We appreciate reviewer #1 for his/her further comments on our manuscript. Following the reviewer's suggestions, we have revised the manuscript accordingly. Listed below are our response to reviewer #1's comments.

Response to Reviewer #1

The authors have addressed most of my major comments in the revised manuscript. Below are a few comments regarding pON quantification by different methods that have to be addressed before publishing in AMT.

1) Page 4, NOx method: By assuming most of the NO and NO_2 signals observed during high NO_3 loadings, R_{AN} of 2.8 and 2.2 are likely higher than that of pure ammonium nitrate due to the presence of pON in ambient. I suggest to provide this information and highlight the potential impacts on pON quantification (e.g. over- or under-determined).

Following the reviewer's comments, we added the following description in Page 4:
"Note that $NO_{3,org}$ loadings calculated by "NO_x method" were slightly underestimated in winter in this case due to the organic nitrate contribution even in a period with high NO_3 loadings."

2) Page 4, Lines 22: It is somewhat confusing to use "pure ammonium nitrate" here as my understanding is that the R_{AN} values used in this study cannot be obtained by pure ammonium nitrate.

These descriptions in Page 4, line 20-22 are the previous study in summer in NYC regarding factor analysis of combined organic and inorganic aerosol mass spectra. The R_{AN} values were determined from pure ammonium nitrate.

To avoid confusion, we added the sampling site and time in those descriptions:
"For instance, Sun et al. (2012) performed factor analysis on combined organic and inorganic aerosol mass spectra and found that the NO^+ and NO_2^+ ions in the nitrate factor were dominantly from inorganics, and the ratio of NO^+/NO_2^+ was close to that of pure ammonium nitrate, while those in OA factors with high NO^+/NO_2^+ were generally assumed as organic nitrates in summer in New York City"

3) Page 5: TD-AMS method: I would like to follow up my previous comment on the TD-AMS method. Can the authors conduct sensitive test (e.g. varying the MFR in equation 1) to evaluate the impacts on pON quantification and RON values from equation 7?

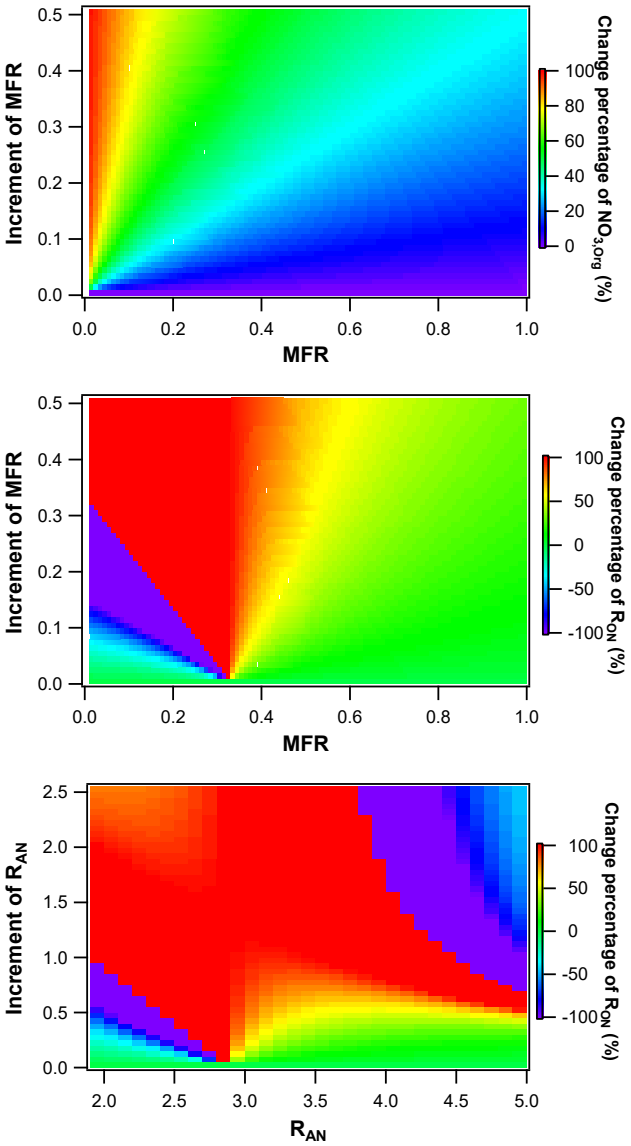

Figure R1. Dependence of increment of MFR (R_{AN}) vs. MFR (R_{AN}) on the change percentage of R_{ON} and $NO_{3,Org}$. The summer data were used as initial independent variables in equation 1-7.

Figure R1 shows the possible coverage of the change percentage of R_{ON} and $NO_{3,Org}$ as increment of MFR (R_{AN}) and MFR (R_{AN}). The increment of MFR was in the range of 0 - 0.5 with a step of 0.01, and the MFR varied from 0 to 1. The R_{AN} varied from ~2 to 5, and the increment of R_{AN} was in the range of 0 - 2.5 with a step of 0.05.

As shown in Fig. R1, the change percentage of $NO_{3,Org}$ and R_{ON} showed overall increasing trends as the rises of increment of MFR at a fixed MFR. The average MFR of the N-containing ions varied from 0.31 to 0.37 during three campaigns, and we assume that the maximal increment of MFR was less than 0.1 (standard deviation of MFR of the N-containing ions at T = 90 °C). In this case, the change percentage of $NO_{3,Org}$ was less than ~20%, suggesting that the impacts of variation of MFR on pON

quantification were relatively low. Comparatively, the change percentage of R_{ON} was relatively high, suggesting the impact of accurate determination of MFR on R_{ON}.

We also conducted sensitive test regarding the impact of R_{AN} on R_{ON} values (since the pON quantification was independent of R_{AN}). The average R_{AN} varied from 2.2 to 3.8 during three campaigns, and we assume that the maximal increment of R_{AN} was less than 0.5. As shown in Fig. R1, the change percentage of R_{ON} was highly influenced by a R_{AN} rise of less than 0.1, implying the importance of accurate determination of R_{AN} in TD-AMS method.

Following the reviewer's comments, we added:
"The sensitive tests of $NO_{3,Org}$ and R_{ON} with the variation of MFR and R_{AN} are shown in Fig. S5, demonstrating the impact of accurate determination of MFR and R_{AN} on R_{ON} in "TD-AMS method"."

4) Page 9, line 16: Refer to my comment #7 in my previous review, it is important to provide the confidence level (90% in this case) in the main text here and to mention diurnal profiles of R_{ON} has been added in the SI.
Revised.