790	363
35°	648	676	645	676	648	404
45°	490	532	488	532	490	380
55°	352	324	350	324	352	315
65°	219	168	219	168	219	216
75°	101	81	103	81	101	115
85°	105	19	55	19	105	82
90°	148	1	33	1	148	82
95°	203	31	21	31	203	177
105°	329	152	6	152	329	347
115°	466	310	108	310	466	462
125°	583	486	265	486	583	521
135°	678	663	426	663	678	523
145°	745	829	574	829	745	470
155°	832	959	722	959	832	384
165°	910	1043	880	1043	910	258
175°	1074	1087	1051	1087	1074	100
180°	1085	1085	1085	1085	1085	



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CATALOG NUMBER: MWL-2-28-23-UNV-L940-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	937.4	937.4	937.4	937.4	937.4	937.4	937.4	937.4	937.4	937.4	937.4
2.5°	927.0	937.5	933.6	933.5	933.5	932.7	933.6	937.5	927.7	937.5	933.6
5°	924.2	932.1	930.9	930.0	922.7	930.0	930.1	932.1	924.2	932.1	930.1
7.5°	921.3	925.6	919.2	921.8	919.9	921.0	918.4	924.8	921.3	924.8	918.4
10°	911.1	912.8	913.7	909.2	908.3	908.4	912.9	911.3	911.1	911.3	912.9
12.5°	897.2	898.3	893.8	896.5	893.1	896.5	893.8	896.7	895.6	896.7	893.8
15°	881.6	885.5	881.9	879.2	880.3	878.5	881.2	883.9	879.2	883.9	881.2
17.5°	863.4	864.5	861.0	860.3	860.3	860.3	860.3	863.7	861.0	863.7	860.3
20°	842.4	842.5	839.1	837.5	837.7	836.8	838.4	840.9	840.0	840.9	838.4
22.5°	816.1	820.6	816.3	818.4	815.8	817.6	815.6	819.1	814.5	819.1	815.6
25°	789.7	792.4	791.7	794.7	791.2	793.9	790.1	790.1	787.4	790.1	790.1
27.5°	756.9	760.5	764.3	767.1	765.7	766.4	762.8	758.2	754.6	758.2	762.8
30°	727.7	725.9	735.9	737.9	736.5	736.4	733.6	723.6	724.7	723.6	733.6
32.5°	684.0	689.4	698.5	708.7	708.1	707.2	696.3	686.4	681.0	686.4	696.3
35°	647.7	651.3	665.0	676.9	675.5	674.6	662.7	649.1	645.4	649.1	662.7
37.5°	606.7	607.6	622.2	642.2	644.3	640.0	619.9	605.3	604.4	605.3	619.9
40°	566.6	565.7	578.5	601.3	609.7	599.9	575.4	562.6	563.5	562.6	575.4
42.5°	528.3	524.7	533.0	563.1	571.4	561.6	530.7	521.6	525.2	521.6	530.7
45°	490.2	485.6	488.3	515.7	532.3	514.2	485.3	483.3	487.9	483.3	485.3
47.5°	459.2	447.4	444.6	467.6	490.4	466.8	441.6	445.1	456.9	445.1	441.6
50°	420.9	414.6	405.4	422.0	441.3	420.5	402.4	411.5	418.7	411.5	402.4
52.5°	385.4	382.7	369.2	376.5	384.8	374.9	366.9	379.7	383.1	379.7	366.9
55°	351.9	347.3	332.7	330.2	323.9	328.6	330.5	345.0	350.3	345.0	330.5
57.5°	320.9	314.5	294.5	286.4	275.6	284.9	292.2	312.2	319.3	312.2	292.2
60°	285.5	280.1	259.1	239.2	231.0	238.4	257.6	278.5	284.7	278.5	257.6
62.5°	252.7	243.6	218.1	199.1	196.5	198.3	216.6	242.1	251.9	242.1	216.6
65°	219.1	205.5	183.6	165.4	168.3	164.6	182.9	204.7	219.1	204.7	182.9
67.5°	183.6	171.7	152.6	135.5	142.8	135.5	151.9	171.0	183.6	171.0	151.9
70°	154.6	140.0	124.5	111.8	120.0	111.8	124.5	140.8	155.3	140.8	124.5
72.5°	125.5	112.7	99.9	91.7	97.3	90.9	99.9	113.4	127.0	113.4	99.9
75°	100.9	89.0	78.2	71.8	80.9	71.8	79.0	89.7	103.1	89.7	79.0
77.5°	89.7	74.7	59.0	57.2	64.5	57.2	59.9	72.4	86.6	72.4	59.9
80°	86.3	73.6	47.7	42.6	47.2	42.6	46.2	61.4	71.7	61.4	46.2
82.5°	91.9	81.4	49.7	30.8	33.5	30.8	40.5	53.8	62.8	53.8	40.5
85°	104.8	97.0	60.1	25.0	19.0	23.4	37.9	50.4	54.9	50.4	37.9
87.5°	124.1	120.0	77.7	31.0	4.6	20.2	34.1	46.4	45.2	46.4	34.1
90°	147.6	143.6	100.8	41.5	0.7	12.5	25.0	35.5	32.7	35.5	25.0
92.5°	176.8	170.3	124.5	58.9	12.3	6.1	19.6	28.6	26.6	28.6	19.6
95°	203.0	198.4	151.2	80.6	30.6	4.0	13.2	20.7	21.4	20.7	13.2
97.5°	232.1	226.5	178.5	108.1	55.3	10.1	9.1	15.9	17.7	15.9	9.1
100°	255.7	252.2	209.3	141.1	84.5	26.2	6.3	11.6	14.3	11.6	6.3
102.5°	293.8	283.8	240.7	172.6	115.8	48.4	12.4	7.9	8.8	7.9	12.4
105°	328.8	318.1	278.2	205.5	151.9	78.3	30.8	10.1	6.3	10.1	30.8
107.5°	361.8	354.1	312.0	239.2	190.1	112.8	56.9	29.2	18.5	29.2	56.9
110°	400.1	390.9	344.9	272.9	230.0	149.5	86.7	53.8	41.5	53.8	86.7



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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°	436.9	429.9	375.6	308.1	271.3	189.4	123.5	84.5	72.9	84.5	123.5
115°	466.1	461.4	410.8	341.1	309.7	234.6	164.1	120.4	107.5	120.4	164.1
117.5°	496.0	495.3	436.9	374.8	355.6	275.2	201.6	157.3	142.8	157.3	201.6
120°	533.5	527.4	473.8	409.4	400.2	319.0	243.9	198.7	184.1	198.7	243.9
122.5°	559.6	555.8	504.4	441.6	441.6	362.7	283.8	238.5	223.2	238.5	283.8
125°	583.4	581.8	527.4	473.8	486.1	403.3	328.2	282.3	265.4	282.3	328.2
127.5°	604.8	607.1	557.3	509.0	531.3	444.7	371.9	321.3	303.7	321.3	371.9
130°	623.2	630.8	585.7	541.2	574.2	489.9	410.9	360.3	348.9	360.3	410.9
132.5°	659.2	654.6	614.7	574.2	620.1	531.3	452.4	399.4	386.4	399.4	452.4
135°	677.6	679.1	640.0	602.5	663.0	572.6	491.4	439.3	426.3	439.3	491.4
137.5°	699.8	695.2	659.9	637.0	702.8	612.4	529.7	481.4	460.7	481.4	529.7
140°	715.9	715.1	686.0	667.7	745.7	651.5	568.8	519.8	500.6	519.8	568.8
142.5°	732.7	737.4	712.0	701.4	788.6	692.9	610.9	557.3	538.9	557.3	610.9
145°	745.1	755.1	739.0	743.5	829.3	738.9	648.6	594.2	574.3	594.2	648.6
147.5°	764.3	777.4	758.1	774.3	864.5	780.4	685.4	631.8	614.2	631.8	685.4
150°	790.4	796.5	785.0	814.7	900.5	824.6	723.0	667.7	650.2	667.7	723.0
152.5°	811.1	818.7	805.7	859.9	928.9	866.1	764.3	703.0	682.3	703.0	764.3
155°	832.5	835.6	826.4	903.6	958.8	906.6	797.2	742.1	722.1	742.1	797.2
157.5°	852.4	858.5	846.9	936.5	984.8	941.9	833.8	781.2	763.5	781.2	833.8
160°	873.8	873.8	879.0	974.9	1006.2	972.5	873.7	824.1	799.6	824.1	873.7
162.5°	876.1	890.7	922.8	1001.7	1026.9	999.4	916.7	854.7	833.3	854.7	916.7
165°	909.8	921.9	971.8	1025.4	1043.0	1023.1	969.5	904.4	879.9	904.4	969.5
167.5°	945.1	971.8	1011.6	1052.2	1058.3	1045.3	1010.0	964.9	942.8	964.9	1010.0
170°	1001.7	1025.4	1045.3	1062.2	1070.6	1063.0	1035.4	1013.1	998.6	1013.1	1035.4
172.5°	1046.9	1062.2	1069.8	1080.6	1075.2	1072.2	1058.3	1047.7	1039.9	1047.7	1058.3
175°	1074.3	1078.3	1085.2	1082.3	1086.9	1078.4	1078.3	1083.7	1051.3	1083.7	1078.3
177.5°	1084.3	1090.5	1086.7	1080.7	1081.5	1079.9	1082.1	1085.2	1079.7	1085.2	1082.1
180°	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	937.4	937.4	937.4	937.4	937.4	937.4
2.5°	932.7	933.5	933.5	933.6	937.5	927.0
5°	930.0	922.7	930.0	930.9	932.1	924.2
7.5°	921.0	919.9	921.8	919.2	925.6	921.3
10°	908.4	908.3	909.2	913.7	912.8	911.1
12.5°	896.5	893.1	896.5	893.8	898.3	897.2
15°	878.5	880.3	879.2	881.9	885.5	881.6
17.5°	860.3	860.3	860.3	861.0	864.5	863.4
20°	836.8	837.7	837.5	839.1	842.5	842.4
22.5°	817.6	815.8	818.4	816.3	820.6	816.1
25°	793.9	791.2	794.7	791.7	792.4	789.7
27.5°	766.4	765.7	767.1	764.3	760.5	756.9
30°	736.4	736.5	737.9	735.9	725.9	727.7
32.5°	707.2	708.1	708.7	698.5	689.4	684.0
35°	674.6	675.5	676.9	665.0	651.3	647.7
37.5°	640.0	644.3	642.2	622.2	607.6	606.7
40°	599.9	609.7	601.3	578.5	565.7	566.6
42.5°	561.6	571.4	563.1	533.0	524.7	528.3
45°	514.2	532.3	515.7	488.3	485.6	490.2
47.5°	466.8	490.4	467.6	444.6	447.4	459.2
50°	420.5	441.3	422.0	405.4	414.6	420.9
52.5°	374.9	384.8	376.5	369.2	382.7	385.4
55°	328.6	323.9	330.2	332.7	347.3	351.9
57.5°	284.9	275.6	286.4	294.5	314.5	320.9
60°	238.4	231.0	239.2	259.1	280.1	285.5
62.5°	198.3	196.5	199.1	218.1	243.6	252.7
65°	164.6	168.3	165.4	183.6	205.5	219.1
67.5°	135.5	142.8	135.5	152.6	171.7	183.6
70°	111.8	120.0	111.8	124.5	140.0	154.6
72.5°	90.9	97.3	91.7	99.9	112.7	125.5
75°	71.8	80.9	71.8	78.2	89.0	100.9
77.5°	57.2	64.5	57.2	59.0	74.7	89.7
80°	42.6	47.2	42.6	47.7	73.6	86.3
82.5°	30.8	33.5	30.8	49.7	81.4	91.9
85°	23.4	19.0	25.0	60.1	97.0	104.8
87.5°	20.2	4.6	31.0	77.7	120.0	124.1
90°	12.5	0.7	41.5	100.8	143.6	147.6
92.5°	6.1	12.3	58.9	124.5	170.3	176.8
95°	4.0	30.6	80.6	151.2	198.4	203.0
97.5°	10.1	55.3	108.1	178.5	226.5	232.1
100°	26.2	84.5	141.1	209.3	252.2	255.7
102.5°	48.4	115.8	172.6	240.7	283.8	293.8
105°	78.3	151.9	205.5	278.2	318.1	328.8
107.5°	112.8	190.1	239.2	312.0	354.1	361.8
110°	149.5	230.0	272.9	344.9	390.9	400.1





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	189.4	271.3	308.1	375.6	429.9	436.9
115°	234.6	309.7	341.1	410.8	461.4	466.1
117.5°	275.2	355.6	374.8	436.9	495.3	496.0
120°	319.0	400.2	409.4	473.8	527.4	533.5
122.5°	362.7	441.6	441.6	504.4	555.8	559.6
125°	403.3	486.1	473.8	527.4	581.8	583.4
127.5°	444.7	531.3	509.0	557.3	607.1	604.8
130°	489.9	574.2	541.2	585.7	630.8	623.2
132.5°	531.3	620.1	574.2	614.7	654.6	659.2
135°	572.6	663.0	602.5	640.0	679.1	677.6
137.5°	612.4	702.8	637.0	659.9	695.2	699.8
140°	651.5	745.7	667.7	686.0	715.1	715.9
142.5°	692.9	788.6	701.4	712.0	737.4	732.7
145°	738.9	829.3	743.5	739.0	755.1	745.1
147.5°	780.4	864.5	774.3	758.1	777.4	764.3
150°	824.6	900.5	814.7	785.0	796.5	790.4
152.5°	866.1	928.9	859.9	805.7	818.7	811.1
155°	906.6	958.8	903.6	826.4	835.6	832.5
157.5°	941.9	984.8	936.5	846.9	858.5	852.4
160°	972.5	1006.2	974.9	879.0	873.8	873.8
162.5°	999.4	1026.9	1001.7	922.8	890.7	876.1
165°	1023.1	1043.0	1025.4	971.8	921.9	909.8
167.5°	1045.3	1058.3	1052.2	1011.6	971.8	945.1
170°	1063.0	1070.6	1062.2	1045.3	1025.4	1001.7
172.5°	1072.2	1075.2	1080.6	1069.8	1062.2	1046.9
175°	1078.4	1086.9	1082.3	1085.2	1078.3	1074.3
177.5°	1079.9	1081.5	1080.7	1086.7	1090.5	1084.3
180°	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2

(END OF REPORT)