



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  
Eaton Lighting Division  
(formerly Cooper Lighting)

Brand: FAIL-SAFE

Report Number: 4870

Luminaire Tested: **FWS-340-120**

Issue Date: 3/3/2020

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Eaton or from external interests.



**Test Information**

Test Method: LM-79-08  
Report Number: 4870  
Test Lab:  
Issue Date: 3/3/2020  
Manufacturer: EATON (FORMERLY COOPER LIGHTING)  
Product Line: FAIL-SAFE  
Catalog Number: FWS-340-120  
Description: FAIL-SAFE  
Light Source: 3/40W 3200 LUMENS  
F40T12RS/WW  
Ballast/Driver: -

| Luminaire Equipment: | <u>Sample No.</u> | <u>Condition</u> | <u>Description</u> |
|----------------------|-------------------|------------------|--------------------|
|                      | a                 | good             | reflector          |
|                      | b                 | good             | lens               |
|                      | c                 | good             | housing            |
|                      | d                 | good             | cord               |

**Summary**

Lumens per Lamp: 3200 (3 lamps)  
Luminaire Lumens: 5284.7 lumens  
Efficiency: 55.0%  
Efficacy: 37.0 lumens/watt  
Luminous Opening: Rectangular w/ Sides (W: 1.09' x L: 3.94' x H: 0.14')  
IES Classification: Type V - Short - Semi-Cutoff  
BUG Rating: B2 - U3 - G1

Input Watts (W): 143  
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

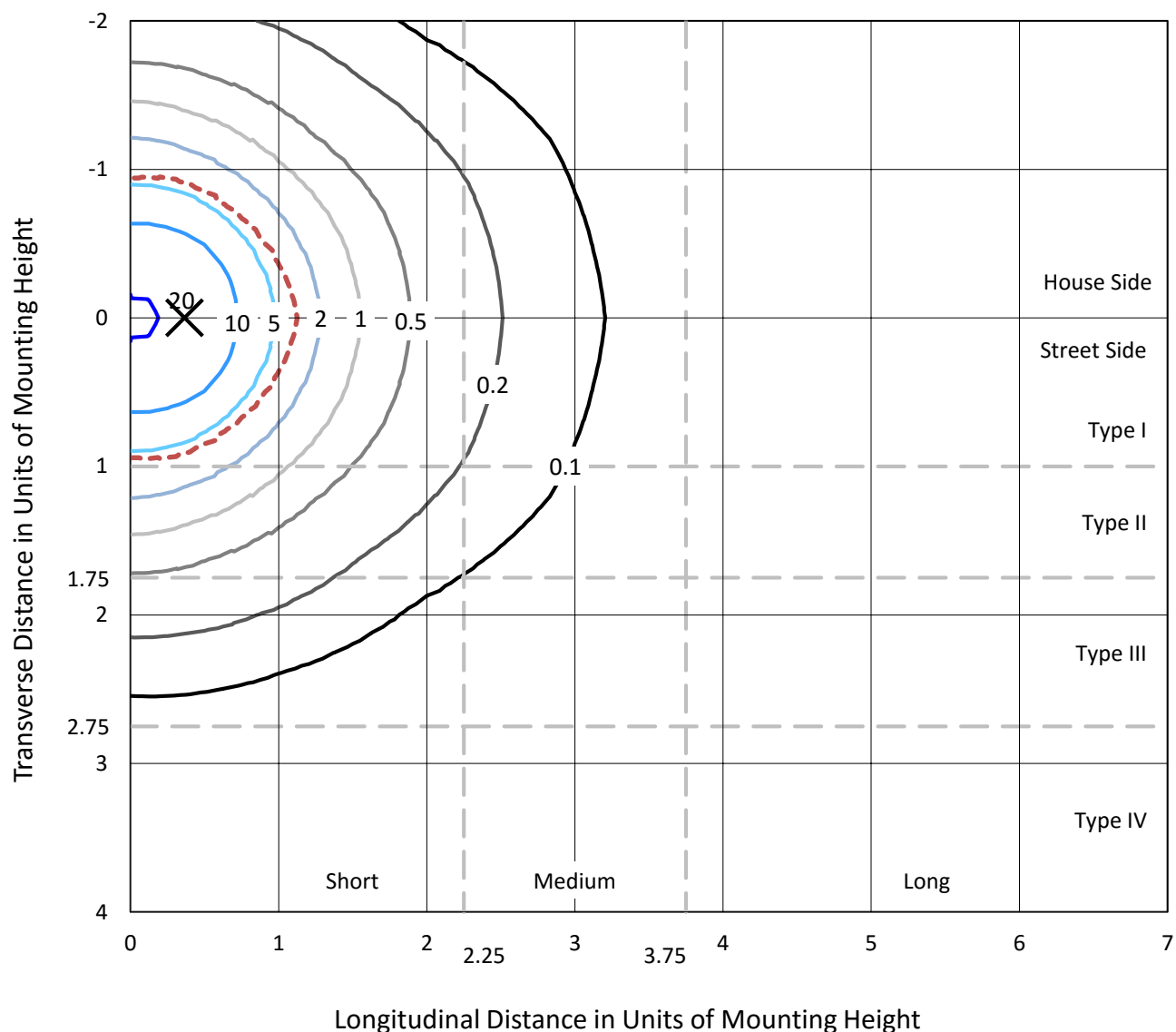


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## Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd

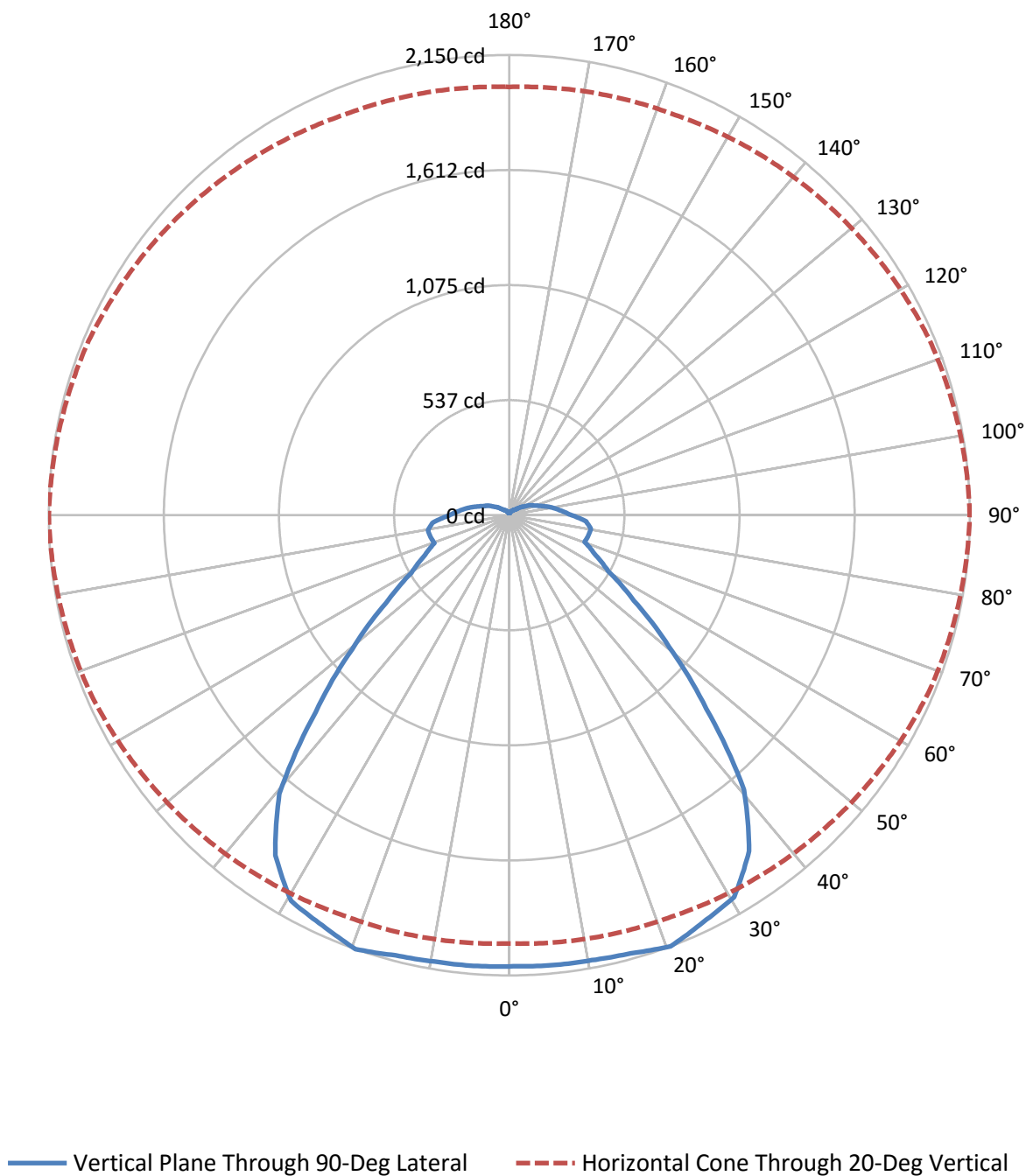
--- 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 21.1 fc  
 Type V - Short - Semi-Cutoff

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## Luminous Intensity Polar Plot



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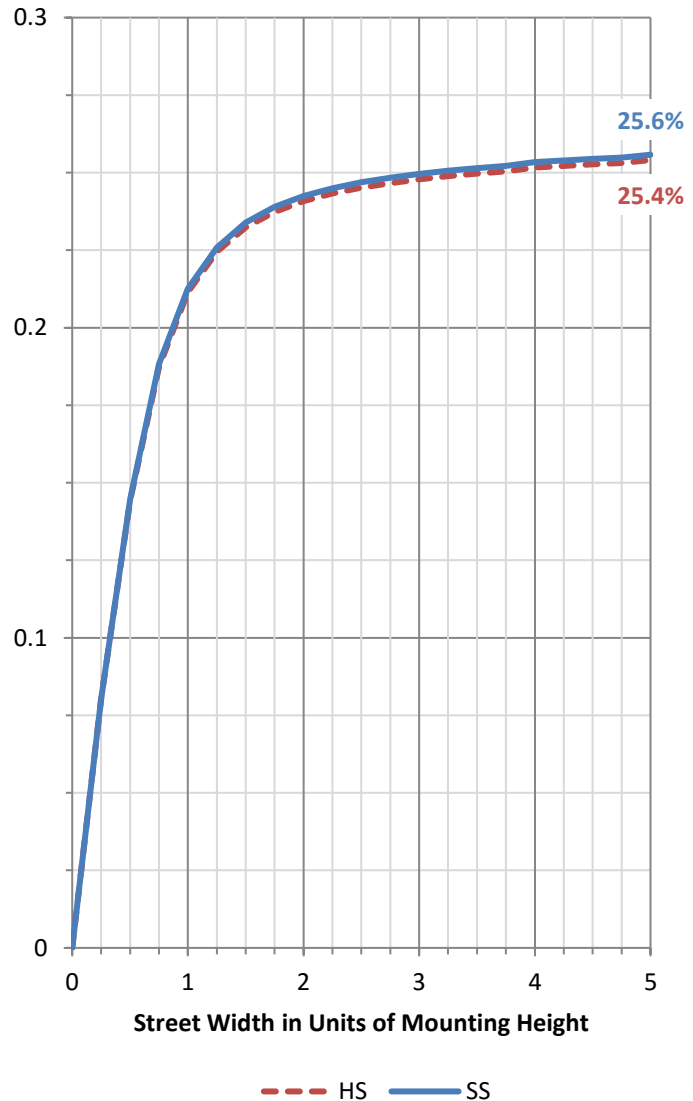
**FLUX DISTRIBUTION:**

|                    |        | Downward | Upward | Total  |
|--------------------|--------|----------|--------|--------|
| <b>House Side</b>  | Lumens | 2488.4   | 153.9  | 2642.3 |
|                    | % Lamp | 25.9     | 1.6    | 27.5   |
| <b>Street Side</b> | Lumens | 2488.4   | 153.9  | 2642.3 |
|                    | % Lamp | 25.9     | 1.6    | 27.5   |
| <b>Total</b>       | Lumens | 4976.9   | 307.8  | 5284.7 |
|                    | % Lamp | 51.8     | 3.2    | 55.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture | % Lamp |
|-----------|--------|-----------|--------|
| 0°-10°    | 200.5  | 3.8       | 2.1    |
| 10°-20°   | 553.9  | 10.5      | 5.8    |
| 20°-30°   | 922.2  | 17.5      | 9.6    |
| 30°-40°   | 1098.5 | 20.8      | 11.4   |
| 40°-50°   | 865.6  | 16.4      | 9.0    |
| 50°-60°   | 545.2  | 10.3      | 5.7    |
| 60°-70°   | 338.5  | 6.4       | 3.5    |
| 70°-80°   | 257.5  | 4.9       | 2.7    |
| 80°-90°   | 194.9  | 3.7       | 2.0    |
| 90°-100°  | 112.4  | 2.1       | 1.2    |
| 100°-110° | 75.7   | 1.4       | 0.8    |
| 110°-120° | 49.2   | 0.9       | 0.5    |
| 120°-130° | 29.8   | 0.6       | 0.3    |
| 130°-140° | 16.6   | 0.3       | 0.2    |
| 140°-150° | 11.8   | 0.2       | 0.1    |
| 150°-160° | 7.4    | 0.1       | 0.1    |
| 160°-170° | 3.9    | 0.1       | 0.0    |
| 170°-180° | 1.0    | 0.0       | 0.0    |
| 0°-90°    | 4976.9 | 94.2      | 51.8   |
| 0°-180°   | 5284.7 | 100.0     | 55.0   |



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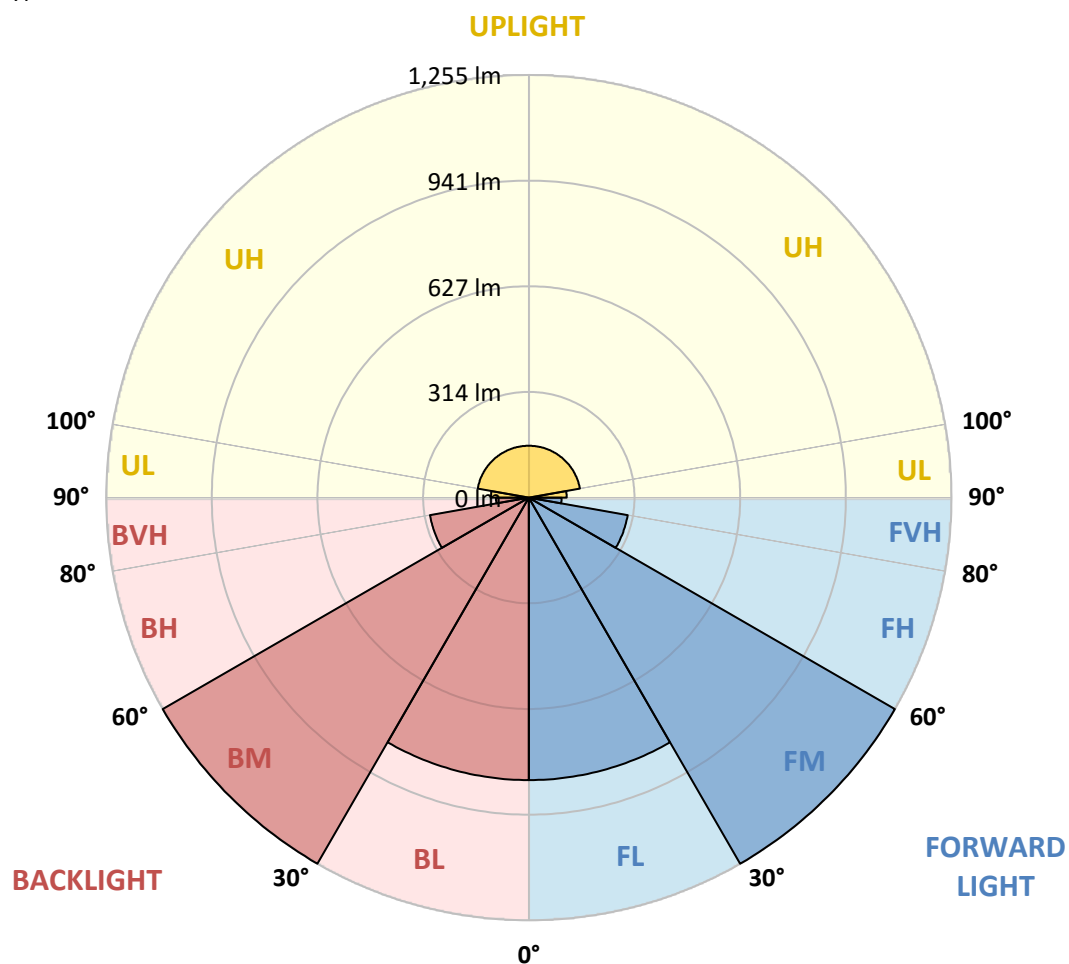
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone          |             | Lumens | % Lamp | Zone Rating/Lumen Limit |        |        |
|---------------|-------------|--------|--------|-------------------------|--------|--------|
|               |             |        |        | B                       | U      | G      |
| FL            | (0°-30°)    | 838.3  | 8.7    |                         |        |        |
| FM            | (30°-60°)   | 1254.6 | 13.1   |                         |        |        |
| FH            | (60°-80°)   | 298.0  | 3.1    |                         |        | G0/660 |
| FVH           | (80°-90°)   | 97.4   | 1.0    |                         |        | G1/100 |
| BL            | (0°-30°)    | 838.3  | 8.7    | B2/1000                 |        |        |
| BM            | (30°-60°)   | 1254.6 | 13.1   | B2/2500                 |        |        |
| BH            | (60°-80°)   | 298.0  | 3.1    | B1/500                  |        | G0/660 |
| BVH           | (80°-90°)   | 97.4   | 1.0    |                         |        | G1/100 |
| UL            | (90°-100°)  | 112.4  | 1.2    |                         | U3/500 |        |
| UH            | (100°-180°) | 153.9  | 1.6    |                         | U3/500 |        |
| Trapped Light |             | 4315.3 | 45.0   |                         |        |        |

**BUG Rating: B2-U3-G1**

Type V Short





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CANDELA DISTRIBUTION (FULL):

|      | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|------|--------|--------|--------|--------|--------|
| 0°   | 2107.0 | 2107.0 | 2107.0 | 2107.0 | 2107.0 |
| 5°   | 2106.8 | 2104.6 | 2105.7 | 2106.8 | 2111.4 |
| 10°  | 2076.8 | 2079.0 | 2090.6 | 2098.7 | 2113.9 |
| 15°  | 2044.2 | 1027.5 | 2082.3 | 2112.3 | 2123.4 |
| 20°  | 2000.5 | 2023.4 | 2074.8 | 2126.1 | 2149.9 |
| 25°  | 1876.4 | 1909.0 | 1996.4 | 2074.2 | 2105.2 |
| 30°  | 1746.2 | 1811.1 | 1941.0 | 2035.1 | 2069.5 |
| 35°  | 1567.0 | 1663.7 | 1832.5 | 1915.0 | 1927.9 |
| 40°  | 1361.2 | 1429.0 | 1495.2 | 1618.1 | 1687.6 |
| 45°  | 911.9  | 1018.2 | 1048.0 | 1161.8 | 1289.8 |
| 50°  | 807.3  | 747.4  | 776.5  | 870.9  | 965.8  |
| 55°  | 565.3  | 537.5  | 559.5  | 647.9  | 706.3  |
| 60°  | 382.1  | 375.7  | 403.5  | 491.8  | 530.3  |
| 65°  | 266.1  | 278.2  | 309.5  | 405.2  | 437.8  |
| 70°  | 178.2  | 197.1  | 238.8  | 342.1  | 373.1  |
| 75°  | 138.6  | 165.8  | 218.0  | 336.8  | 381.4  |
| 80°  | 116.0  | 117.5  | 196.1  | 317.4  | 386.2  |
| 85°  | 71.0   | 80.5   | 152.4  | 295.1  | 358.9  |
| 90°  | 7.5    | 20.7   | 92.3   | 232.9  | 283.2  |
| 95°  | 0.0    | 15.7   | 75.7   | 195.2  | 237.7  |
| 100° | 0.0    | 15.8   | 67.3   | 163.0  | 199.6  |
| 105° | 0.0    | 15.5   | 57.2   | 131.9  | 159.2  |
| 110° | 0.0    | 14.7   | 47.1   | 103.8  | 126.5  |
| 115° | 0.0    | 18.4   | 43.1   | 89.3   | 108.0  |
| 120° | 0.0    | 16.1   | 32.5   | 65.2   | 80.0   |
| 125° | 0.0    | 20.9   | 31.7   | 54.5   | 63.5   |
| 130° | 0.0    | 16.0   | 20.2   | 38.8   | 44.7   |
| 135° | 0.0    | 14.5   | 20.2   | 29.4   | 34.8   |
| 140° | 0.0    | 17.5   | 19.2   | 29.1   | 32.1   |
| 145° | 0.0    | 16.9   | 20.9   | 24.6   | 24.6   |
| 150° | 0.0    | 16.1   | 19.6   | 20.8   | 22.1   |
| 155° | 0.0    | 15.3   | 19.3   | 17.9   | 16.5   |
| 160° | 0.0    | 17.4   | 20.2   | 20.2   | 18.8   |
| 165° | 0.0    | 12.6   | 15.3   | 15.3   | 13.9   |
| 170° | 0.0    | 13.8   | 13.8   | 15.0   | 12.6   |
| 175° | 0.0    | 14.3   | 16.4   | 13.2   | 13.2   |
| 180° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)