

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: P192487

Luminaire Tested: **4WSL-LD2-30-UPL15-UNV-L840-CD1-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P192487  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P28105)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 4WSL-LD2-30-UPL15-UNV-L840-CD1-U  
Description: 4FT Linear Wavestream System, 15% Uplight, L840  
Light Source: (238) 4000K CCT, 80 CRI LEDS  
EL236N0119D840  
Ballast/Driver: OSRAM  
OT30W

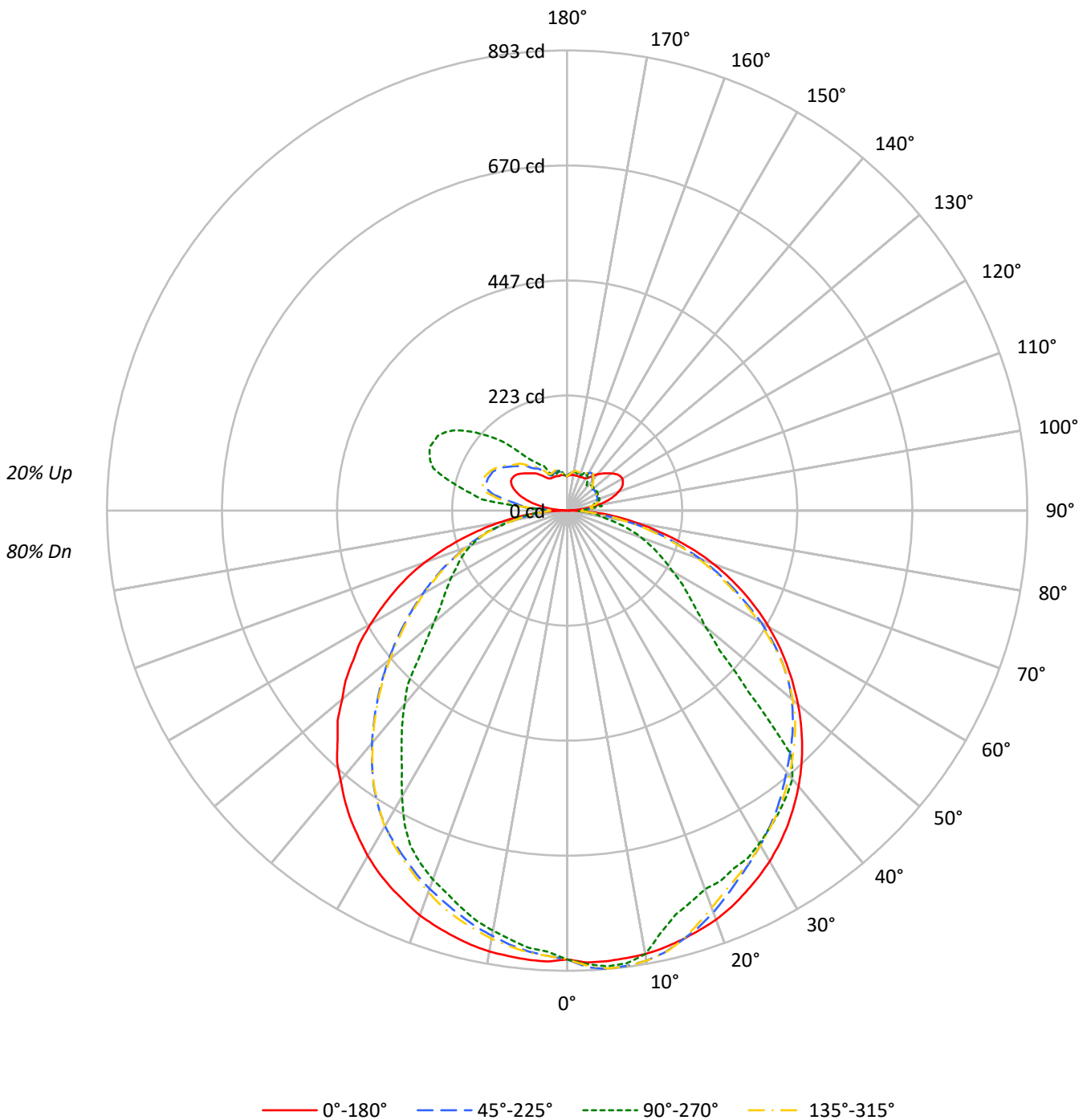
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3082.2 lumens  
Efficiency: N/A  
Efficacy: 123.8 lumens/watt  
Spacing Criteria (0/90/45): 1.32 / 1.19 / 1.35  
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 (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	114	114	114	114	109	109	109	109	100	100	100	91	91	91	83	83	83	80
1	104	99	95	91	99	95	91	88	87	84	81	80	77	75	73	71	70	66
2	94	86	80	74	90	83	77	72	76	71	67	70	66	62	64	61	58	55
3	86	76	68	62	82	73	66	60	67	61	56	61	57	53	56	53	49	46
4	79	67	59	52	75	64	57	51	59	53	48	55	49	45	50	46	42	40
5	72	60	51	45	69	58	50	44	53	46	41	49	43	39	45	41	37	34
6	67	54	45	39	64	52	44	38	48	41	36	44	39	34	41	36	32	30
7	62	49	40	34	59	47	39	33	44	37	32	40	35	30	38	33	29	26
8	58	44	36	30	55	43	35	30	40	33	28	37	31	27	34	29	26	24
9	54	41	33	27	51	39	32	27	37	30	26	34	28	24	32	27	23	21
10	50	37	30	25	48	36	29	24	34	27	23	32	26	22	30	25	21	19

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

	0°	90°	180°	270°
0°	4934	4934	4934	4934
5°	4992	5049	4975	4845
10°	5027	5027	4998	4763
15°	5055	4762	5014	4674
20°	5094	4714	5039	4593
25°	5113	4788	5050	4494
30°	5141	4879	5063	4193
35°	5159	4951	5062	3872
40°	5169	5028	5058	3630
45°	5167	3997	5047	3268
50°	5155	3084	5023	2969
55°	5135	2845	5007	2884
60°	5120	2685	4984	2946
65°	5079	2601	4945	3083
70°	5001	2534	4870	3296
75°	4772	2408	4619	3502
80°	4470	2186	4339	3491
85°	4485	2860	4160	4160



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	82.9	2.7
10°-20°	235.2	7.6
20°-30°	355.4	11.5
30°-40°	427.8	13.9
40°-50°	435.0	14.1
50°-60°	378.6	12.3
60°-70°	295.4	9.6
70°-80°	182.6	5.9
80°-90°	64.3	2.1
90°-100°	60.5	2.0
100°-110°	117.1	3.8
110°-120°	128.2	4.2
120°-130°	112.4	3.6
130°-140°	84.2	2.7
140°-150°	57.6	1.9
150°-160°	36.7	1.2
160°-170°	21.5	0.7
170°-180°	6.9	0.2
0°-30°	673.5	21.9
0°-40°	1101.3	35.7
0°-60°	1914.9	62.1
0°-90°	2457.1	79.7
90°-120°	305.8	9.9
90°-150°	560.0	18.2
90°-180°	625.0	20.3
0°-180°	3082.2	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	871	871	871	871	871	
5°	878	888	875	852	878	84
15°	862	812	855	797	862	244
25°	818	766	808	719	818	377
35°	746	716	732	560	746	467
45°	645	499	630	408	645	497
55°	520	288	507	292	520	465
65°	379	194	369	230	379	374
75°	218	110	211	160	218	231
85°	69	44	64	64	69	69
90°	1	28	1	44	1	5
95°	27	46	21	92	27	28
105°	86	57	83	245	86	90
115°	119	65	119	294	119	117
125°	121	68	121	271	121	108
135°	102	68	102	198	102	79
145°	80	68	82	118	80	51
155°	71	82	70	81	71	33
165°	70	74	69	75	70	20
175°	69	72	69	70	69	7
180°	67	67	67	67	67	



TEST NUMBER: P192487

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	870.9	870.9	870.9	870.9	870.9	870.9	870.9	870.9	870.9	870.9	870.9
2.5°	877.9	873.9	886.9	887.9	880.9	883.9	883.9	872.9	875.9	862.9	864.9
5°	877.9	878.9	892.9	891.9	887.9	888.9	891.9	877.9	874.9	856.9	858.9
7.5°	875.9	880.9	890.9	889.9	885.9	886.9	891.9	879.9	871.9	850.9	849.9
10°	873.9	878.9	886.9	881.9	873.9	876.9	886.9	878.9	868.9	843.9	837.9
12.5°	868.9	873.9	877.9	852.9	838.9	850.9	878.9	873.9	862.9	833.9	825.9
15°	861.9	867.9	862.9	827.9	811.9	822.9	862.9	866.9	854.9	820.9	810.9
17.5°	853.9	860.9	847.9	808.9	796.9	801.9	841.9	857.9	845.9	807.9	795.9
20°	844.9	852.9	829.9	788.9	781.9	785.9	819.9	847.9	835.9	793.9	780.9
22.5°	832.9	841.9	808.9	774.9	777.9	774.9	799.9	834.9	821.9	778.9	763.9
25°	817.9	827.9	787.9	762.9	765.9	764.9	782.9	817.9	807.9	760.9	744.9
27.5°	802.9	812.9	768.9	754.9	759.9	753.9	766.9	799.9	791.9	741.9	726.9
30°	785.9	796.9	749.9	740.9	745.9	741.9	750.9	781.9	773.9	721.9	706.9
32.5°	766.9	777.9	729.9	723.9	730.9	725.9	731.9	761.9	752.9	699.9	681.9
35°	745.9	756.9	708.9	708.9	715.9	709.9	712.9	741.9	731.9	677.9	653.9
37.5°	722.9	734.9	685.9	690.9	698.9	692.9	692.9	720.9	708.9	653.9	621.9
40°	698.9	711.9	661.9	672.9	679.9	672.9	670.9	698.9	683.9	629.9	588.9
42.5°	672.9	686.9	639.9	652.9	643.9	652.9	647.9	675.9	660.9	603.9	554.9
45°	644.9	662.9	617.9	609.9	498.9	603.9	624.9	651.9	629.9	578.9	520.9
47.5°	615.9	634.9	593.9	535.9	400.9	529.9	599.9	625.9	603.9	551.9	486.9
50°	584.9	606.9	568.9	471.9	349.9	465.9	571.9	598.9	569.9	522.9	452.9
52.5°	552.9	576.9	540.9	416.9	315.9	410.9	541.9	569.9	541.9	491.9	419.9
55°	519.9	544.9	507.9	365.9	288.0	364.9	506.9	538.9	506.9	460.9	386.9
57.5°	486.9	514.9	472.9	328.9	264.0	323.9	467.9	506.9	476.9	428.9	354.9
60°	451.9	477.9	434.9	289.0	237.0	288.0	428.9	473.9	439.9	395.9	323.9
62.5°	415.9	444.9	393.9	254.0	215.0	253.0	386.9	436.9	403.9	361.9	294.0
65°	378.9	406.9	354.9	226.0	194.0	224.0	347.9	398.9	368.9	327.9	266.0
67.5°	340.9	366.9	315.9	199.0	173.0	197.0	307.9	358.9	332.9	293.0	236.0
70°	301.9	325.9	276.0	173.0	153.0	172.0	269.0	317.9	294.0	257.0	209.0
72.5°	261.0	283.0	234.0	148.0	132.0	147.0	228.0	276.0	251.0	219.0	185.0
75°	218.0	239.0	195.0	123.0	110.0	122.0	189.0	231.0	211.0	184.0	157.0
77.5°	177.0	198.0	155.0	95.0	84.0	93.0	148.0	189.0	172.0	149.0	128.0
80°	137.0	154.0	114.0	71.0	67.0	71.0	111.0	145.0	133.0	117.0	100.0
82.5°	101.0	111.0	77.0	58.0	58.0	58.0	75.0	103.0	98.0	87.0	76.0
85°	69.0	69.0	52.0	44.0	44.0	44.0	51.0	61.0	64.0	58.0	58.0
87.5°	29.0	30.0	27.0	24.0	23.0	24.0	26.0	25.0	25.0	28.0	35.0
90°	1.0	13.0	22.0	27.0	28.0	26.0	20.0	12.0	1.0	17.0	31.0
92.5°	7.0	28.0	26.0	34.0	35.0	32.0	27.0	22.0	4.0	31.0	33.0
95°	27.0	33.0	51.0	52.0	46.0	44.0	50.0	31.0	21.0	42.0	84.0
97.5°	43.0	50.0	46.0	60.0	68.0	60.0	48.0	48.0	40.0	65.0	98.0
100°	59.0	53.0	47.0	52.0	60.0	53.0	45.0	53.0	56.0	76.0	120.0
102.5°	74.0	59.0	59.0	51.0	52.0	50.0	57.0	58.0	70.0	86.0	148.0
105°	86.0	61.0	62.0	58.0	57.0	58.0	62.0	62.0	83.0	95.0	161.0
107.5°	97.0	63.0	61.0	64.0	65.0	64.0	61.0	63.0	95.0	101.0	164.0
110°	106.0	64.0	62.0	64.0	67.0	64.0	62.0	65.0	105.0	107.0	166.0



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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°	114.0	65.0	64.0	63.0	66.0	63.0	64.0	67.0	113.0	110.0	166.0
115°	119.0	66.0	64.0	64.0	65.0	64.0	65.0	68.0	119.0	111.0	164.0
117.5°	122.0	68.0	65.0	66.0	67.0	66.0	65.0	70.0	123.0	115.0	163.0
120°	124.0	75.0	65.0	67.0	68.0	67.0	65.0	76.0	124.0	117.0	159.0
122.5°	123.0	78.0	66.0	67.0	69.0	67.0	66.0	79.0	123.0	116.0	154.0
125°	121.0	81.0	66.0	66.0	68.0	67.0	67.0	81.0	121.0	114.0	147.0
127.5°	117.0	88.0	66.0	67.0	67.0	67.0	67.0	87.0	117.0	115.0	140.0
130°	112.0	93.0	64.0	68.0	67.0	69.0	66.0	93.0	112.0	112.0	134.0
132.5°	107.0	95.0	64.0	68.0	68.0	69.0	65.0	95.0	107.0	108.0	128.0
135°	102.0	97.0	68.0	67.0	68.0	68.0	69.0	97.0	102.0	104.0	124.0
137.5°	97.0	98.0	73.0	64.0	67.0	65.0	75.0	98.0	98.0	98.0	118.0
140°	92.0	97.0	77.0	62.0	63.0	64.0	79.0	98.0	94.0	95.0	108.0
142.5°	86.0	94.0	80.0	67.0	62.0	69.0	82.0	97.0	88.0	92.0	103.0
145°	80.0	91.0	86.0	74.0	68.0	77.0	89.0	94.0	82.0	90.0	100.0
147.5°	75.0	86.0	87.0	78.0	75.0	81.0	90.0	90.0	76.0	86.0	93.0
150°	72.0	81.0	84.0	81.0	78.0	85.0	88.0	83.0	72.0	83.0	87.0
152.5°	71.0	77.0	77.0	85.0	84.0	89.0	81.0	79.0	70.0	80.0	79.0
155°	71.0	76.0	74.0	78.0	82.0	82.0	77.0	77.0	70.0	80.0	75.0
157.5°	70.0	77.0	74.0	73.0	75.0	77.0	77.0	78.0	70.0	78.0	75.0
160°	70.0	78.0	75.0	72.0	73.0	76.0	78.0	78.0	70.0	78.0	76.0
162.5°	70.0	76.0	76.0	73.0	73.0	77.0	78.0	77.0	70.0	76.0	78.0
165°	70.0	76.0	77.0	75.0	74.0	79.0	78.0	75.0	69.0	75.0	79.0
167.5°	70.0	74.0	78.0	76.0	76.0	79.0	79.0	74.0	69.0	72.0	79.0
170°	70.0	73.0	77.0	76.0	77.0	80.0	77.0	73.0	70.0	71.0	76.0
172.5°	70.0	71.0	75.0	76.0	76.0	78.0	75.0	71.0	70.0	69.0	73.0
175°	69.0	71.0	73.0	73.0	72.0	75.0	72.0	70.0	69.0	68.0	70.0
177.5°	68.0	69.0	71.0	71.0	69.0	71.0	69.0	68.0	68.0	67.0	69.0
180°	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0	67.0



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	870.9	870.9	870.9	870.9	870.9	870.9
2.5°	863.9	856.9	858.9	864.9	863.9	877.9
5°	854.9	851.9	851.9	860.9	859.9	877.9
7.5°	844.9	839.9	842.9	852.9	855.9	875.9
10°	831.9	827.9	828.9	843.9	848.9	873.9
12.5°	818.9	814.9	817.9	831.9	838.9	868.9
15°	803.9	796.9	804.9	819.9	828.9	861.9
17.5°	785.9	777.9	785.9	805.9	816.9	853.9
20°	769.9	761.9	766.9	787.9	802.9	844.9
22.5°	751.9	741.9	745.9	768.9	787.9	832.9
25°	731.9	718.9	724.9	749.9	770.9	817.9
27.5°	705.9	683.9	698.9	729.9	749.9	802.9
30°	669.9	640.9	664.9	707.9	730.9	785.9
32.5°	627.9	596.9	622.9	680.9	708.9	766.9
35°	586.9	559.9	583.9	652.9	686.9	745.9
37.5°	550.9	525.9	547.9	620.9	662.9	722.9
40°	513.9	490.9	512.9	586.9	638.9	698.9
42.5°	479.9	457.9	478.9	552.9	612.9	672.9
45°	443.9	407.9	441.9	517.9	584.9	644.9
47.5°	405.9	367.9	402.9	483.9	556.9	615.9
50°	370.9	336.9	368.9	448.9	526.9	584.9
52.5°	339.9	310.9	338.9	413.9	495.9	552.9
55°	310.9	292.0	311.9	381.9	466.9	519.9
57.5°	288.0	275.0	289.0	350.9	434.9	486.9
60°	268.0	260.0	269.0	319.9	400.9	451.9
62.5°	246.0	243.0	246.0	290.0	367.9	415.9
65°	227.0	230.0	227.0	263.0	332.9	378.9
67.5°	209.0	216.0	210.0	234.0	298.0	340.9
70°	189.0	199.0	190.0	208.0	262.0	301.9
72.5°	168.0	180.0	168.0	183.0	224.0	261.0
75°	146.0	160.0	147.0	156.0	188.0	218.0
77.5°	122.0	131.0	124.0	127.0	153.0	177.0
80°	97.0	107.0	98.0	100.0	121.0	137.0
82.5°	81.0	88.0	82.0	76.0	90.0	101.0
85°	60.0	64.0	62.0	59.0	62.0	69.0
87.5°	37.0	39.0	37.0	37.0	32.0	29.0
90°	41.0	44.0	41.0	32.0	18.0	1.0
92.5°	42.0	46.0	42.0	35.0	34.0	7.0
95°	94.0	92.0	100.0	91.0	52.0	27.0
97.5°	146.0	167.0	151.0	109.0	70.0	43.0
100°	168.0	188.0	175.0	136.0	80.0	59.0
102.5°	194.0	216.0	202.0	159.0	90.0	74.0
105°	226.0	245.0	233.0	168.0	99.0	86.0
107.5°	243.0	272.0	248.0	172.0	105.0	97.0
110°	252.0	283.0	260.0	173.0	110.0	106.0





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	259.0	289.0	265.0	173.0	112.0	114.0
115°	259.0	294.0	265.0	170.0	115.0	119.0
117.5°	259.0	291.0	265.0	167.0	119.0	122.0
120°	250.0	290.0	258.0	163.0	120.0	124.0
122.5°	243.0	282.0	248.0	158.0	120.0	123.0
125°	230.0	271.0	236.0	152.0	118.0	121.0
127.5°	216.0	255.0	221.0	145.0	119.0	117.0
130°	203.0	237.0	206.0	138.0	115.0	112.0
132.5°	186.0	217.0	189.0	133.0	111.0	107.0
135°	170.0	198.0	174.0	129.0	106.0	102.0
137.5°	153.0	178.0	157.0	121.0	101.0	97.0
140°	133.0	153.0	137.0	112.0	98.0	92.0
142.5°	120.0	131.0	124.0	108.0	94.0	86.0
145°	112.0	118.0	115.0	104.0	92.0	80.0
147.5°	104.0	110.0	107.0	96.0	87.0	75.0
150°	101.0	101.0	105.0	89.0	84.0	72.0
152.5°	90.0	98.0	94.0	81.0	82.0	71.0
155°	77.0	81.0	81.0	78.0	82.0	71.0
157.5°	72.0	75.0	76.0	78.0	80.0	70.0
160°	72.0	73.0	76.0	79.0	79.0	70.0
162.5°	74.0	73.0	78.0	81.0	77.0	70.0
165°	76.0	75.0	80.0	82.0	75.0	70.0
167.5°	78.0	78.0	82.0	81.0	73.0	70.0
170°	78.0	80.0	82.0	78.0	72.0	70.0
172.5°	75.0	76.0	78.0	73.0	69.0	70.0
175°	71.0	70.0	73.0	70.0	69.0	69.0
177.5°	69.0	66.0	69.0	68.0	67.0	68.0
180°	67.0	67.0	67.0	67.0	67.0	67.0

(END OF REPORT)