The manuscript presents a TD-CRDS by coupling with a denuder to measure NO_2, peroxy nitrates (PNs), alkyl nitrates (ANs), and HNO_3 in the gas and particle phase. These mentioned NOy species are pyrolyzed under there corresponding temperature windows and produce NO_2. NO_2 was then measured by a single commercial cavity ring-down NO_2 detector. They showed a feasible way to measure these species in chamber and field studies. They characterized the interference of N_2O_5 under high oxidants condition, and also assessed the interference of the recombination reaction by a model study. This work is valuable, but some comments should be addressed before publication.

General comments.

1. This work presented the results of the field measurement, but the interference caused by NO in the measurement system had not been considered. The related problems have been studied systematically in the article by Crowley group (e.g., Thieser et al., AMT, 2016; Sobanski et al., AMT, 2016). To make sense, this issue should be discussed.
2. Line 127-128, "a liner change," is confused, which is not consistent with Eq. 2. For example, PNs equal to Oven3 minus Oven4, which means the NO_2 concentration is not changed during the period of Oven3 and 4. In addition, the time resolution for a cycle is 8 minutes. On this time scale, the NO_2 concentration may change due to the emission. A parallel NO_2 measurement might helpful in dynamic subtraction.
3. Line 150, since the aerosol and gas-phase species, have losses in the denuder and tube, and the aerosol result also affects the following subtraction of gas data, which means the corrections are necessary (the corrections are also important and not easy). The detailed corrections should be added in eq. 2 and well summarized in Sect. 3.9.
4. How about the uncertainties of the measurement of these NOy species?
5. Before the heated gas and aerosol flowing into the CRDS, do you add a membrane to filter aerosol, if a membrane used, how about the frequency of the filter change, does trapped aerosol have the influence of on the measurement?
6. I believe this system is more suitable for chamber study. According to the reported ANs measurement in the previous literatures, the detection capacity of this instrument should be improved for better performance in the field measurement. Figure 9 also showed the ANs below the LOD (0.66 ppbv) in this field study.

Specific comments.

7. The temperature of the PNs measured in this article is only 130+273 K, is it possible due to the standard samples used in this work is much different with the standard samples applied in previous references, or the measured temperature is not equal to the real temperature in the oven?
8. Line 78, delete the redundant "Nitrogen".
9. Line 141, how about the time resolution of CRDS-NO_2, 1 s, 5 s or 10 s? please clarify it in the manuscript.
10. Line 161, "the interference of organic nitrates in the chemiluminescent

measurement," you mean the organic nitrates have the interference of NO2 measurement in CL detector?

11. Line 284-285 Knopf et al., 2015 missed in the reference list.
12. Line 251, "Error is the standard deviation.", no errors listed here. The column format is not uniform in Table 2
13. Line 268, how long is the zero regular interval in general?
14. Figure S4, since the linear model labeled as dash line, this figure needs to revise.
15. Table S1 C3H70 correct to C3H7O
16. Figure S5, "left" and "right" in the caption correct to "top" and "bottom".

Ref

Thieser, J., Schuster, G., Schuladen, J., Phillips, G. J., Reiffs, A., Parchatka, U., Pohler, D., Lelieveld, J., and Crowley, J. N.: A two-channel thermal dissociation cavity ring-down spectrometer for the detection of ambient NO2, RO2NO2 and RONO2, Atmos Meas Tech, 9, 553-576, 10.5194/amt-9-553-2016, 2016.