

The authors want to express their gratitude for such thorough reviews. Below are attached the answers for each of the comments.

Report #1:

The authors have carefully addressed all comments point by point. And detailed clarifications and supplementary explanations with tracked changes are also added in the revised manuscript. But some technical corrections are still needed, e.g., it is best to place the two different color bars on the right side of the corresponding subgraphs in Figure 9.

Thank you!

- **ANSWER:** The colorbar location has been changed.

Report #2:

Minor comments:

Line 9 (L9): “for validation”.

- **ANSWER:** Changed by “for the assessment” since it applies to the whole of it.

L132: Include a space between “if” and “TB”.

- **ANSWER:** Done

L133: I suggest replacing “Applied to all instruments.” with “We apply this detection algorithm to all assessed instruments.” A similar revision could be applied to the descriptions of the other filters in order to improve the semantic consistency of the text.

- **ANSWER:** Done

General comment on “RFI Detection techniques” section: I feel that some methodological details are missing in the description of the algorithms, probably because these methods already exist in the literature. Nevertheless, it would be useful either to provide references where these methods are described in more detail or to include a brief explanation of some aspects of the methodology. For example:

1) Why is there a need to introduce a latitudinal dependence in the definition of some thresholds?

ANSWER: Added explanation in lines 169 to 172.

2) In the image-enhancement method, why were these specific values selected for the convolution matrix instead of other possible choices?

ANSWER: Added references Cavalieri et al. (1984) and Gonzalez et al. (2018)

L162: Define “Pfa” immediately after “False Alarm Probability”.

- **ANSWER:** Done

L203: Please define “erfc”.

- **ANSWER:** Done

Figure 2: Please indicate the corresponding color bar. The same comment applies to Figures 3a and 4.

- **ANSWER:** Done

L215: I believe that, with the equation: “ $g(y_1) = \max f_X(x_1, y_1)$ ” the authors actually mean something closer to: “ $\bar{g}(y_1) = \{x : f_X(x, y_1) \text{ is maximum}\}$ ”. In other words, my interpretation is that the difference between Figures 2 and 3a is that Figure 3a removes the brightness temperature corresponding to the maximum probability for each fixed latitude, rather than removing the maximum probability itself.

- **ANSWER:** You are correct, this is the proper notation for the equation.

L216: “x1” should probably be written as a subscript.

- **ANSWER:** Done.

Figure 3a: Should the x-axis label correspond to latitude?

- **ANSWER:** Done

Figure 3b: This figure is somewhat confusing to me. If the integration is performed along the x-axis of Figure 3a, the result should be a 1-D histogram rather than a probability distribution function. The probability distribution would be obtained after accumulating the histogram values. As currently presented, my interpretation is that Figure 3b shows a normalized version of the integrated occurrences of the 2-D histogram in Figure 3a as a function of latitude. I would suggest rotating the plot and placing (ΔTB) on the x-axis. Then, above Figure 3b, the actual cumulative probability function derived from the 1-D histogram could also be included.

- **ANSWER:** The division by the total area is missing in the and has been added. The accumulation of the histogram would lead to a cumulative distribution function rather than the CDF. We prefer not to rotate the figure so it is visually easier to follow.

Figure 4: The different green lines are difficult to distinguish. Please consider using different colors or line styles.

- **ANSWER:** Changed by other colors. The colorscale of the image difficults to use a broader set of colors.

Figure 5: The figure is difficult to interpret clearly. I understand that the authors likely attempted to find the best way to illustrate the results. One possible alternative could be to merge all panels into a single larger map using different monochromatic color scales for each frequency band. For example, in Python, one could use red shades for 6.9 GHz, green for 7.3 GHz, blue for 10.7 GHz, purple and grey for the remaining bands, while masking regions with no detected RFI in white. In regions where overlaps occur, zoomed-in panels at different frequencies could be added (similar to what is already shown in Figure 7). Figure 6: Similar comment as for Figure 5. Additionally, what happens in Figure 6a? Does it correspond to a different spatial coverage?

- **ANSWER:** The authors tried to try to “update” the plot from that paper, but adding different color scales in the same plot resulted very chaotic when the elements overlapped, since the combination of colours is difficult to understand and RFIs are expected in similar areas (urban, for instance). The colorscale has been changed to try to make it easier to understand, also the plots are larger now. Indeed, figure 6a lacks coverage due to the different orbital plane. The new plots do not require such explanation.

L307: The publication year is missing in the citation “(Wentz et al.)”.

- **ANSWER:** Done.

I believe that separating Figure 8, Table 3, and the discussion in lines 302–320 into a dedicated subsection (e.g., “4.1 Case Study at 23.8 GHz”) could strengthen the manuscript by highlighting the importance of this result, particularly since this appears to be the first report of RFI contamination at frequencies that will become increasingly relevant for 5G telecommunications.

- **ANSWER:** The authors considered this but believe that. Moving the 23.8 GHz case from the global analysis to a dedicated subsection would create a gap in the sequential description of the bands that would be unnatural, and prefer to keep it like this.

Figure 9: Please place the first color bar before the second panel of the figure.

- **ANSWER:** Done.

L406: Include a space in “coastlines.Regardless”.

- **ANSWER:** Done.

My final comment concerns the overall structure of the manuscript. In my opinion, it might make more sense to place the validation section (currently Section 5) before the main results sections (Sections 3 and 4). In fact, Sections 3 and 4 could potentially be merged into a single “Results” section with two subsections, for example: 4.1 General assessment of the RFI environment 4.2 Specific case study of the 5G-related band

- **ANSWER:** The authors considered this structure at the beginning. The document was finally structured following the project flow: the EORFIScan produces the RFI Probability maps and the flagged products, and then the products are ingested by ECMWF pipeline. The RFI probability maps are the first outcome to be observed, and therefore they are the first presented. Furthermore, the validation section points to figures in the results sections and not vice versa, which for us is a strong point to place the results section first.