# OSU & NBS Updates
## 2009 October Materials Meeting

Federal Aviation Administration

Materials Working Group

Michael Burns, FAA Tech Center

October 21st & 22nd, 2009

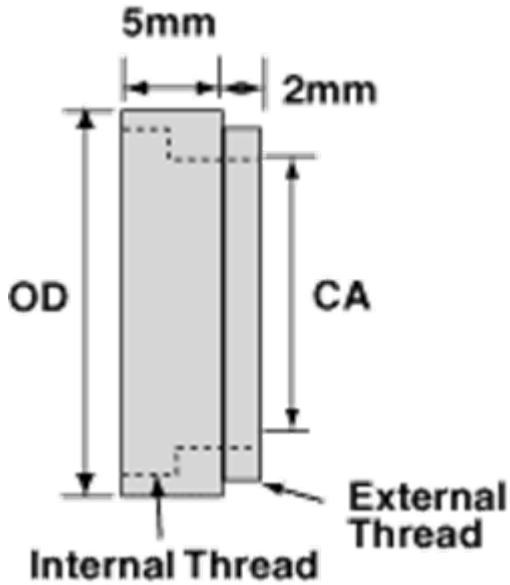
# Agenda

1. NBS Update
   - Photometric System Round Robin Results
   - Future Follow-On Work
2. OSU Update
   - Chapter 5 Equation
3. Maintenance Tips & Reminders
4. Next Steps

# NBS Photometric System Round Robin

Photometric System Round Robin Has Been Completed

- Goal Was To Look At The Scatter The Photometric System Alone May Have On Fleet Test Data
- Test Included A Linearity Check Of Five Data Points Using Neutral Density Filters.



# NBS Photometric System Round Robin

- 20 Labs (24 NBS Smoke Chambers) Were Able To Participate
- No Furnace Heat Or Pilot Burner Used
- Zero Then Span System
  - Gradually Slid Filter Over Lower Glass Window
- Filter Information:
  - Edmund Optics
  - http://www.edmundoptics.com/onlinecatalog/DisplayProduct.cfm?productid=1523

# NBS Photometric System Round Robin Participants

AIM COMPOSITES

AIRBUS (2 Labs)

BOEING

C&D ZODIAC (2 Labs)

CEAT

CTAERO

DELSEN TESTING LABORATORIES, INC.

FAA

HEATH TECNA, INC.

HERB CURRY, INC.

ISOVOLTA

JAMCO (2 Labs)

KYDEX, LLC

L-3 COMMUNICATIONS

LANTAL

NEWPORT SCIENTIFIC

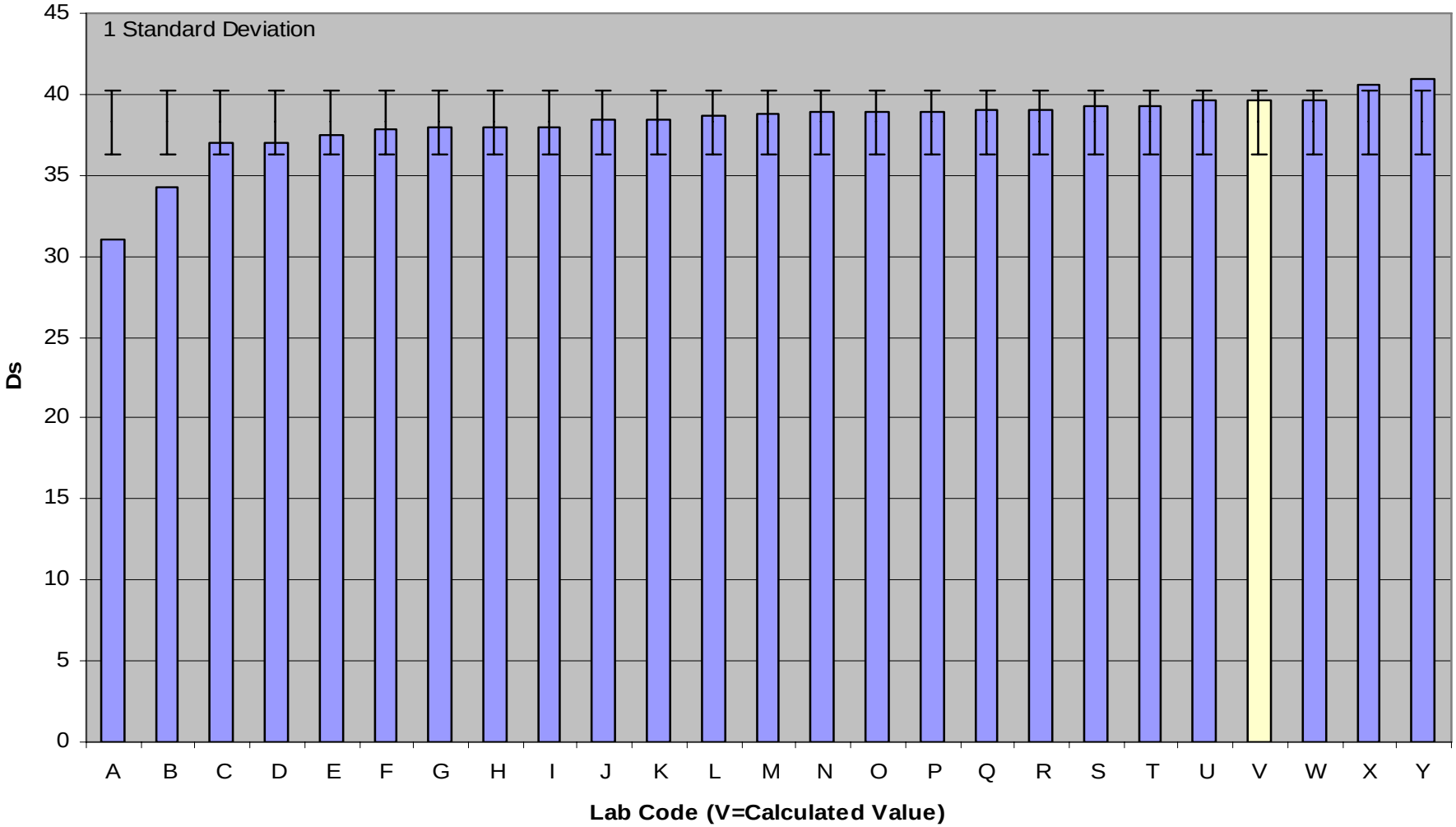
RESCOLL

SCHNELLER (2 Labs)

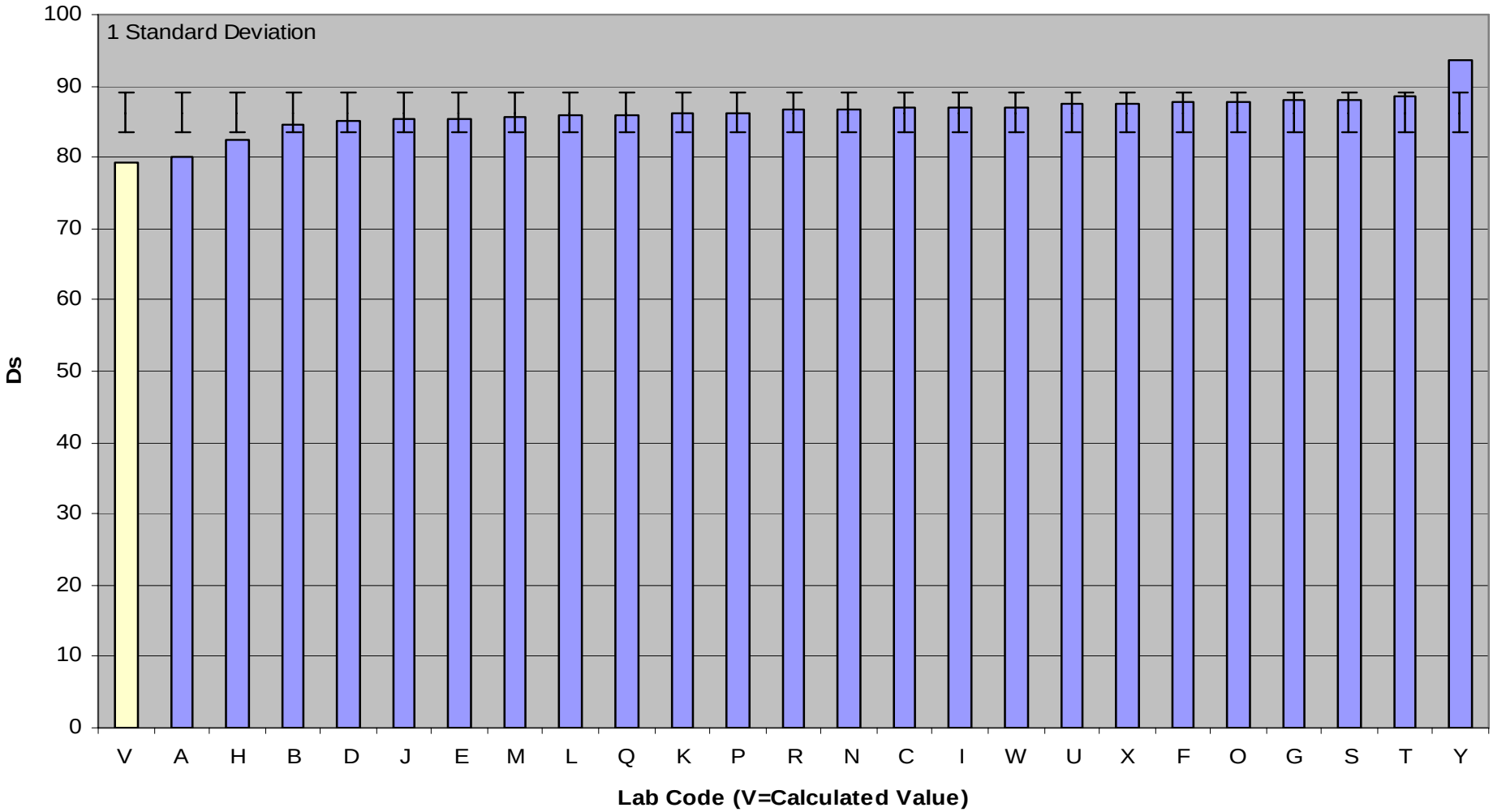
TESTCORP

THE GOVMARK ORGANIZATION, INC.

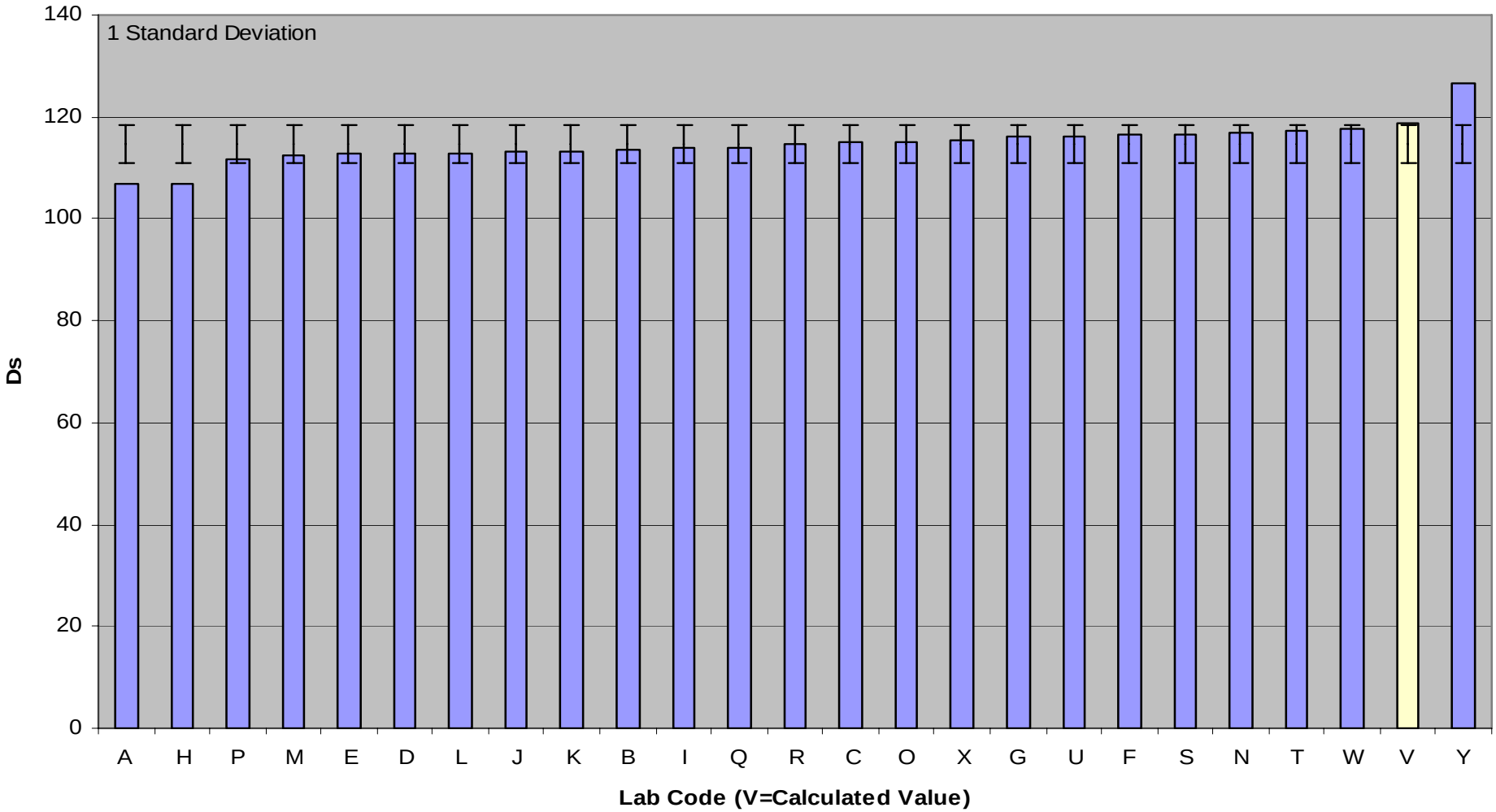
**ND2 Filter Data**
**0.3 O.D, 50.1 % Light Transmission, 39.6 S.O.D**
**Avg. 38.3 / 5.2% SD**



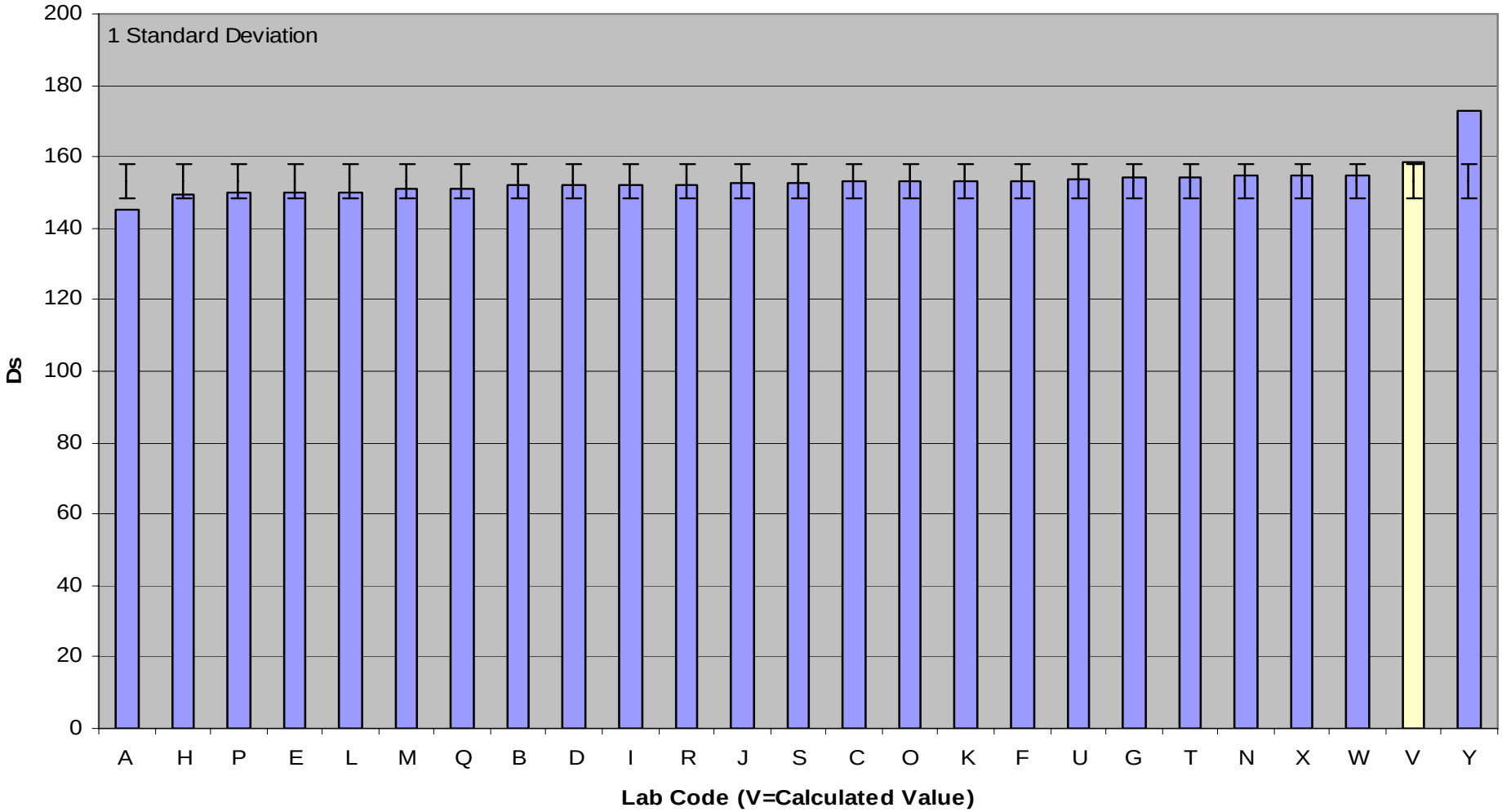
**ND4 Filter Data**
**0.6 O.D, 25.1 % Light Transmission, 79.2 S.O.D**
**Avg. 86.2 / 3.2% SD**



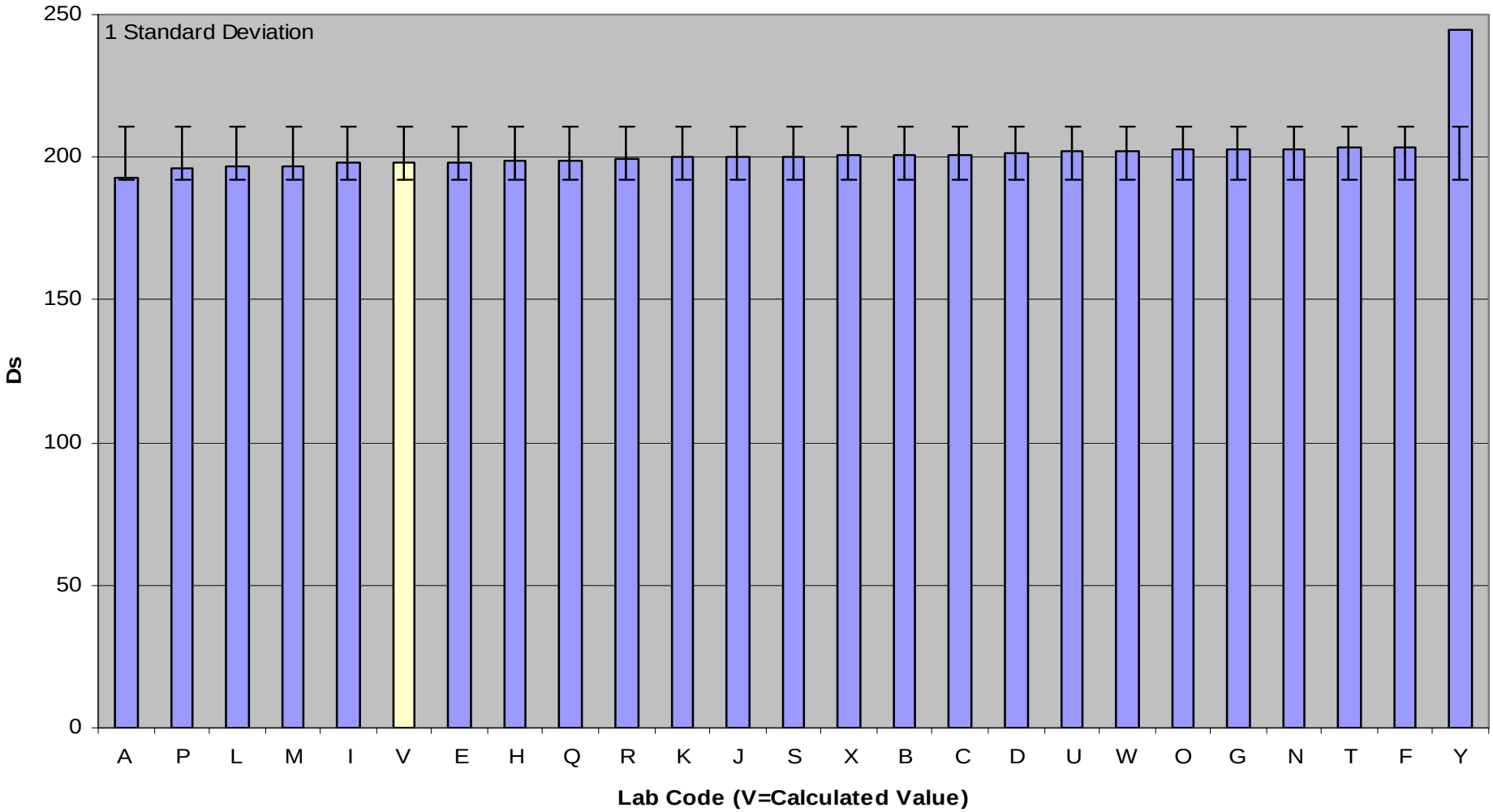
**ND8 Filter Data**
**0.9 O.D, 12.6 % Light Transmission, 118.8 S.O.D**
**Avg. 114.7 / 3.3% SD**



**ND8+2 Filter Data**
**1.2 O.D, 6.3 % Light Transmission, 158.4 S.O.D**
**Avg. 153.2 / 3.1% SD**



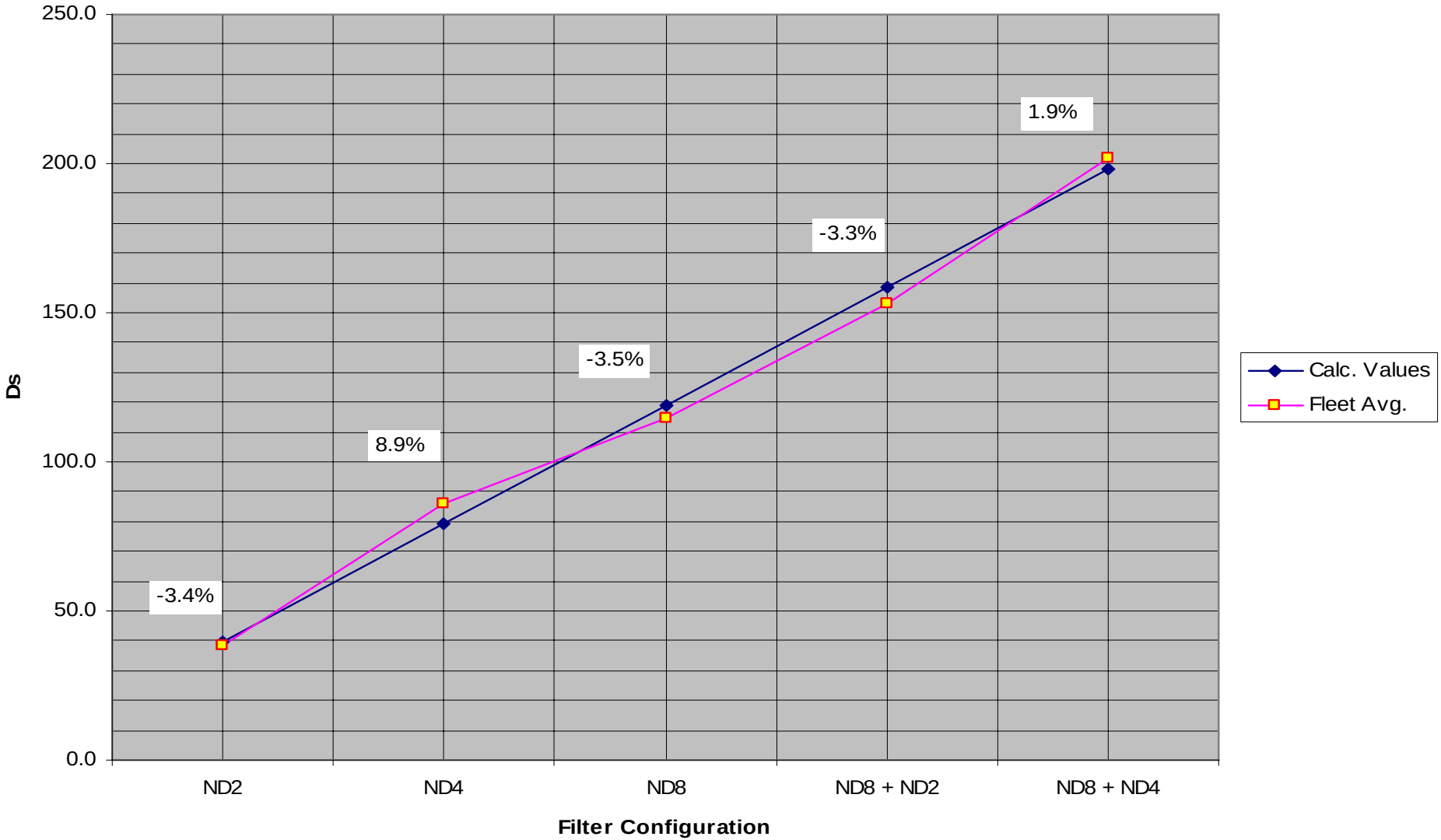
**ND8+4 Filter Data**
**1.5 O.D, 3.2 % Light Transmission, 198.0 S.O.D**
**Avg. 201.7 / 4.6% SD**



# NBS Photometric System Round Robin

| Calc. | Fleet Avg. | % Delta | % STDEV | % STDEV (Removing A&Y) |
|---|---|---|---|---|
| 39.6 | 38.3 | -3.4% | 5.2% | 3.30% |
| 79.2 | 86.2 | 8.9% | 3.2% | 1.60% |
| 118.8 | 114.7 | -3.5% | 3.3% | 2.20% |
| 158.4 | 153.2 | -3.3% | 3.1% | 1.10% |
| 198.0 | 201.7 | 1.9% | 4.6% | 1.10% |

## Filter Calculated Values vs Fleet Avg.



# NBS Photometric System Round Robin

- Labs Will Be Contacted Identifying Their Lab Codes And Review Of Data.
- STEP 2

  As Follow Up To The Photometric Portion Of The NBS System I Would Like To Conduct A Round Robin Non-Flaming Test.
- STEP 3 (FINAL STEP)

  As Follow Up To The Photometric Portion Of The NBS System I Would Like To Conduct A Round Robin Flaming Test.

This 3 Step Process Will Hopefully Identify Problem Areas Fleet Wide.

# Chapter 6 Update to FAA Handbook

- 09/29/09: In an effort to provide a constant for simplifying the calibration factor calculation in FAR 25, Appendix F, a long standing error was noted in Chapter 5 (Heat Release Rate Test for Cabin Materials) of the Handbook. The constant value located in the equation (Paragraph 5.6.6) is currently 23.55 and should actually be 25.31.
- Please verify that your software uses this value.

# Maintenance Tips & Reminders

- **OSU**
  - Inspect Cooling Air Manifold Holes / Pipe For Evidence Of Corrosion
  - Inspect Outer Door Seals For Evidence Of Damage
- **NBS**
  - Remember To Replace The Water Used In The Pressure Regulator System On A Regular Basis
  - Continually Leak Check NBS Unit Prior To Testing

# Next Steps

- Begin Follow-On Testing To The NBS Photometric System Round Robin
  - Non-Flaming / Flaming
- Look Into How Different OSU Insulation Densities May Have An Effect On Test Results
- Assist The Flammability Standardization Task Group As Needed
- FAA Contact Information:

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