Authors' Replies to Comments by Reviewer 2

First of all, the authors would like to thank you, Reviewer 2, very much for your time and effort spent in going through this manuscript. We appreciate all of your insightful comments and have worked very hard to be responsive to them. Below we respond to your specific comments point by point.

COMMENT 2.1*: The inclusion of more references could bolster the paper's academic standing. Drawing connections to existing research on passive bistatic radar signal processing, especially those leveraging GPU acceleration, would provide a richer context for the proposed scheme. Additionally, a brief exploration of potential future avenues for research in this domain could enhance the paper's contribution to the field.*

Reply: Thank you very much for your positive comments and the references provided, which will be a great reference for our future work. I have added more relevant and high-quality references to the paper in order for the reader and researcher interested in implementing similar techniques to have a more comprehensive understanding.

We have added seven references to support key elements of the paper, namely [17], [18], [19], [20], [24], [25] and [31].

COMMENT 2.2*: The conclusions, while promising, could benefit from a more nuanced discussion of the limitations of the proposed scheme. Addressing potential challenges or scenarios where the acceleration ratio might vary could provide a more comprehensive understanding for readers and researchers interested in implementing similar techniques.*

Reply: This comment is highly appreciated. We have re-written the conclusion section to address the limitations of the proposed program and outline the future research directions.

GPU technology continues to improve, and it is foreseeable that GPUs will be rapidly upgraded in the future in terms of architectural optimization, increasing computational density, increasing video memory bandwidth, improving branch prediction, etc., so it is necessary to continue to pay attention to new developments. In the research process of this paper, although the CUDA parallelization of the key algorithms of the passive bistatic radar signal processing flow was realized and good acceleration results were achieved, some shortcomings in the work were also found. For this topic, more in-depth research and improvement can be carried out in the following aspects in the future:

- Considering that problems such as obvious branching delays and slow data intercommunication at the device side of the host can occur when the amount of data is too large or the complexity of the program increases, further design of the algorithm can be accomplished in the future by using parallel methods such as CUDA streams and Tensor Cores in order to achieve more efficient parallelization.
- Further optimization of the algorithms of the passive bistatic radar signal

processing modules. In view of the incomplete clutter suppression, more innovative clutter suppression algorithms such as iterative cancellation method with Singular Value Decomposition (SVD) combined with Entropy Change will be considered.

- In this paper, only parallel acceleration of a single type of GPU is studied and tested. If there are experimental equipment conditions, we can add the acceleration ratio test experiments under different GPU models of the same CPU model.

It is envisioned that such systems could play an important role in the current generation of spectrum limitation and can be used with the critical applications of the system information that requires very low latency (e.g., self-driving cars).

COMMENT 2.3*: The paper makes a valuable contribution to the field of passive bistatic radar signal processing, leveraging GPU acceleration for enhanced efficiency. Minor revisions, including the addition of relevant references and a more nuanced discussion of conclusions, would further strengthen the paper's impact and appeal to a broader audience of researchers in the radar technology domain.*

Reply: Corrected. Thank you so much for your encouraging comments and your very good suggestions above, which are a tremendous help to improve the paper.

Finally, the authors are again grateful to you, Reviewer 2, for your time and effort to make this paper a much better one.