

Interactive comment on “PHOCUS radiometer” by O. Nyström et al.

Anonymous Referee #2

Received and published: 7 March 2012

The article "PHOCUS radiometer" by O. Nystrom, D. Murtagh, and V. Belitsky describes a submillimeter wave receiver designed for deployment on a rocket in order to measure water vapor content of the upper stratosphere and the mesosphere.

The need of such an instrument is motivated in the introduction.

The design and characteristic of the instrument have been described in detail and the choice of different calibration techniques has been discussed. Results of pre- and post-flight calibration measurements have been presented and are analysed in some detail. The in-flight calibration has been evaluated and problems found in the design have been analysed and improvements of the design are suggested.

A single measurement has been presented which at least shows that the instrument works as intended, however, the authors made clear, that very carefull calibration is required to make use of the data. Though the authors leave it open, I guess, the whole

C168

dataset will be presented in a later publication.

The article matches the intention of the journal, to present new techniques for measuring quantities of the atmosphere. The article is well written and should be published after considering some minor details listed below, which are, however, mainly of technical nature.

General ———

The section 6 which describes the horn antenna belongs in my view to the section 2, the description of the instrument.

Please introduce abbreviation before using them. Without completeness:

CW onm the abstract, LO at page 275 line 19 FFT on page 275 line 19 and other places FEM on a few places.

page 273 line 10

please include the source of information to this satellite.

page 275 line 7-8

Is there any source for more information on the rockets? Please cite.

page 280 line 16. The formula is missing.

The authors use mainly Fig. and Figs. bit sometimes Figure for references to figures (e.g. page 284 line 2). Please use consistently.

Figure 1

append the numbers with units.

Figure 3 The scheme is a repetition of parts of the scheme in figure 2 and should be removed.

Figure 14 I would suggest to repeat the temperature at which those measurements

C169

were taken in the figure caption to further readability.

Figure 11 but also in the text.

The standard deviation should become lower as the channel width becomes larger. This is actually reflected in the measurements, but not in the theoretical calculation.

The figure 27 is not mentioned anywhere in the article.

Interactive comment on Atmos. Meas. Tech. Discuss., 5, 271, 2012.