Model 205 Calibration

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# Summary

Prepping unit for deployment in Spokane as part of the Urbanova WSU Spokane campus air quality reference site. Has been running in PETB 417 for many days sampling either rooftop or laboratory air.

# Calibration Plan

Unit reporting range is 1ppbv – 100ppmv; reasonable range of interest is 1ppbv – 200 ppbv (ref: Teledyne analog output range, configured for HCHO/IAQ studies).

1. Record as-found status
   1. Current instrument Z/S values
   2. Assess performance using logger program & gas standards
2. Perform recalibration
   1. First, set zero response
   2. Next, set span response
3. Validation
   1. ?

# As-Found Status

Values from menu before any changes:

* Z = 5
* S = 1.04

# Notes

14:05 Reverted values to baseline: Z=0, S=1.0

14:06 Restarted logger program (`m205\_validation.cr6`), deleting data

14:08 Begin flowing 0.00 ppb ozone from Teledyne calibrator (T700U; s/n 294)

14:10 Initiate data logging in logger program

14:11 Increase flow rate from T700U from 2->3 LPM

14:40 Revert calibrator back to stand-by mode, halting gas delivery

14:41 **N.B.** screwed up here: didn’t halt logger program acquisition first!  
 🡪 Discard run due to this…

Found two screw-ups: missing standard deviation values in stats data table

14:48 Pushed fixed program to datalogger

14:51 Begin flowing ozone free air again

14:53 Begin logging run

15:27 With enough data to do up to 30min Allan plot, halt run acquisition and *then* turn off ozone delivery

Results: ozone average of 0.265 ppb, standard deviation of 1.626 ppb

15:28 Change ozone delivery output to 20 ppbv… initiate run at 15:29

16:10 End this run and change gas delivery to 150 ppbv ozone

Results: ozone average of 20.41 ppb, standard deviation of 2.562 ppb

16:12 Begin data collection for this run

16:56 Triggered run finish and placed calibrator into stand-by

Results: ozone average of 140.9 ppb, standard deviation of 3.298 ppb (~6% low)

16:58 Analyzer now sampling room air again… triggered final “calibration” run at 17:00

17:27 Halted final run and reattached inlet tube to rack manifold