Overview of Issues from a Q-AMS in China

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Hardware replacement

• Since 2005, Running for ~28 months totally.
• Pumps:
  – Pump A failed (in 2006, seperated)
  – Pump 4 failed (in 2008)
  – Pump 2 the current is variable, speed is stable.
    Replace a new one, current change also (no fixed)
• Some times the speed of pumps can not reach 100%
Hardware replacement

- EM: replaced ~10 pieces. (Average replace a new one 2-3 month with continuously run)
- Filaments: replaced 2 pairs
  - While one filament didn’t work, the alternative one can not work either (I am not sure the reason)
- Servo: replaced 3 pieces
- Pinhole: replaced 4 pieces
- Chopper fall down from holder: twice
Problems I met

• Low AB signal:
  – TOF signal is OK, but MS signal is low (The mass spectrum calibration is wrong)
  – Both TOF and MS signal is low (the radiator on the electronic box panel doesn’t work)

• Power supply:
  – Put a stabilizer after an UPS system, stabilizer supply power for AMS, there is 110V at the AMS shelf, remove the stabilizer.

• Running menu be changed by accident: twice
EM CALI compare
2011.3.24 Do New EM calibration
-Threshold = 0.5 bits
with EM parameters \( C_0 = -6.83, C_1 = 11.15, C_2 = -2.0 \), Scaling factor = 1
New EM calibration results

Set EM working

Volt=1.75kV, Scaling factor=1

Calculate Gain=2.2e6 at Scaling factor=1

Run sampling aerosol, MS/cal=1

With times go, MS/cal=1.2 next day.

Do IE calibration, MS/cal=1,

Do EM calibration again, The scaling factor change to 1.317, gain=2.92e6
EM calibration manually

EM volt=1.7,
Scaling factor=1.3
Gain=1.7e6
Next EM calibration
MS/cal=0.88

After IE cali
Ms/cal=0.92

IE cali again
Ms/cal=0.94

Why I can not get the MS/Cal to 1 after do IE calibration
Variation of IE/AB