

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: P392533

Luminaire Tested: **MWL-2-35-13-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392533
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-2-35-13-UNV-L835-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

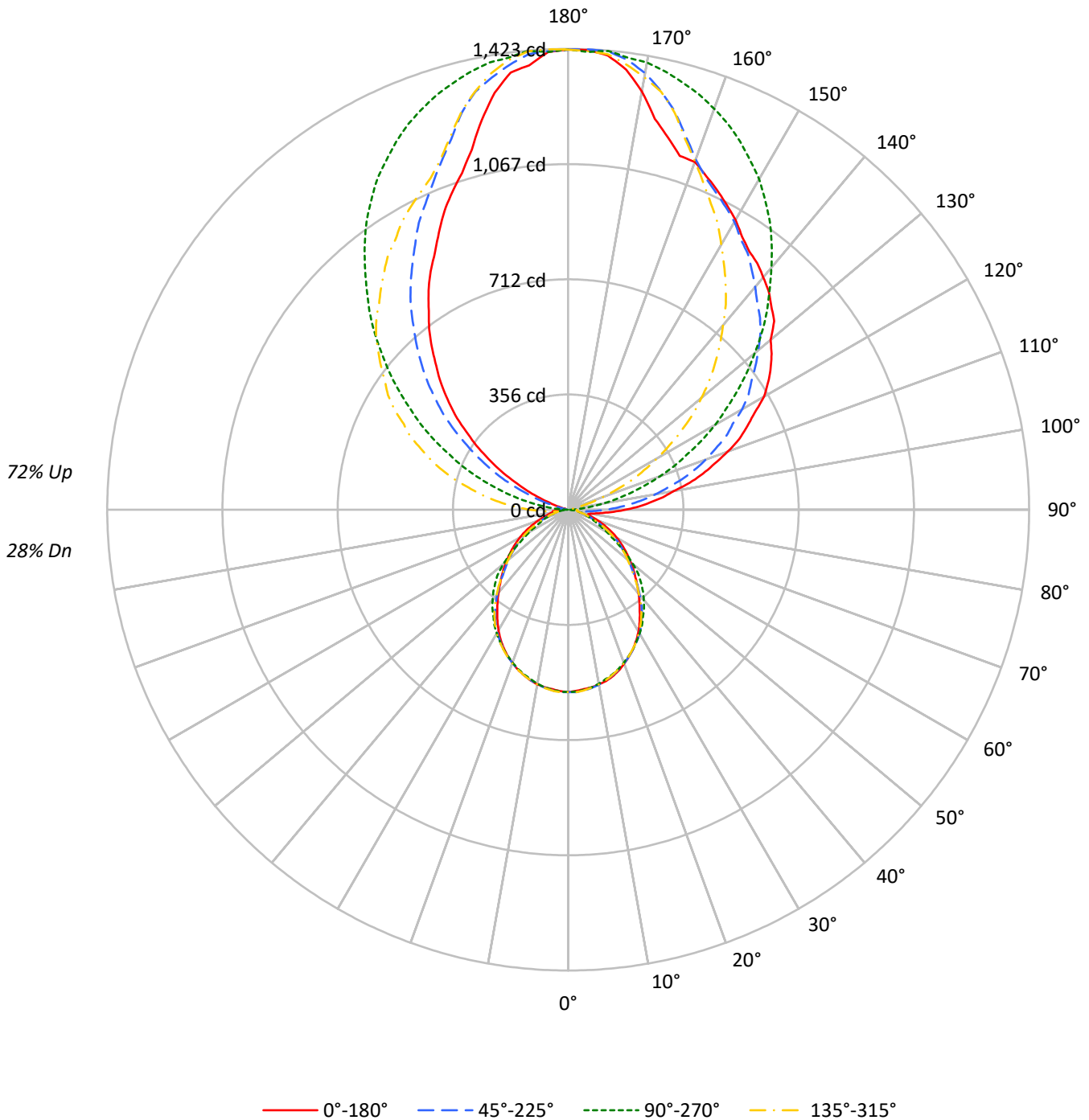
Lumens per Lamp: N/A
Luminaire Lumens: 4678.0 lumens
Efficiency: N/A
Efficacy: 86.5 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Indirect

Input Watts (W): 54.1
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	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36	28
1	93	89	85	81	83	79	76	73	62	60	58	46	45	44	31	31	30	23
2	85	78	72	67	75	70	65	60	55	51	48	41	39	37	28	27	26	20
3	77	68	61	56	69	61	55	51	48	44	41	36	33	31	25	23	22	17
4	71	60	53	47	63	54	48	43	43	38	35	32	29	27	22	21	19	15
5	65	54	46	40	58	48	42	37	38	34	30	29	26	23	20	18	17	13
6	60	48	40	35	53	43	37	32	35	30	26	26	23	20	18	16	15	12
7	55	43	36	30	49	39	33	28	31	26	23	24	21	18	17	15	13	10
8	51	39	32	27	46	36	29	25	28	24	20	22	18	16	15	13	12	9
9	47	36	29	24	42	32	26	22	26	21	18	20	17	14	14	12	11	8
10	44	33	26	21	40	30	24	20	24	19	16	18	15	13	13	11	10	8

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	7272	7272	7272	7272
5°	7083	6655	7083	6655
10°	6927	6083	6927	6083
15°	6739	5550	6701	5550
20°	6465	5059	6427	5059
25°	6159	4607	6120	4607
30°	5783	4171	5731	4171
35°	5299	3732	5258	3732
40°	4861	3326	4804	3326
45°	4432	2898	4387	2898
50°	4034	2396	3986	2396
55°	3679	1776	3643	1776
60°	3290	1299	3269	1299
65°	2820	951	2820	951
70°	2349	712	2371	712
75°	1847	509	1932	509
80°	2407	323	1756	323
85°	4839	138	1981	138



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	53.0	1.1
10°-20°	148.9	3.2
20°-30°	217.9	4.7
30°-40°	246.2	5.3
40°-50°	229.0	4.9
50°-60°	180.2	3.9
60°-70°	114.5	2.4
70°-80°	58.0	1.2
80°-90°	50.3	1.1
90°-100°	105.2	2.2
100°-110°	218.0	4.7
110°-120°	377.3	8.1
120°-130°	512.6	11.0
130°-140°	584.8	12.5
140°-150°	583.4	12.5
150°-160°	508.1	10.9
160°-170°	357.5	7.6
170°-180°	133.2	2.8
0°-30°	419.8	9.0
0°-40°	666.1	14.2
0°-60°	1075.2	23.0
0°-90°	1298.1	27.7
90°-120°	700.5	15.0
90°-150°	2381.2	50.9
90°-180°	3380.0	72.3
0°-180°	4678.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	563	563	563	563	563	
5°	556	558	556	558	556	53
15°	532	526	529	526	532	150
25°	474	474	471	474	474	218
35°	385	402	382	402	385	241
45°	293	317	290	317	293	227
55°	212	192	210	192	212	190
65°	134	98	134	98	134	133
75°	66	48	69	48	66	78
85°	110	12	45	12	110	82
90°	176	1	25	1	176	97
95°	254	40	16	40	254	224
105°	431	198	8	198	431	453
115°	610	406	140	406	610	605
125°	763	636	346	636	763	681
135°	887	868	557	868	887	684
145°	974	1086	750	1086	974	614
155°	1088	1255	944	1255	1088	502
165°	1190	1366	1151	1366	1190	338
175°	1408	1422	1378	1422	1408	131
180°	1421	1421	1421	1421	1421	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	563.0	563.0	563.0	563.0	563.0	563.0	563.0	563.0	563.0	563.0	563.0
2.5°	560.0	562.0	564.0	563.0	562.1	562.1	564.0	562.0	561.0	562.0	564.0
5°	556.2	559.1	561.1	559.2	558.2	559.2	560.1	559.1	556.2	559.1	560.1
7.5°	553.3	555.3	555.3	554.3	553.4	553.4	554.2	554.2	553.3	554.2	554.2
10°	547.5	548.5	548.5	547.6	545.6	546.5	547.5	546.5	547.5	546.5	547.5
12.5°	541.8	540.8	538.8	537.8	535.9	537.8	538.8	538.8	539.7	538.8	538.8
15°	532.1	530.2	529.1	529.1	526.2	528.1	528.1	528.1	529.1	528.1	528.1
17.5°	520.5	518.6	517.5	516.5	515.6	516.5	516.5	517.5	517.5	517.5	516.5
20°	506.0	506.0	504.9	503.0	502.0	502.0	504.0	504.0	503.0	504.0	504.0
22.5°	490.5	490.5	490.4	490.4	488.5	489.5	489.5	488.5	488.5	488.5	489.5
25°	474.1	474.1	475.1	475.0	474.0	474.0	473.0	471.1	471.1	471.1	473.0
27.5°	454.7	455.7	458.6	459.5	457.5	458.5	456.6	452.7	451.7	452.7	456.6
30°	434.4	436.4	441.2	443.1	441.1	441.1	438.2	433.4	430.5	433.4	438.2
32.5°	410.3	413.2	419.9	424.8	423.7	422.7	416.9	409.2	406.3	409.2	416.9
35°	385.1	388.0	396.7	404.5	402.4	401.5	393.7	385.0	382.1	385.0	393.7
37.5°	361.0	361.9	371.6	383.2	384.1	380.2	368.6	358.9	358.0	358.9	368.6
40°	338.7	336.8	343.5	359.9	362.8	358.0	339.5	332.7	334.7	332.7	339.5
42.5°	315.5	312.6	316.4	334.7	341.5	332.8	313.4	308.5	311.4	308.5	313.4
45°	293.2	290.3	289.3	307.7	317.3	305.7	285.3	287.3	290.2	287.3	285.3
47.5°	272.9	268.0	265.1	278.7	294.1	277.7	261.2	265.0	269.9	265.0	261.2
50°	250.6	248.7	242.9	250.6	261.3	248.6	238.9	244.7	247.6	244.7	238.9
52.5°	232.3	229.4	220.7	224.5	228.4	222.5	217.7	225.4	229.3	225.4	217.7
55°	212.0	210.0	199.4	198.4	191.5	196.4	196.4	207.0	209.9	207.0	196.4
57.5°	192.6	190.7	179.1	171.3	160.6	169.3	176.1	187.7	190.6	187.7	176.1
60°	173.3	171.3	156.8	145.1	137.4	144.2	154.8	169.3	172.2	169.3	154.8
62.5°	154.9	151.0	134.6	120.0	115.2	119.0	132.6	149.0	153.8	149.0	132.6
65°	133.5	128.7	113.2	100.7	97.8	99.7	112.3	127.7	133.5	127.7	112.3
67.5°	115.2	108.4	95.8	83.3	84.2	83.3	94.9	107.4	115.2	107.4	94.9
70°	97.8	89.1	77.5	68.7	70.7	68.7	77.5	90.0	98.7	90.0	77.5
72.5°	81.3	71.6	62.9	56.2	58.0	55.1	62.9	72.6	83.3	72.6	62.9
75°	65.8	58.1	48.3	44.5	48.3	44.5	49.4	59.1	68.8	59.1	49.4
77.5°	63.2	51.4	37.7	34.8	38.7	34.8	38.8	48.4	59.2	48.4	38.8
80°	70.6	57.8	32.1	27.1	29.0	27.1	30.1	41.8	51.5	41.8	30.1
82.5°	86.1	74.1	39.3	19.3	20.3	19.3	27.3	37.9	47.9	37.9	27.3
85°	110.4	100.4	58.5	17.6	11.6	15.6	29.3	39.1	45.2	39.1	29.3
87.5°	141.7	133.6	84.7	29.7	2.9	15.7	27.5	37.2	38.3	37.2	27.5
90°	176.0	168.0	118.0	47.9	1.0	9.8	18.6	26.3	25.4	26.3	18.6
92.5°	217.3	207.2	152.2	75.1	16.1	5.9	14.6	21.5	20.5	21.5	14.6
95°	253.5	248.5	191.5	104.4	40.1	4.1	10.7	15.6	15.6	15.6	10.7
97.5°	294.8	288.8	231.8	140.6	71.3	12.1	9.9	12.8	13.7	12.8	9.9
100°	330.1	328.2	274.1	183.7	109.5	33.2	8.0	12.9	13.8	12.9	8.0
102.5°	384.4	371.5	314.3	224.9	150.6	62.3	15.1	10.0	10.9	10.0	15.1
105°	430.8	416.6	363.5	268.1	197.8	101.4	39.2	13.1	8.0	13.1	39.2
107.5°	473.9	463.8	408.6	312.3	248.0	146.6	74.3	38.1	24.1	38.1	74.3
110°	524.2	512.1	451.8	357.5	300.2	195.8	113.4	70.3	54.1	70.3	113.4



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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°	572.3	563.3	492.0	403.6	355.4	248.0	161.7	110.4	95.3	110.4	161.7
115°	609.5	604.4	538.2	446.8	405.6	307.2	214.9	157.6	139.5	157.6	214.9
117.5°	648.6	647.6	572.3	491.0	465.9	360.5	264.1	204.8	185.7	204.8	264.1
120°	697.8	689.8	619.5	535.2	523.1	416.6	318.3	259.0	240.0	259.0	318.3
122.5°	732.0	726.9	659.7	577.4	577.4	473.9	370.5	311.3	291.1	311.3	370.5
125°	763.1	761.1	689.8	619.5	635.6	527.2	428.7	368.5	346.4	368.5	428.7
127.5°	791.2	794.2	729.0	665.7	694.8	581.4	486.0	419.7	396.6	419.7	486.0
130°	815.3	825.4	766.1	707.9	751.1	640.6	537.2	470.9	455.8	470.9	537.2
132.5°	862.5	856.5	804.3	751.1	811.3	694.8	591.4	522.1	505.0	522.1	591.4
135°	886.7	888.6	837.5	788.2	867.5	749.1	642.6	574.4	557.2	574.4	642.6
137.5°	915.8	909.7	863.6	833.4	919.7	801.3	692.8	629.6	602.5	629.6	692.8
140°	936.9	935.8	897.7	873.6	976.0	852.5	744.0	679.7	654.7	679.7	744.0
142.5°	958.9	965.0	931.8	917.8	1032.2	906.7	799.3	729.0	704.9	729.0	799.3
145°	974.0	987.0	966.0	973.0	1085.5	966.9	847.5	776.2	750.0	776.2	847.5
147.5°	999.1	1016.1	991.1	1012.2	1131.7	1020.2	895.7	825.4	802.3	825.4	895.7
150°	1033.3	1041.3	1026.2	1066.4	1178.9	1079.5	944.9	872.6	849.4	872.6	944.9
152.5°	1060.3	1070.4	1053.4	1125.6	1216.0	1133.6	999.1	918.8	891.7	918.8	999.1
155°	1088.5	1092.5	1080.4	1182.8	1255.2	1186.9	1042.2	970.0	943.9	970.0	1042.2
157.5°	1114.6	1122.6	1108.6	1226.1	1289.3	1233.0	1091.5	1021.2	998.1	1021.2	1091.5
160°	1142.7	1142.7	1150.7	1276.2	1317.4	1273.2	1143.7	1077.4	1045.2	1077.4	1143.7
162.5°	1145.7	1164.8	1208.0	1311.3	1344.5	1308.3	1200.0	1117.6	1089.4	1117.6	1200.0
165°	1189.9	1206.9	1272.2	1342.5	1365.6	1339.5	1269.2	1183.9	1150.7	1183.9	1269.2
167.5°	1236.1	1272.2	1324.4	1377.7	1385.7	1368.6	1322.5	1263.2	1233.0	1263.2	1322.5
170°	1311.3	1342.5	1368.6	1390.7	1401.8	1391.7	1355.5	1326.4	1307.4	1326.4	1355.5
172.5°	1370.6	1390.7	1400.8	1414.8	1407.7	1403.8	1385.7	1371.7	1361.6	1371.7	1385.7
175°	1407.7	1411.8	1420.8	1415.9	1421.9	1410.8	1411.8	1418.9	1377.7	1418.9	1411.8
177.5°	1420.8	1427.9	1422.8	1413.8	1414.8	1412.8	1416.8	1420.8	1414.8	1420.8	1416.8
180°	1420.8	1420.8	1420.8	1420.8	1420.8	1420.8	1420.8	1420.8	1420.8	1420.8	1420.8



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	563.0	563.0	563.0	563.0	563.0	563.0
2.5°	562.1	562.1	563.0	564.0	562.0	560.0
5°	559.2	558.2	559.2	561.1	559.1	556.2
7.5°	553.4	553.4	554.3	555.3	555.3	553.3
10°	546.5	545.6	547.6	548.5	548.5	547.5
12.5°	537.8	535.9	537.8	538.8	540.8	541.8
15°	528.1	526.2	529.1	529.1	530.2	532.1
17.5°	516.5	515.6	516.5	517.5	518.6	520.5
20°	502.0	502.0	503.0	504.9	506.0	506.0
22.5°	489.5	488.5	490.4	490.4	490.5	490.5
25°	474.0	474.0	475.0	475.1	474.1	474.1
27.5°	458.5	457.5	459.5	458.6	455.7	454.7
30°	441.1	441.1	443.1	441.2	436.4	434.4
32.5°	422.7	423.7	424.8	419.9	413.2	410.3
35°	401.5	402.4	404.5	396.7	388.0	385.1
37.5°	380.2	384.1	383.2	371.6	361.9	361.0
40°	358.0	362.8	359.9	343.5	336.8	338.7
42.5°	332.8	341.5	334.7	316.4	312.6	315.5
45°	305.7	317.3	307.7	289.3	290.3	293.2
47.5°	277.7	294.1	278.7	265.1	268.0	272.9
50°	248.6	261.3	250.6	242.9	248.7	250.6
52.5°	222.5	228.4	224.5	220.7	229.4	232.3
55°	196.4	191.5	198.4	199.4	210.0	212.0
57.5°	169.3	160.6	171.3	179.1	190.7	192.6
60°	144.2	137.4	145.1	156.8	171.3	173.3
62.5°	119.0	115.2	120.0	134.6	151.0	154.9
65°	99.7	97.8	100.7	113.2	128.7	133.5
67.5°	83.3	84.2	83.3	95.8	108.4	115.2
70°	68.7	70.7	68.7	77.5	89.1	97.8
72.5°	55.1	58.0	56.2	62.9	71.6	81.3
75°	44.5	48.3	44.5	48.3	58.1	65.8
77.5°	34.8	38.7	34.8	37.7	51.4	63.2
80°	27.1	29.0	27.1	32.1	57.8	70.6
82.5°	19.3	20.3	19.3	39.3	74.1	86.1
85°	15.6	11.6	17.6	58.5	100.4	110.4
87.5°	15.7	2.9	29.7	84.7	133.6	141.7
90°	9.8	1.0	47.9	118.0	168.0	176.0
92.5°	5.9	16.1	75.1	152.2	207.2	217.3
95°	4.1	40.1	104.4	191.5	248.5	253.5
97.5°	12.1	71.3	140.6	231.8	288.8	294.8
100°	33.2	109.5	183.7	274.1	328.2	330.1
102.5°	62.3	150.6	224.9	314.3	371.5	384.4
105°	101.4	197.8	268.1	363.5	416.6	430.8
107.5°	146.6	248.0	312.3	408.6	463.8	473.9
110°	195.8	300.2	357.5	451.8	512.1	524.2



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	248.0	355.4	403.6	492.0	563.3	572.3
115°	307.2	405.6	446.8	538.2	604.4	609.5
117.5°	360.5	465.9	491.0	572.3	647.6	648.6
120°	416.6	523.1	535.2	619.5	689.8	697.8
122.5°	473.9	577.4	577.4	659.7	726.9	732.0
125°	527.2	635.6	619.5	689.8	761.1	763.1
127.5°	581.4	694.8	665.7	729.0	794.2	791.2
130°	640.6	751.1	707.9	766.1	825.4	815.3
132.5°	694.8	811.3	751.1	804.3	856.5	862.5
135°	749.1	867.5	788.2	837.5	888.6	886.7
137.5°	801.3	919.7	833.4	863.6	909.7	915.8
140°	852.5	976.0	873.6	897.7	935.8	936.9
142.5°	906.7	1032.2	917.8	931.8	965.0	958.9
145°	966.9	1085.5	973.0	966.0	987.0	974.0
147.5°	1020.2	1131.7	1012.2	991.1	1016.1	999.1
150°	1079.5	1178.9	1066.4	1026.2	1041.3	1033.3
152.5°	1133.6	1216.0	1125.6	1053.4	1070.4	1060.3
155°	1186.9	1255.2	1182.8	1080.4	1092.5	1088.5
157.5°	1233.0	1289.3	1226.1	1108.6	1122.6	1114.6
160°	1273.2	1317.4	1276.2	1150.7	1142.7	1142.7
162.5°	1308.3	1344.5	1311.3	1208.0	1164.8	1145.7
165°	1339.5	1365.6	1342.5	1272.2	1206.9	1189.9
167.5°	1368.6	1385.7	1377.7	1324.4	1272.2	1236.1
170°	1391.7	1401.8	1390.7	1368.6	1342.5	1311.3
172.5°	1403.8	1407.7	1414.8	1400.8	1390.7	1370.6
175°	1410.8	1421.9	1415.9	1420.8	1411.8	1407.7
177.5°	1412.8	1414.8	1413.8	1422.8	1427.9	1420.8
180°	1420.8	1420.8	1420.8	1420.8	1420.8	1420.8

(END OF REPORT)