

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: METALUX

Report Number: P192441

Luminaire Tested: **4WSL-LD2-30-UPL8-UNV-L830-CD1-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P192441  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P28106)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 4WSL-LD2-30-UPL8-UNV-L830-CD1-U  
Description: 4FT Linear Wavestream System, 8% Uplight, L830  
Light Source: (238) 3000K CCT, 80 CRI LEDS  
EL236N0119D830  
Ballast/Driver: OSRAM  
OT30W

**Summary**

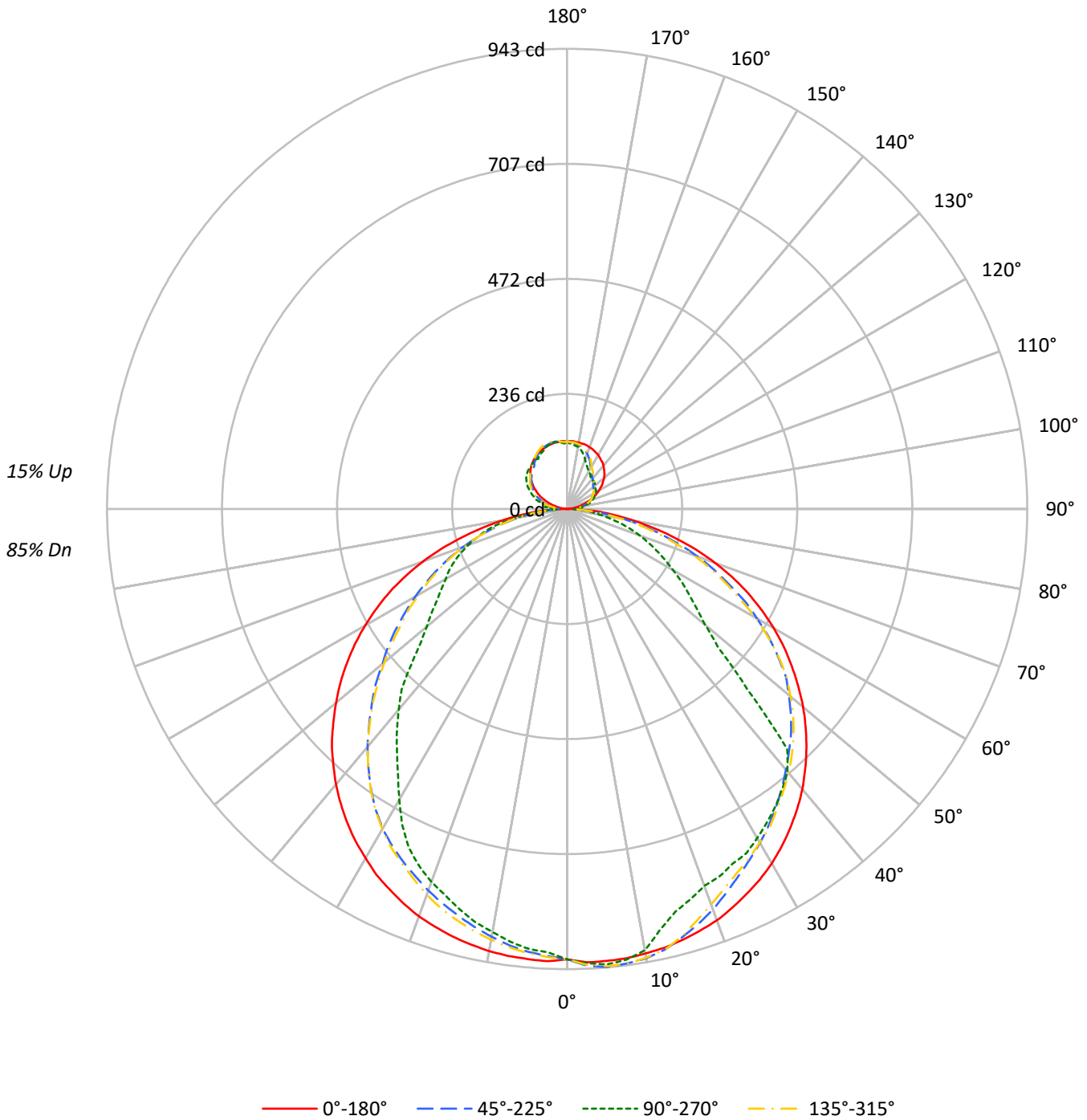
Lumens per Lamp: N/A  
Luminaire Lumens: 3061.0 lumens  
Efficiency: N/A  
Efficacy: 122.9 lumens/watt  
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36  
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')  
CIE Type: Semi-Direct

Input Watts (W): 24.9  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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





TEST NUMBER: P192441

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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	50	30	10	50	30	10	50	30	10	0																
RCR																																														
0	115	115	115	115	111	111	111	111	103	103	103	95	95	95	88	88	88	85																												
1	105	101	96	92	101	97	93	90	90	87	84	83	81	79	78	76	74	71																												
2	96	88	81	75	92	84	78	73	78	73	69	73	69	65	68	65	62	59																												
3	87	77	69	62	83	74	67	61	69	63	58	64	59	55	60	56	52	50																												
4	80	68	59	53	76	66	58	52	61	55	49	57	52	47	53	49	45	42																												
5	73	61	52	45	70	59	51	44	55	48	43	51	45	41	48	43	39	37																												
6	68	55	46	40	65	53	45	39	50	43	37	47	40	36	44	38	34	32																												
7	63	49	41	35	60	48	40	34	45	38	33	42	36	32	40	35	31	28																												
8	58	45	37	31	56	44	36	30	41	34	29	39	33	28	37	31	27	25																												
9	54	41	33	28	52	40	33	27	38	31	26	36	30	26	34	29	25	23																												
10	51	38	30	25	49	37	30	25	35	28	24	33	27	23	31	26	22	21																												

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

	0°	90°	180°	270°
0°	5228	5228	5228	5228
5°	5288	5327	5265	5147
10°	5320	5280	5292	5065
15°	5361	5013	5320	4984
20°	5409	4956	5355	4903
25°	5441	5015	5380	4793
30°	5488	5093	5403	4499
35°	5515	5145	5432	4203
40°	5546	5195	5451	3968
45°	5557	4180	5462	3625
50°	5565	3248	5451	3309
55°	5553	3006	5445	3211
60°	5542	2833	5418	3258
65°	5484	2716	5365	3417
70°	5335	2619	5204	3568
75°	4995	2465	4844	3763
80°	4545	2258	4352	3579
85°	4433	2438	3985	3211



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	87.7	2.9
10°-20°	249.1	8.1
20°-30°	377.1	12.3
30°-40°	455.4	14.9
40°-50°	464.9	15.2
50°-60°	406.5	13.3
60°-70°	315.1	10.3
70°-80°	189.4	6.2
80°-90°	58.5	1.9
90°-100°	24.7	0.8
100°-110°	47.1	1.5
110°-120°	64.0	2.1
120°-130°	72.8	2.4
130°-140°	73.8	2.4
140°-150°	68.0	2.2
150°-160°	56.1	1.8
160°-170°	37.7	1.2
170°-180°	13.1	0.4
0°-30°	714.0	23.3
0°-40°	1169.4	38.2
0°-60°	2040.8	66.7
0°-90°	2603.7	85.1
90°-120°	135.8	4.4
90°-150°	350.4	11.4
90°-180°	457.0	14.9
0°-180°	3061.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	923	923	923	923	923	
5°	930	937	926	905	930	89
15°	914	855	907	850	914	258
25°	870	802	861	767	870	402
35°	797	744	786	608	797	499
45°	694	522	682	452	694	535
55°	562	304	551	325	562	503
65°	409	203	400	255	409	404
75°	228	113	221	172	228	242
85°	68	38	61	49	68	69
90°	1	21	1	24	1	4
95°	6	29	6	46	6	8
105°	32	48	31	61	32	34
115°	61	62	60	83	61	61
125°	88	71	86	102	88	78
135°	108	78	107	113	108	83
145°	122	83	120	120	122	76
155°	131	97	130	126	131	61
165°	137	120	136	137	137	39
175°	139	132	139	136	139	13
180°	137	137	137	137	137	



TEST NUMBER: P192441

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	922.8	922.8	922.8	922.8	922.8	922.8	922.8	922.8	922.8	922.8	922.8
2.5°	929.8	924.8	936.7	938.7	931.7	933.7	934.7	923.8	927.8	913.0	916.9
5°	929.8	928.8	942.6	940.6	936.7	937.7	940.6	927.8	925.8	908.0	911.0
7.5°	928.8	930.8	939.6	937.7	931.7	934.7	939.6	929.8	923.8	903.1	902.1
10°	924.8	927.8	934.7	928.8	917.9	922.8	933.7	927.8	919.9	895.2	890.2
12.5°	920.9	922.8	924.8	900.1	882.3	894.2	924.8	922.8	914.0	886.3	877.4
15°	914.0	916.9	909.0	873.4	854.7	866.5	907.0	914.9	907.0	873.4	862.6
17.5°	906.1	909.0	892.2	852.7	838.9	844.8	884.3	905.1	898.1	861.6	847.8
20°	897.2	900.1	873.4	831.0	822.1	827.0	862.6	894.2	888.3	847.8	831.9
22.5°	884.3	889.3	851.7	816.1	815.2	815.2	841.8	881.4	875.4	831.0	814.2
25°	870.5	875.4	830.0	802.3	802.3	802.3	823.1	864.6	860.6	813.2	796.4
27.5°	855.7	860.6	810.2	792.4	795.4	790.4	807.2	845.8	845.8	795.4	777.6
30°	838.9	843.8	790.4	776.6	778.6	776.6	789.5	826.0	826.0	774.6	755.9
32.5°	819.1	824.0	768.7	757.8	761.8	759.8	772.7	806.3	807.2	752.9	730.2
35°	797.4	803.3	746.0	740.1	744.0	741.0	749.9	785.5	785.5	729.2	700.5
37.5°	774.6	780.6	722.3	720.3	724.2	721.3	728.2	763.8	761.8	704.5	668.9
40°	749.9	756.9	697.6	697.6	702.5	700.5	706.5	741.0	737.1	679.8	636.3
42.5°	722.3	731.2	672.9	673.9	667.9	675.8	681.8	717.3	709.4	652.1	600.7
45°	693.6	704.5	649.2	631.4	521.7	624.5	656.1	693.6	681.8	624.5	566.2
47.5°	663.0	676.8	621.5	556.3	419.9	547.4	628.4	664.0	650.1	594.8	532.6
50°	631.4	647.2	592.8	492.1	368.5	482.2	597.8	634.3	618.5	564.2	494.0
52.5°	596.8	614.6	565.2	435.7	334.0	426.8	566.2	605.7	585.9	531.6	462.4
55°	562.2	581.0	527.6	387.3	304.3	379.4	529.6	569.1	551.3	498.0	427.8
57.5°	526.6	545.4	490.1	344.8	278.6	336.9	488.1	535.5	515.8	463.4	393.2
60°	489.1	507.9	449.6	306.3	250.0	300.4	445.6	498.0	478.2	427.8	359.7
62.5°	449.6	468.3	411.0	270.7	226.3	265.8	399.2	461.4	439.7	390.3	325.1
65°	409.1	422.9	365.6	237.1	202.6	233.2	357.7	416.0	400.2	350.8	292.5
67.5°	366.6	380.4	326.1	207.5	179.8	203.5	317.2	375.5	357.7	312.2	259.9
70°	322.1	334.0	284.6	178.8	158.1	175.9	274.7	330.0	314.2	271.7	225.3
72.5°	276.7	287.5	240.1	152.2	135.4	150.2	230.2	284.6	268.8	229.2	193.7
75°	228.2	239.1	198.6	125.5	112.6	123.5	189.7	236.1	221.3	188.7	161.1
77.5°	182.8	195.6	157.1	98.8	89.9	96.8	149.2	190.7	175.9	151.2	129.4
80°	139.3	150.2	116.6	75.1	69.2	74.1	108.7	145.2	133.4	116.6	100.8
82.5°	100.8	106.7	80.0	55.3	52.4	54.3	74.1	102.8	96.8	84.0	74.1
85°	68.2	67.2	49.4	38.5	37.5	38.5	44.5	62.2	61.3	56.3	47.4
87.5°	28.7	26.7	22.7	15.8	13.8	14.8	17.8	23.7	22.7	23.7	22.7
90°	1.0	9.9	15.8	19.8	20.7	19.8	15.8	9.9	1.0	10.9	17.8
92.5°	2.0	12.8	18.8	21.7	23.7	21.7	17.8	12.8	2.0	16.8	17.8
95°	5.9	17.8	21.7	26.7	28.7	26.7	21.7	16.8	5.9	14.8	26.7
97.5°	11.9	22.7	25.7	29.6	30.6	28.7	24.7	22.7	10.9	26.7	27.7
100°	17.8	28.7	33.6	33.6	34.6	33.6	32.6	27.7	16.8	29.6	33.6
102.5°	24.7	32.6	38.5	41.5	41.5	41.5	38.5	32.6	22.7	36.6	46.4
105°	31.6	35.6	42.5	46.4	48.4	46.4	42.5	36.6	30.6	42.5	49.4
107.5°	39.5	38.5	46.4	50.4	52.4	50.4	46.4	39.5	37.5	47.4	55.3
110°	47.4	42.5	50.4	54.3	55.3	54.3	50.4	42.5	45.5	53.4	61.3



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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°	54.3	45.5	54.3	58.3	59.3	58.3	54.3	46.4	52.4	57.3	67.2
115°	61.3	48.4	56.3	61.3	62.2	61.3	56.3	49.4	60.3	62.2	72.1
117.5°	68.2	52.4	58.3	64.2	65.2	64.2	59.3	53.4	67.2	68.2	77.1
120°	75.1	57.3	61.3	66.2	68.2	67.2	61.3	58.3	73.1	73.1	81.0
122.5°	81.0	61.3	64.2	68.2	70.2	68.2	64.2	63.2	80.0	78.1	86.0
125°	87.9	65.2	66.2	70.2	71.1	70.2	67.2	66.2	86.0	82.0	88.9
127.5°	92.9	70.2	68.2	72.1	73.1	72.1	69.2	71.1	91.9	89.9	91.9
130°	98.8	75.1	70.2	74.1	75.1	75.1	70.2	77.1	96.8	95.8	95.8
132.5°	103.7	80.0	72.1	76.1	77.1	77.1	73.1	81.0	101.8	100.8	98.8
135°	107.7	86.9	76.1	76.1	78.1	78.1	77.1	87.9	106.7	105.7	103.7
137.5°	111.7	92.9	79.0	77.1	78.1	78.1	81.0	93.9	110.7	110.7	106.7
140°	115.6	98.8	81.0	79.0	79.0	81.0	84.0	99.8	114.6	114.6	107.7
142.5°	119.6	103.7	84.0	82.0	80.0	84.0	86.9	105.7	117.6	118.6	110.7
145°	121.5	108.7	87.9	85.0	83.0	87.9	91.9	110.7	120.5	122.5	116.6
147.5°	124.5	113.6	92.9	86.9	86.9	89.9	95.8	114.6	123.5	125.5	119.6
150°	127.5	117.6	96.8	89.9	87.9	92.9	99.8	118.6	126.5	128.4	123.5
152.5°	129.4	121.5	102.8	93.9	91.9	97.8	106.7	121.5	128.4	130.4	127.5
155°	131.4	124.5	109.7	97.8	96.8	101.8	112.6	124.5	130.4	132.4	130.4
157.5°	133.4	127.5	114.6	103.7	99.8	107.7	117.6	128.4	132.4	134.4	133.4
160°	134.4	129.4	120.5	109.7	107.7	114.6	122.5	129.4	133.4	136.4	135.4
162.5°	136.4	131.4	124.5	116.6	114.6	120.5	126.5	132.4	135.4	137.3	137.3
165°	137.3	133.4	128.4	122.5	120.5	126.5	129.4	134.4	136.4	137.3	138.3
167.5°	137.3	135.4	131.4	126.5	125.5	130.4	133.4	136.4	137.3	137.3	139.3
170°	138.3	136.4	133.4	130.4	129.4	133.4	134.4	137.3	138.3	137.3	140.3
172.5°	138.3	137.3	135.4	132.4	130.4	135.4	136.4	137.3	138.3	137.3	139.3
175°	139.3	137.3	137.3	135.4	132.4	137.3	137.3	137.3	139.3	137.3	138.3
177.5°	139.3	137.3	137.3	136.4	134.4	137.3	137.3	137.3	139.3	137.3	138.3
180°	137.3	137.3	137.3	137.3	137.3	137.3	137.3	137.3	137.3	137.3	137.3



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	922.8	922.8	922.8	922.8	922.8	922.8
2.5°	915.9	909.0	911.0	918.9	915.9	929.8
5°	909.0	905.1	905.1	914.0	913.0	929.8
7.5°	898.1	894.2	896.2	906.1	908.0	928.8
10°	885.3	880.4	882.3	896.2	901.1	924.8
12.5°	871.5	867.5	869.5	885.3	892.2	920.9
15°	855.7	849.7	855.7	872.5	881.4	914.0
17.5°	837.9	830.0	836.9	858.6	869.5	906.1
20°	820.1	813.2	817.1	840.8	856.6	897.2
22.5°	802.3	792.4	796.4	821.1	840.8	884.3
25°	781.6	766.7	774.6	801.3	824.0	870.5
27.5°	753.9	731.2	748.0	781.6	804.3	855.7
30°	717.3	687.7	712.4	757.8	783.5	838.9
32.5°	676.8	645.2	672.9	731.2	761.8	819.1
35°	636.3	607.7	632.4	701.5	739.1	797.4
37.5°	597.8	573.1	595.8	669.9	715.4	774.6
40°	561.2	536.5	560.2	635.3	689.7	749.9
42.5°	524.7	501.9	524.7	598.8	663.0	722.3
45°	488.1	452.5	486.1	563.2	634.3	693.6
47.5°	448.6	407.1	445.6	524.7	603.7	663.0
50°	411.0	375.5	409.1	489.1	572.1	631.4
52.5°	378.4	349.8	376.5	452.5	539.5	596.8
55°	347.8	325.1	347.8	417.0	504.9	562.2
57.5°	320.1	305.3	321.1	386.3	469.3	526.6
60°	296.4	287.5	297.4	348.8	433.8	489.1
62.5°	273.7	272.7	274.7	319.1	396.2	449.6
65°	250.0	254.9	250.0	287.5	358.7	409.1
67.5°	226.3	236.1	228.2	255.9	318.2	366.6
70°	204.5	215.4	204.5	223.3	277.6	322.1
72.5°	179.8	193.7	179.8	192.7	235.2	276.7
75°	156.1	171.9	157.1	161.1	194.6	228.2
77.5°	130.4	145.2	133.4	130.4	157.1	182.8
80°	103.7	109.7	103.7	102.8	121.5	139.3
82.5°	72.1	77.1	72.1	75.1	88.9	100.8
85°	47.4	49.4	47.4	48.4	59.3	68.2
87.5°	19.8	19.8	19.8	24.7	26.7	28.7
90°	21.7	23.7	21.7	17.8	10.9	1.0
92.5°	22.7	24.7	22.7	19.8	12.8	2.0
95°	40.5	45.5	38.5	24.7	20.7	5.9
97.5°	32.6	35.6	33.6	28.7	25.7	11.9
100°	38.5	41.5	38.5	40.5	31.6	17.8
102.5°	45.5	47.4	46.4	47.4	38.5	24.7
105°	59.3	61.3	59.3	51.4	44.5	31.6
107.5°	63.2	68.2	64.2	57.3	50.4	39.5
110°	68.2	72.1	69.2	63.2	55.3	47.4





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	73.1	78.1	75.1	70.2	59.3	54.3
115°	79.0	83.0	81.0	75.1	65.2	61.3
117.5°	85.0	87.9	86.0	79.0	71.1	68.2
120°	89.9	93.9	91.9	84.0	76.1	75.1
122.5°	93.9	97.8	95.8	88.9	81.0	81.0
125°	97.8	101.8	99.8	92.9	85.0	87.9
127.5°	100.8	105.7	103.7	95.8	93.9	92.9
130°	104.7	107.7	106.7	98.8	98.8	98.8
132.5°	106.7	110.7	108.7	102.8	104.7	103.7
135°	107.7	112.6	110.7	107.7	109.7	107.7
137.5°	109.7	113.6	112.6	110.7	114.6	111.7
140°	112.6	114.6	115.6	112.6	118.6	115.6
142.5°	115.6	116.6	118.6	115.6	122.5	119.6
145°	117.6	119.6	121.5	121.5	125.5	121.5
147.5°	117.6	120.5	120.5	123.5	129.4	124.5
150°	120.5	118.6	124.5	127.5	131.4	127.5
152.5°	124.5	123.5	128.4	131.4	133.4	129.4
155°	125.5	126.5	129.4	134.4	135.4	131.4
157.5°	129.4	128.4	133.4	137.3	137.3	133.4
160°	132.4	132.4	137.3	139.3	138.3	134.4
162.5°	135.4	135.4	140.3	140.3	139.3	136.4
165°	137.3	137.3	142.3	141.3	139.3	137.3
167.5°	138.3	139.3	143.3	142.3	139.3	137.3
170°	139.3	139.3	143.3	141.3	139.3	138.3
172.5°	139.3	138.3	142.3	140.3	138.3	138.3
175°	138.3	136.4	140.3	138.3	138.3	139.3
177.5°	137.3	134.4	137.3	137.3	138.3	139.3
180°	137.3	137.3	137.3	137.3	137.3	137.3

(END OF REPORT)