



A320 Update



FAA



Federal Aviation
Administration

Introduction

- Discovered possible shift in ASE performance for the A320 aircraft group for aircraft above Manufacturer Serial Number (MSN) 5000.
- Summary of information provided to NAARMO by Airbus.
- Update on data collected
- Recent large ASE case which was successfully resolved.

Air Data Sensors

- Thales provided a presentation at the previous ASE workshop in 2016 that identified a second generation of air data sensors moving from piezo-electric to various silicon chip sensors, with a design targeted toward improving long term stability.
- Airbus confirmed that SN4795 was the last airframe that used the piezo-electric sensor.

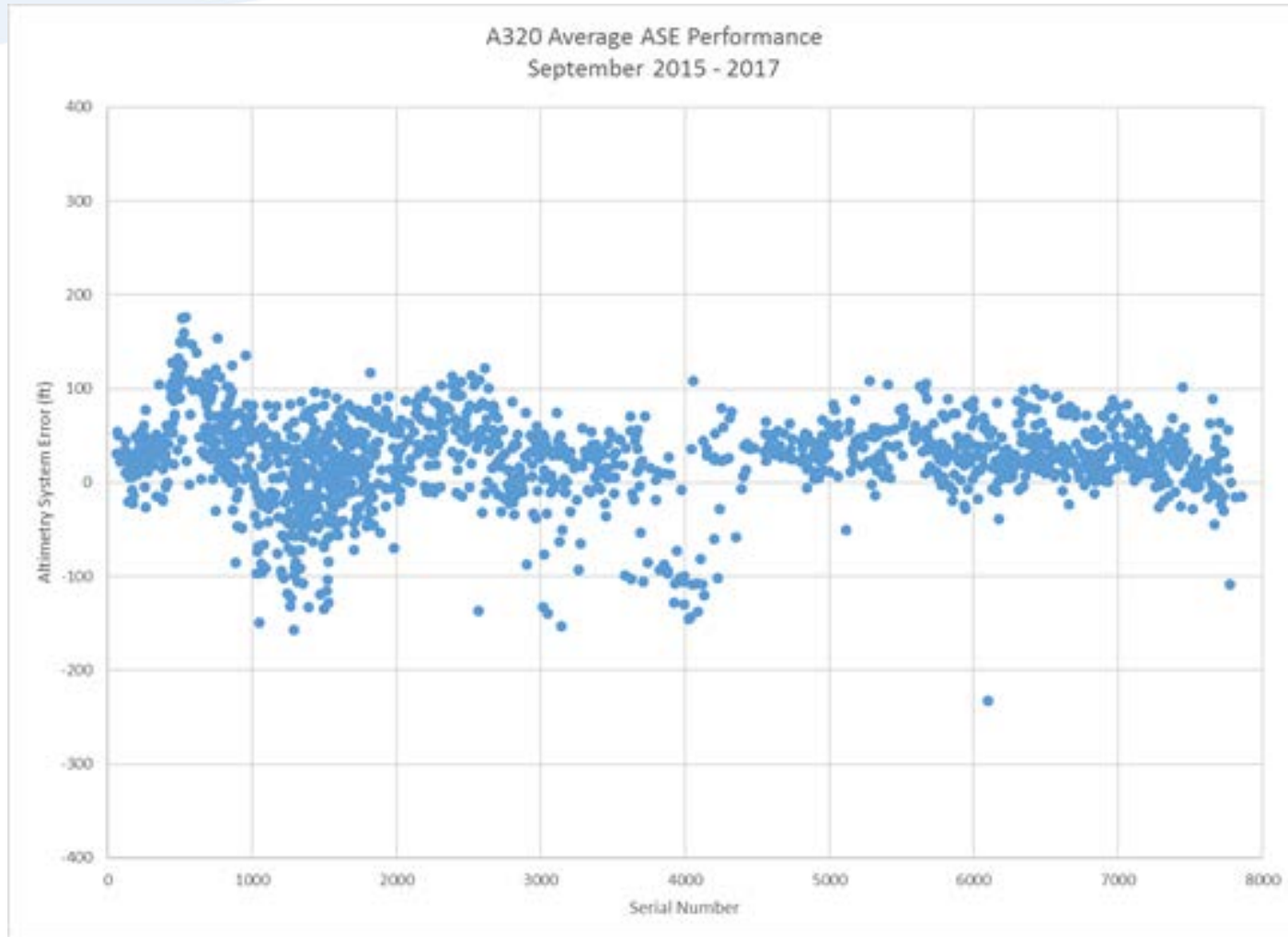
ADM Replacement

- Airbus issues Technical Follow Up
 - ✦ TFU 34.11.00.012 applicable to all A320/A330/A340 family aircraft equipped with Thales Air Data Module (ADM) PN 87232329V03. The TFU identifies AMM 34-13-00-720-010 – “Functional Test of the ADM Accuracy” on the A320 family and AMM 34-13-00-720-802-A – “Functional Test of the ADM Accuracy” on A330/A340 family.
- Airbus recommends performing the above referenced AMM tasks every 48 months on all A320/A330/A340 family aircraft, irrespective of the ADM PN fitted.

Next Generation Sensors

- It was also reported that, as required, piezo-electric sensors will be replaced with the second generation sensors.

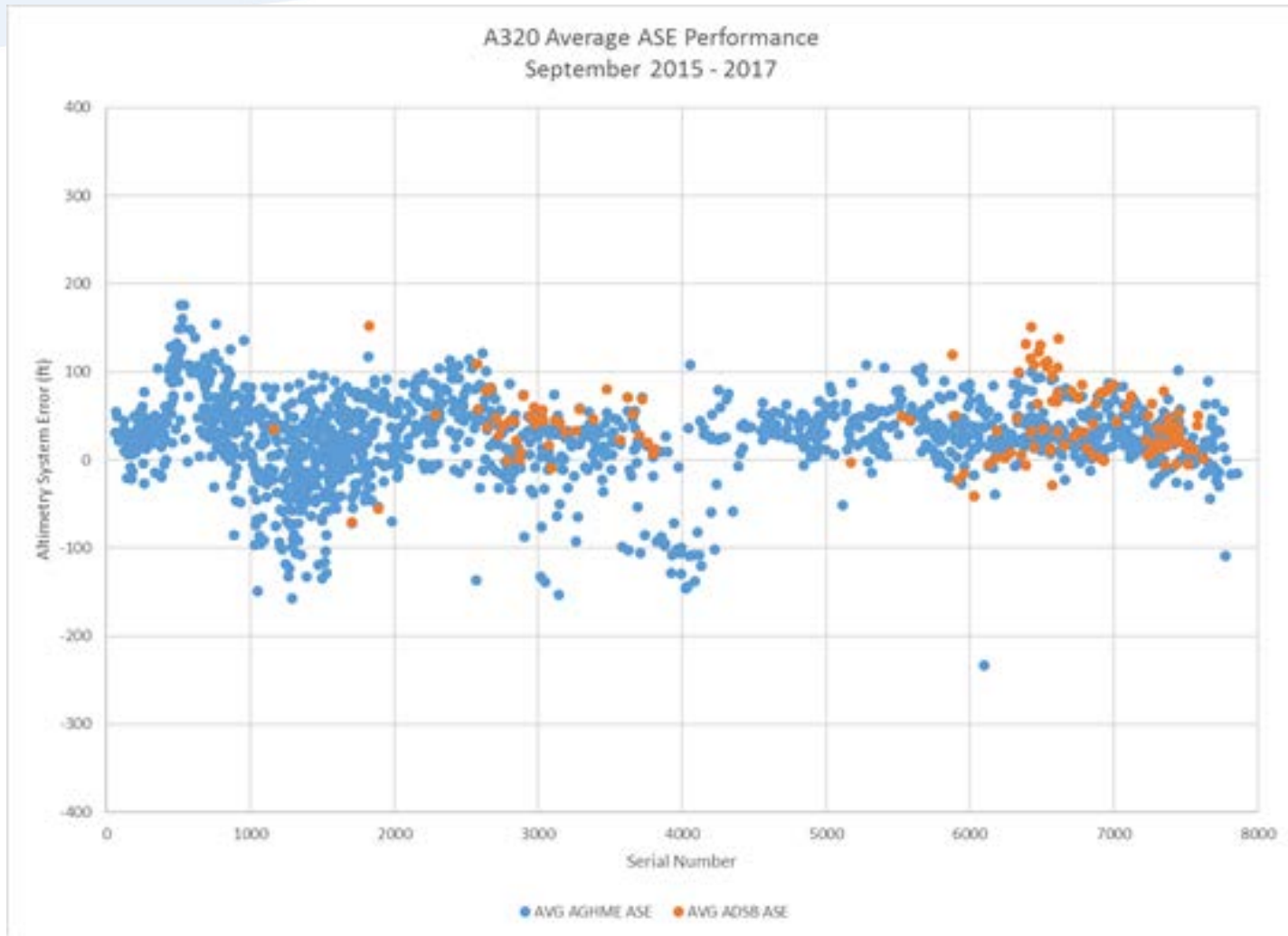
A320 AGHME ASE Performance (MSN)



FAA

NextGEN

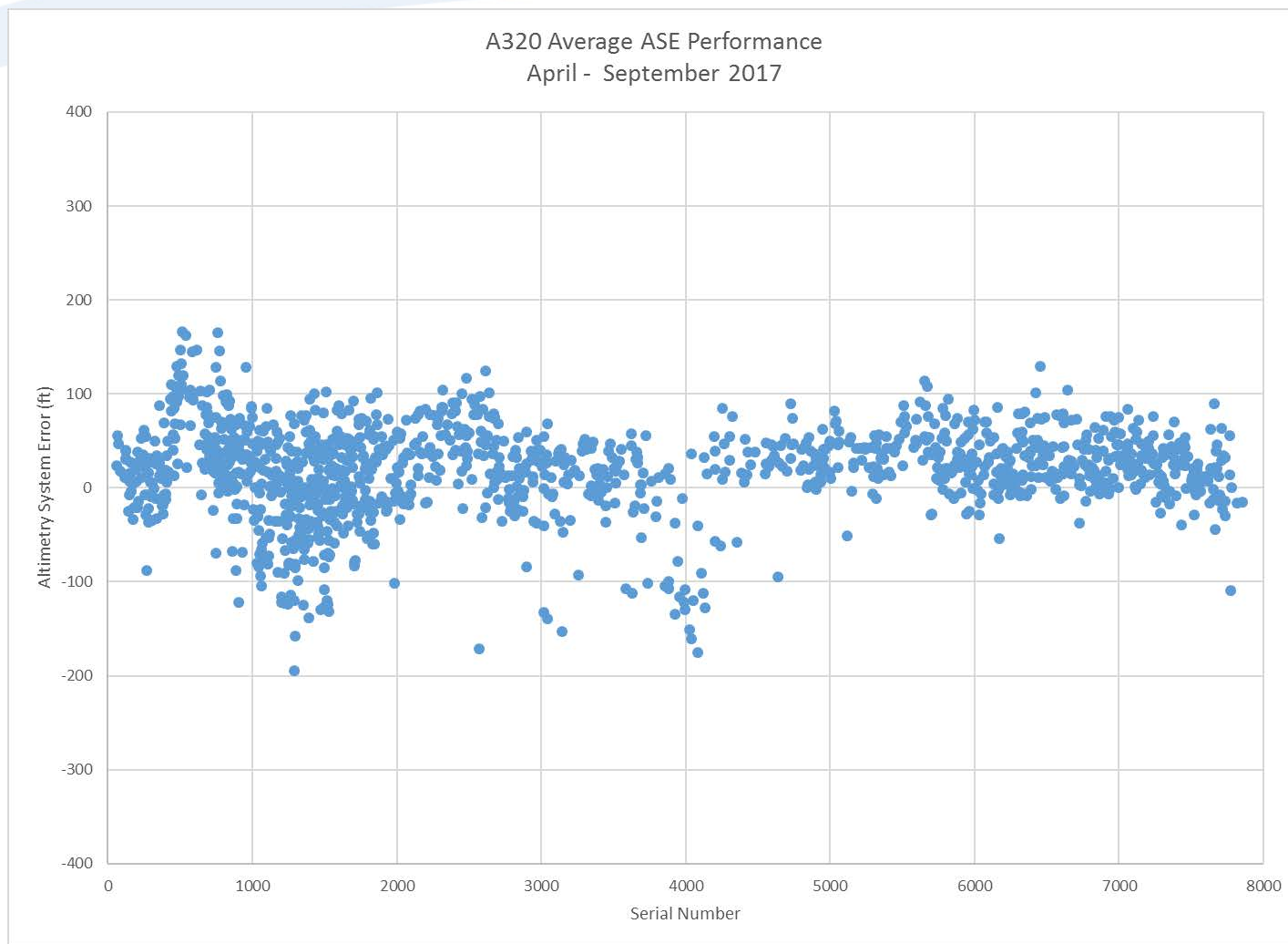
A320 AGHME & ADS-B ASE Performance



FAA

NextGEN

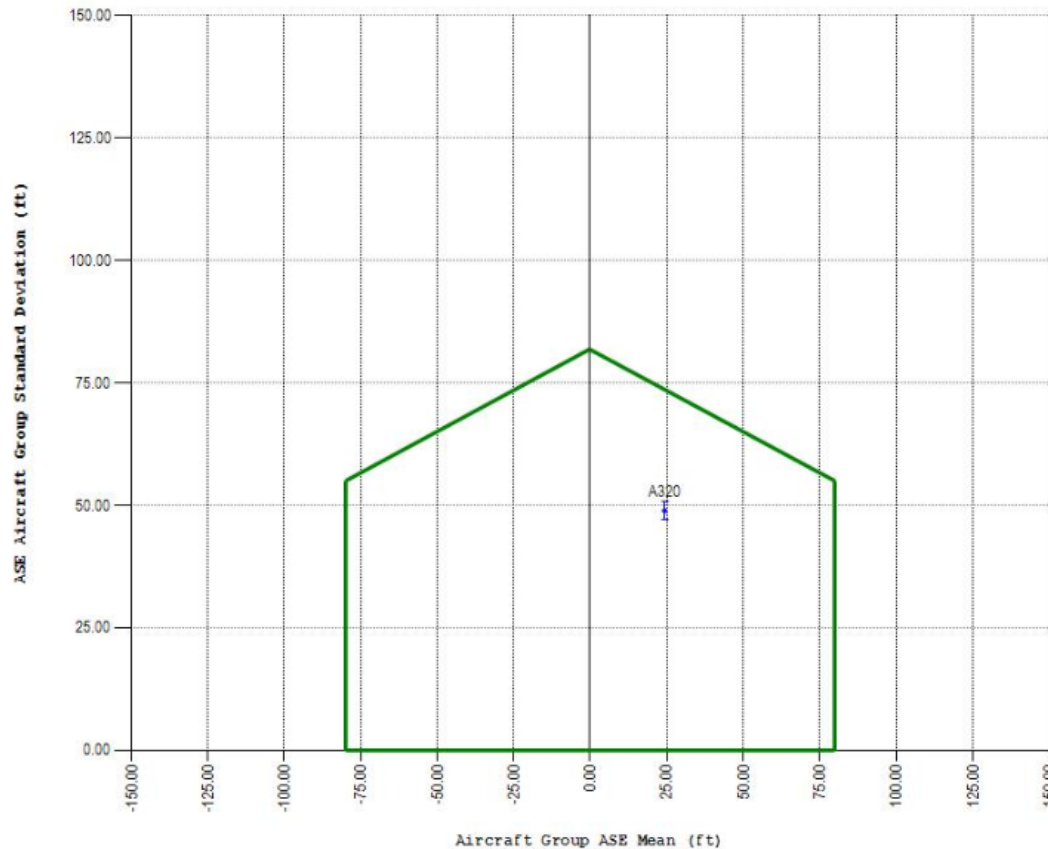
Performance: Past 6 Months



FAA

NextGEN

High Confidence of Performance



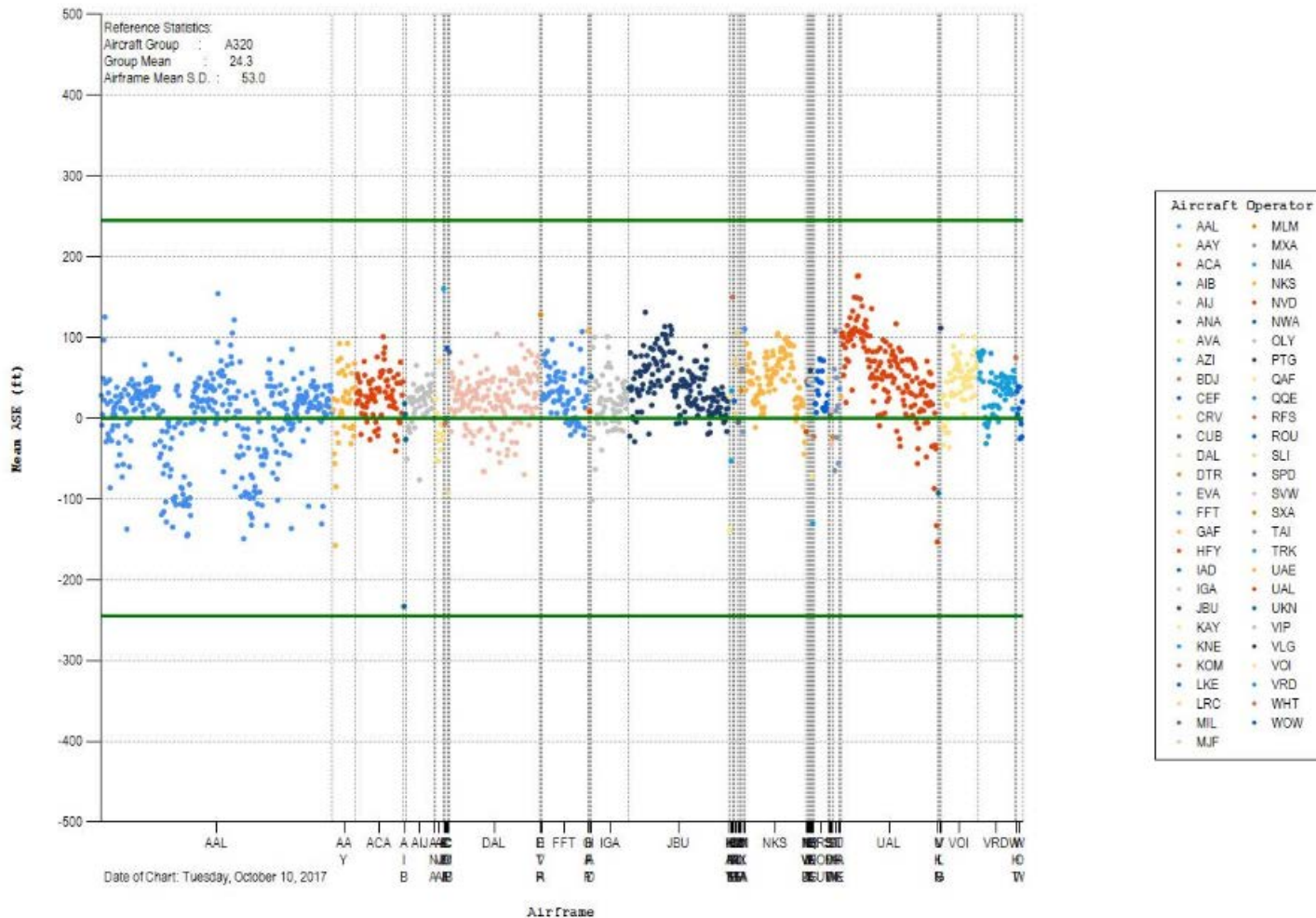
Note: ASE variance estimate reduced by assumed measurement variance of (44.0 ft²)
Date of Chart: Tuesday, October 10, 2017



FAA

Next**GEN**

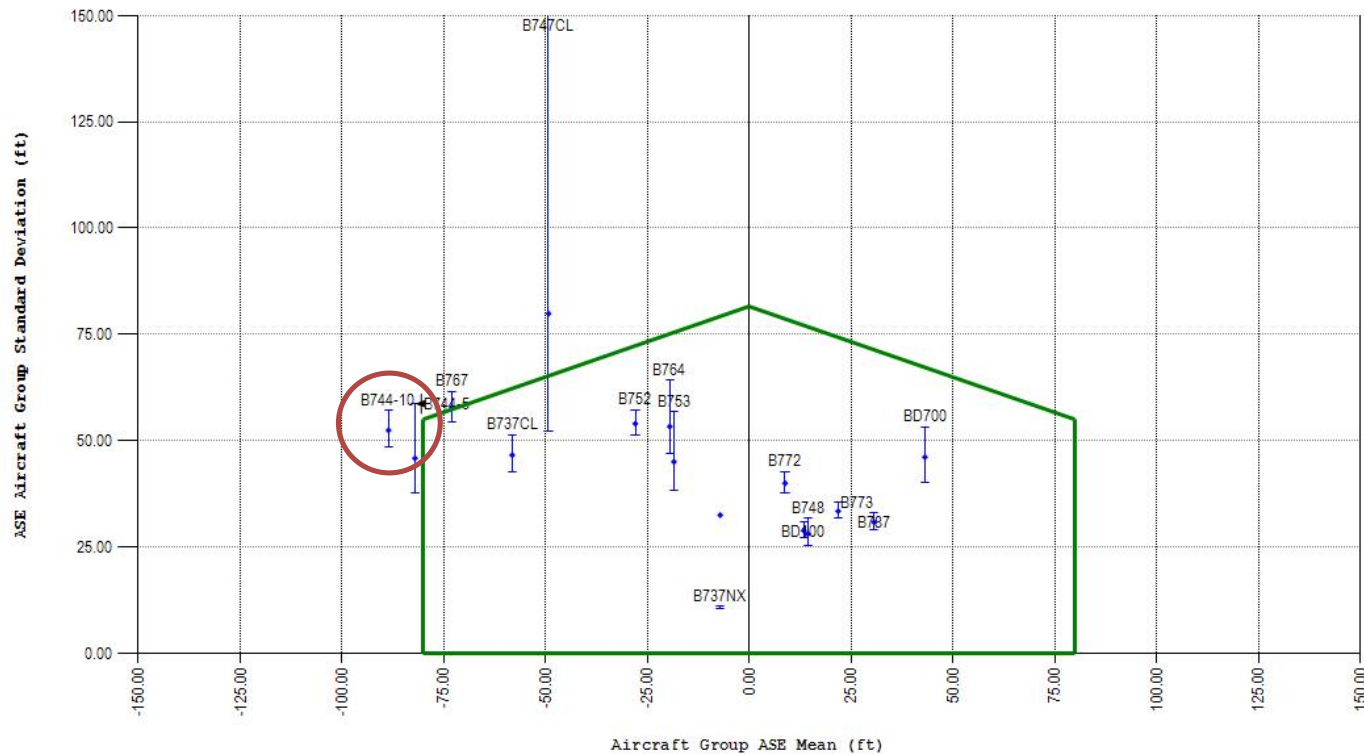
Mean ASE by Operator



FAA

NextGEN

B747-10



Aircraft Groups Monitored

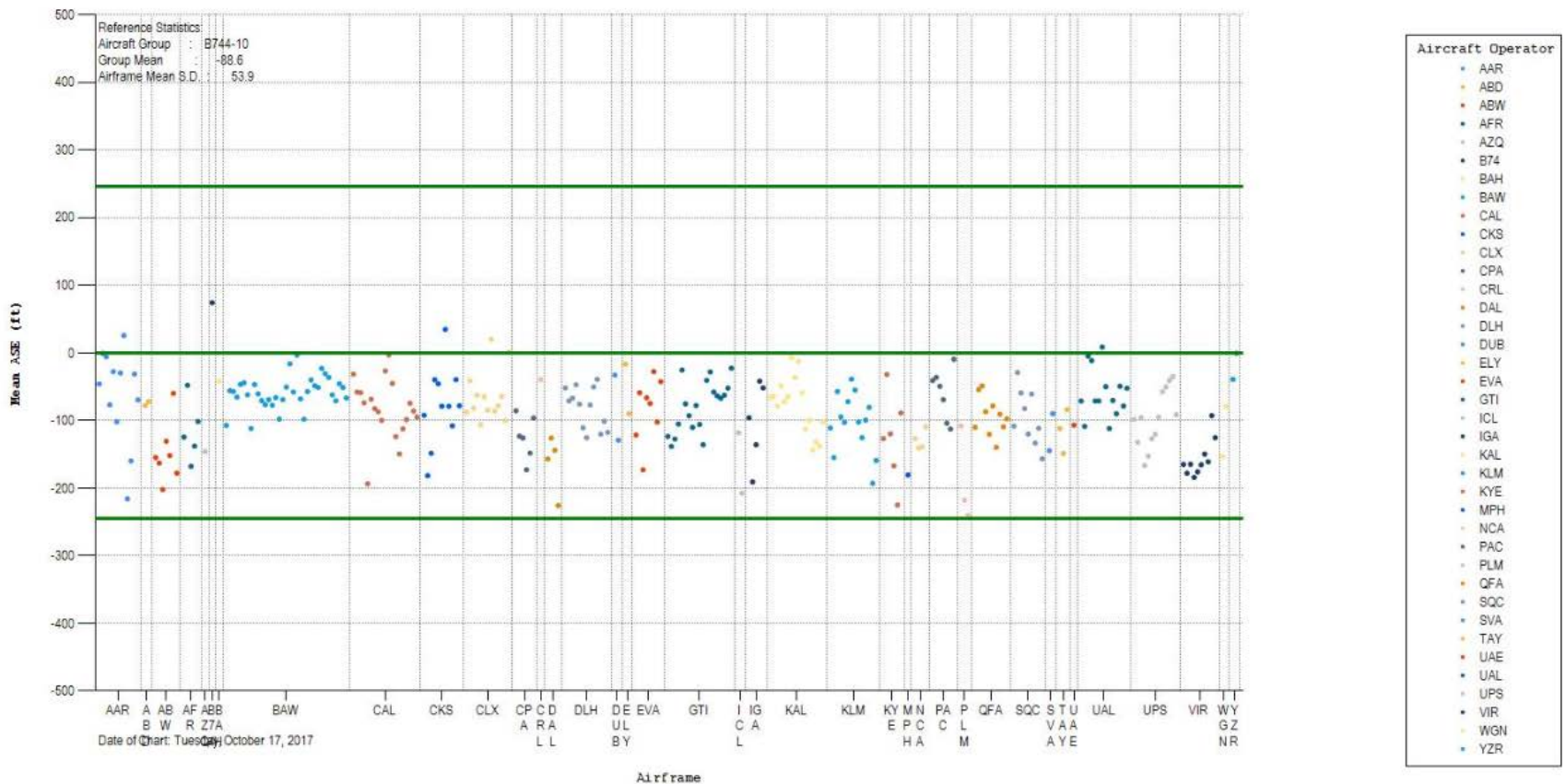
B737CL	246
B737NX	2177
B744-10	286
B744-5	50
B747CL	10
B748	108
B752	532
B753	39
B764	38
B767	549
B772	457
B773	545
B787	334
BD100	497
BD700	141



FAA

NextGEN

B747 Mean ASE Performance by Operator



FAA

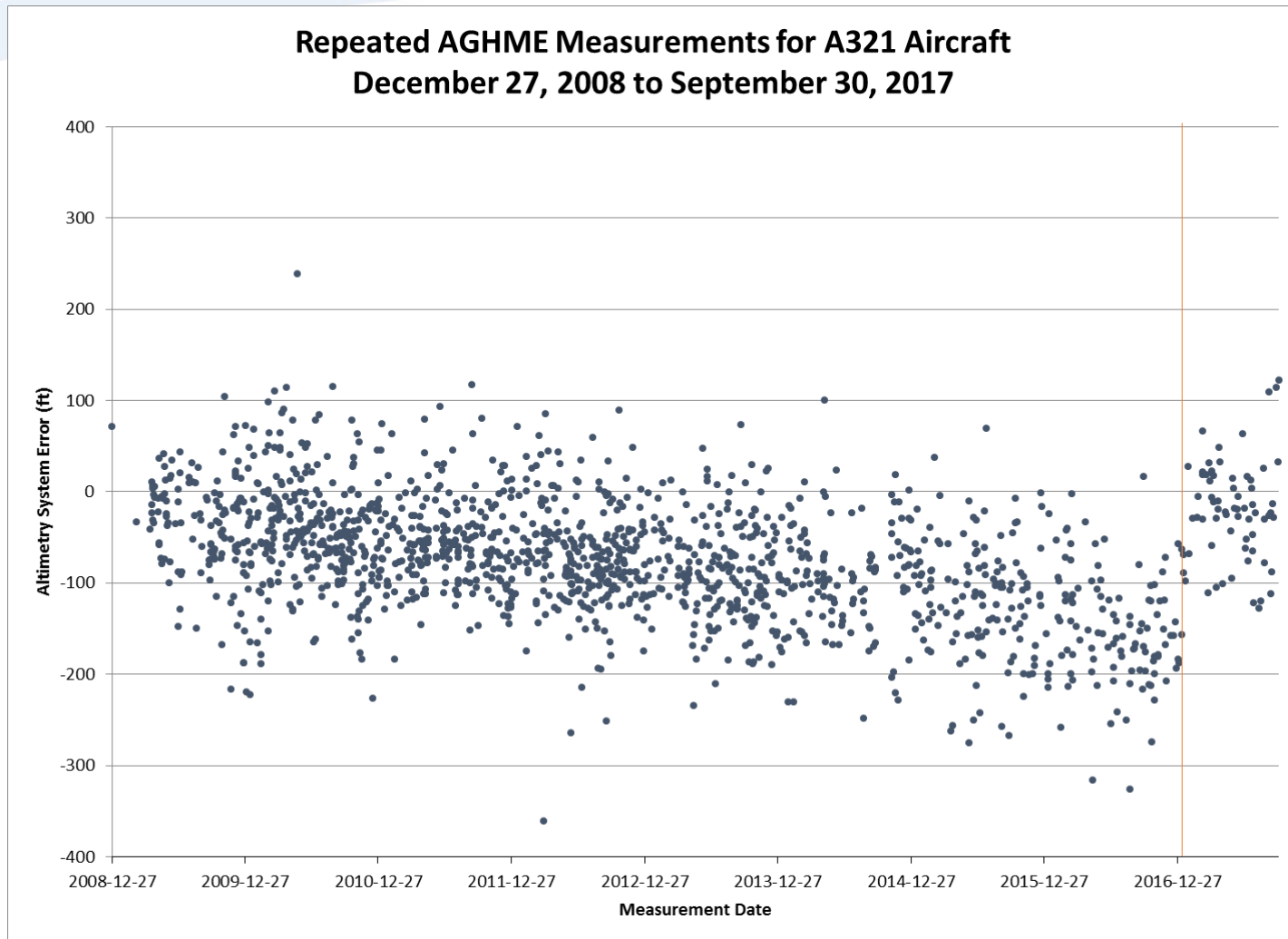
NextGEN

A320 ASE-R

- An ASE-R was issued for an A321, MSN 3712, aircraft identified during the NAARMO ASE review process.
- ASE-R issued Dec 5, 2016.
- Maintenance completed January 31, 2017.
 - ✦ The right and left ADMs were replaced.
- The vertical line on the chart indicates the date the maintenance was completed.

Aircraft MSN 3712

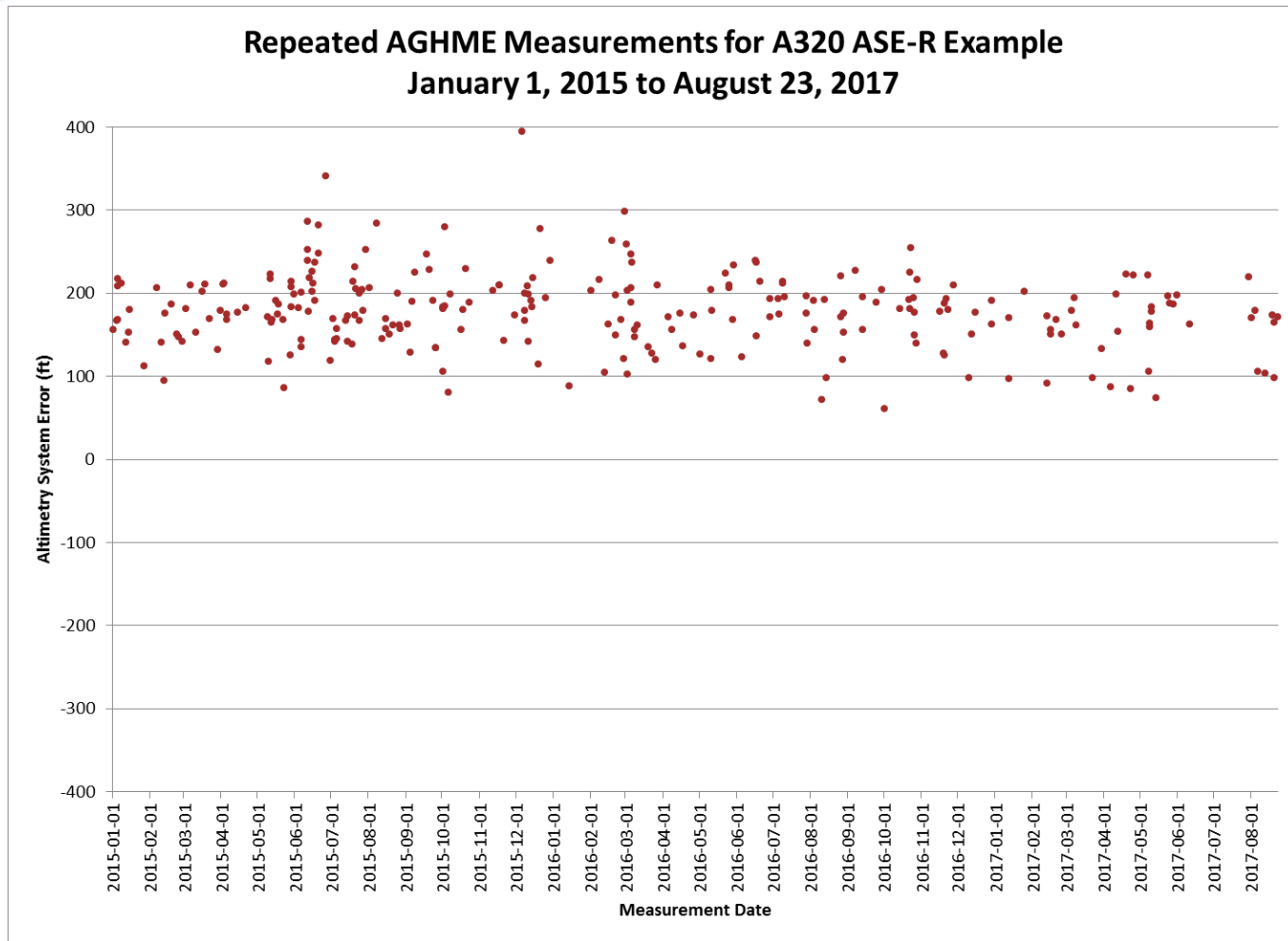
Repeated AGHME Measurements for A321 Aircraft
December 27, 2008 to September 30, 2017



FAA

Next**GEN**

A320 – Extensive maintenance, no improvement



FAA

NextGEN

Maintenance

- Performed AMM 34-11-16 Inspection of static ports; no damage found.
- Performed AMM Task 34-13-00-720-010-A Functional test of ADM Accuracy for only Static ADMs, 19FP4, 19FP5, 19FP6, 19FP7, 19FP8., all readings found to be within limits
- Performed Airbus AMM 05-51-94 Skin Waviness inspection, aircraft found to be within allowable damage and operating structural limits.

Conclusion

- Average ASE plotted by MSN contains several potential trend areas for MSNs below 4300.
- Above MSN 4300, average ASE appears consistent, approximately 50 ft.

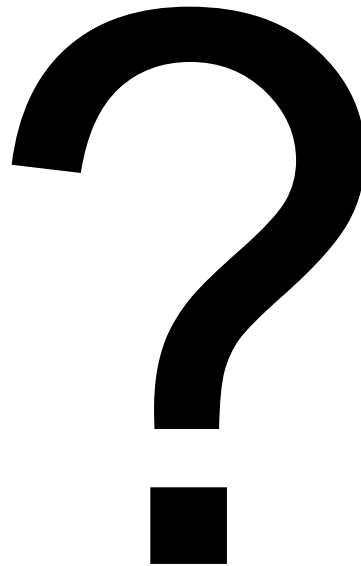
Conclusion (ctd)

- This corresponds with the switch from piezo-electric sensors to solid state units at MSN 4795.
- This difference in the range from 4300-4795 is potentially attributable to the sample or the actual drift rates of sensors in aircraft.
- Continued investigation into the source of ASE variation when viewed as a function of MSN would be warranted to gain a full understanding of the error modes and solutions.

Conclusion (ctd)

- The long-term drift and a significant improvement in ASE presented in aircraft MSN3712 confirm the drift issue identified in the Airbus TFU.
- It would be expected that as aircraft with significant sensor drift are detected via maintenance or ASE monitoring and the sensors are recalibrated or replaced, the group mean performance should become more stable.

Discussion / Questions



FAA

Next**GEN**