

# HEAT FLUX CALIBRATION TASK GROUP

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Federal Aviation  
Administration



# AGENDA

- Updates - Aviation Heat Flux Calibration Standard Draft Document
- Recent Data
  - Paint Thickness
  - NIST Calibration Data
- Next Steps



# Draft - Aviation Heat Flux Calibration

## Structure of Document:

1. Introduction
2. Definitions
3. Calorimeter Specification
4. Data Acquisition System
5. Calibration Interim
6. Laboratory Environment
7. Calibration Setup
8. Calibration Procedure
9. Requirements / Analysis (Repeatability / Reproducibility)
10. Required Reporting Parameters



# Draft - Aviation Heat Flux Calibration

## Section 8

8.a – Changed “signal” to “voltage”

8.c – Changed “4B” to “4.b.”

8.e – Changed “Remeasure the zero flux signal and resistance of the HFG’s.” to “Repeat step 8.a. verifying HFG’s return to previous conditions and document.”

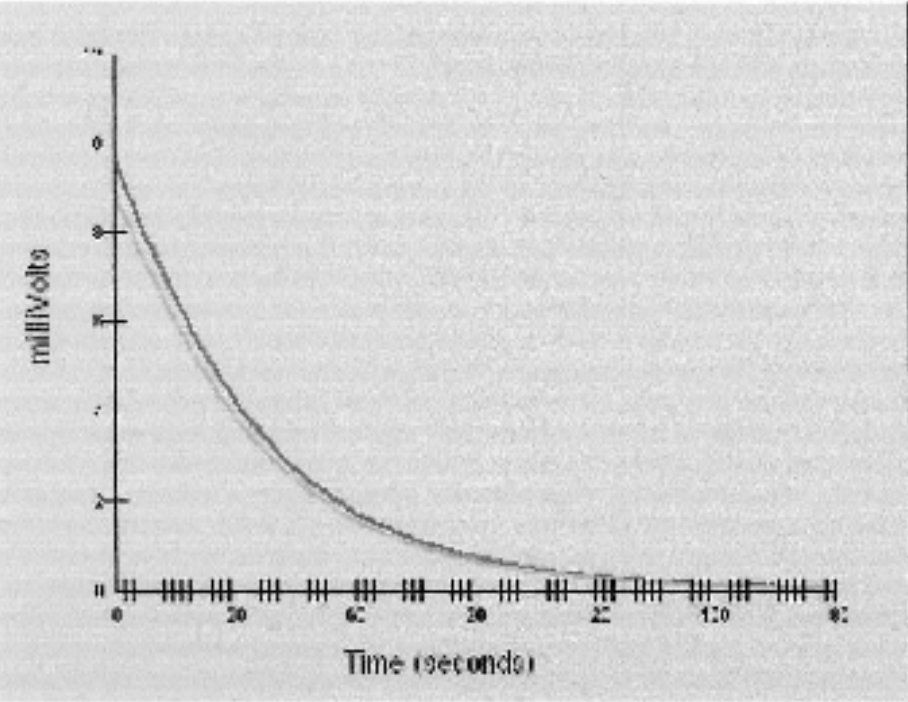
## Section 10

10.b – Changed “Customer (Lab providing Working HFG)” to “Customer (Lab performing future tests with the Working HFG)”

10.e & f – Changed “Sensor Ohm reading between signal leads at zero flux.” to “Sensor voltage and Ohm reading between signal leads at zero flux.”

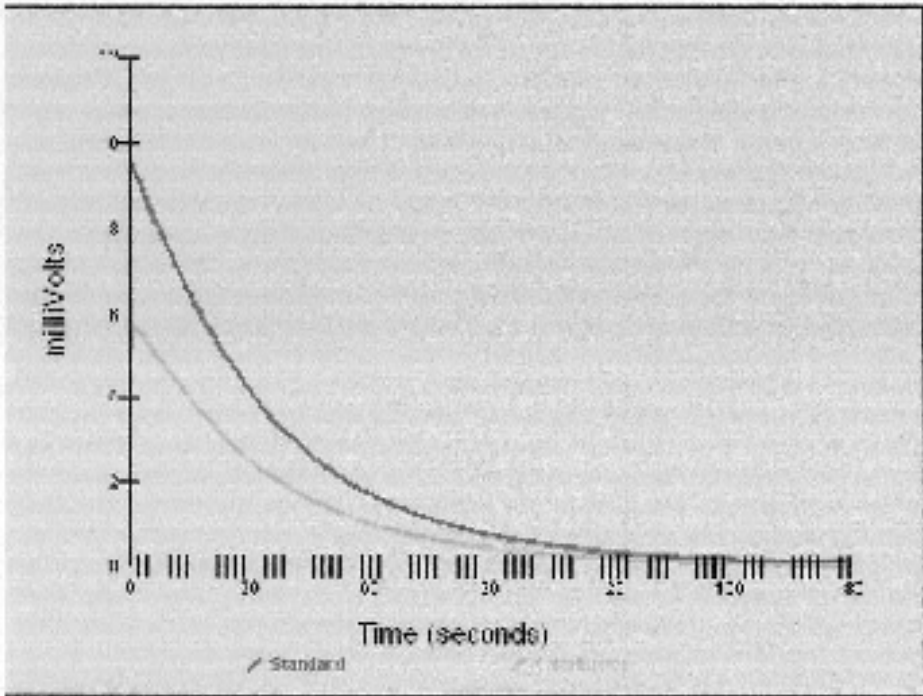


# Paint Thickness



Thin Layer of Paint

0.5301 W/cm<sup>2</sup>



Thicker Layer of Paint

0.7912 W/cm<sup>2</sup>

A difference of almost 50%



# Vatell Data (NIST Calibration Data)

- Vatell Has Received And Installed A Secondary Standard Gauge Calibrated At NIST.
- Tech Center Purchased 4 New Gauges And Requested The Aviation “Interim” Calibration Be Completed To Compare Results.

Vatell Cal. Factor	FAA Cal. Factor	% Difference
0.497	0.5142	3.5%
0.494	0.5078	2.8%
0.489	0.4936	0.9%
0.532	0.5374	1.0%



# NEXT – DEVELOP GUIDANCE MATERIAL

## Advisory Material / Supplemental Guidance Section

1. Paint / Paint Thickness / Paint Application
2. Data Acquisition Calibration Process
3. Radiant Heat Source (Flat Graphite Plate For Example)
4. Clamping / Mounting / Alignment Fixture
6. Standardized Reporting Form

## Round Robin Development (Future Calibration Facilities)

- o How Should It Be Conducted
- o Determine Variation
- o Determine What Would Be Considered “Acceptable” Variation
- o Determine Reasons For The Variations And Whether Some Are Correctable
- o Interval / Round Robin Requirements Of Calibration Facilities



# Questions / Comments?

“The Art Of Being Wise Is Knowing What To Overlook”

