

## Thruster Report

**Magnetic Field:** 133 mT  
**Anode Power:** 116 W  
**Anode Current:** 2.0 A  
**Propellant:** Argon 2.000 mg/s

**Thruster Details:** Nagoya magnet, LaB6 cathode, 1 mm orifice, copper anode, 80 mm internal diameter.

| Thrust | Thrust Eff. | ISP      | Total DOF | Coverage Factor | Exp. Uncertainty | Std. Uncertainty |
|--------|-------------|----------|-----------|-----------------|------------------|------------------|
| 1.7 mN | 0.6 %       | 84.4 sec | 9         | 2.14            | 3.4 mN           | 1.6 mN           |

### Thrust-Stand Uncertainty Components

|       | Scale  | Hysteresis | Repeatability | Noise  | Offset | Drift  |
|-------|--------|------------|---------------|--------|--------|--------|
| Value | 1.4 mN | 0.5 mN     | 0.2 mN        | 0.2 mN | 0.3 mN | 0.1 mN |
| DOF   | 6      | 6          | 6             | 31     | 4      | 4      |

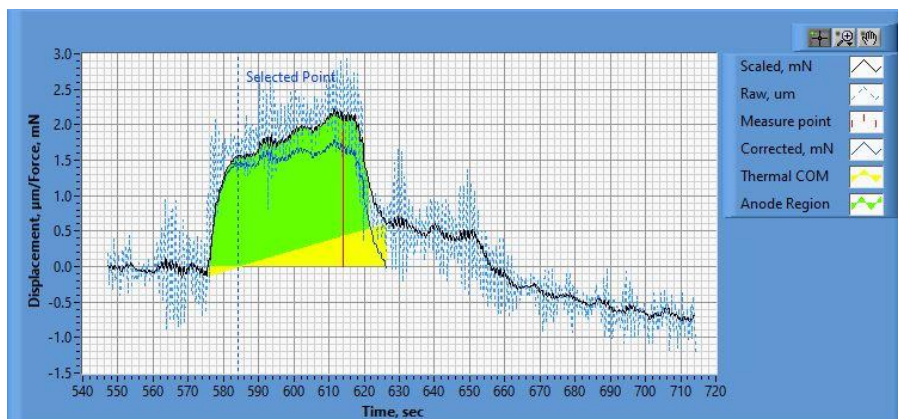


Figure 1. Thrust Plot

File Name: Philtech Data 2024.09.19\_16.27.36.csv

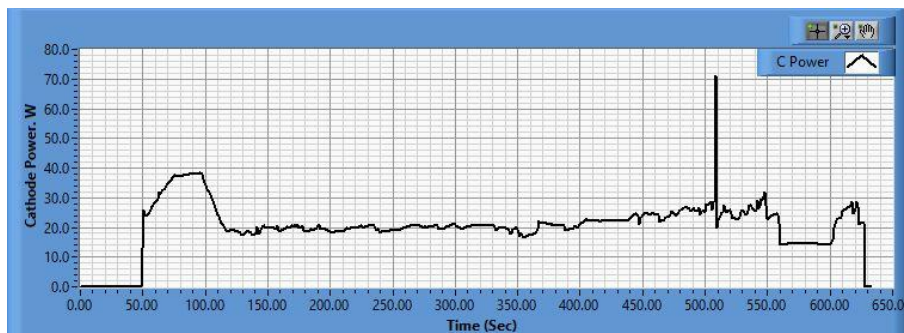
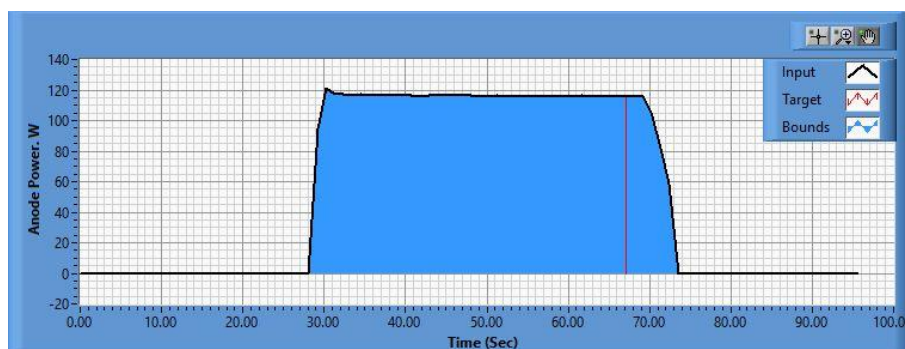


Figure 2. Cathode Power Plot

File Name: PSU C Data 2024.09.19\_16.27.53.csv

**Figure 3. Anode Power Plot**

File Name: PSU A Data 2024.09.19\_16.36.43.csv

**Pre-Cal. Information**

File Name: BaseLine\_Magnet\_Philtech Data 2024.09.19\_15.41.13.csv

Start/Stop times (24 h): 15:41:17 15:45:02

Sensitivity: 1.27  $\mu\text{m}/\text{mN}$ 

| Offset   | Drift      | Scale Factor | Scale Std.Dev |
|----------|------------|--------------|---------------|
| 0.005 mN | 0.002 mN/s | 0.789        | 1.555 mN      |

Plateau values:

| Weight 0 | Weight 1 | Weight 2 | Weight 3 | Weight 4 | Weight 5 | Weight 4 | Weight 3 | Weight 2 | Weight 1 | Weight 0 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| -0.3 mN  | 12.9 mN  | 29.6 mN  | 40.7 mN  | 52.0 mN  | 68.0 mN  | 51.3 mN  | 40.0 mN  | 28.4 mN  | 11.9 mN  | -0.1 mN  |

**Post-Cal. Information**

File Name: Philtech Data 2024.09.19\_16.27.36.csv

Start/Stop times (24 h): 16:42:11 16:45:56

Sensitivity: 1.27  $\mu\text{m}/\text{mN}$ 

| Offset    | Drift      | Scale Factor | Scale Std.Dev |
|-----------|------------|--------------|---------------|
| -4.000 mN | 0.004 mN/s | 0.789        | 1.517 mN      |

Plateau values:

| Weight 0 | Weight 1 | Weight 2 | Weight 3 | Weight 4 | Weight 5 | Weight 4 | Weight 3 | Weight 2 | Weight 1 | Weight 0 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| -0.4 mN  | 12.7 mN  | 29.4 mN  | 40.5 mN  | 51.9 mN  | 68.1 mN  | 51.4 mN  | 40.2 mN  | 28.5 mN  | 12.1 mN  | 0.3 mN   |

