

Atmos. Meas. Tech. Discuss., referee comment RC2  
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## Comment on amt-2021-195

Anonymous Referee #2

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Referee comment on "Far-ultraviolet airglow remote sensing measurements on Feng Yun 3-D meteorological satellite" by Yungang Wang et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2021-195-RC2>, 2021

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### Review Report

The manuscript describes the data and products from an ionospheric photometer (IPM). The IPM measures FUV emissions, such as O 135.6 nm and N<sub>2</sub> LBH bands. It is a sensitive instrument. The data products include TEC, NmF<sub>2</sub> and O/N<sub>2</sub> column density ratio. They are useful data products. However, it lacks of details on the methods for estimating these products. The O/N<sub>2</sub> product is not validated or compared with existing O/N<sub>2</sub> data from other missions. Some of the O/N<sub>2</sub> features, likely artifacts, are not discussed.

### Specific comments

- Are the IPM data open to public for an independent evaluation since that data in published papers are usually required to be accessible by public?
- IPM calibration was done on ground. Was IPM calibrated in orbit?
- Fig 2 (nightside channel). The non-zero responsivity around and below (likely) 130 nm suggests it is possible to pick up bright Lyman  $\alpha$  emission around 121.6 nm. A discussion on this will be helpful.
- Fig 3. Dayside. Both bright 130.4 and 121.6 nm emissions could contribute the 135.6 channel.
- Figure 4. The LBH band includes emission of N-1493, NO  $\epsilon$  band, etc. Does the algorithm ignore the impact of none N<sub>2</sub> LBH emissions?
- Fig 5. It is necessary to show the data from the red leak channel. Furthermore, what is the responsivity of the red leak channel?
- Fig 6b. Change the color bar to show the equatorial arcs. Is the SAA contamination removed in the same way as the red leak? If yes, why can it be done this way? If not,

