March 2017

Airborne Particulate Management Case Study
Conducted at major US Hospital.

Test were conducted in a typical occupied patient room (approximate 790 cf3) with Central Air Handler Unit with 95% filtration attachments to match particulate filtration of the SAM400 unit.

Measure Particle Concentration/Counts as stand-alone meter probe parameters. Direct-sense probes, IQ-410/610 and AS-201/202A Air Velocity probes and DP-702LH auto-zeroing Differential Pressure sensors.

- 0.3µm and higher mass concentration to limit particle size to PM10.
- Range particle counter also counted simultaneous, calculated mass concentration.
- PM0.5, PM1.0, PM2.5, PM5.0, PM10 & TSP.
- Particulate meter connected dataloggers, downloading logged data direct to data management and reporting software.
- Particle sizing chart to government and industry guidelines.
- %RH and Temperature reporting. No CO2 and TVOC reports conducted.
- Size Range 0.3 to 25µm
- Size Channels Factory calibrated at 0.3, 0.5, 1.0, 2.5, 5.0, 10.0 µm variable binning
- Flow rate 0.1 CFM (2.83 LPM)
- Concentration Limit 10,000,000 Particles/ft³ @ 10% coincidence loss

S400 shows a 99. 97% efficiency in the 0.3 micron particulate range.
See measured S400 particle reduction comparison charts.

Series #1 GREEN

- Base Line is incremental from the wall mount original installation equipment Fan Coil Unit.

Series #2 RED

- S400 results.

Series #3 BLUE

- Central Air Handler with a 95% final filter attachment.

Particle count readings demonstrate a definite improvement of raw particulate counts in the rooms with a SAM400 unit. The Central Air Handler graph with a 95% final filter attachment fluc-tuated based on the incoming air quality due to the filter efficiency that is seen in the micron 0.3 range (blue).

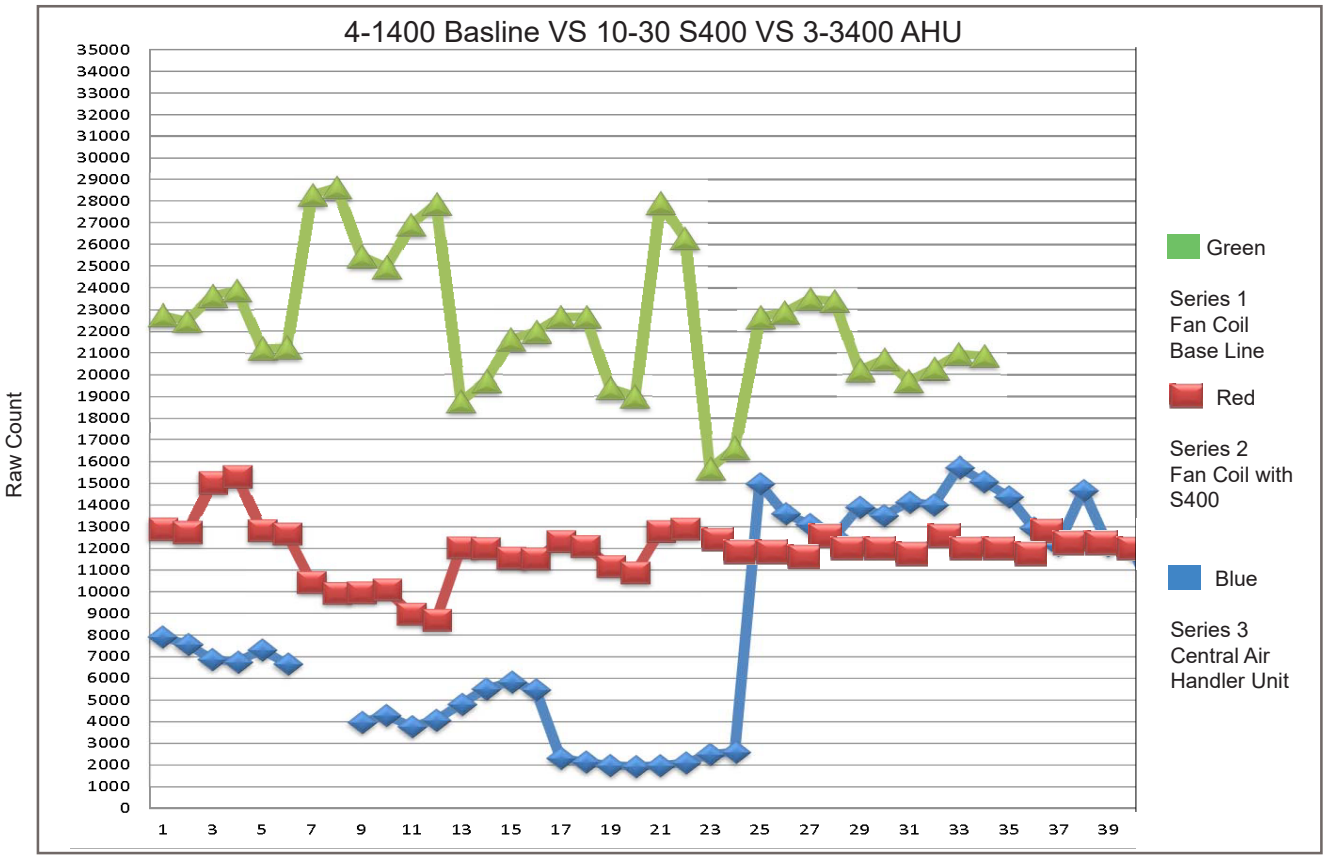
Further test indicated no temperature, humidity, or air flow variations due to S400 placement.

Director of Facilities:

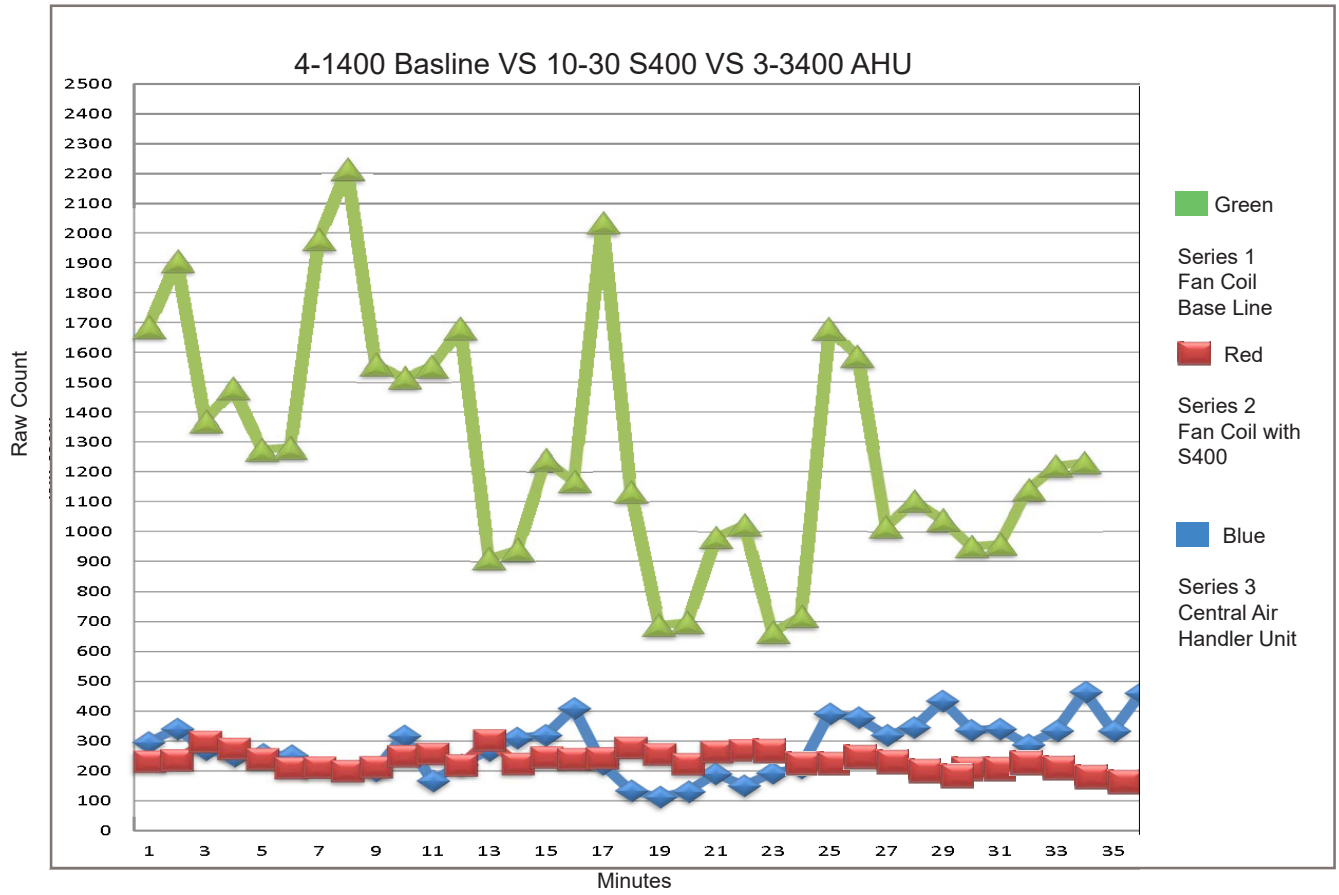
"The S400 meets or exceeds the particulate count performance of the main flirter HVAC Handler Unit standards, which was our trial objective· Furthermore, the S400 provided more consistent lower level particulate counts (RED) without the deviations (BLUE) seen with the main filter HVAC handler Unit system which included a 95% efficient filter attachment· The S400 kept optimum consistent low level of particulate counts (RED) as the filtered HVAC handler f1uctuated particulate movement in the room·"

Size Range 0.3 to 25µm
Size Channels Factory calibrated at 0.3, 0.5, 1.0, 2.5, 5.0, 10.0 µm variable binning
Flow rate 0.1 CFM (2.83 LPM)
Concentration Limit 10,000,000 Particles/ft³ @ 10% coincidence loss

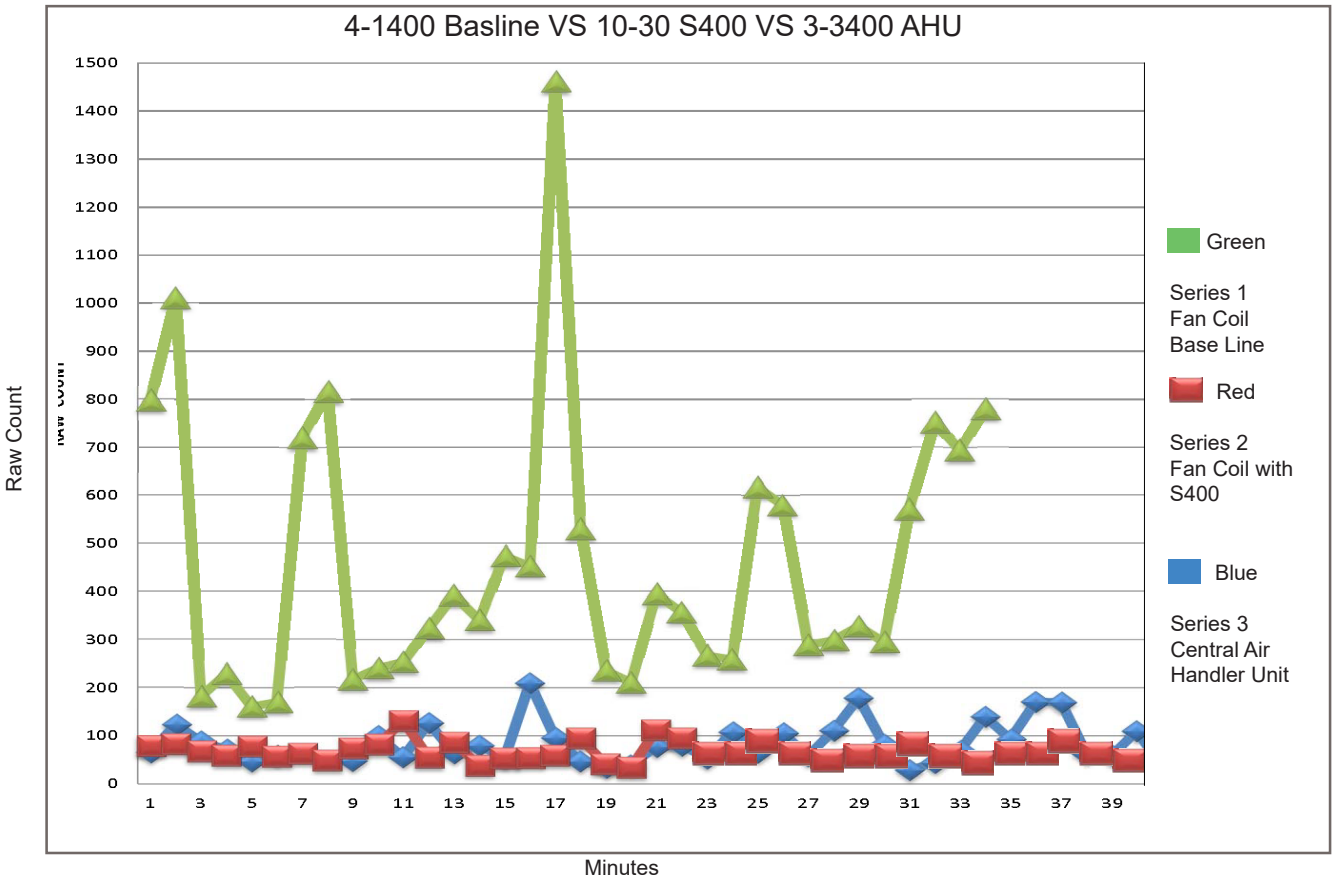
0.3 Micron



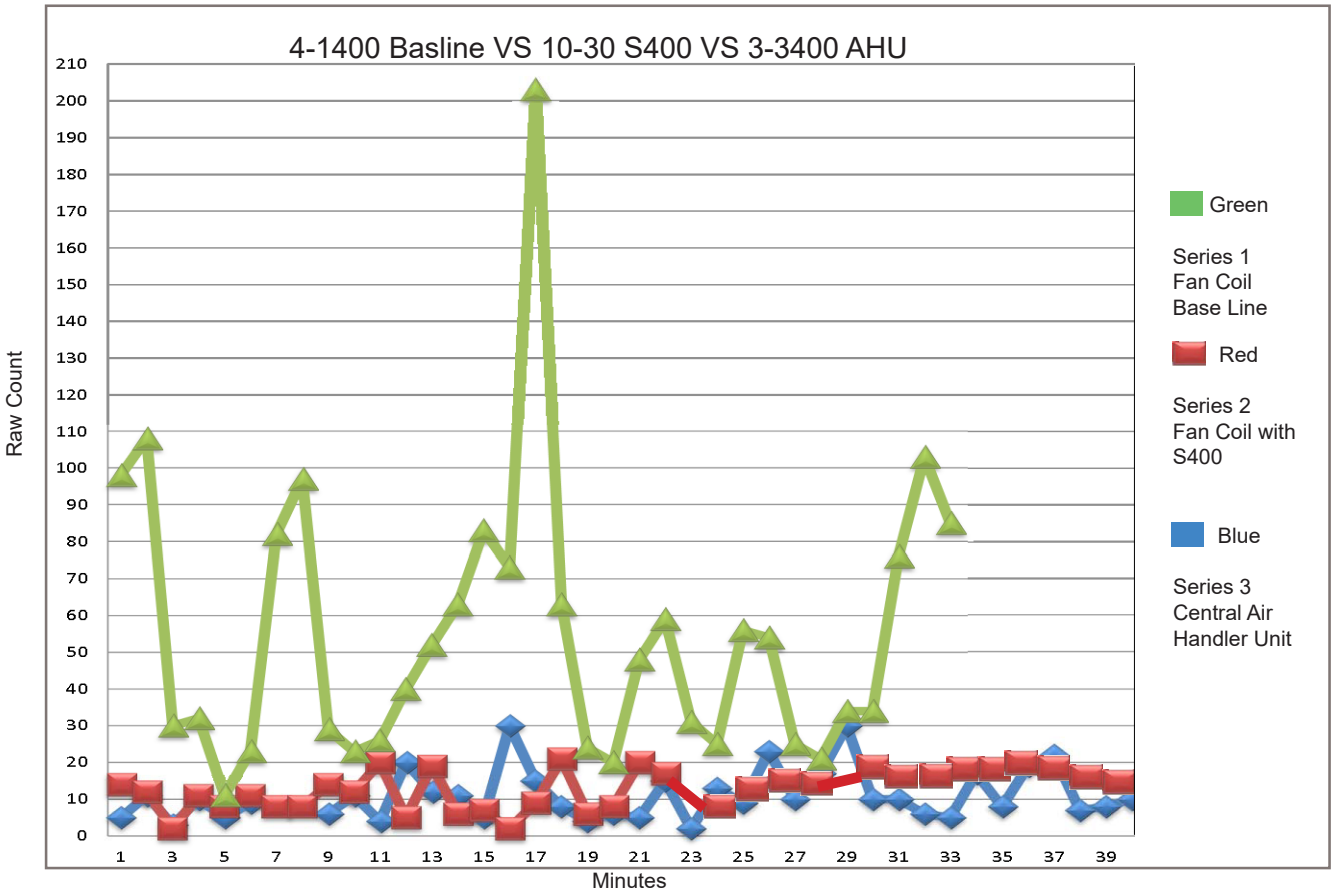
0.5 Micron



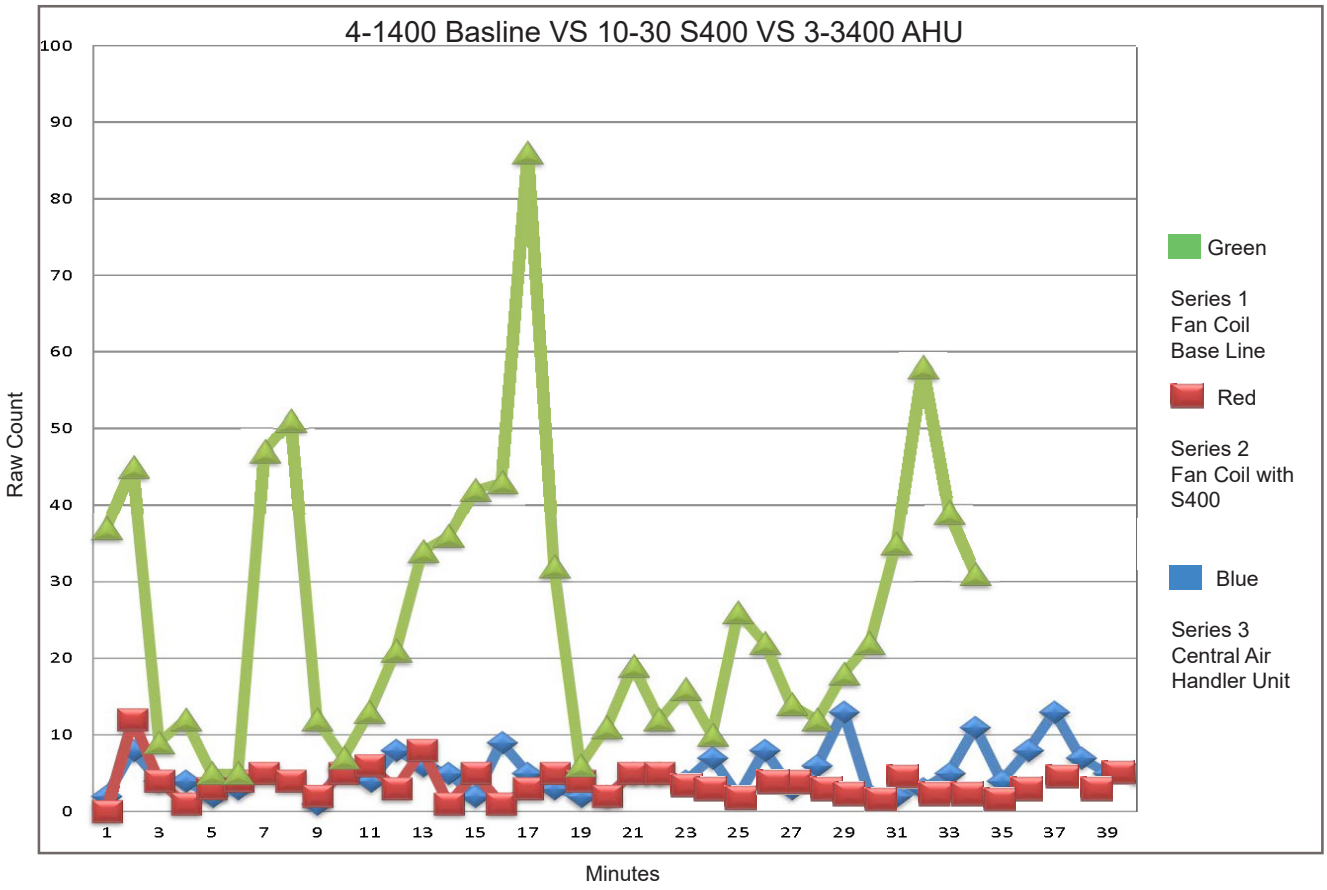
1.0 Micron



3.0 Micron



5.0 Micron



10.0 Micron