Figure S1: Example photos of the AIRLIFT weighing system. (Top) Image of AIRLIFT system in the Advanced Aerosol Laboratory at Colorado State University. (Bottom) Image showing the robotic arm about to neutralize a filter using the radiation source and then deposit the filter on the microbalance. The filter storage rack can be seen in the left edge of the photo.
Figure S2: Examples of historical temperature and humidity conditions within the weighing system and examples of some of the quality control information which is presented to AIRLIFT operators.

Table S1: Major AIRLIFT components with brief description and approximate price at the time of purchase.

| Component         | Model                  | Description                                      | Approximate Price (USD) |
|-------------------|------------------------|--------------------------------------------------|-------------------------|
| Microbalance      | Mettler Toledo XS3DU   | • 1 ug precision                                 | $26,000                 |
|                   |                        | • 1 ug repeatability                             |                         |
|                   |                        | • 5.1 g max capacity                             |                         |
| 6-axis Robot      | Universal Robots UR3   | • 6 degrees of freedom                           | $20,000                 |
|                   |                        | • 0.1 mm repeatability                           |                         |
|                   |                        | • 3 kg capacity                                  |                         |
|                   |                        | • 500 mm reach                                   |                         |
| **Enclosure** | Custom | • 4 m³ volume  
• Acrylic and extruded aluminum construction  
• Integrated saturated salt humidity control  
• 100 filters/batch measurement capacity  
• >1,000 filter equilibration capacity | $5,000 |
| **Neutralizer** | Po 210 | • Alpha emitter  
• 13-19 mm distance from filter for optimal neutralizing | $200 |
| **Data Acquisition System** | National Instrument cRio 9066 | • Embedded control with real-time processing capabilities  
• Equipped with analog and digital inputs/outputs | $6,000 |