Dear Reviewers,

We thank you very much for pointing out the critical issue of the 100-ion threshold. We apologize that the confusion is caused by an error of the unit that we failed to catch before manuscript submission. The threshold we use in this manuscript is 100 bits*ns not 100 ions, and the y-axis in Figure 5 is bits*ns not in Hz.

The ion detection limit that corresponds to 100 bits*ns is 6 ions. This ion detection limit is calculated by dividing the 100 bits*ns by single ion strength of 16.7 bits*ns (per ion), which is an average of the 11 Bitwise calibrations and was fairly constant during the Bakersfield measurements (the SD of the 11 Bitwise-calibrated single ion strength is 0.6 bits*ns). The 6-ion detection limit is consistent with the threshold of 130 nm d_g particle detection specified in the manuscript, according to the calculations shown below.

Assuming a spherical ammonium nitrate (AN) particle of 130 nm d_g,

dg (nm)	130
dg (m)	1.30E-07
Volume (m^3)	1.15E-21
Density of AN (kg/m^3)	1720
Mass of AN (g)	1.98E-15
Molecules of AN	1.49E+07
IE of nitrate (from field calibration)	1.65E-07
Number of nitrate ions	2.46
RIE_ammonium (from field calibration)	4.70
MW_ammonium/MW_nitrate	2.90E-01
IE of ammonium	2.25E-07
Number of ammonium ions	3.35
Total ions	5.81

We have revised the statement of 100 ions to 6 ions and changed the y-axis unit in Figure 5 to "bits*ns".

We are sorry again for the confusion. We will response to the other comments in a separate document.

Sincerely,

Shang Liu and coauthors