

We thank the reviewer for the positive comments and for recommending publication of our manuscript. Please find below the response to your points.

Specific comments

- A) Where the tables 1-3 indicate a range of estimated uncertainty for a parameter, what uncertainty value was used in the sensitivity analysis? (This should be described in the text).

Indeed, we agree this should be specified. Uncertainty ranges are indicated only when the uncertainty value of the spectroscopic parameter depends on the specific resonant line. We have now added a sentence in Section 2.1 line 163 to clarify this:

“It shall be noted that uncertainty ranges are indicated in Tables 1-3 when the uncertainty value of the spectroscopic parameter depends upon the specific resonant line.”

- B) Eqn 4: should the limit be as " $\nu_0 \rightarrow 0$ " rather than " $\nu \rightarrow 0$ "?

Thank you for spotting this notation inconsistency.

- C) Lines 237-239. This sentence is confusing to me. I read it as saying that most channel passbands are at least 100 MHz from line centres (OK so far), and then it goes on to say that this is true for ICI channels at 325.15 \pm 1.5 GHz (sidebands 1600 MHz wide) and 664 \pm 4.2 GHz (sidebands 5000 MHz wide). In these examples, the sideband widths are larger than the offset from the central frequency meaning they overlap around the central frequency, so surely these bands do include the spectral line centre?

Thank you for this comment. We agree this statement might be misleading, we have now rephrased it as follows.

“It shall be noted that all double-sided channels in Table 4, but MWI channel 13, have half-bandwidth smaller than the detuning from the line center, with passbands at least 700 MHz away from any line center, and thus far from the range impacted by the impulse. Similarly, MWI

channel 13 is not affected by the impulse because it is located away from any resonant line absorption."

Typographical

D) Line 21: "RTM represents" -> "RTM represent" (consistent use of RTM == radiative transfer models plural).

We have changed it accordingly.

E) Line 71: "from 183 GHz and 664 GHz" -> "from 183 GHz to 664 GHz".

We have changed it accordingly.

F) Inconsistent use of "vapour" and "vapor" throughout the text.

We have now opted for "vapour" throughout the paper.