Response to the referee report:

We would like to thank the referee for the pertinent comments on our manuscript. According to the comments, we have made corresponding changes, which leads to improvement of the manuscript. Following the referee’s suggestion, we have added a paragraph (the end of Section 4, Page 12) to discuss the relevant issue:

“Finally, we note that in this study we have not considered the cosmological perturbations in these models. Since we do not know the physical nature of dark energy, we actually do not know how to properly describe the perturbations of dark energy. Under such circumstances, the usual scheme is to follow the treatment of other components for describing the perturbations of dark energy, i.e., treating dark energy as some fluid and considering it in the framework of hydromechanics under general relativity. In this treatment, we still do not know how the sound waves propagate in the dark energy fluid, and thus we need to impose a rest-frame sound speed for dark energy by hand, which sometimes leads to divergence of dark energy perturbations. For example, it is well-known that the perturbation divergence will happen at the point of w crossing -1 [85]. It was also found in [47] that in the models of interacting dark energy, for some regions in the parameter space, a kind of early-time super-horizon perturbation divergence also appears. To avoid such instabilities, a parametrized post-Friedmann (PPF) framework for interacting dark energy was established [57,58] (which is an updated version of the original PPF [86]). Using the PPF approach, the perturbations of dark energy can be considered appropriately, and the observations of structure growth (such as weak lensing and redshift space distortions) can also be considered in the cosmological fits. But in this study, for economical reason, we do not consider the cosmological perturbations in our calculations, and we only use the observations of distance information to constrain the models. A recent work [87] shows that a reconstruction method can be used to avoid the undesirable instabilities in the interacting dark energy models, but this treatment will lead to a modification for the corresponding background model, and the parameter estimation would also be changed accordingly. Thus, here we wish to remind the reader that the constraint results obtained in this paper should be treated with caution. Actually, a further step is to investigate the IHDE models within the PPF framework by considering both observational data of expansion history and structure growth.”

It can be seen that we have tried our best to revise the manuscript totally following the referee’s comments. We believe that the quality of the paper has been improved after the revision. We wish that the revised version could make the referee satisfactory.