

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: P392539

Luminaire Tested: **MWL-2-35-23-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392539
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-2-35-23-UNV-L935-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4885.8 lumens
Efficiency: N/A
Efficacy: 74.5 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

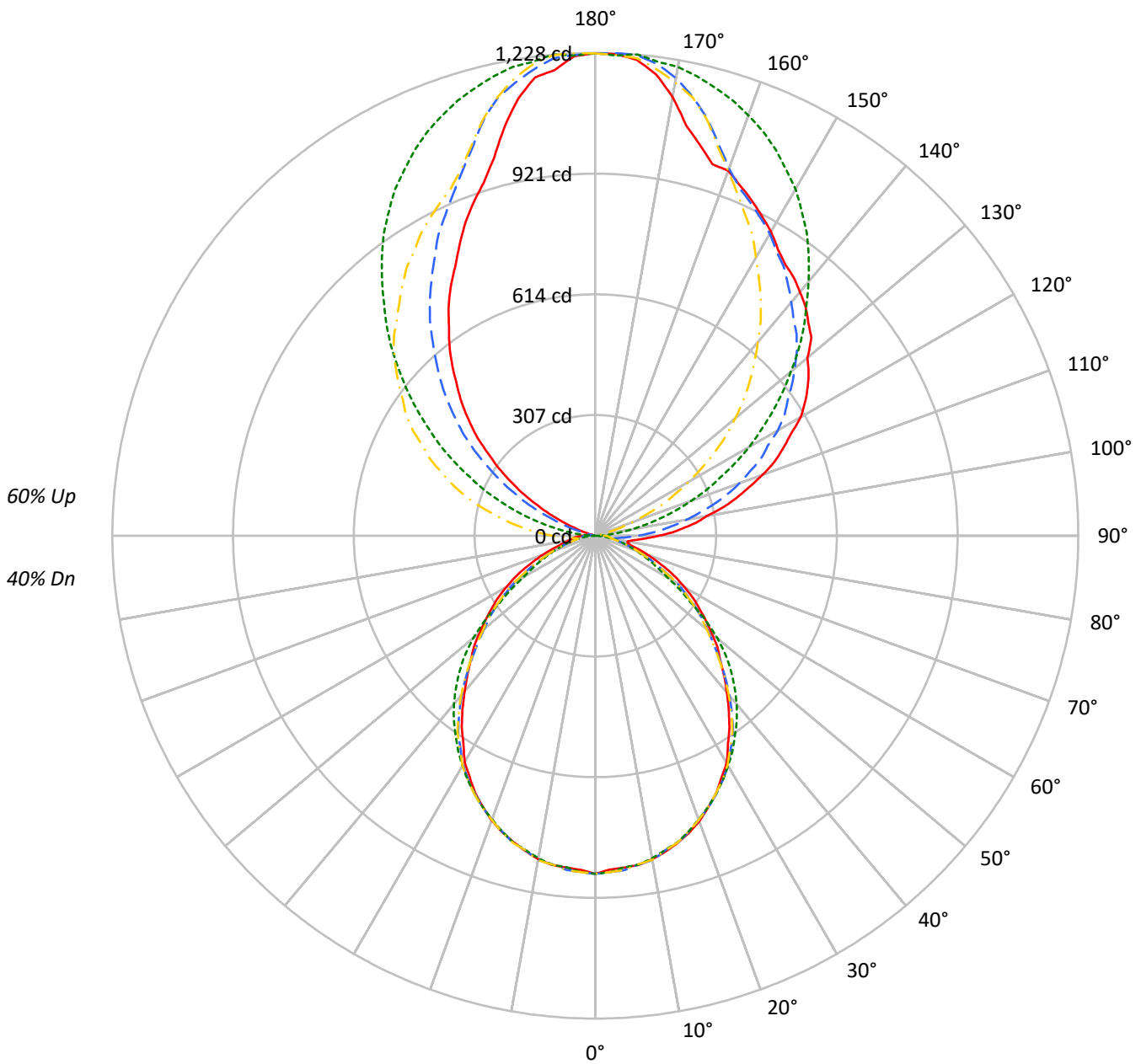
Input Watts (W): 65.549
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P392539

CATALOG NUMBER: MWL-2-35-23-UNV-L935-EDD

Luminous Intensity Polar Plot



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



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CATALOG NUMBER: MWL-2-35-23-UNV-L935-EDD

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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47	40				
1	96	92	88	84	87	83	80	77	68	66	64	55	53	52	42	41	40	34				
2	87	80	74	69	79	73	68	64	60	57	54	48	46	44	37	36	34	29				
3	80	71	64	58	73	65	59	54	53	49	45	43	40	37	33	31	29	25				
4	73	63	55	49	66	58	51	46	48	43	39	38	35	32	30	28	26	22				
5	67	56	48	42	61	51	45	39	43	38	34	35	31	28	27	25	23	19				
6	62	50	42	37	56	46	39	34	39	33	29	31	28	25	25	22	20	17				
7	57	45	38	32	52	42	35	30	35	30	26	29	25	22	23	20	18	15				
8	53	41	34	29	48	38	31	27	32	27	23	26	22	20	21	18	16	14				
9	50	38	30	25	45	35	28	24	29	24	21	24	20	18	19	16	14	12				
10	46	35	27	23	42	32	26	21	27	22	19	22	19	16	18	15	13	11				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	11103	11103	11103	11103
5°	10786	10089	10786	10089
10°	10569	9287	10569	9287
15°	10242	8511	10210	8511
20°	9874	7737	9841	7737
25°	9411	7049	9378	7049
30°	8889	6384	8844	6384
35°	8178	5743	8142	5743
40°	7465	5127	7413	5127
45°	6800	4459	6761	4459
50°	6222	3711	6180	3711
55°	5608	2755	5576	2755
60°	4976	2005	4958	2005
65°	4248	1502	4248	1502
70°	3408	1111	3427	1111
75°	2603	784	2676	784
80°	2844	484	2285	484
85°	4799	209	2332	209



TEST NUMBER: P392539

CATALOG NUMBER: MWL-2-35-23-UNV-L935-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	80.8	1.7
10°-20°	227.4	4.7
20°-30°	333.6	6.8
30°-40°	378.6	7.7
40°-50°	353.3	7.2
50°-60°	276.4	5.7
60°-70°	171.6	3.5
70°-80°	83.8	1.7
80°-90°	56.1	1.1
90°-100°	94.6	1.9
100°-110°	188.6	3.9
110°-120°	325.8	6.7
120°-130°	443.1	9.1
130°-140°	505.2	10.3
140°-150°	504.1	10.3
150°-160°	439.0	9.0
160°-170°	308.7	6.3
170°-180°	115.0	2.4
0°-30°	641.8	13.1
0°-40°	1020.5	20.9
0°-60°	1650.1	33.8
0°-90°	1961.7	40.2
90°-120°	608.9	12.5
90°-150°	2061.3	42.2
90°-180°	2924.0	59.8
0°-180°	4885.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	860	860	860	860	860	
5°	847	846	847	846	847	81
15°	809	807	806	807	809	228
25°	724	725	722	725	724	333
35°	594	619	592	619	594	371
45°	450	488	447	488	450	349
55°	323	297	321	297	323	290
65°	201	154	201	154	201	199
75°	93	74	95	74	93	107
85°	110	18	53	18	110	85
90°	161	1	31	1	161	89
95°	226	35	20	35	226	198
105°	372	172	7	172	372	391
115°	527	350	121	350	527	522
125°	659	549	300	549	659	589
135°	766	749	482	749	766	591
145°	842	938	649	938	842	531
155°	941	1084	816	1084	941	434
165°	1028	1179	995	1179	1028	292
175°	1215	1228	1189	1228	1215	113
180°	1227	1227	1227	1227	1227	



TEST NUMBER: P392539

CATALOG NUMBER: MWL-2-35-23-UNV-L935-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	859.6	859.6	859.6	859.6	859.6	859.6	859.6	859.6	859.6	859.6	859.6
2.5°	849.5	859.5	856.3	856.3	856.3	855.5	856.3	859.5	850.4	859.5	856.3
5°	847.0	854.5	853.8	853.0	846.2	853.0	853.0	854.5	847.0	854.5	853.0
7.5°	844.5	848.7	842.9	845.4	843.7	844.6	842.0	847.9	844.5	847.9	842.0
10°	835.4	837.1	837.9	833.7	832.9	832.8	837.0	835.4	835.4	835.4	837.0
12.5°	822.9	823.7	819.5	822.0	818.6	822.0	819.5	822.0	821.1	822.0	819.5
15°	808.7	812.1	808.6	806.1	807.0	805.3	807.8	810.3	806.1	810.3	807.8
17.5°	792.1	792.8	789.5	788.6	788.6	788.6	788.6	792.0	789.5	792.0	788.6
20°	772.8	772.8	769.4	767.7	767.7	766.9	768.6	771.1	770.2	771.1	768.6
22.5°	748.7	752.8	748.6	750.2	747.7	749.4	747.7	751.1	746.9	751.1	747.7
25°	724.5	727.0	726.1	728.5	725.2	727.7	724.4	724.4	721.9	724.4	724.4
27.5°	694.4	697.7	701.1	703.5	701.8	702.7	699.3	695.2	691.8	695.2	699.3
30°	667.7	666.1	675.2	676.9	675.1	675.1	672.6	663.5	664.3	663.5	672.6
32.5°	627.7	632.7	641.0	650.2	649.2	648.5	638.5	629.2	624.2	629.2	638.5
35°	594.3	597.6	610.2	621.0	619.2	618.4	607.6	595.1	591.7	595.1	607.6
37.5°	556.7	557.6	570.9	589.3	590.9	586.7	568.3	555.0	554.2	555.0	568.3
40°	520.1	519.2	530.9	551.7	559.2	550.0	527.4	515.7	516.5	515.7	527.4
42.5°	485.0	481.7	489.1	516.6	524.1	515.0	486.5	478.1	481.5	478.1	486.5
45°	449.8	445.7	448.2	473.2	488.2	471.6	444.7	443.1	447.2	443.1	444.7
47.5°	421.5	410.7	408.2	429.0	449.8	428.2	404.7	408.1	418.9	408.1	404.7
50°	386.5	380.6	372.3	387.3	404.8	385.5	368.9	377.2	383.9	377.2	368.9
52.5°	354.0	351.5	338.9	345.6	353.1	343.9	336.4	348.0	351.4	348.0	336.4
55°	323.1	318.8	305.6	303.1	297.1	301.2	303.0	316.3	321.3	316.3	303.0
57.5°	294.7	288.8	270.5	263.0	252.9	261.2	267.9	286.2	293.0	286.2	267.9
60°	262.1	257.1	238.0	219.5	212.0	218.7	236.2	255.4	261.2	255.4	236.2
62.5°	232.1	223.7	200.4	182.8	180.3	182.0	198.6	222.0	231.2	222.0	198.6
65°	201.1	188.6	168.6	152.0	154.5	151.1	167.7	187.8	201.1	187.8	167.7
67.5°	168.6	157.7	140.2	124.4	131.1	124.4	139.4	157.0	168.6	157.0	139.4
70°	141.9	128.6	114.4	102.7	110.2	102.7	114.4	129.4	142.7	129.4	114.4
72.5°	115.2	103.5	91.9	84.4	89.3	83.4	91.9	104.4	117.0	104.4	91.9
75°	92.7	81.9	71.8	65.9	74.3	65.9	72.7	82.7	95.3	82.7	72.7
77.5°	83.8	69.4	54.2	52.6	59.2	52.6	55.1	66.8	80.2	66.8	55.1
80°	83.4	70.8	44.4	39.2	43.4	39.2	42.6	56.9	67.0	56.9	42.6
82.5°	92.6	81.5	48.1	28.4	30.9	28.4	37.7	50.2	59.6	50.2	37.7
85°	109.5	100.8	61.4	23.6	17.5	21.7	36.2	47.9	53.2	47.9	36.2
87.5°	133.1	127.8	82.2	31.5	4.1	19.3	32.9	44.6	43.9	44.6	32.9
90°	161.0	155.8	109.3	44.6	0.9	11.7	23.6	33.6	31.2	33.6	23.6
92.5°	195.0	187.2	137.2	65.7	13.9	6.0	18.5	26.8	25.2	26.8	18.5
95°	225.5	220.3	168.5	90.9	34.6	4.3	12.6	19.2	20.1	19.2	12.6
97.5°	259.4	253.3	200.8	122.2	62.3	11.3	9.3	15.2	16.8	15.2	9.3
100°	287.3	284.0	236.5	159.4	95.3	29.4	6.9	11.9	14.4	11.9	6.9
102.5°	331.7	320.6	272.1	194.9	130.8	54.5	13.9	8.6	9.4	8.6	13.9
105°	371.7	359.5	314.4	232.2	171.5	88.4	34.6	11.3	6.9	11.3	34.6
107.5°	408.9	400.2	352.6	270.3	214.9	127.3	64.1	32.9	20.8	32.9	64.1
110°	452.3	441.9	389.9	308.5	259.9	169.0	97.9	60.7	46.7	60.7	97.9



TEST NUMBER: P392539

CATALOG NUMBER: MWL-2-35-23-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	493.8	486.1	424.5	348.3	306.7	214.0	139.5	95.3	82.2	95.3	139.5
115°	526.7	521.5	464.4	385.5	350.0	265.1	185.4	136.0	121.2	136.0	185.4
117.5°	560.5	559.7	493.8	423.7	401.9	311.1	227.9	177.6	161.1	177.6	227.9
120°	603.0	596.0	535.4	462.6	452.2	360.3	275.5	224.4	207.9	224.4	275.5
122.5°	632.4	628.1	570.1	499.0	499.0	409.7	320.6	269.4	252.1	269.4	320.6
125°	659.3	657.5	596.0	535.4	549.2	455.7	370.8	318.8	299.7	318.8	370.8
127.5°	683.6	686.2	629.8	575.3	600.4	502.6	420.1	363.0	343.1	363.0	420.1
130°	704.3	713.0	661.8	611.6	648.9	553.6	464.4	407.1	394.2	407.1	464.4
132.5°	745.0	739.9	694.8	648.9	700.9	600.4	511.1	451.4	436.6	451.4	511.1
135°	765.9	767.5	723.5	681.0	749.4	647.2	555.4	496.4	481.7	496.4	555.4
137.5°	791.0	785.8	746.0	719.9	794.5	692.2	598.6	544.1	520.7	544.1	598.6
140°	809.2	808.3	775.4	754.7	843.0	736.5	642.9	587.4	565.7	587.4	642.9
142.5°	828.2	833.5	804.9	792.7	891.5	783.2	690.5	629.8	609.0	629.8	690.5
145°	842.1	853.3	835.2	840.4	937.5	835.2	732.9	671.4	648.9	671.4	732.9
147.5°	863.8	878.4	856.9	875.1	977.3	882.0	774.5	713.9	693.9	713.9	774.5
150°	893.3	900.2	887.1	921.0	1018.0	932.3	817.0	754.6	734.6	754.6	817.0
152.5°	916.6	925.3	910.6	972.1	1050.1	979.0	863.8	794.5	771.1	794.5	863.8
155°	940.9	944.4	933.9	1021.5	1083.9	1025.0	901.0	838.7	816.1	838.7	901.0
157.5°	963.4	970.3	957.4	1058.8	1113.3	1064.7	942.6	882.8	862.9	882.8	942.6
160°	987.7	987.7	993.8	1102.1	1137.6	1099.5	987.7	931.3	903.5	931.3	987.7
162.5°	990.3	1006.7	1043.2	1132.4	1160.9	1129.8	1036.3	966.0	941.7	966.0	1036.3
165°	1028.4	1042.2	1098.6	1159.2	1179.2	1156.6	1096.0	1022.4	994.6	1022.4	1096.0
167.5°	1068.3	1098.6	1143.6	1189.6	1196.5	1181.7	1142.0	1090.8	1065.6	1090.8	1142.0
170°	1132.4	1159.2	1181.7	1200.8	1210.4	1201.7	1170.4	1145.3	1128.9	1145.3	1170.4
172.5°	1183.5	1200.8	1209.5	1221.6	1215.6	1212.1	1196.5	1184.4	1175.7	1184.4	1196.5
175°	1214.7	1219.0	1226.8	1223.4	1228.5	1219.0	1219.0	1225.1	1188.7	1225.1	1219.0
177.5°	1225.9	1232.9	1228.5	1221.6	1222.5	1220.7	1223.4	1226.8	1220.8	1226.8	1223.4
180°	1226.8	1226.8	1226.8	1226.8	1226.8	1226.8	1226.8	1226.8	1226.8	1226.8	1226.8



TEST NUMBER: P392539

CATALOG NUMBER: MWL-2-35-23-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	859.6	859.6	859.6	859.6	859.6	859.6
2.5°	855.5	856.3	856.3	856.3	859.5	849.5
5°	853.0	846.2	853.0	853.8	854.5	847.0
7.5°	844.6	843.7	845.4	842.9	848.7	844.5
10°	832.8	832.9	833.7	837.9	837.1	835.4
12.5°	822.0	818.6	822.0	819.5	823.7	822.9
15°	805.3	807.0	806.1	808.6	812.1	808.7
17.5°	788.6	788.6	788.6	789.5	792.8	792.1
20°	766.9	767.7	767.7	769.4	772.8	772.8
22.5°	749.4	747.7	750.2	748.6	752.8	748.7
25°	727.7	725.2	728.5	726.1	727.0	724.5
27.5°	702.7	701.8	703.5	701.1	697.7	694.4
30°	675.1	675.1	676.9	675.2	666.1	667.7
32.5°	648.5	649.2	650.2	641.0	632.7	627.7
35°	618.4	619.2	621.0	610.2	597.6	594.3
37.5°	586.7	590.9	589.3	570.9	557.6	556.7
40°	550.0	559.2	551.7	530.9	519.2	520.1
42.5°	515.0	524.1	516.6	489.1	481.7	485.0
45°	471.6	488.2	473.2	448.2	445.7	449.8
47.5°	428.2	449.8	429.0	408.2	410.7	421.5
50°	385.5	404.8	387.3	372.3	380.6	386.5
52.5°	343.9	353.1	345.6	338.9	351.5	354.0
55°	301.2	297.1	303.1	305.6	318.8	323.1
57.5°	261.2	252.9	263.0	270.5	288.8	294.7
60°	218.7	212.0	219.5	238.0	257.1	262.1
62.5°	182.0	180.3	182.8	200.4	223.7	232.1
65°	151.1	154.5	152.0	168.6	188.6	201.1
67.5°	124.4	131.1	124.4	140.2	157.7	168.6
70°	102.7	110.2	102.7	114.4	128.6	141.9
72.5°	83.4	89.3	84.4	91.9	103.5	115.2
75°	65.9	74.3	65.9	71.8	81.9	92.7
77.5°	52.6	59.2	52.6	54.2	69.4	83.8
80°	39.2	43.4	39.2	44.4	70.8	83.4
82.5°	28.4	30.9	28.4	48.1	81.5	92.6
85°	21.7	17.5	23.6	61.4	100.8	109.5
87.5°	19.3	4.1	31.5	82.2	127.8	133.1
90°	11.7	0.9	44.6	109.3	155.8	161.0
92.5°	6.0	13.9	65.7	137.2	187.2	195.0
95°	4.3	34.6	90.9	168.5	220.3	225.5
97.5°	11.3	62.3	122.2	200.8	253.3	259.4
100°	29.4	95.3	159.4	236.5	284.0	287.3
102.5°	54.5	130.8	194.9	272.1	320.6	331.7
105°	88.4	171.5	232.2	314.4	359.5	371.7
107.5°	127.3	214.9	270.3	352.6	400.2	408.9
110°	169.0	259.9	308.5	389.9	441.9	452.3



TEST NUMBER: P392539

CATALOG NUMBER: MWL-2-35-23-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	214.0	306.7	348.3	424.5	486.1	493.8
115°	265.1	350.0	385.5	464.4	521.5	526.7
117.5°	311.1	401.9	423.7	493.8	559.7	560.5
120°	360.3	452.2	462.6	535.4	596.0	603.0
122.5°	409.7	499.0	499.0	570.1	628.1	632.4
125°	455.7	549.2	535.4	596.0	657.5	659.3
127.5°	502.6	600.4	575.3	629.8	686.2	683.6
130°	553.6	648.9	611.6	661.8	713.0	704.3
132.5°	600.4	700.9	648.9	694.8	739.9	745.0
135°	647.2	749.4	681.0	723.5	767.5	765.9
137.5°	692.2	794.5	719.9	746.0	785.8	791.0
140°	736.5	843.0	754.7	775.4	808.3	809.2
142.5°	783.2	891.5	792.7	804.9	833.5	828.2
145°	835.2	937.5	840.4	835.2	853.3	842.1
147.5°	882.0	977.3	875.1	856.9	878.4	863.8
150°	932.3	1018.0	921.0	887.1	900.2	893.3
152.5°	979.0	1050.1	972.1	910.6	925.3	916.6
155°	1025.0	1083.9	1021.5	933.9	944.4	940.9
157.5°	1064.7	1113.3	1058.8	957.4	970.3	963.4
160°	1099.5	1137.6	1102.1	993.8	987.7	987.7
162.5°	1129.8	1160.9	1132.4	1043.2	1006.7	990.3
165°	1156.6	1179.2	1159.2	1098.6	1042.2	1028.4
167.5°	1181.7	1196.5	1189.6	1143.6	1098.6	1068.3
170°	1201.7	1210.4	1200.8	1181.7	1159.2	1132.4
172.5°	1212.1	1215.6	1221.6	1209.5	1200.8	1183.5
175°	1219.0	1228.5	1223.4	1226.8	1219.0	1214.7
177.5°	1220.7	1222.5	1221.6	1228.5	1232.9	1225.9
180°	1226.8	1226.8	1226.8	1226.8	1226.8	1226.8

(END OF REPORT)