

Scaled data based on original data using  
LM-31-95 IESNA Approved Method for Photometric Testing of Roadway Luminaires  
Using Incandescent Filament and High Intensity Discharge Lamps

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: LUMIERE

Report Number: H45040

Luminaire Tested: **504-12-20MR16-12-CS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-31-95  
Report Number: H45040  
Test Lab: PEACHTREE CITY  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: LUMIERE  
Catalog Number: 504-12-20MR16-12-CS  
Description: LUMIERE 12 IN TAHOE BOLLARD  
WITH ACRYLIC PRISYM DIFFUSION LENS  
Light Source: BI PIN MR16 HALOGEN INCANDESCENT LAMP  
20W MR16 BAB 36° 20 WATTS  
Ballast/Driver: -

**Summary**

Lumens per Lamp: 240 (1 lamp)  
Luminaire Lumens: 86.7 lumens  
Efficiency: 36.1%  
Efficacy: 4.3 lumens/watt  
Luminous Opening: Rectangular w/ Sides (W: 0.19' x L: 0.19' x H: 0.22')  
IES Classification: Type - Short - Non-Cutoff  
BUG Rating: B0 - U3 - G0

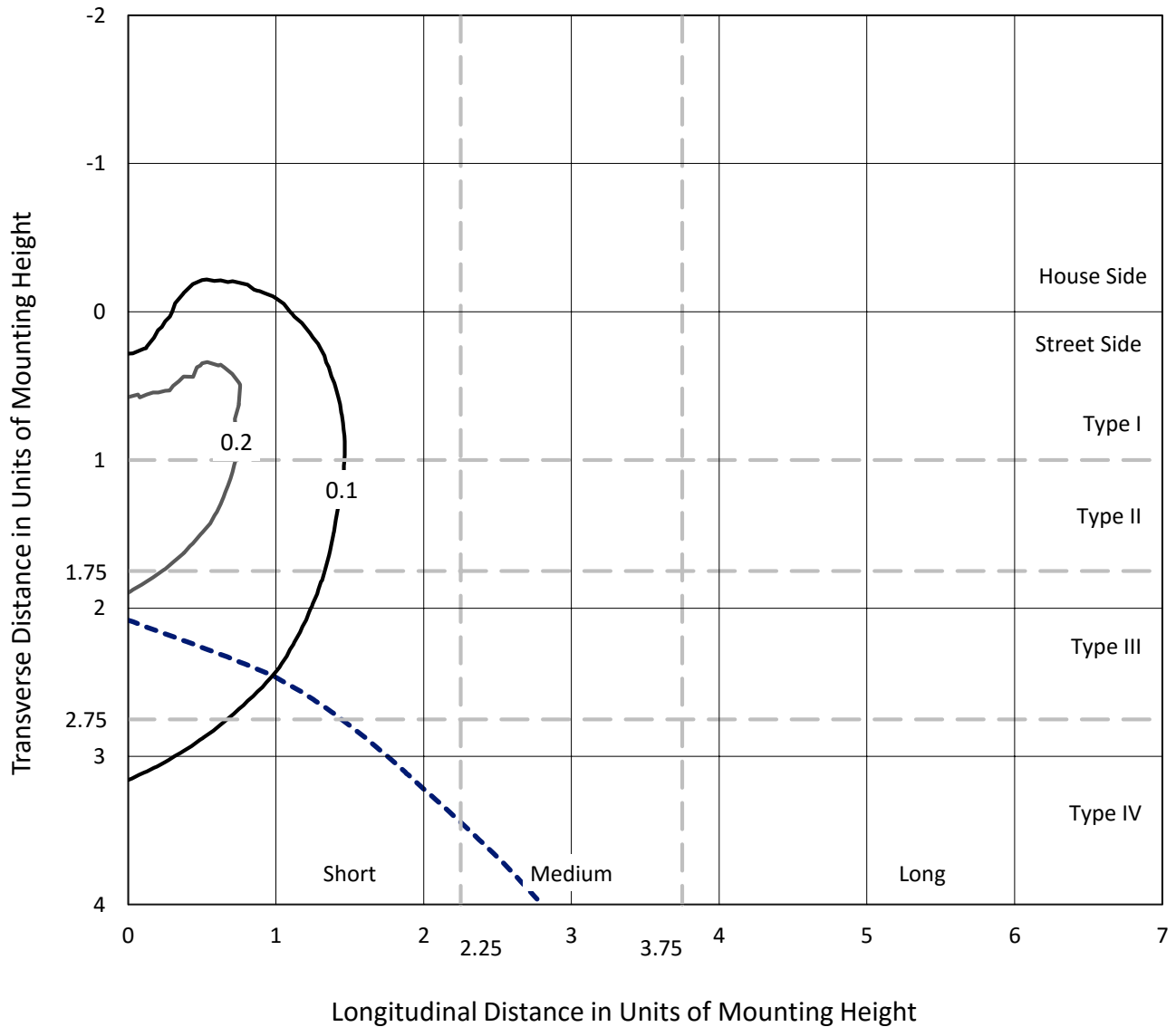
Input Watts (W): 20  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



REPORT NUMBER: H45040  
 CATALOG NUMBER: 504-12-20MR16-12-CS

### Iso-Footcandle Lines of Horizontal Illumination

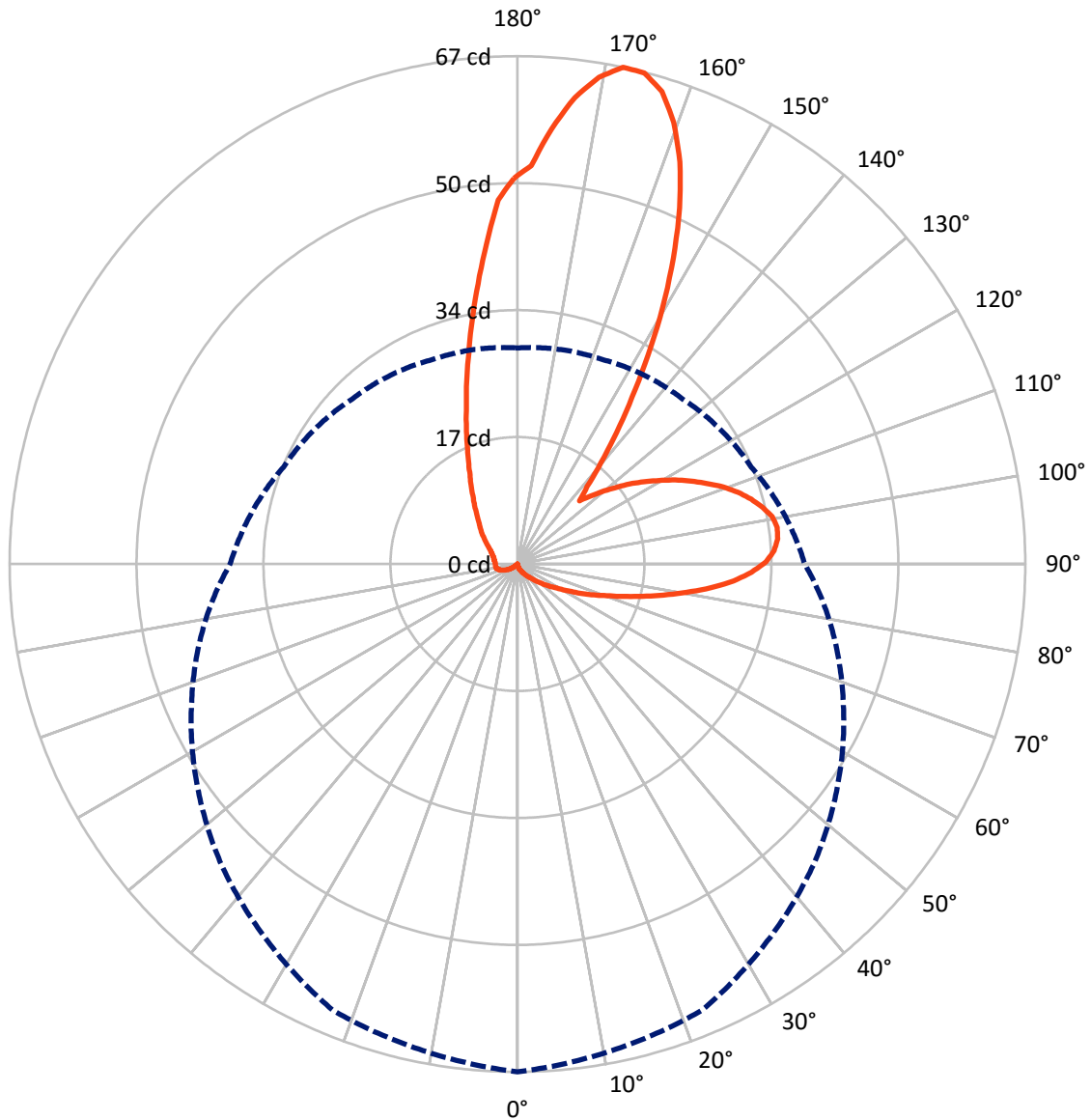
× Max cd  
 - - - 1/2 Max cd



Based on 2 foot mounting height. Maximum calculated value = 0.3 fc  
 Type - Short - Non-Cutoff

REPORT NUMBER: H45040  
CATALOG NUMBER: 504-12-20MR16-12-CS

### Luminous Intensity Polar Plot



— Vertical Plane Through 0-Deg Lateral    - - - Horizontal Cone Through 167.5-Deg Vertical

REPORT NUMBER: H45040

CATALOG NUMBER: 504-12-20MR16-12-CS

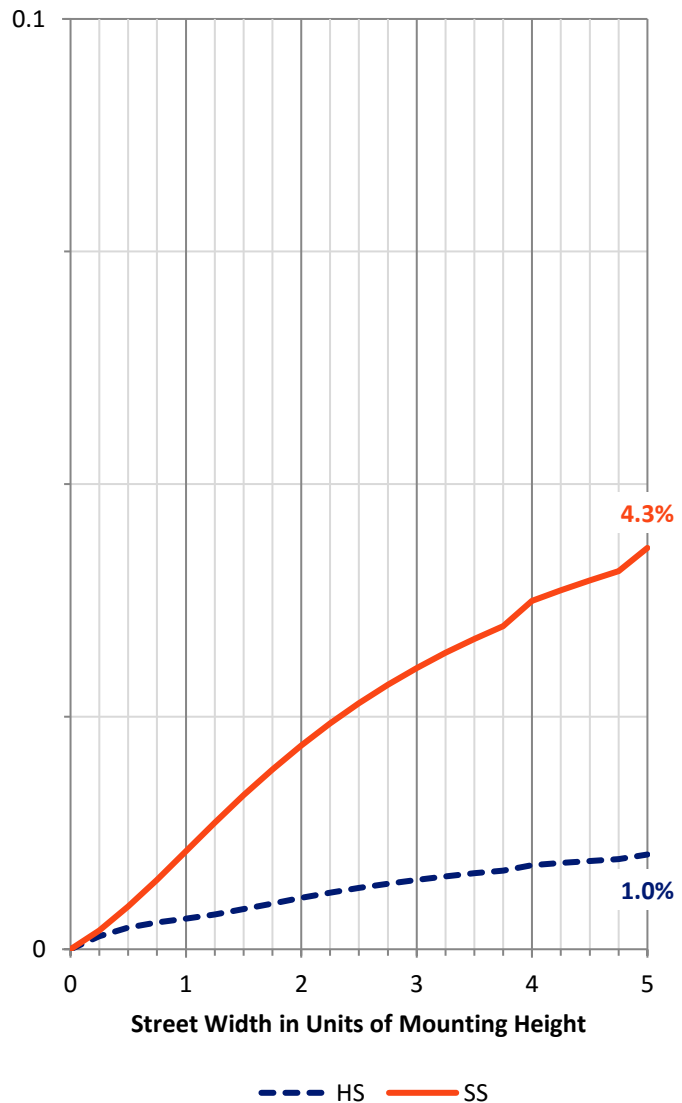
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	3.2	22.2	25.4
	% Lamp	1.3	9.2	10.6
<b>Street Side</b>	Lumens	14.8	46.5	61.3
	% Lamp	6.2	19.4	25.5
<b>Total</b>	Lumens	18.0	68.7	86.7
	% Lamp	7.5	28.6	36.1

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture	% Lamp
0°-10°	0.0	0.0	0.0
10°-20°	0.1	0.1	0.0
20°-30°	0.3	0.3	0.1
30°-40°	0.6	0.7	0.3
40°-50°	1.1	1.2	0.4
50°-60°	1.8	2.1	0.8
60°-70°	3.0	3.5	1.3
70°-80°	4.7	5.4	1.9
80°-90°	6.4	7.4	2.7
90°-100°	7.4	8.5	3.1
100°-110°	7.2	8.3	3.0
110°-120°	6.4	7.4	2.7
120°-130°	5.8	6.6	2.4
130°-140°	6.0	7.0	2.5
140°-150°	8.6	10.0	3.6
150°-160°	11.5	13.3	4.8
160°-170°	11.0	12.7	4.6
170°-180°	4.6	5.3	1.9
0°-90°	18.0	20.8	7.5
0°-180°	86.7	100.0	36.1



REPORT NUMBER: H45040

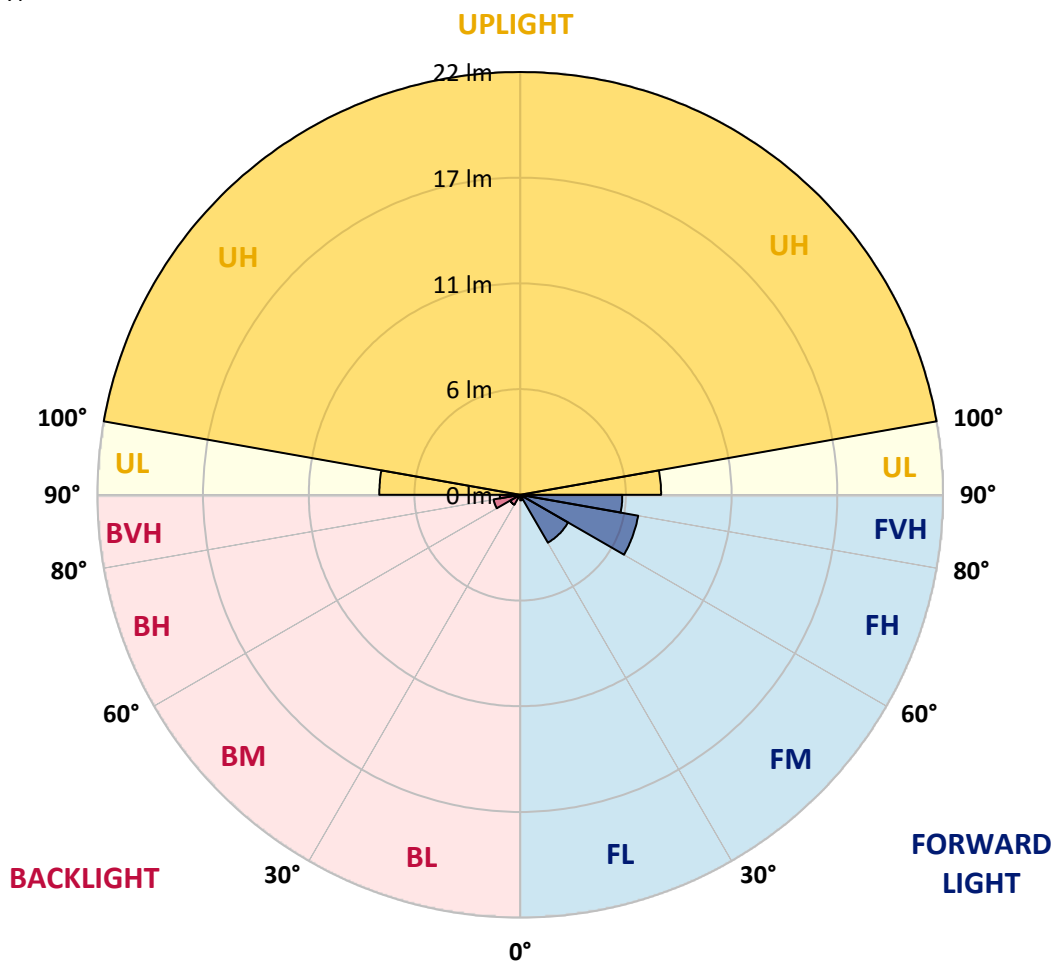
CATALOG NUMBER: 504-12-20MR16-12-CS

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Lamp	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	0.3	0.1			
FM (30°-60°)	2.9	1.2			
FH (60°-80°)	6.3	2.6			G0/660
FVH (80°-90°)	5.4	2.2			G0/10
BL (0°-30°)	0.1	0.0	B0/110		
BM (30°-60°)	0.6	0.3	B0/220		
BH (60°-80°)	1.4	0.6	B0/110		G0/110
BVH (80°-90°)	1.1	0.4			G0/10
UL (90°-100°)	7.4	3.1		U1/10	
UH (100°-180°)	22.2	9.2		U2/50	
Trapped Light	153.3	63.9			

**BUG Rating: B0-U3-G0**

Type Short





REPORT NUMBER: H45040

CATALOG NUMBER: 504-12-20MR16-12-CS

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.5°	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
5°	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
7.5°	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10°	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.0	0.0
12.5°	0.3	0.3	0.4	0.4	0.3	0.2	0.1	0.1	0.1
15°	0.4	0.4	0.5	0.5	0.4	0.3	0.2	0.1	0.1
17.5°	0.5	0.6	0.6	0.6	0.5	0.4	0.2	0.1	0.1
20°	0.7	0.7	0.7	0.7	0.6	0.4	0.2	0.1	0.1
22.5°	0.8	0.8	0.8	0.8	0.7	0.5	0.3	0.1	0.1
25°	0.9	1.0	1.0	0.9	0.8	0.5	0.3	0.1	0.1
27.5°	1.1	1.1	1.1	1.0	0.9	0.6	0.3	0.1	0.1
30°	1.3	1.2	1.2	1.2	1.0	0.6	0.3	0.1	0.1
32.5°	1.4	1.4	1.4	1.3	1.1	0.6	0.3	0.1	0.1
35°	1.7	1.6	1.5	1.4	1.1	0.6	0.3	0.1	0.1
37.5°	1.9	1.8	1.7	1.6	1.2	0.6	0.3	0.1	0.1
40°	2.2	2.1	1.9	1.7	1.2	0.6	0.3	0.1	0.1
42.5°	2.5	2.4	2.1	1.9	1.2	0.6	0.2	0.1	0.2
45°	2.9	2.7	2.3	2.0	1.3	0.6	0.2	0.2	0.2
47.5°	3.4	3.1	2.5	2.2	1.3	0.6	0.2	0.2	0.3
50°	3.9	3.5	2.8	2.3	1.3	0.6	0.2	0.3	0.5
52.5°	4.5	3.9	3.1	2.4	1.3	0.6	0.2	0.5	0.7
55°	5.2	4.4	3.4	2.4	1.3	0.6	0.3	0.7	0.9
57.5°	5.9	5.0	3.7	2.5	1.3	0.6	0.4	0.9	1.2
60°	6.9	5.7	4.0	2.6	1.3	0.5	0.5	1.1	1.4
62.5°	8.0	6.4	4.3	2.6	1.3	0.5	0.7	1.3	1.6
65°	9.4	7.3	4.6	2.6	1.3	0.5	0.9	1.5	1.9
67.5°	10.9	8.2	4.8	2.6	1.3	0.5	1.1	1.8	2.1
70°	12.5	9.2	5.1	2.7	1.2	0.5	1.2	2.0	2.3
72.5°	14.6	10.3	5.3	2.7	1.2	0.6	1.4	2.1	2.5
75°	17.0	11.4	5.5	2.6	1.1	0.7	1.6	2.3	2.6
77.5°	19.7	12.6	5.8	2.6	1.1	0.9	1.8	2.4	2.8
80°	22.6	13.7	5.9	2.5	1.0	1.0	1.9	2.5	2.8
82.5°	25.7	15.1	6.1	2.5	0.9	1.1	2.0	2.6	2.9
85°	28.6	16.3	6.2	2.4	0.9	1.2	2.2	2.6	2.9
87.5°	30.9	17.3	6.3	2.3	0.8	1.3	2.3	2.7	2.9
90°	32.8	18.1	6.3	2.2	0.8	1.4	2.3	2.7	2.9
92.5°	33.9	18.8	6.4	2.2	0.8	1.6	2.4	2.7	2.9
95°	34.5	19.2	6.4	2.1	0.9	1.8	2.5	2.8	3.0
97.5°	34.6	19.4	6.4	2.1	1.1	2.0	2.7	2.9	3.0
100°	34.2	19.3	6.4	2.1	1.3	2.2	2.8	2.9	3.1
102.5°	33.2	19.0	6.3	2.0	1.5	2.4	2.9	3.0	3.2
105°	32.0	18.6	6.2	2.0	1.7	2.6	3.1	3.1	3.2
107.5°	30.6	18.0	6.1	1.9	1.9	2.8	3.2	3.3	3.3
110°	29.0	17.3	5.9	1.9	2.2	3.0	3.4	3.4	3.5



REPORT NUMBER: H45040

CATALOG NUMBER: 504-12-20MR16-12-CS

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
112.5°	27.2	16.5	5.8	1.9	2.4	3.3	3.6	3.6	3.6
115°	25.4	15.7	5.6	2.1	2.7	3.5	3.8	3.8	3.8
117.5°	23.6	14.8	5.4	2.4	3.0	3.8	4.1	4.0	4.0
120°	21.7	13.8	5.1	2.8	3.4	4.1	4.4	4.3	4.3
122.5°	19.9	12.9	4.9	3.1	3.7	4.5	4.7	4.6	4.6
125°	18.2	11.9	4.7	3.6	4.1	4.8	5.1	5.0	5.0
127.5°	16.3	10.9	4.9	4.2	4.6	5.2	5.5	5.5	5.4
130°	14.7	10.0	5.5	4.8	5.2	5.7	5.9	5.9	5.9
132.5°	13.1	9.1	6.4	5.6	5.7	6.2	6.4	6.4	6.4
135°	11.7	9.9	7.5	6.5	6.5	6.8	6.9	6.9	6.9
137.5°	13.7	12.0	8.9	7.6	7.3	7.5	7.6	7.5	7.4
140°	17.3	14.7	10.7	8.8	8.2	8.3	8.3	8.2	8.1
142.5°	21.7	18.3	12.9	10.4	9.4	9.2	9.1	9.0	8.9
145°	26.7	22.4	15.6	12.2	10.7	10.3	10.1	9.9	9.8
147.5°	32.5	27.2	18.8	14.3	12.1	11.5	11.2	11.0	10.8
150°	38.9	32.8	22.7	17.0	14.0	12.9	12.5	12.1	12.1
152.5°	45.3	38.8	27.1	20.0	16.2	14.6	13.9	13.5	13.3
155°	51.6	44.8	32.4	23.7	18.9	16.8	15.8	15.2	15.0
157.5°	57.2	50.5	37.5	27.9	21.9	19.3	17.9	17.2	16.9
160°	61.8	55.8	42.9	32.5	25.4	22.2	20.5	19.7	19.2
162.5°	65.2	59.9	48.0	37.3	29.3	25.5	23.4	22.3	21.8
165°	66.9	62.5	52.3	42.1	33.7	29.3	26.9	25.4	25.0
167.5°	67.0	63.7	55.5	46.5	37.9	33.4	30.8	29.2	28.5
170°	65.1	63.0	57.2	49.9	42.0	37.8	35.0	33.4	32.7
172.5°	62.0	60.9	57.4	52.4	45.8	42.0	39.7	38.0	37.3
175°	57.6	57.2	56.0	53.3	48.6	46.1	44.4	43.3	42.4
177.5°	52.6	52.9	53.1	52.8	50.1	49.5	49.0	48.5	48.1
180°	50.9	50.9	50.9	50.9	50.9	50.9	50.9	50.9	50.9

(END OF REPORT)