nization error is defined as the error arising among different separated receivers. We assume that two subarrays are located in the different far field, then those are not connected by cable cannot be synchronized perfectly. Fig. 9 shows location RMSE of the proposed method versus the synchronization error between two subarrays, where method 4 is used for virtual array configuration and iteration time is 5. The synchronization error is added to $\delta_1, \delta_2$, and its variance is defined as Gaussian distribution.

We can see that phase synchronization between two subarrays is important for the proposed method because RMSE becomes larger as error variance increases. The proposed method can achieve smaller RMSE the conventional one when the error variance is smaller than 0.02 $\lambda^2$.

V. CONCLUSION

In this paper, we proposed a new localization method based on AOA. The objective of the proposed method is to improve localization accuracy without increasing antennas. This method estimates rough source location by initial estimation, share snapshots of coherent subarrays, and iteratively update source location by update estimation. We showed that the proposed method localizes a source more accurately than the conventional method when the reference point of virtual array is a real element and the phase synchronization error between two subarrays is smaller than 0.14 of a wavelength.

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